1. NAME AND LOCATION OF PROPERTY

Historic Name: Pottawattamie County Jail and Sheriff's Residence

Other Name/Site Number: Squirrel Cage Jail

Street and Number (if applicable)**:** 226 Pearl Street

City/Town: Council Bluffs **County:** Pottawattamie **State:** Iowa

Designated a National Historic Landmark by the Secretary of the Interior, December 11, 2023.

2. SIGNIFICANCE DATA

NHL Criteria: 4

NHL Criteria Exceptions: N/A

NHL Theme(s): III. Expressing Cultural Values
5. Architecture, Landscape Architecture and Urban Design
VI. Expanding Science and Technology

Period(s) of Significance: 1885-1889

Significant Person(s) (only Criterion 2)**:**

Cultural Affiliation (only Criterion 6)**:**

Designer/Creator/Architect/Builder:

Architects/Engineers
Eckel and Mann, architects, St. Joseph, Missouri
William H. Brown, Supervising Architect
Haugh and Ketcham Iron Works, Indianapolis, Indiana
Builder/Supplier
Wickham Brothers, contractors, Council Bluffs, Iowa

Paperwork Reduction Act Statement. We are collecting this information under the authority of the Historic Sites Act of 1935 (16 U.S.C. 461-467) and 36 CFR part 65. Your response is required to obtain or retain a benefit. We will use the information you provide to evaluate properties nominated as National Historic Landmarks. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number. OMB has approved this collection of information and assigned Control No. 1024-0276.

Estimated Burden Statement. Public reporting burden is 2 hours for an initial inquiry letter and 344 hours for NPS Form 10-934 (per response), including the time it takes to read, gather and maintain data, review instructions and complete the letter/form. Direct comments regarding this burden estimate, or any aspects of this form, to the Information Collection Clearance Officer, National Park Service, 12201 Sunrise Valley Drive, Mail Stop 242, Reston, VA 20192. Please do not send your form to this address.

Historic Contexts: *Rotary Jails in the United States, 1882-1969 Assessment of Significance and National Historic Landmark Recommendations* (July 2019)

Architecture, Science and Technology

3. WITHHOLDING SENSITIVE INFORMATION

Does this nomination contain sensitive information that should be withheld under Section 304 of the National Historic Preservation Act?

___ Yes

_x_ No

4. GEOGRAPHICAL DATA

1. **Acreage of Property:** Less than one acre

2. **Use either Latitude/Longitude Coordinates or the UTM system:**

   Latitude/Longitude Coordinates (enter coordinates to 6 decimal places)**:**
   Datum if other than WGS84:

   Latitude: **Longitude:**

   OR

   UTM References:

   Zone 15 Easting 261072 Northing 4571297

3. **Verbal Boundary Description**:
   Part of lot 11, Block 14, Bayliss First Addition to the City of Council Bluffs, Iowa, described more fully as: Beginning at the northwest corner of Lot 11, Block 14, Bayliss First Addition the S 79 degrees E. 73.27 feet to the Point of Beginning, thence continuing East 24 feet, then south 60 feet, then west 30 feet, then N 26 degrees west 22.79 feet, then north 10 degrees west 38.79 feet to the POB. To the north is Willow Avenue, to the south is 5th Avenue and 6th Street is to the west. The Union Pacific Railroad Museum (originally the Carnegie Public Library) is to the north; The Pottawattamie County Courthouse is located to the southwest.

4. **Boundary Justification:**
   The nominated property includes the parcel historically associated with the Pottawattamie County Rotary Jail and Sheriff's Residence. While the property in front of the building has been altered by the addition of a sidewalk leading to the main entrance and three parking spaces accessed from Pearl Street, the overall lot size and shape has not changed.

5. SIGNIFICANCE STATEMENT AND DISCUSSION

INTRODUCTION: SUMMARY STATEMENT OF SIGNIFICANCE

The Pottawattamie County Rotary Jail and Sheriff's Residence, located at 226 Pearl Street in Council Bluffs, Pottawattamie County, Iowa, is nationally significant under National Historic Landmark Criterion 4 for its distinctive architecture and design that combines a sheriff's residence with a unique form of incarceration. Designed in 1882-1884 and constructed in 1885, the Pottawattamie County Rotary Jail and Sheriff's Residence is an excellent example of a unique prison cell type that was designed as an economical alternative for the county jail system during the late nineteenth century. The Pottawattamie Rotary Jail is the only extant example of a three-tier rotary jail, the largest rotary jail system constructed. Designed by the St. Joseph, Missouri, architectural firm of Eckel and Mann in 1882-1884, with William H. Brown, supervising architect. Benjamin Haugh of Haugh & Ketchum Iron Works, Indianapolis, Indiana, designed the rotary jail and mechanism. The property also represents NHL Theme III, Expressing Cultural Values: 5. Architecture, and Theme VI, Expanding Science and Technology. The period of significance extends from 1885 to 1889, reflecting the timeframe in which the rotary jail represented nationally significant trends in penal reform.

The Assessment of Significance and National Historic Landmark Recommendations, "Rotary Jails in the United States: 1882-1969" provides the larger historic context for this nomination. Additional research was completed on the Pottawattamie County Rotary Jail and Sheriff's Residence, as well as on other rotary jails built between 1882 and 1888, during the preparation of this nomination. On August 6, 1980, the Pottawattamie County Jail and Sheriff's Residence was documented for the Historic American Buildings Survey under "Pottawattamie County Jail," HABS No. IA-88. The building was listed in the NRHP as "Pottawattamie County Jail" on March 16, 1972.

The Pottawattamie County Jail and Sheriff's Residence is an excellent example of a unique prison cell type that was designed as an economical alternative for the county jail system during the latter portion of the 19th century. The "Rotary Jail" is a separate manufactured cage unit, built of iron and steel that was invented by Benjamin F. Haugh and William H. Brown of Indianapolis, Indiana. By 1889 a total of eighteen rotary jails were located within fourteen states. These jails were located in small rural counties where a financial advantage and easy management was important to the communities. The size of the jail cage ranged from one to three stories, holding a minimum of sixteen prisoners, as in Daviess County, Missouri, to a maximum of sixty as seen in the rotary jail located in Pottawattamie County, Iowa. Currently, only two rotary jails remain intact, this three-story jail in Pottawattamie County, Iowa, and a two-story facility located in Montgomery County, Indiana. Only the mechanism in the Montgomery County jail still rotates.

The unusual design of the Pottawattamie County Rotary Jail and Sheriff's Residence exemplifies the use of technology to address the philosophical, economic, and social change in rural America in the late 19th century. The rotary technology, nationally significant for its innovative engineering solution, offered an economic solution to small county government systems by solving the problem of costs incurred from the necessity of incarcerating local law breakers. Additionally, it was the intention of Benjamin F. Haugh and William H. Brown that their invention offered a safe, secure, and humane structure for the purpose of incarceration as a scientific means of addressing the many suggested and mandated social reforms of the prison system during the late 19th century.[1]

[1]Prison reform, during the mid to late 19th century, was a topic of great concern for both government officials, as well as social reformers like Dorothea Dix. In addition, numerous publications offered solutions and recommendations to improve the conditions

The design for the Pottawattamie County Rotary Jail was the largest of the six rotary cage jails developed by Haugh and Brown. Additionally, Pottawattamie is the only existing three-tier cage unit containing ten cells per tier. The envelope, designed by Eckel and Mann and constructed as one building, originally housed both the sheriff's residence and the rotary jail cells in separate areas of the building. The rotary jail cage unit was manufactured according to plans based on Benjamin F. Haugh and William H. Brown's 1881 Patent No. 244,358 and is located to the rear or west of the Sheriff's residence.

This building provides an example of the progressive social reforms implemented by the Pottawattamie Board of Supervisors when the old county jail, then located in the basement of the old courthouse, was in a deteriorated condition. The rotary jail was promoted to the county as a cost-effective way to replace the dangerous building and improve the quality of their county prison system during the late 19th century.[2] A team of county supervisors was assembled to examine the new Nodaway County Rotary Jail and Sheriff Residence built by the Haugh firm as designed by Eckel and Mann of St. Joseph, Missouri. After viewing the rotary jail, the group traveled on to St. Joseph, Missouri, to view the new Buchanan County Courthouse, designed by architect P. F. Meagher, who Eckel worked with early in his career.[3] After completing the examination of the two facilities, the Pottawattamie County Board of Supervisors was able to finalize approval for a new rotary jail and sheriff's residence.[4]

Subsequent to the completion of the Pottawattamie County Jail, Brown revised his patent to include a weight-bearing nut at the top of the central column so that the weight of the cell was suspended from the ceiling instead of being supported from below, as with the earlier patent.[5] Brown's redesign also ensured that the cylinder stayed in proper alignment with "large iron inverted casters beneath the first floor."[6] In addition to being the first use of this suspended system, the Pottawattamie Rotary Jail is the only extant rotary jail that features this patent improvement made to the central support column under Patent No. 360, 508 in 1887.[7]

Possibly due to the extreme weight of the rotating jail cage (accounts estimate the weight exceeds 45 tons) installed in the Pottawattamie County Jail, the mechanism often malfunctioned but continued in use until 1960. The jail, condemned from time to time over the course of its history for a variety of reasons, was a serious health hazard, but remained in use. The rotary portion was fixed in place in 1960 with concrete inserted around the base of the rotational shaft while some of the gears in the turning mechanism were removed.

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resulting from poor prison management prior to the American Civil War. Following the war, ca. 1869, documentation of the state of county jails was conducted by Dr. E.C. Wines, Secretary of the National Prison Association of the United States. Further details regarding Wines studies are included later in this narrative.

[2] Pottawattamie County Supervisor's Minutes from 1884-1885. Pottawattamie County Government Center, Office of the County Clerk. Records Department. NOTE: While the minutes identified Mayville as the location of the rotary jail visited, there is no Mayville. Therefore, dates of construction for the rotary jails, located one each, in Maryville and Maysville, Missouri were examined to determine the locations visited by the supervisors. Maryville, in Nodaway County Missouri was already in use whereas, Mayville was not open until after Pottawattamie was completed.

[3] Noelle Soren, "Edmond Jacques Eckel House" National Register of Historic Places Nomination, September 20, 1979, 5.

[4] Walter Lunden claims that the county officials visited Maryville, where a Rotary Jail and Sheriff's residence was constructed in 1882. Ryan Roenfeld states that they made a trip to Mayville (*sic*). Undoubtedly an error, the officials could also have visited Maysville, where another Rotary Jail was constructed in 1885. Eckel and Mann designed the jails in both Maryville and Maysville, communities only 68 miles apart.

[5] William H. Brown, assignor to Charles H. Sparks. U.S. Patent Number 360, 508, April 5, 1887.

[6] Lunden, *Journal of the Society of Architectural Historians*, 151.

[7] William H. Brown, Patent No. 360, 058, April 5, 1887.

Much of the prison atmosphere at the time of its closure remains intact. Graffiti of the former prison population is scattered across the walls of the bullpen on the first floor and within the cells leaving the appearance of a recently vacated prison facility. This building is listed on the National Register of Historic Places (March 16, 1972). The Pottawattamie County Rotary Jail and Sheriff's Residence is known as the Squirrel Cage Jail Museum and serves as the home of the Pottawattamie County Historical Society.[8]

PROVIDE RELEVANT PROPERTY-SPECIFIC HISTORY, HISTORICAL CONTEXT, AND THEMES. JUSTIFY CRITERIA, EXCEPTIONS, AND PERIODS OF SIGNIFICANCE LISTED IN SECTION 2.

HISTORIC CONTEXT

When the first rotary jail was constructed in 1882, three primary forces influenced the decision of county board of commissioners to choose a rotary jail over the more common block style jails that were the norm of the period.

- First, and foremost, the prison reform movement's call for a modern, safe, humane facility to house prisoners.
- Second, technological advances that occurred following the Civil War helped to improve and modernize construction methods for jail facilities.
- Third, as the cost of construction was based on regional economics, cost efficiency was a priority for county governments that relied heavily on voter approved tax dollars.

Background: Prison and Social Reform in the United States: 1830 to 1880

After the Civil War, most of the jails across the United Sates were severely outdated. Some communities relied on nothing more than windowless root cellars featuring thick solid wood doors. The earliest prisons in the U.S. had been fashioned out of old guardhouses left over from British military posts from the pre-Revolutionary War era, while many others were little more than stone, brick or log buildings that resembled the area's most primitive architecture, many of these jails were still in use up to and through the Civil War.[9] Often eyesores in the community, many old jails were dark, damp and without ventilation thereby, creating an unhealthy environment. Some were dangerously close to collapsing and allowed for the easy escape of prisoners.

To address the deplorable conditions under which criminals were confined for punishment, prison reform became a priority in both European and American societies. Various parallel reform movements advocated for changes in the penal system that involved improved prison design, in order to create a healthier and more sustainable prison environment. They also called for better treatment for the poor, the criminal, women, children, and the insane who found themselves incarcerated among the nation's criminals.

During the 1830s, European reformers took great interest towards social reform in the U.S. Many traveled to the U.S. to consider new ideas and to view the American social landscape of a growing society. Among the items of interest to Europeans was the changing American policy regarding crime and punishment. Sponsored by the French government, Alexis de Tocqueville and Gustav Beaumont began their tour of America in 1831 to study the American prison system. As a result, de Tocqueville wrote his classic *Democracy in America, Part I* in 1835

[8]"Pottawattamie County Jail," National Register of Historic Places Nomination, U.S. Department of the Interior, March 1972.

[9]Theodore Calvin Pease, ed., "Courthouse Etc.: Law Series, Volume I". *Collections of the Illinois State Historical Library,* Vol. XVII (University of Illinois, 1925), 77-80. http://openlibrary.org/b/OL23310011M/laws_of_the_Northwest_Territory_1788-1800 Online book accessed February 22, 2010.

followed by *Part II* in 1840. De Tocqueville's analysis of America's political and civil society was immediately popular in both the U.S. and Europe.

De Tocqueville's study on the American penal system concluded that an increasing deterioration of order was spurred by the rapid growth and westward expansion of the country. He further stated that the 'republican thinking' of the gentrified populous created a fear within the social order of the upwardly mobile economic structure. In other words, society would be overrun by criminal activity unless something was done to keep criminals in line. The great pride that America's citizens had in their 'very open society' could instead produce the disorder and disarray that was feared. In this paradigm, the incarceration of criminals was tantamount to guaranteeing the safety of the republic.[10]

As early as the 1820s, the New York, or "Auburn System," and the "Pennsylvania System" were the first two new methods of penal correction to be established for adults and quickly became models for the rest of the nation. Although there were slight differences between these two state systems, both emphasized isolation, obedience, and labor. Reformers were divided in their preference for one system over the other. In most states, county jails served as pre-trial holding areas for male and female prisoners, alike. This standard operation also applied to delinquent boys and girls, and female prisoners with children. In the absence of other family members who could care for them, the children of female prisoners were placed in jail with their mothers.

Reform for humane treatment of female prisoners received relatively little attention during the early and mid-nineteenth century. In 1835, the Mount Pleasant Female prison, the first state prison exclusively for women, was built in New York State. Elizabeth Farnham was the first female matron to operate the prison. Mount Pleasant remained the only separate prison for women until it closed in 1865 because of overcrowding.[11] In 1870, the State of Michigan opened a reformatory or "shelter house" for women, where they received "intellectual, moral, domestic and industrial training."[12] In most states, county jails served as pre-trial holding areas for male and female prisoners, alike. This standard operation also applied to delinquent boys and girls, and female prisoners with children. In the absence of other family members who could care for them, the children of female prisoners were placed in jail with their mothers.

Criterion 4: Prison Design: Colonial Period to the Advent of the Rotary Jail in the Late 19th Century

Despite numerous calls for social reform, the architecture and administration of county jails remained virtually unchanged in many locations from the early Colonial period up to and through the Civil War. Building materials consisted of wood, brick, and stone, with wrought and cast iron used in the grating. Most small jails prior to the Civil War were secure yet simple block buildings that allowed the community to separate prisoners from the general population. Jails often resembled the buildings of the locale and were sited in close proximity to the county courthouse. In some areas, the local jail may have been no more than a root cellar dug into the side of a hill with wood planks serving as a door. Regardless of the community's solvency, it remained an expensive venture to operate a jail. Establishing the jail, hiring the sheriff and additional staff, and funding operating expenses, all required approval by the county's voters. Guarding prisoners, preparing and transporting meals, and distributing work to each individual cell was time consuming and needed a large staff to handle the workload. Thus, cost-effective design and construction became important elements of prison reform.

[10] *Ibid*, 115.
[11] *Ibid*, 337.
[12] *Ibid.*

Although disbanded by 1854, the Boston Prison Discipline Society was one of the most influential organizations at the time. This group considered architectural design a critical component of prison planning. Members focused attention specifically on the divisions of time and space, saying:

> There are principles in architecture, by the observance of which great moral changes can be more easily produced among the most abandoned of our race…. Other things being equal, the prospect of improvement in morals depends, in some degree, upon the construction of buildings.[13]

In the discussion of prison design, the Society noted that any jail building should be a model for the family and the school. It should promote and reinforce the latest plans in hygiene and education. Many reformers also felt that the prisons should reflect the best of the community as well. It was this idea that convinced de Toqueville and Beaumont that the prison reform movement in America was the ". . . remedy for all the evils of society."[14]

By the mid-nineteenth century, an important study by E.C. Wines and Theodore Dwight drew further public attention to the need of prison reform. In 1867, the two investigated the nation's prisons during the post-Civil War era. Their extensive report, as presented to the New York State legislature, determined the state of prisons in the U.S. to be deplorable, stating: "There is no longer a state prison in America in which the reformation of the convicts is the one supreme object of the discipline…There is not a prison in the U.S. which …would not be found wanting."[15] Wines and Dwight found overcrowded conditions with one-third of all prisoners living in cells with double the recommended occupancy rates. As space constraints were ignored, chaos took over, fights broke out, and the stronger preyed on the weak, while wardens and guards became harsher in disciplining the inmates. The ideal system of reform was abandoned, replaced by a system of discipline and custodial care. Single occupancy, once seen as the humane and benevolent form of incarceration, became solitary confinement used as punishment to curtail the unruliness of certain members of the prison population.[16]

Most small prisons at this time were approximately thirty to forty years old many were in deplorable condition. In addition to the dangerous physical conditions of the jails, the inability to control inmates living in overcrowded cells resulted in threats to the physical and psychological welfare of inmates and staff, alike. While this situation was also often true for the state-operated facilities, conditions in county jails often faired much worse. The design of county jails changed little between 1800 and 1860. Cells were small, and the doors were usually made of solid wood or wrought iron. Windows and ventilation were poor. It was not until the technology for producing inexpensive steel was introduced in the 1860s that the architecture of prisons began to change.

The Second Industrial Revolution, also known as the Technical Revolution, affected architecture and engineering in the United States. Cost-effective steelmaking process introduced by Englishman Henry Bessemer's process in 1856 revolutionized the steel industry in the states.[17] Additionally, the Seimens-Martin

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[13]Guiseppe di Bennaro, *Prison Architecture,* (London: The Architectural Press, 1975), 16.

[14]*Ibid.*

[15]Morris and Rothman, *Oxford History of the Prison*, 125. E. C. Wines wrote on numerous social issues. His body of work can be found on line at http://openlibrary.org/a/OL353072A/E._C._Wines. His son, Frederick Howard Wines, submitted a study of county jails to the American Prison Association in 1920. The terms "jail" and "prison" are used synonymously to describe any building or institution used for the purpose of incarceration.

[16]*Ibid*.

[17]Frank Tracy Carlton, Ph.D., *The Industrial Situation: Its Effect Upon The Home, The School The Wage Earner and The Employer* (New York: Fleming H. Revell Company, 1914), 15-20.

open-hearth process (1865) "made possible a much greater volume of production."[18] For the first time, steel was produced cheaply in large quantities, thereby facilitating the mass industrialization of the late nineteenth and early twentieth centuries in the United States.[19]

Metal manufacturing companies were able to expand their operations as the application of iron and steel changed the way buildings were constructed. Benjamin F. Haugh, a blacksmith and engineer, was fortunate enough to begin working in 1858 as a supervisor in the structural iron factory owned by Levi Williamson and his father, Emmanuel Haugh. By 1863, ownership of the factory passed to Benjamin F. Haugh, who steadily guided the firm in the manufacture of jail and courthouse fittings, along with architectural iron-work that included decorative wrought iron fencing.[20]

In 1868, Haugh filed for what appears to be his first patent, an improvement for prison door bolts. On August 16, 1868, Haugh received Patent No. 81,165 for this invention.[21] His firm supplied the iron bars, grates, doors, hinges and numerous other fittings for the construction of jails throughout Indiana. Haugh's firm was contracted to build the jail in Lancaster, Grant County, Wisconsin, in 1872.[22] In 1878, Haugh was contracted to supply all ironwork for the courthouse in Cambridge, Henry County, Illinois.[23] Haugh's firm worked with Hinkley and Norris, serving as general contractors, on both projects. Haugh, with E. J. Hodgson and his father Isaac Hodgson, won the contract to build the courthouse in Indianapolis, Marion County, Indiana.[24]

Long before Haugh and William Brown filed a patent for their invention of the rotary jail, there appear to be only a few examples of rotating floor space. The design of European theaters fitted with rotating stages began appearing c. 1620 when Tomasso Francini designed a revolving stage at the Louvre for Louis XIII. The watermill, which appeared widely across regions of England, France and Flanders in the 12th century rotated on a structure called a 'buck' or center wood shaft. The buck contained the shaft and gears that rotated a millstone or pumped water. Wind or water typically turned the mill houses. In the absence of both, livestock supplied the turning power. These mill houses supplied energy "…to mill grain, operate saws, bellows and forge hammers."[25]

Walter A. Lunden addressed the application of a revolving cage as a jail in an article entitled "The Rotary Jail, or Human Squirrel Cage," which appeared in the *Journal of the Society of Architectural Historians* in

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[18]Carl W. Condit, *American Building Art: 19th Century* (New York: Oxford University Press, 1960), 286. Condit also states that in 1875 "the price [of steel] fell to a point where the new metal could be used on a large scale in building, but even then it was 15 years before it was common in structural frames." The Bessemer process was introduced in the U.S. by Alexander Holley and the Seimens-Martin process by Abram Hewitt, both shortly after the Civil War.

[19]Thomas J. Misa, *A Nation of Steel: The Making of Modern America, 1865-1925* (Baltimore: Johns Hopkins University Press, 1995). Accessed online, 16 March 2010, http://www.tc.umn.edu/~tmisa/NOS/1.1_intro.html.

[20]*Semi-Annual Report of the Indianapolis Board of Trade of Indianapolis, Indiana*, January 1871 (Indianapolis: Journal Company, 1871), n.p.

[21]Patent Search, "Benjamin F. Haugh," Google Scholar, Patents On-line, http://www.google.com/patents?hl=en&lr=&vid=USPAT81165&id=I74AAAAAEBAJ&oi=fnd&dq=Haugh&printsec=abstract#v=onepage&q=Haugh&f=false

[22]Castello N. Holford, History of Grant County, Wisconsin: Including Its Civil, Political *Geological, Mineralogical, Archaeological and Military History, and a History of the Several Towns,* (Wisconsin: Walsworth Printing Company, 1900), 77.

[23]Courthouse Postcards, Henry County, Illinois Courthouse, Online, Courthouse History.Com, On-line, accessed July 2013. http://courthousehistory.com/gallery/states/illinois/counties/henry

[24]David J. Bodenhamer and Robert G. Barrows eds., Marion County Courthouse, "City County Buildings," *The Encyclopedia of Indianapolis* (Indianapolis: Indiana University Press, 1994), 429, 695.

[25]Chad Randl, *Revolving Architecture: A History of Buildings That Rotate, Swivel and Pivot* (New York: Princeton Architectural Press, 2008), 16.

December 1959.[26] In it, he discussed the rotary design of the Pottawattamie County Jail in Council Bluffs, Iowa, in terms of its uniqueness and limitations. Lunden recounted the design of the English "Panopticon" of 1791, as a possible influence for the rotary jail based on the letters and design concept of Jeremy Bentham, a Utilitarian philosopher and theorist. Bentham's "panopticon" allowed everything to be visible from one central viewpoint. Although Bentham hired architect Willey Reveley to draft plans according to his directions, the Panopticon remained only a concept and was never built.[27] Additionally, it did not revolve.

No other examples of large revolving architectural structures (similar to the European mill houses) appear until 1843 when a young New York inventor, Theodore Timby, designed a land-based revolving gun-turret. This invention appears to be a more likely model for the rotary jail cages.[28] A working model of Timby's turret, measuring 15' in diameter, was placed on display in 1843 at the old New York City Hall in an attempt to generate interest in its military application.[29] Timby may have applied for a patent as early as 1843 or 1844. It was not until July 8, 1862, however, when he was finally issued Patent 35,846 for his revolutionary "revolving battery tower."[30] That same year, Timby's invention was placed on the *USS Monitor*, the first ironclad warship commissioned by the U.S. Navy and was also used in the design of gun turrets on Union warships.[31] Timby's invention relied heavily on the use of iron plating, along with a cog and wheel system to turn the center support of the tower, which was suspended from the top of the structure.[32]

The cog and wheel system used in Timby's invention also appears in Brown and Haugh's revised patent for the suspension of the rotary jail column, issued in 1885. Brown's personal history suggests that Timby's design may indeed have influenced a rotary jail concept. First, William Brown served in the Union Army with an Indiana regiment during the Civil War while still a student of architecture.[33] It appears that Brown was assigned to the U.S. Army Corps of Engineers in a division in charge of transport, bridges and vessels where Brown most likely had firsthand knowledge of the Corps various projects including the *USS Monitor.* Haugh also served very briefly in the Union Army as a private in Company H of the 107th Infantry of Indiana. This period coincides with the dates of Haugh's employment in Indianapolis, Indiana, as a manufacturer of iron and steel goods. As inventors and engineers in their own right, Haugh and Brown could easily have used Timby's turret as a stepping-stone in the development of their more complex invention of the rotary jail. Further influences from Timby's invention are found within the publishing history of the U.S. Patent process, as outlined in the next section.

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[26]Walter A. Lunden, "The Rotary Jail, or Human Squirrel Cage," *Journal of the Society of Architectural Historians,* Volume XVIII, No.4, December 1959, 149-157.

[27]Jeremy Bentham, *Panopticon Letters;1787,* Ed. Bozovic, Miran (London: Verso, 1995). p. 29-95. Accessed online, January 2014. http://cartome.org/panopticon2.htm.

[28]Lunden, 156.

[29]Rueben D. Ferguson, Thesis, "The Effect of the *USS Monitor* and the *CSS Virginia* on Naval Warfare," February 1999, 8-10.

[30]Theodore Ruggles Timby, Revolving Battery Tower, Patent No. 35, 846, Google Scholar On-line: Accessed July 30, 2013. http://www.google.com/patents. Timby continued to improve upon his original invention with several additional patents including, Patent No. 312,231 dated Feb 10, 1885, and Patent No. 330,638 dated November 17, 1885. It became an instrumental part of the weaponry used by the United States Navy.

[31]Naval History and Heritage Command On-Line. "US Navy Ships: USS Monitor (1862-1862)." Accessed July 30, 2013. http://www.history.navy.mil/photos/sh-usn/usnsh-m/monitor.htm.

[32]*Ibid*.

[33]"W. H. Brown, Veteran Architect Dies," The *Indianapolis News March* 1929. See also, "Pioneer Builder, W. H. Brown Dies," *The Indianapolis Star* 26 March 1929.

Technical Revolution and Its Impact on the Invention of the Rotary Jail

Technology played a key role in the development of the rotary jail and its patent as an answer to long overdue social and economic reforms in the prison system. The use of innovative thinking to solve social and economic problems was not a new concept, but industrial technology was still in its infancy in the United States. Several congressional acts that passed in the late 18th century set up the base measures that were used to protect intellectual rights. Patents issued in this early period were filed at the local colonial level before being sent to Congress for approval. Local libraries kept copies of decrees for future patentees to search. The patent system was limited in scope and often caused problems in identifying intellectual property. It was not until 1836 when the U.S. Patent Office was established, thereby, providing a dedicated office to file, approve/reject, and record all patent applications. The first patent issued from this office occurred on July 13, 1836, for the design of a steam engine.[34] Between July 1836 and May 1865, 48,010 patents were issued, an average of 1,700 patents per year.

The development of inexpensive steel after 1860 led to an explosion of new inventions, processes and procedures in construction as well as commerce and transportation. The average number of patents issued in the years following the end of the Civil War in May 1865 through July 1881, increased to well over 12,200 annually.[35] Benjamin Haugh and William H. Brown's rotary jail first applied for the patent on April 12, 1881, and received Patent No. 244,358 along with John L. Ketcham, on July 13, 1881. The patent for the "Jail or Prison" explained:

> The object of our inventions is to produce a jail in which prisoners can be controlled without the necessity of personal contact between them and the jailer or guard... it consists, first, of a circular cell structure of considerable size (inside the usual prison building) divided into several cells capable of being rotated, surrounded by a grating in close proximity thereto, which has only such number of openings (usually one) as is necessary for the convenient handling of prisoners. [36]

The full description of Haugh and Brown's original U.S. Patent No. 244,358 includes lengthy and complicated specifications. To summarize the characteristics of the rotary jail, *The Pauly Jail Building and Manufacturing Company Catalogue*, contains a description that includes the general features and mechanics of the jail based on the original patent. It explains how the Montgomery County Rotary Jail, a two-story facility, was operated.

> The circular cell structure is intended to be any required number of stories in height, with ten or less cells to each tier and rotates, bodily, on a central vertical shaft, turning upon conical steel rollers, like a railway turntable. …The cells are surrounded with a heavy stationary combination iron and steel grating, extending from floor to ceiling, with only one door opening it for each tier of cells. As the cell structure revolves and the several cells contained therein are successively presented in front of the door in the stationary grating, it is possible for prisoners to be put into or taken out from the cells, provided the door is opened by the keeper, but at no other time is this possible, as all the cells except the one opposite the door, are securely closed by the grating behind which they move. By this means, all possibility of a rush of prisoners upon the keeper is

[34] Locomotive Steam Engine, US Patent No. 000000001, July 13, 1836, United States Patent and Trademark Office, Online Accessed July 16, 2013. http://patimg1.uspto.gov/.piw?Docid=00000001&idkey=NONE

[35] *Ibid*. These numbers were compiled by averaging the data obtained from the USPTO website beginning with the first patent, No. 1 issued in July 1836, through Patent No. 244,358 issued in July 1881. The years up to 1865 were compared as well.

[36] William H. Brown and Benjamin F. Haugh, "Rotary Jail," United States Patent Office, Patent No. 244,358. July 12, 1881. Google Scholar On-Line. Accessed July 30, 2013, http://scholar.google.com/

> removed and the prisoners can be handled and controlled at all times with perfect safety, as the keeper never comes in contact with more than the occupants of one cell at a time.
>
> The cells are rotated by a crank at the entrance door; or during the nighttime in large jails, the cells can be kept slowly rotating by a small water motor, or any motive power most convenient and cheapest; thus, prisoners are deprived of the chance of working for escape.
>
> A ventilating shaft…eight feet in diameter extends up through the cell structure and discharges into the open-air through a turret on the top of the building. Each cell is provided with a permanent water closet…projecting from the rear end of the cell into the ventilating shaft and is suspended over an open trough of running water, with a grated ventilating register over each closet. Now, with the great cast iron heated smoke stack from the furnace in the cellar running up through this ventilating shaft, it will readily be seen that a powerful upward current of the air is created, which will cause all the prison odors to be rapidly drawn from the cells and discharged into the open air above the roof, thus affording the best system of ventilation known.[37]
>
> The cells, which rotate about the vertical shaft, are made of a combination of iron and steel jail plates or iron plates lathed with five-ply bars, three layers of iron and two of steel, which makes it most difficult for prisoners to work at, even if provided with tools. The stationary latticework, which encases the cells, is made of either round or flat bars…This outside grating is always made of the combination bar, or iron and steel, unless otherwise specified in contract.[38]

The walls between the cells were constructed of solid steel-plate metal to prevent prisoners from seeing each other. The rotary portion was placed inside an outer, gridded stationary cylindrical cage, bolted to a flagstone floor and iron plates in the ceiling. Generally speaking, the cage features rectangular bars (2 ½" by ½", spaced 3 ½" apart) and ribbed with horizontal bars of the same size (1', spaced 3 ½" apart). Prisoners were taken from the holding or turnkey area to the cells through a heavy iron door or could be sent to the exercise room (bullpen area) located outside of the stationary cage. The rotary jail design reduced over-crowding, separated men and women, and provided (at least in theory, if not practice) improved sanitation and ventilation, as well as an opportunity for exercise.

Pottawattamie County and the Economics of Building a Rotary Jail and Sheriff's Residence

Economic conditions greatly influenced civic leaders as they rebuilt communities after the Civil War. Many communities had limited resources, and this was no truer than in the small rural counties needing to rebuild or expand with the increasing rural population as people migrated westward. The growth and post-war recovery process were expensive. William H. Brown, who marketed the rotary jail to local county governments, emphasized the affordable construction and cost-efficient management of the system versus the design of the more common block style jails of the period.

The firm of E. J. Eckel and George R. Mann, a well-known architectural firm of St. Joseph, Missouri, was contacted by the Pottawattamie County Board of Commissioners to examine the existing courthouse (which also contained a county jail located in the basement) for the feasibility of making repairs to the existing structure. Mann's inspection of the old courthouse found the structure in severe deterioration and in danger of

[37] As the cells made a revolution, a valve would open, thereby clearing the bowl. This particular aspect of the rotary function of the jail was a subsequent improvement to the 1881 patent made by Peter J. Pauly, Sr.

[38] The Pauly Jail Building and Manufacturing Company Catalogue, c. 1887, 21-22.

collapsing. Mann suggested that the building should be replaced. It is unknown at this point, who contacted Haugh and Brown; however, it was most likely Eckel and Mann, since they had already designed two other rotary jail facilities in collaboration with Haugh and Brown.

Pottawattamie County Board of Supervisors Minutes dated from 1884 through November 1885, provide a detailed account of the conditions of the old building and their approval to build a new jail facility in January 1884:

> Resolution was introduced that addressed the deteriorating conditions of the Pottawattamie County jail. Although the resolution addressed the necessity to incarcerate individuals who caused harm to the general population and themselves, it also stated, "it is the duty of said custodians to cause said parties so restrained of their personal liberty in a humane and considerate manner."
>
> …After examination of the jail it was found to be "damp, crowded and without proper ventilation." The committee, which was formed in December 1883, had found the jail to be highly unsanitary. Secondly, the committee examined the structure itself was unsafe, in addition, to being a structure that allowed for easy escape of those detained within.
>
> The recommendation was made at this time that the county exercise all of its powers and resourcefulness to build a new jail.[39]

Coinciding with the replacement of the Pottawattamie County Jail the county was also evaluating the replacement of the County Courthouse. The Board of Commissioner were asked to consider the borrowing of monies for the construction of the jail at a cost of $40,000 through the issuance and negotiations of county bonds in the sum of $1,000 each payable six years. In addition, a tax of ¼ cent on taxpayers for 5 years after the issuance of the bonds was to be used to pay the interest. The county implemented the additional tax levy until the entire principal was paid in full.[40]

In June 1884, the conditions for raising funds for the jail by the county officials were argued extensively with the taxpayers. On June 7, the jail was condemned by the Grand Jury of Pottawattamie County as unsafe and insufficient for the incarceration of prisoners. The County Supervisors resolved that no more prisoners could be accepted in the jail. All prisoners currently held in Pottawattamie for other counties were to be returned to their said county. Local prisoners were relocated to the Council Bluff City Jail.[41] The need for the new jail became a priority yet the courthouse remained open until January 1885 when it was finally condemned.[42]

The county finally came to an agreement through unanimous approval of the bond issue to build a new jail (and courthouse) on March 10, 1885. That same month a delegation of Pottawattamie board of supervisors traveled to Maysville, Missouri, to view the new rotary jail unit that was being installed to the rear of the new DeKalb County Courthouse also designed by the firm of Eckel and Mann. Although the DeKalb County rotary cage had only one-tier, the design layout was to be adapted for Pottawattamie County's needs. By April 1885, all bids were obtained. The construction project was awarded to Wickham Brothers of Council Bluffs. The firm was

[39]Pottawattamie County Supervisor's Minutes from 1884-1885: Jan 11, 1884: Friday, p. 246-247. Pottawattamie County Government Center, Office of the County Clerk. Records Department.

[40]Ibid, Jan. 17, 1884: Thurs. p. 260-261.

[41]Ibid, June 7, 1884: p. 306.

[42]Ibid, Jan. 14, 1885: Wed. p. 400. To be clear, the courthouse and the jail (located in courthouse basement) were condemned within 6 months of each other.

responsible for all masonry and general contract work. Taking just five months to complete, the facility officially opened on September 10, 1885.[43]

On September 10, 1885, Haugh and Ketcham issued a five-year warranty to Pottawattamie County for the new rotary jail to guarantee the rotary mechanism. Haugh's firm would repair any problems with the rotary gears for a period of five years from completion of installation of the rotary cage system. At this time, the board made final payments to Haugh and Ketcham for the jail and the structural steel they had supplied for the building. Wickham Brothers Construction also received final payment on their contract.[44]

It is interesting to note that the cost of the new Pottawattamie County Rotary Jail and Sheriff's Residence is typically reported to be around $30,000, which may have been for the jail alone. However, the amount logged in County Supervisors Minutes for the construction of the facility is $40,371. While the sum of $21,000 was paid to Haugh's firm for steel and ironwork, the amount of $15,000 was for the jail alone. The total sum of the cost for the building includes fees paid to Eckel and Mann, the heating and cooling firm, as well as the contract for the Wickham Brothers. An additional $5,000 for the purchase of property for the jail and residence was also listed.[45]

An additional cost adjustment was made for approximately three feet of steel and iron that was needed to extend the height of the center support system allowing it to be hung from the attic down to the cellar. A 'machine room,' which contains the adjustable mechanism for the center support is enclosed in an octagonal closet space located in the center of the attic apartment and directly under the cupola. This is the first rotary jail in which William H. Brown incorporated this improvement to the central support system. Brown applied for and received Patent No. 360,508 in 1887 for this improvement to the original rotary jail patent of 1881. His opening statement in the new patent explained the purpose for the improvement to his invention:

> My present invention consists of improvements upon that for which Letters Patent of the United States No. 244358 were granted on the application of myself and Benjamin F. Haugh, jointly, under date of July 12, 1881. I have found in practice that it is somewhat objectionable to support the rotating cell structure from the bottom, as shown in said Letters Patent, and I have therefore arranged to support it from the top, and the means of so supporting it and of making certain desirable adjustments constitute my present invention…
>
> I am aware that roundabouts and similar devices in games and toys have been constructed to revolve around a central post, and that some of them have been principally supported from the top; but I do not regard said devices as anticipating the invention as herein shown and claimed in any degree, in as much as there is an entire absence of any of the needs of the class to which this invention belongs in said other class, and consequently the advantages and advance in the art, resulting from the improved Construction herein shown and claimed could not have been known to or anticipated in a class of invention entirely foreign to that to which this invention relates.[46]

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[43]Ryan Roenfeld and Dr. Richard Warner, *Tales from the Squirrel Cage Jail* (Council Bluffs, Iowa: Historical Society of Pottawattamie County, 2009), 4.

[44]Pottawattamie County Supervisor's Minutes from 1884-1885, Sept. 10, 1885: Thurs. p. 545-46 and 552-53

[45]Ibid, November 12, 1885: Thursday, p. 576. See also, Ryan Roenfeld and Dr. Richard Warner, *Tales from the Squirrel Cage Jail.* The amount given in this document came from the local newspaper and differs from the accounting records notated in the minutes.

[46] William H. Brown, assignor to Charles H. Sparks. U.S. Patent Number 360,508, April 5, 1887.

The jail operated for nearly a decade with few problems with the rotary system. However, in March 1896, a new sheriff took over the operations of the jail and found that the previous sheriff had not maintained the operating mechanism or the flush valves for the toilet facilities. The jail, with 32 prisoners at this time, was thoroughly cleaned followed by three coats of new paint throughout and new bedding supplied for the prisoners at a cost of $1,000.[47]

Over the years, the jail suffered operational problems. It was condemned by the Council Bluffs Grand Jury in 1902 (followed by over two dozen additional attempts to condemn the jail) but, upon inspection, was found to be in good and sanitary condition. In 1904, with only ten prisoners incarcerated, the jail cage became stuck in place for three days. The ten prisoners were allowed out into the corridor during the day and jailed only at night. The Grand Jury tried to condemn the jail again in 1908, again citing health hazards.[48]

Each attempt by the Grand Jury's to close the rotary jail would lead to the Sheriff and county officials finding the necessary funds to keep the jail operational. The jail was designed to hold 85 prisoners yet in 1929 over reached the capacity when 165 people were incarcerated.[49]

In November 1960 the jail nearly closed when the last eight prisoners were moved to other facilities. After $4,000 in renovations and improvements the jail reopened with the rotary jail locked in place.[50] However, this reopening was short lived. After years of continuous violations in health and safety codes, cumbersome operational expenses along with an inefficient system of cells, the county finally closed the jail in 1969. Additionally, the county approved funds for of a new courthouse with a jail in 1972 that was constructed on adjacent property to the south of the Pottawattamie County Rotary Jail. In 1999, a new 288-bed county jail opened northwest of Council Bluffs.[51]

Biographies of Designers, Architects, and Builders Associated with the Pottawattamie County Jail and Sheriff's Residence:

Examining the history of the individuals involved in constructing a type of jail that was not seen prior to 1882 nor since 1888 has uncovered some interesting and somewhat unexpected connections between the principle architects and engineers involved in the building campaign for the Pottawattamie Rotary Jail and Sheriff's Residence. The stories of the individuals intertwine with a background of inventions and patents, some of which applied to the field of architecture, but also expanded into utilizing the complexities of the technology of the period. Additionally, they were creative inventors and applied their knowledge of the latest technology to solve problems that existed within their society.

Benjamin F. Haugh: (1829-1912)

Benjamin Franklin Haugh is best known for his years as the president of Haugh, Ketcham and Company Iron Works of Indianapolis, Indiana, and through his patented inventions. He was born in Maryland in 1829. His family moved to Indianapolis when he was seven years old. Haugh, like his father Emmanuel, was a blacksmith by trade. His father partnered with Levi B. Williamson in 1856 as Williamson and Haugh, manufactures of iron rails. In 1858, Benjamin joined the firm as a supervisor. Genealogical sources note that Haugh joined the Union

[47] Ryan Roenfeld "Historical Pottawattamie County Squirrel Cage Jail," June 16, 2006, 2.
[48] Ibid, 3.
[49] Ibid, 3-4.
[50] Ibid, 4-5.
[51] Ibid, 5-13.

Army for a total of two weeks in July 1863 as a private in Company H of the 107th Infantry Regiment of Indiana. The reason for his short, but reportedly distinguished, term of service is not known.[52]

In 1875, Haugh and Company, led by Benjamin F. Haugh and his brother, Joseph R. Haugh, moved their factory across the river to Michigan Street, west of Germania Avenue. This area quickly became known as Haughville and was incorporated as such in 1883. In 1881, owing to financial complications, the firm reorganized as Haugh, Ketcham and Company, and by 1885, it was incorporated as the Haugh, Ketcham and Company Iron Works.[53] The following advertisement from 1871 presents a picture on the scope of work offered by the Haugh firm.

> B. F. HAUGH . . . HAUGH & Co., Manufacturers of Jails & Court House Work, B. F. Haugh's Celebrated Jail Doors And Fastenings, Business House Fronts, Wrought And Cast Iron Railing, Jails, Verandahs, Bank Vaults, Iron Doors, Shutters, Bolts, Stamps, And Iron Fronts, All Kinds Of Wrought and Cast Iron Work, Plain And Ornamental. 300 Samples Of Iron Fences, Balustrading And Verandas. On Hand To Select From, Being The Largest and Best Assortment In The West. We Feel Confident That All Parties Contemplating Building Jails Will Do Well To Consult Us. 68, 72, 71, 76, 78, & 80, South Pennsylvania Street, Indianapolis, Ind.[54]

By late 1879, the firm of Haugh and Ketcham was successfully producing iron works for a variety of building and decorative uses. Many of the iron fences designed by Haugh and built at the foundry can still be found in and around Indianapolis.[55] Haugh sought out William H. Brown a well-known Indiana architect to join the firm to provide architectural services. On March 10, 1881, the Indiana House of Representatives contacted Haugh about designing a jail. With Brown on board, the company was able to submit several plans for the new jail. On April 20, 1881, the representatives chose the soon-to-be patented rotary jail as the winning choice for their new facility.

In addition to the rotary jail patent, Benjamin Haugh had at least nine other patents. While he collaborated on a few of the patents with William H. Brown, most were filed in his own name. On December 20, 1881, shortly after filing the rotary jail patent, Patent No. 251,341 for the design and construction of a steel turntable, used for locomotives was filed under Haugh's name only. The patents for two similar forms of rotary machinery occurred at roughly the same time. During this period and well into the twentieth century, Haugh was actively engaged in developing new engineering designs and making improvements to existing technology

Benjamin Haugh remained president of the firm through 1890. In 1891, Brown is listed as president and by 1895, the Haugh name was removed and the company became Brown-Ketcham. For the next five years Haugh, was listed at his residence at 670 Pennsylvania Avenue. In 1896, his business listing reappeared as Haugh-Noelke Iron Works as vice-president. A business journal published the year before contains an article on the Haugh-Noelke Iron Works of Indianapolis also identifying Benjamin F. Haugh as vice-president of the firm.[56]

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[52] "Benjamin F. Haugh," Online reference Rootsweb at www.Ancestry.com.

[53] Jacob Piatt Dunn, *The History, the Industries, the Institutions, and the People of a City of Homes,* Vol. I (Chicago: The Lewis Publishing Company, 1910), 441 – 442.

[54] *Semi-Annual Report of the Indianapolis Board of Trade of Indianapolis, Indiana*, January 1871 (Indianapolis: Journal Company, 1871), n.p.

[55] Richard McGaughey, "Crawfordville's Circular Bastille: Indiana's Modern Jail in the 1880's?" Thesis, Legal History Indiana, University Law School, Indianapolis, n.d. 13.

[56] "Haugh- Noelke," *Indianapolis of Today* (Indianapolis: Consolidated Illustrating Company, 1896), 193.

Although Haugh was successful in the iron and steel works business, he continued to research and develop patented inventions well after the rotary jail patent. In addition to his partnership with Noelke in 1895, he also served as president of The Cushion Car Wheel Company, at which time; Haugh turned his attention to improvements to automobile wheels. He received two patents: Patent No. 443,047, filed on December 16, 1890; and No. 480,922, filed on August 16, 1892. The first was the invention of a cushioned wheel for automobiles and trucks; the second was for improvements to the original patent.[57]

Haugh–Noelke seems to be the last firm with which B. F. Haugh was affiliated and it is not known why Haugh left the business. After his death, the successor firm was Noelke-Richards' Ironworks of Indianapolis. Benjamin Franklin Haugh, age 83, died at the home of his son in Anderson, Indiana, in 1912.

William Henry Brown: (1841-1929)

William H. Brown was a well-known architect and builder in Indianapolis, Indiana. Brown was born in Lawrenceburg, Indiana, in 1841. At the age of 17, he moved with his family to Indianapolis, Indiana. He married Isabelle S. Pearsall, Greensburg, Pennsylvania, on October 5, 1859. Although Brown planned for a career in architecture, the Civil War abruptly interrupted his studies. He enlisted in the U.S. Army serving with an Indiana regiment. After the war, Brown resumed his career in architecture.[58]

The known extent of Brown's private life and his body of work as an architect is limited in scope. Although Brown is credited for the design of the Marion County Courthouse built in 1876, all scholarly work identifies Isaac Hodgson as the architect for the $1.5 million Empire-Style building (razed in the 1960s).[59] Most of what is known of Brown's contributions to architecture and technology is through his patents dated between 1871 and 1895. William Brown became the vice president of Haugh, Ketcham and Company Iron Works of Indianapolis in 1889. In 1890, Brown was listed as president, however the company name remained the same. In 1899, the name of the company was changed to Brown-Ketcham Iron Works. Brown-Ketcham remained in business through 1911. In 1912, Brown-Ketcham was listed as a trusteeship. By 1913, there were no further listings for the firm.[60]

After the Brown-Ketcham Iron Works closed, Brown appears to have entered the real estate business as president of Colonnade Realty Company of Indianapolis around 1913. His employment was listed as architect in city directories from 1913 through 1929. William H. Brown died at the age of 88 in March 1929.

William H. Brown seems to have been a supervising architect as noted in County Commissioner's meeting minutes discussing the Montgomery County Rotary Jail. He had an excellent background as a builder and inventor. His body of work is better understood through his relationship with the Haugh, Ketcham and Company Iron Works and the numerous patents that he developed on his own and with Isaac and E. J. Hodgson, as well as with Benjamin F. Haugh.

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[57] United States Patent Office, On-Line, accessed August 2, 2013, http://www.uspto.gov/patents/process/search/index.jsp

[58] "W. H. Brown, Veteran Architect Dies," The *Indianapolis News March* 1929. See also, "Pioneer Builder, W. H. Brown Dies," *The Indianapolis Star* 26 March 1929.

[59] David J. Bodenhamer and Robert G. Barrows eds., Marion County Courthouse, "City County Buildings," *The Encyclopedia of Indianapolis.* (Indianapolis: Indiana University Press, 1994), 429, 695.

[60] "Haugh, Brown, Ketcham," Historical Directories, 1889-1913, Marion County, Indiana Online, Accessed July 1, 2013. https://sites.google.com/site/onlinedirectorysite/Home/usa/in/marion

E. J. Eckel (1845-1934): Architect

Edmond Jacques Eckel was born in Strasburg, Alsace, France, on June 22, 1845. At the age of 14, Eckel was taught the art and practice of construction by an unnamed relative, a well-known contractor in Strasbourg. Later, Eckel supplemented his knowledge under the tutelage of Strasburg's city architect. In 1863, Eckel entered the private workshop of Monsieur Paccard and later that of Monsieur Vaudoyer, where he continued the study of architecture. In 1864, Eckel entered the Écoles des Beaux in Paris where he completed his study of architecture. In 1868, he moved to the United States where he joined his older brother. The two decided to head to Kansas City, Missouri, where Eckel had planned to set up his architectural firm.[61]

Eckel traveled to Kansas City in 1869 but the train stopped on a layover in St. Joseph where he determined there was a need for an educated architect. He immediately joined the firm of P. E. Meagher and his first designs in St. Joseph were for the St. Joseph Cathedral followed by the Corby Chapel, completed in 1872. That same year, Eckel joined the firm of Stieger and Boettner as a junior partner where he designed the Christ Episcopal Church, also in St. Joseph. In 1880, Eckel, joined by George R. Mann, established the prestigious St. Joseph firm of Eckel and Mann, which lasted until 1892 at which time Mann established his own firm.[62]

It was during his affiliation with Mann that the two men designed three rotary jail buildings, including the Pottawattamie County Rotary Jail and Sheriff's Residence. Eckel continued his sole practice for over a decade until 1910 when his son, George R. Eckel and Will S. Aldrich, who relocated from New York to St. Joseph, joined him to become the firm of Eckel and Aldrich.

Eckel's prolific career lasted for nearly 65 years. His work was versatile and nationally known. He was a long-standing member of the American Institute of Architects (AIA), eventually recognized a Fellow (FAIA) of the organization. On December 23, 1934, the AIA was advised of his death in a letter sent from the firm of Eckel and Aldrich:

> Monuments to the memory of Edmond J. Eckel, one distinguished citizen of the community who passed away yesterday afternoon, stand on almost every corner in St. Joseph. They are sturdy, permanent buildings, monuments to the one who designed them and wrought into them the beauty and the stability that marked his own life. Designated as a dean of American architects, an honor conferred upon the deceased by the American Institute of Architects a few years ago, Mr. Eckel was for over six decades an outstanding figure in St. Joseph.[63]

George Richard Mann, (1856-1939): Architect

George Richard Mann was born in Syracuse, Indiana, on July 22, 1856. After his father, Richard, was killed in battle during the Civil War, his mother, Elizabeth Defreese-Mann, moved to Goshen, Indiana, where Mann attended school. At the age of 15, Mann worked on a relative's farm in Middlebury where he attended school in the winter months. Two years later Mann went to work for his uncle, Rollin DeFreese, who owned a factory

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[61]"Contemporary Architects and Their Works: E.J. Eckel, F.A.I.A." *The Western Architect,* n.p., n.d., 79-82. Archives, KC-258, State Historical Society of Missouri Research Center – Kansas City; UMKC, University Archives. Kansas City, MO. See also: Toni M. Prawl,"E. J. Eckel (1845-1934): The Education of the Beaux–Arts Architect and His Practice in Missouri." December 1994. Dissertation presented to the Faculty of the Graduate School, University of Missouri-Columbia.

[62]"E. J. Eckel is Dead," *The Saint Joseph Gazette* 13 Dec 1934, F.P.

[63]E.J. Eckel Obituary, American Institute Architects, "The AIA Historical Directory of American Architects" Online, accessed October 2013. http://public.aia.org/sites/hdoaa/wiki/Wiki%20Pages/ahd1012202.aspx

making extension tables. While working for his uncle, Mann proved that he excelled at mechanical drawing; however, Mann eventually developed lung problems from the fine wood dust in his uncle's shop. Unable to continue working at the factory, Mann's uncle sent him to Indianapolis to draft in the office of his cousin Morris DeFreese and Tom Morris, both civil engineers.[64]

The architect William H. Brown maintained an office located next door to the DeFreese and Morris firm. In 1874, Mann found employment with Brown as a draftsman. After two years in Brown's office, Mann was encouraged to attend the Massachusetts Institute of Technology (MIT), Boston, to further his studies. Testing out of the first two years of required study, Mann directly enrolled into the school of architecture where he completed two years of formal training by 1876.[65] Brown would later contact Mann along with Eckel, to design two Missouri county rotary jails as well as the Pottawattamie County, Iowa rotary jail.
Following MIT, Mann spent a short time employed by the New York architectural firm of McKim, Mead and White.[66] Mann returned to Goshen, Indiana, in September 1877 where he took a few small design contracts, and by the end of the year, at the age of 21, Mann opened a partnership with Edward Stebbins in Minneapolis, Minnesota, where they were hired by the county commissioners to design several county buildings. Minneapolis was still a small community at that time and work was slow; after completion of the county buildings, Mann and Stebbins dissolved the partnership.[67]

Mann's pursuit of his career in architecture took a turn in 1878 when he accepted a part in the chorus of an opera based on the poem, *Evangeline, A Tale of Acadia,* written by Henry Wadsworth Longfellow. An opera group performing the three-act opera *Evangeline* was in Minneapolis at the time Mann and Stebbins parted ways. Mann joined the chorus in order to travel with the company. When the company stopped in Kansas City, Missouri, in 1879, Mann decided to stay, first accepting a position with the successful firm of prominent architect Asa Beebe Cross. While working with A. B. Cross, Mann kept his eye open for a more lucrative and self-realized position. In 1880, Mann answered an advertisement for a draftsman for the firm of E. J. Eckel in St. Joseph, Missouri.[68]

Mann joined as partner with E. J. Eckel, forming the firm of Eckel and Mann in St. Joseph, Missouri, where the growing wholesale industry of St. Joseph made it an excellent choice in which to establish an architectural firm. As such, the firm designed warehouses, bank buildings, as well as homes for wealthy business owners. One of Eckel and Mann's first commissions was for the Tootle-House Building.[69]

Mann's partnership with Eckel was rather sporadic in nature spanning three periods of less than five years each: 1880-1885, 1887-1891, and 1902-1905. In 1886, Mann was listed as practicing independently only to return to Eckel in 1887. Letters between the two men indicate that they had an intellectually compatible relationship and fondness for one another but also indicate the two men had frequent disagreements leading to an on-again, off-again relationship.[70] Despite Eckel's expertise and mentoring of Mann in the early years of their partnership,

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[64]"George R. Mann, Unpublished autobiography." Little Rock, Arkansas, October 6, 1932." On file at the Quapaw Quarter Association, Little Rock, Arkansas.
[65]Ibid.
[66]"George Richard Mann," The Encyclopedia of Arkansas History and Culture Online, http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryid=2117#
[67]Mann, unpublished autobiography.
[68]Ibid.
[69]Ibid.
[70]Toni M. Prawl, "E. J. Eckel (1845-1934): The Education of the Beaux–Arts Architect and His Practice in Missouri." December 1994, 188. Dissertation presented to the Faculty of the Graduate School, University of Missouri-Columbia.

Mann largely ignores the relationship in his autobiography. Additionally, although Eckel was the principal of the firm, Mann additionally states that he, not Eckel, was the chief architect.[71]

In 1890, Eckel and Mann were hired to design the new city hall for the City of St. Louis, Missouri. Mann was the supervising architect during its construction, so the family relocated to St. Louis. Mann left the partnership with Eckel in 1892 and practiced independently in St. Louis until the depression of 1893 stopped all building. Financial considerations led Mann and his family to return to St. Joseph where he continued to practice independently until 1902 when he rejoined Eckel until 1905.[72]

In 1899, Mann was selected as architect for the new Arkansas State Capitol in 1899 and served in that capacity until 1909. As supervising architect, Mann traveled between Little Rock and St. Joseph from 1899 through 1905 at which time he dissolved his partnership with Eckel for the last time. Mann never completed the Arkansas State Capitol Building (National Register of Historic Places, October 22, 1976).[73] However, most of the exterior of the building was constructed according to his plans and under his supervision. The dome and the interior were constructed on partially redesigned plans.[74]

While Mann worked on the Arkansas Capitol Building, he began acquiring commissions throughout Arkansas including courthouses, hotels, schools, commercial and bank buildings. He had unintentionally built a lucrative business for himself, which resulted in relocating his family to Little Rock, Arkansas, by 1906. His work would later expand into Texas and Oklahoma. By 1925, he formed a new partnership under the name George R. Mann, Wanger and King Architects. Mann died at his home in Little Rock, Arkansas, in March 20, 1939, at the age of 82.[75]

Wickham Brothers, Council Bluffs, Iowa: Contractors

James Wickham, principal of Wickham Brothers, was born in County Antrim, Ireland, on January 12, 1837. In 1855, he moved to New York City to join his mother, Celia (Prior) Wickham and two brothers, who arrived in the United States the previous year. His father, Patrick, and the remainder of the family immigrated to the United States through New Orleans. The Wickhams reunited in Council Bluffs, Iowa, where the family of twelve had made their home. His younger brother, Owen P. (O.P.), later became James's partner in business. James attained his construction expertise through the stone and brick-mason's trade. He established his first contracting firm in 1863 under the name of Hughes & Wickham Bros. The partnership continued until Hughes withdrew from the company in 1865. James continued operations under the name of James & O. P. Wickham. By 1891, Wickham Brothers was one of the oldest established contractors and builders in Council Bluffs employing up to 200 men during the summer seasons. [76]

Owen P. Wickham was born in County Antrim, Ireland, in 1845. He arrived with his father, Patrick, in New Orleans at the age of 12. With his father and other family members, they traveled to Council Bluffs, Iowa,

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[71] Ibid, 188-192.

[72] Mann, unpublished autobiography.

[73] The building was under construction from 1899 – 1915.

[74] Ibid.

[75] "George Richard Mann," The Encyclopedia of Arkansas History and Culture On line.

[76] "James Wickham," *Biographical History of Pottawattamie County, Iowa*, (Google eBook: The Lewis Publishing Company, 1891), 648. Online, Accessed February 2014.
http://books.google.com/books?hl=en&lr=&id=mlM0AQAAMAAJ&oi=fnd&pg=PA6&dq=Pottawattamie+County+Iowa+The+Lewis+Publishing+Company+1891.+&ots=OjTV1bYClc&sig=zYw6uTHepA3yGtd-ZG6SlMCjyoI#v=onepage&q=Wickham&f=false

where they reunited with his mother, Celia. When he came of age, like his brother James, O. P. attained skills in the contracting business in the stone and brick-mason's trade. He formed a partnership with his older brother in 1865 at the age of 20. Like James, O.P. was a lifelong resident of Pottawattamie County, Iowa.[77]

Additional Rotary Jails by Haugh and Brown: 1882-1886

Haugh and Ketcham Iron Works of Indianapolis, with William H. Brown serving as the supervising architect, constructed five additional rotary jails between 1882 and 1886. These include:

1. Paducah, McCracken County, Kentucky (non-extant): This rotary jail was furnished and built on site by Benjamin Haugh's firm simultaneously with the Montgomery County Jail yet installed its first prisoners nearly three weeks prior to the Montgomery County Indiana facility. Although Brown served in the capacity of supervising architect for the project, the identity of the architect for the envelope of the building remains unknown. An article published in the *Paducah Daily News* on June 10, 1882, confirms the date the jail opened.[78] Prisoners were transferred into the new jail the day before, June 9, 1882. The rotary jail with the sheriff's office was constructed at a cost of $19,500. A new McCracken County Jail replaced the rotary jail in 1936. This rotary jail was demolished shortly after the transfer of the last prisoner to the new facility.[79]

2. Crawfordsville, Montgomery County, Indiana (extant): This rotary jail is the earliest extant facility of its kind in the United States where a rotary jail is combined with a sheriff's residence in a single building envelope. It possesses the only remaining rotary mechanism that still functions as originally intended. The Montgomery County Rotary Jail and Sheriff's Residence was designed by William H. Brown, supervising architect, and E. J. Hodgson, architect in 1881. Haugh and Ketcham was responsible for all iron and steel components of the jail, while the construction firm of Hinkley and Norris were general contractors. The facility was completed in 1882.

3. Maryville, Nodaway County, Missouri (non-extant): This jail was built in 1882, costing the county $19,400. The total prison capacity was for eighteen prisoners. Eckel and Mann of St. Joseph, Missouri, designed the building. In 1904, a decision to weld the rotary floor in place was made after a prisoner's head was crushed between the bars in an attempt to escape. With the floor locked into place, doors were then cut into the outer cage to give each cell access making it impossible to isolate prisoners form one another. Although the jail had been slated for closure many times for over two decades, it did not happen until 1984, which marks this rotary jail as the longest in use. The property was demolished on January 2, 1985, to make room for a new county jail.[80]

4. Maysville, DeKalb County, Missouri (non-extant): The jail was attached to the north wall of the DeKalb County Courthouse in the 200 block of Main Street between Washington and Polk Streets as seen on the 1909 Sanborn Map for Maysville, Missouri. The DeKalb County Rotary Jail was under construction in 1885. The St. Joseph architectural firm of Eckel and Mann designed the county courthouse and as well as the envelope for the rotary jail. It appears that the jail only had one-tier as the building is listed as one and one-half

[77] Ibid, 642.

[78] Matt Jaeger, Local & Family History Department, McCracken County Public Library in Paducah, KY.

[79] Cliff Gill, *Doin' Time for a Living: The Story of a Kentucky Jail,* (Paducah: Cliff Gill Books, 2008), 10-15. Gill's book contains some minor errors in dates. At the time Gill wrote about the Kentucky rotary jail, he apparently had not discovered the *Paducah Daily News from May through June* 1882*,* which was supplied to the authors by Matt Jaeger.

[80] Paul Stewart, "Historic Jail at Maryville Being Razed," *St. Joseph Gazette,* January 18, 1985. B1, 4.

stories with a basement. The number of cells was eight with two cells to facilitate hospital care. The jail was demolished in 1938.[81]

5. Appleton, Outagamie County, Wisconsin (non-extant): This is the first jail that was known to be contracted with the Chicago Patented Rotary Jail Company in July 1885, represented by Charles H. Sparks, a sales agent working with Haugh and Brown. The contract price was listed at $14,500.06. Completion scheduled for December 1, 1886, was delayed until March 1, 1887. On July 22, 1886, the county contracted with Henry Paepke, Neenah, Wisconsin, to build the jail for $8,835. Later the contractor agreed to build the third story for an additional $500.

The Outagamie County Rotary Jail was not a design-build contract that was typical business for the Pauly Jail Building and Manufacturing Company, indicating that this facility was already under construction when Pauly bought the patent from Haugh and Brown.[82] Although the ownership of the Haugh and Brown patent was purchased by the Pauly Jail Building and Manufacturing Company, St. Louis, Missouri, sometime in 1886, prior to the completion of the Outagamie, Wisconsin, rotary jail, it appears that the facility was constructed under the direction of Haugh and Brown.

The two-story building with basement and attic spaces included a two-tiered rotary jail with ten cells per tier. The contractor was listed as the Patent Rotary Jail Company of Chicago, with Charles H. Sparks as the agent. In August 1886, the local newspaper described the jail as "A Structure Architecturally Elegant and Admirably Adapted to the Conventions of Keepers and the Security of Prisoners."[83] The jail was later declared unfit and was closed in 1905, however, the building was still standing in 1917 according to an atlas from that year.[84] The building, wrongly identified as the County Courthouse, was located on the same site and situated next to the courthouse in an undated historic photo that showed both buildings.[85] The date of demolition is unknown.

Pauly Jail Company and the Second Generation of Rotary Jails: 1886-1888

Sometime in 1886, prior to the completion of the Outagamie County, Wisconsin, Rotary Jail and Sheriff's Residence, the Pauly Jail Building & Manufacturing Company, St. Louis, bought the rights to the Haugh and Brown patent and continued to improve upon their original design. The Pauly firm built an additional twelve rotary jail and sheriff's residences. Charles H. Sparks, an agent for the Haugh firm, briefly continued to sell rotary jails as an independent agent for the Pauly Company. In contrast to Haugh, Ketcham and Company Iron Works, the Pauly Company was strictly a design-build contractor that specialized in jail construction. It appears that the Pauly firm worked from a catalog of set plans and infrequently used independent architects to design their buildings.[86] While reasons for this sale are unknown, there is some speculation that Haugh had family problems and needed to sell the company.

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[81] Marain M. Ohman, *Missouri Courthouses: DeKalb County* (Columbia: University of Missouri-Columbia Extension Division, 1980), n.p. Accessed online: http://extension.missouri.edu/p/UED6031

[82] Thomas Henry Ryan, "History of Outagamie County, Wisconsin." Accessed online, http://www.foxvalleymemory.org/

[83] "The New Jail," *The Appleton Post,* 12 August 1886, n. p.

[84] Douglas K. Miller, "The Salt Lake County Rotary Jail," *The Utah Historical Quarterly,* Fall 2007, Vol. 75 No. 4, 327, 338.

[85] Fox Valley Memory, Atlas 1917, 105. Accessed online, http://www.foxvalleymemory.org/

[86] *The Pauly Jail Building and Manufacturing Catalogue*, 1888-89. A reference to a catalog published in 1882 under the title *Patent Rotary Jail Company of Chicago, Illinois* was located at the University of Chicago, but the catalog, itself, was missing from the collections. Included in the card catalog was a ". . . description of the patent rotary steel jail (file and saw proof) the only steel jail in existence from which prisoners have not escaped" by Chas. H. Sparks. If located, this catalog, a 16-page booklet with illustrations, may shed more light on the history of the rotary jails as constructed while under the ownership of Haugh and Ketcham Iron Works.

The Pauly Company was a family-owned business operated by two brothers, Peter Joseph (P. J.) and John Pauly.[87] The brothers worked as journeymen blacksmiths in the foundries of St. Louis shortly after their arrival in 1846 from Koblentz, Germany. It was not long before they went into business for themselves, where they became highly regarded up and down the Mississippi and Missouri Rivers for their work on steamboats. As the steamboat trade dwindled, the brothers decided that jail construction would be their next business venture.[88] After the Pauly Jail Building and Manufacturing Company acquired the rights to the Brown and Haugh rotary jail patent, they went on to build the remaining twelve rotary jails constructed between 1887 and 1888. The Pauly Company's internal architectural division headed by P. J. Pauly, Jr., drafted the designs for the later rotary jails. The Pauly Catalog of 1888 offered more than six-hundred jail designs from which to choose, many of which were adopted from the original Haugh and Ketcham catalogs. A list of rotary jails built prior to 1886 by the Haugh and Ketcham Iron Foundry appeared in the Pauly catalogues dating between 1887 and 1889, perhaps indicating that the Pauly Company took over all of the existing Haugh and Ketcham contracts for the maintenance and improvements of their previously installed rotary systems.[89]

Pauly and his successors held numerous patents, primarily improvements to components like grating designs, lock systems, door mechanisms, and numerous other patents of equipment used in general prison design and technology.[90] The Pauly firm also developed a few of their own rotary patents as improvements to the original rotary jail design. Patent No. 390,093, issued to Peter J. Pauly, Sr. on September 25, 1888, redesigned the stack that extends from the top to the bottom of the center iron support and changed the way human waste flowed from the top to bottom tier of jail cells, then to drains in the basement. This improvement prevented the waste disposal system from clogging.[91]

The Pauly Jail Building and Manufacturing Company built twelve rotary jails between 1887 and 1889. The last rotary jail opened at Pueblo, Colorado, in 1889. It is unclear why or exactly when the marketing of the rotary jail design was abandoned. Images have been located for nine of the twelve Pauly Rotary Jails.

1. Rapid City, Pennington County, Dakota Territory (non-extant), was built sometime between 1885 and 1887 although the number of tiers is unknown, the legible portion of the contract states there were ten cells.[92] South Dakota did not receive statehood until November 1889. In 1897, a fire broke out but the building survived and was used until 1921, at which time it was razed to provide a site for a new courthouse and jail.[93]

2. Williamsport, Warren County, Indiana (non-extant), was built sometime during 1886-1887 and was found listed in a Pauly catalog.[94] A short history of a jail facility in of Warren County gives a grim description of a rotary jail cage: "Warren County cannot be said to have a jail. The only means of confining prisoners is in the basement of the Courthouse. These are fitted up quarters for both men and women. Those provided for the

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[87] "The Pauly Jail Building and Manufacturing Company," *The Industries of St. Louis* (St. Louis: J. M. Elstner & Company Publishing, 1887), 82.

[88] E.D. Kargau, "Pauly Jail Building & Mfg. Co," *Mercantile, Industrial, and Professional St. Louis* (St. Louis: Nixon-Jones PTG. Company, 1902), 311-313.

[89] The Pauly Company also assumed control of the maintenance contracts for the first six rotary jail cages and mechanisms.

[90] "The City of St. Louis and Its Resources," *St. Louis Star-Sayings,* 1893 (St. Louis: Continental Printing Company 1893), 35.

[91] Patent No.390,093, available online http://www.uspto.gov/patft/index.html

[92] Contract, "Rapid City, North Dakota," Rotary Jail Museum Archives, Crawfordsville, Indiana, n.p.

[93] Pennington County, South Dakota, Jail History. Accessed online, 6 October 2010, www.penningtoncountysheriff.com

[94] Pauly Jail Building Catalogue, 1888, Archives of the Pauly Jail Company, Indiana. No further information was found on the initial search.

women are little more satisfactory than those for the men, which consist of eight cells arranged in a revolving cylinder in one of the basement rooms." [95] This is the extent of the information found for this facility.

3. Sherman, Grayson County, Texas (non-extant), contracted for a new rotary jail on February 19, 1887. According to the contract, the jail consisted of two tiers and possibly ten cells per tier. This jail was built in 1887 at a cost of $100,000 and may have included some regular block style cells in addition to the rotary unit as it was designed to hold 100 prisoners. There was a 'dungeon' cell in the cellar designed to contain difficult prisoners. After having trouble with the turning cell system, the cells were torn out and regular cells with key openings installed. This jail was closed by 1936 and later demolished.[96] A new courthouse built in 1936, included a jail.[97]

4. Burlington, Chittenden County, Vermont (non-extant), was built in March 1887. It was located on the corner of Main and Winooski in the town of Burlington. The jail and residence was described as a "neat two-story, mansard roof brick building."[98] The rotary jail cylinder had ten cells while the front of the building was the sheriff's residence and office with the women's jail included. No floor plans or images have been located, and the date of demolition is unknown.

5. Gallatin, Daviess County, Missouri (extant but historic integrity compromised), was constructed April 1887. The jail consists of one tier with eight cells. It closed c. 1979 and later was dismantled. Beginning in 1984, the jail cage and mechanism were reconstructed, and the building rehabilitated by Restoration Architects according to *The Secretary of the Interior Standards for the Treatment of Historic Properties*. The building now serves as a museum for the Daviess County Historical Society. It was listed on the National Register of Historic Places on February 23, 1990.

6. Salt Lake, Salt Lake County, Territory of Utah (non-extant), was constructed in May 1887 and located at 268 West Second South Street next to the county courthouse. Utah was admitted to the Union on January 4, 1896. The building was two-stories with a two-tiered cage containing ten cells per tier. The basement contained two cells and was referred to as the "dungeon." In 1911, the rotary jail was still standing, but the Sanborn Map of that time listed the jail as vacant and the residence as being occupied. By 1927, the jail portion had been removed but the Sheriff's Residence was still occupied as an apartment/private residence. It was demolished in August 1927 to make room for a new county jail.

7. Oswego, Oswego County, New York (non-extant), was built in 1887. The number of tiers and cells is unknown. The rotary cage was electrically operated. The electric button often malfunctioned, however, which caused prisoners and sheriff alike distress in getting the prisoners fed via the only "grub-hole" available. Without the turnkey the cells could not be accessed.[99] The jail was condemned and closed in 1909. Its demolition date is unknown.[100]

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[95]Williamsport –Washington Township Public Library, *The Warren Republican* 1 January 1901. Accessed online, October 2013. http://www.wwtpl.lib.in.us/HistoryRecordView.aspx?historyRecordID=2503

[96]Grayson County Jail, 1887-1929, Grayson County TXGenWeb, Accessed online, November 2013. http://www.rootsweb.ancestry.com/~txgrayso/photo3.html

[97]Sherman TX, Contract for Rotary Jail, Archives, Rotary Jail Museum, Crawfordsville, Indiana.

[98]Joseph Auld, *Picturesque Burlington: a handbook of Burlington, Vermont, and Lake Champlain,* (Vermont: Free Press Association, 1893), 5. Google eBook, Accessed online, October 2013. https://play.google.com/books/reader?id=S9c3AQAAIAAJ&printsec=frontcover&output=reader&authuser=0&hl=en&pg=GBS.PA53

[99]Miller, *The Utah Historical Quarterly*, 337.

[100]*Ibid.* 327, 338.

8. Dover, Strafford County, New Hampshire (non-extant), was built in January 1888. While the number of tiers is unknown, historical data states there were fourteen revolving cells with an attached Sheriff's Residence. The jail was torn down in 1918 for scrap metal, which was used to help the war effort during World War I.[101]

9. Wichita, Sedgwick County, Kansas (non-extant), was built in April 1888. The residence was two-stories with a basement and attic, with the Sheriff's Residence located on the southern portion of the building. It was located in the same block with the county courthouse, on the southwest corner of N. Market and E. Elm.[102] The jail featured two tiers with ten cells per tier. The cells are described as being 8' 6" in length, 22" wide at the back of the cell and 6'6" at the opening. In 1917, twenty-six Industrial Workers of the World (IWW), more commonly known as "Wobblies," were confined at the Sedgwick County jail for several months under federal indictment for wartime conspiracy. Some of the IWW members were held as long as two years. Apparent mishandling of the case by government attorneys led to the extended stay. [103] The most famous prisoner held at the Sedgwick County jail was temperance activist Carrie Nation, who was sentenced to three weeks for causing a disturbance. In 1919, complaints of inadequate medical care and unsanitary conditions, led Joseph Fishman, a Justice Department Prison Inspector, to call it one of the three worst jails he had ever seen, stating that "[Sedgewick County Jail] …was unfit for an animal let alone any human beings."[104] The jail was demolished in 1919.[105]

10. Pueblo, Pueblo County, Colorado (non-extant), began construction of their new county jail in July 1888 at 1501 Martin Street. The contract called for a jail that would contain thirty-seven cells.[106] The rotary portion featured two-tiers with ten cells per tier. The description offered in the Pauly catalog, states that the Pueblo County Jail was the largest of the Pauly Rotary Jails built. The Pueblo Jail building featured a third story, but this did not include the rotary cage, which extended only two stories. The third floor held separate housing for women and children, as well as a hospital cell. The cost of construction was approximately $80,000.[107] Taking fourteen months to construct, the first prisoners arrived on September 6, 1889.[108] The rotary cages were dismantled in March 1969, a year after the building was sold to Rabbi Nathaniel Pollack for a sum of $2,400.[109] The building served as a private residence for many years and has since been demolished.[110]

11. Waxahachie, Ellis County, Texas (extant, substantially altered) was built in November 1888. The building is located in the 200 block of Rogers Street within the Waxahachie Historic District. The jail had two tiers with ten cells per tier. Beginning in 1929, the building served as the home of the Relief Work Commission during the Great Depression. It has continued to house a variety of commercial businesses including law

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[101]Dover Public Library, "Strafford County Jail/The Revolving Jail." Accessed online, January 2010, http://images.dover.lib.nh.us/DOVEHISTORY/strafford_county_jail.htm

[102]Sanborn Insurance Maps, "Wichita, Sedgwick County, Kansas: November 1892," Digital Sanborn Insurance Maps: 1867-1970, Accessed online October 2013, Plate 4, Kansas City Public Library, Kansas City Missouri. http://sanborn.umi.com.proxy.kclibrary.org/ks/3114/dateid-000004.htm?CCSI=121n

[103]Larry Edward Riedlinger, "Jails and the Correctional Movement in Sedgwick County," Thesis, Wichita State University, 1978. 13.

[104]*Ibid*.

[105]*Ibid*, 10-14.

[106]Contract, Pueblo County, Colorado, and Pauly Jail Building and Manufacturing Company, St. Louis, July 30, 1888, located in Archives, Rotary Jail Museum, Crawfordsville, Indiana.

[107]Ken Clark and LaJean Chance, "Pueblo County Jail with Rotary Cell Unit," Reprinted from *Pueblo Lore* May 2009, 5.

[108]*Ibid,* 6.

[109]"Dismantling Started on the Old Jail in Pueblo," *Pueblo Chieftain* 6 Mar 1969, n. p.

[110]Pueblo County Assessors Records. Accessed online, August 27, 2010. http://maps.co.pueblo.co.us/pueblocounty/default.aspx?findvalue=525224017&Layer=Parcels

offices.[111] While the building still stands, the cage was dismantled and sold. One source stated that the iron was used in the construction of the Ellis County Zoo, however, this information could not be substantiated. The jail and sheriff's residence is listed with the Texas Historical Commission and is included in the Ellis County Courthouse Historic District, which is listed in the National Register of Historic Places.[112]

12. Charleston, Kanawha County, West Virginia (non-extant), December 1888. From a photograph found in a 1901 publication, it appears that this rotary jail and sheriff's residence was a two-story brick building possibly with a two-tier cage. The cost of the jail was stated to be $37,500. The date of opening was not found but it appears to be the last rotary jail constructed. The number of cells per tier, as well as the date of demolition, is unknown.[113]

P. J. Pauly's great-great grandsons, Robert James Pohrer and Joseph Pauly Pohrer III continue the family operation in four locations. The corporate office is located in Noblesville, Indiana, with three branch offices in Gulfport, Florida, Weldon Springs, Missouri, and St. Louis, Missouri.[114] While the firm maintains a few copies of documents that survived through the years, there is very little original data. Most of the company records that were stored in a warehouse located at 500 Huber Park Court, Weldon Springs, Missouri, were lost to fire in the late-1990s.[115]

The Importance and Demise of the Patented Rotary Jail

Jails constructed during Reconstruction typically could be found in the basement of a county courthouse or within a sheriff's residence. The footprints of these facilities were either square or rectangular in shape and included small stationary cellblocks lined up in rows. The number of cells could range from a single to multi-storied facility. This type of jail often required a large staff that had constant contact with the prisoners. The invention of the rotary jail was one of the most unique and innovative designs in jail construction in U.S. history and was a radical departure from the jail buildings more commonly found in county jail architecture. The unusual structure led to inventive nicknames such as, the Merry-Go-Round jail, the Lazy Susan, and the Squirrel Cage jail.

The Rotary Jail illustrates a historic perspective on the use of technology and engineering as one design for an efficient and economical county jail facility during the late 19th century. Social reform, economics and technology were the driving forces that shaped the concept and subsequent invention of the rotary jail into a unique and American building type. One major difference in the rotary jail design when compared to typical prisons prior to 1880, addressed the need for privacy by designing separate cell space to hold women and children as seen on the second level of the Montgomery County Rotary Jail. The architect, E. J. Hodgson, was likely inspired by his father Isaac's design for the Indiana State Women's Reformatory of 1871, which provided a dedicated facility for female prisoners.

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[111] "The Old Jail," Article obtained from archives located at Rotary Jail Museum, Crawfordsville, Indiana.

[112] Ellis County Courthouse Historic District, April 23, 1975, National Register of Historic Places Program: Research, Accessed online October 2013, http://www.cr.nps.gov/nr/research/

[113] Charleston Chamber of Commerce, West Virginia, *The century chronicle devoted to the capital city: its history, resources and natural advantages* (Charleston: The Chamber, 1901), 27. (Google eBook) Accessed online October 2013. http://books.google.com/books?id=uHQtAAAAYAAJ&dq=Charleston,+Kanawha+County,+West+Virginia+Jail&lr=&source=gbs_navlinks_s

[114] The Pauly Jail Building Company. Accessed online, May 5, 2010. paulyjail@ind.paulyjail.com

[115] Interview, Joe Pauly Pohrer III, Nobelsville, Indiana, November 24, 2009.

Economical in its operation, the design of the rotating system of cells in isolating prisoners from one another also isolated the jailer from the jailed. This made it possible for one person to operate and secure a prisoner. In the absence of the sheriff, only one additional person was needed to provide food and water for the inmates. Often this duty fell to a member of the sheriff's family. Its design greatly reduced the need for a large police force, which made it an ideal jail type for the small rural counties.

The design and construction of the Pottawattamie County Rotary Jail and Sheriff's Residence relied heavily on the technology of the patented rotational cell cage system resulting in what is primarily, a patent-driven building type. Although the rotary jail and sheriff's residence were similar architecturally to many other county jails built after the Civil War, the patented rotary cage unit made the eighteen rotary jails uniquely different from all other jails of the same period. The design for the jail portion of the building's envelope was determined by the rotary patent in direct relation to the size of the cage unit. As a major manufacturer and supplier of ironwork for the construction of jails, Haugh and Ketcham Iron Works Company strove to provide the best product for the best price possible. Their expertise in the design of safe inescapable jail buildings demanded a high level of knowledge that utilized the latest technology. Haugh and Brown offered a five-year warranty in their construction contract, a testimony to their confidence in the rotary jail design.

Patented in 1882, the rotary jail was a progressive design for the late 1800s that appeared safe, secure and easy to operate on a limited budget. As an invention, it went into production as an untested system. While the rotary jail was an immediate success for each of the eighteen county locations, its functionality was short-lived. The first problems arose with the stability of the rotary mechanism and the central shaft. Settling of the building caused the rotary cages to shift off balance, which in turn interfered with the rotational mechanism. William Brown later attempted to address this issue with an improvement to the original patent with Patent No. 360,508 as used in the rotary jail built in Pottawattamie County, Iowa, in the hope that the column could be stabilized.

Later, as the counties grew, crime markedly increased. There was a tendency to overfill the cell beyond its' capacity of two persons per cell as originally intended. The additional weight, presented from overcrowding, caused further problems to the balance of the mechanism. Even repositioning the support system of the rotary column, from a bottom support to a top down, could not solve the problem of overcrowding.[116]

The plumbing system often caused problems when the flush system was neglected. Mismanagement of the toilet stack occurred when it was not flushed daily by the jail staff. The resulting health issues were often cited as the reason for abandoning the use of and eventual demolition of several of the rotary jails.[117] In 1888, the Pauly Jail Company attempted to improve the valve system of the original jail with a patent improvement to the flush valve. However, the valve remained workable only if the jailer provided time for proper maintenance. A majority of these eighteen jails closed down because of health issue caused by improper ventilation from blocked toilet stacks.

Heating and cooling the rotary cage area was difficult due to the large area of steel plating, and as a result, the jail was an oven in the summer and a refrigerator during the winter months. The rotary jails that remained open after 1940 were retrofitted with proper heating and cooling systems.

Issues of safety for the prisoners became evident as the years progressed. Stories of inmates falling asleep with an arm or leg hanging outside the cell resulted in severe injury or loss of limb. At the Pottawattamie County

[116]Brown's application of Patent No. 360,508 was used in the construction of the Pottawattamie County Rotary Jail and Sheriff's Residence.
[117]This was a huge factor in the demolition of the rotary jail in Wichita, Sedgwick County, Kansas

Rotary Jail, the open space surrounding the three-story cage was seen as a potential hazard in the safe evacuation of prisoners in case of a fire. In 1960, the Pottawattamie County commissioners, at the behest of the fire marshal, chose to disengage the mechanism that rotated the cage unit. In 1965, the U.S. Department of the Interior recommended that the building be preserved as an "oddity."[118] However, the jail remained in use until December 1, 1969, when prisoners were relocated to the new Pottawattamie County Jail just south across the parking lot.

In 1970, the Council Bluffs Park Board purchased the building in 1970 for $5,000 and operated the property with the Pottawattamie Historical Society. Their vision was to save the old building in the condition of its original intent as a museum. In 1972, the building received national recognition when it was placed on the National Register of Historic Places (March 16, 1972). The historical society invested over $10,000 into renovating the old jail but, by 1977, it was threatened with demolition as an eyesore, with the property being considered as prime property to provide additional parking for the new courthouse. However, an agreement was made with the Council Bluffs city council to lease the property to the Pottawattamie County Historical Society for one dollar per year. In 1978, the historical society bought the building for $8,001.00. It is currently operating under the management of the Pottawattamie Historical Society as the Historic Pottawattamie County Squirrel Cage Jail Museum.

Comparative Analysis of Extant Rotary Jail and Sheriff's Residences

In addition to the Pottawattamie County Rotary Jail and Sheriff's Residence of Council Bluffs, Iowa, three other rotary jail buildings remain extant, but vary in degrees of historic integrity. One was manufactured by Haugh and Brown, and the remaining two were constructed by the Pauly Jail Company of St. Louis.

Crawfordsville, Montgomery County, Indiana: 1882

E. J. Hodgson of Indianapolis, Indiana, designed the envelope for this rotary jail. William H. Brown served as the supervising architect during its construction. The firm of Benjamin F. Haugh, Haugh, Ketcham and Company of Indiana, as with the first six rotary jails, constructed and oversaw the installation of the two-story rotary jail cage unit, which was invented by Benjamin Haugh and William H. Brown. Construction was completed in 1882.

Built to the specifications of Haugh and Brown for the rotary portion of the building Montgomery County Jail features a two-story cellblock consisting of sixteen wedge-shaped cells, eight to a floor, centrally arranged around a central rotary mechanism. In other words, the rotary cage is held in place on a rotary shaft that extends from the cellar floor to the roofline. The turnkey is located on the first level in the jails vestibule.[119] The cells are placed within a stationary cage bolted to the floor and ceiling.[120]

The entire first and second floors of the rotary cells were exclusively for men, while the second floor contained a women's cell wing (for up to four women) on the north side with a "cell for the insane" on the south.

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[118] Ryan Roenfeld "Historical Pottawattamie County Squirrel Cage Jail," The Historical Society of Pottawattamie County, Iowa. Reprint, Archives, Pottawattamie Squirrel Cage Jail. June 16, 2006, 4.

[119] Patent No. 244,358 for the rotary jail shows that the center column for the rotary mechanism was designed to balance from the floor up. A patent filed in 1886 by William Brown revised this design with an improvement that suspended the center column from the roof downward in an attempt to correct problems caused by foundational settling that occurred in the original design.

[120] See "The Self-Guided Tour of the Old Jail Museum." Rotary Jail Museum.

Like Pottawattamie, the only access to the individual cells was from one opening through the door off the turnkey area. Montgomery County does include a third story. Rather than rotary cells, it consists of three small square cells, which were to serve as a hospital unit for sick and injured prisoners, but instead was used as a temporary holding area for incoming prisoners. The third floor also offered access to the top of the rotary axis in the event the cylinder needed balancing adjustment.

During the 1930s, the Montgomery County fire marshals became concerned about the potential fire hazard of the jail and subsequently registered a formal complaint. Because of a Grand Jury investigation and the initial fire marshals' reports, the rotary cylinder was welded to its stationary outer shell in 1938. The Montgomery County Commissioners also ordered the jail cellblock "welded immobile following the injury of one inmate during the rotation of the cells."[121] Doors were cut into the outer cage for each of the pie wedged cells and a circular catwalk was built around the second level to provide egress from the cells. Ultimately, the doors were removed altogether and prisoners were given access to the "bull pen" area outside the rotary cage.[122]

Unlike Pottawattamie County Rotary Jail, Montgomery is more formal in design and layout. Additionally, it features a full turnkey's office situated between the sheriff's living quarters and the jail. Here, the Sheriff's Deputy (or turnkey) conducted administrative duties, received attorneys and visitors for the prisoners. Entry to the jail was through this "jail lobby" where the turnkey performed duties. The first floor of turnkey's office now displays artifacts associated with the historic jail. A steel staircase in this room leads to the second and third floors. The holding areas or "drunk tanks" (prisoners at these locations were kept for a duration of time if, for instance, they were inebriated) to the jail proper are located at the west end of the turnkey room, one to each floor. The turnkey's office also provided access to the crank mechanism used to rotate the cells.

Much of the original interior space and detailing of the sheriff's living quarters remains intact. The main staircase, built of butternut wood, features decorative newel posts and solid rail. Spacious rooms with high ceilings add to the formality of the interior space of the sheriff's residence. Each room features wood base and ceiling molding, while the south parlor features a modest fireplace. To the west of the family parlor is the original dining. Except for the floor of the foyer, which is wood, all floors are carpeted.

The jail was in use as a county jail until June 1973. Renovation efforts by the Montgomery County Cultural Foundation (formed in April 1977) had begun in 1975. At this time, the welded joints were removed to make the rotary cage operational. Additional interior improvements were made.

The kitchen, located to the rear of the dining room was updated while the original pantry, located to the north of the kitchen, behind the dining room, is now a bathroom. Three bedrooms and an office were originally located on the second floor off the double-loaded hall that is placed directly above the first-floor hall. The bedrooms area had been used as display rooms in the past, but more recently for office space and collections storage. Museum storage is located above the kitchen and is reached by a separate rear staircase.[123] There are four unfinished rooms located at the attic level.

Unlike the raw grittiness of the graffiti filled walls and musty smells of the Pottawattamie County Rotary Jail, the Montgomery County facility was cleaned and painted throughout. In the process, this rotary jail has been sanitized and is devoid of all remnants of graffiti that once filled the walls of its cells and bullpens as placed by

[121] Dean, "The Construction of the Old Jail," 15; "Desire New Jail and Courthouse," *The Lebanon Reporter* 25 August 1938, n.p.
[122] Pamphlet, "The Old Jail Museum," Indiana Department of Commerce.
[123] The north bedroom, now museum storage, measures 176 square feet. The south bedroom, now an office, measures 307 square feet, while the southwest bedroom measures 204 square feet. The room directly above the kitchen is 210 square feet.

the prisoners who resided within the confines of this jail for 75 years. Montgomery County Rotary Jail was listed on the National Register of Historic Places on May 1, 1975.

Gallatin, Daviess County, Missouri: 1887

The Pauly Jail Building and Manufacturing Company constructed this one-story rotary jail and Sheriff's residence in 1887. J. P. Pauly, Jr., was the architect whose sketch for a similar style appears in the Pauly Jail Catalog ca. 1888. This is the smallest of the extant rotary jails. Had the original cage been left intact, this facility would have been the only remaining example of a rotary unit built by the Pauly Jail Building and Manufacturing Company. As retrofitted during the renovation process, the jail consists of one tier with eight cells and sits within the original octagonal-shaped building envelope. The sheriff's residence is two-stories.

Where the Montgomery County Rotary Jail provides a vision of an elegant lifestyle for the county sheriff within a residential neighborhood, the Daviess County Rotary Jail provides what is perhaps a more typical example of a very plain rural county jail of the period. Architecturally, it is very simple and lacks any embellishment or outstanding features.

The cage and turntable were removed in 1964 and replaced with block style cells.[124] This facility operated as Daviess County jail until it closed in 1979. The building remained in use as a dispatch center and provided a residence for the deputy sheriff until 1980. Unlike the facilities in Montgomery County, Indiana, and Pottawattamie County, Iowa, this building was substantially altered in 1984 when the rotary cage was reconstructed with a non-original replication. This, along with the removal of the rotary cage in 1964, compromised the historic integrity of the facility. It was listed on the National Register of Historic Places in 1990 at a local level of significance.[125] The building now serves as a museum for the Daviess County Historical Society and is open for tours.

Waxahachie, Ellis County, Texas: 1888

The Ellis County Rotary Jail and Sheriff's Residence in Waxahachie, Texas, is located in the 200 block of Rogers Street within the Waxahachie Historic Court District. This jail was originally very similar to the floor plan of the Montgomery Rotary Jail. Two cells used for "solitary confinement, were situated in the basement [where] perpetrators of heinous crimes were placed."[126] The smaller of the two rooms included four iron rings attached to the floor and wall used for locking down a solitary prisoner. In addition, "the whole area of the jail lot was enclosed by a fence of iron bars, eight-foot high on the sides and extending to the back of the yard. In the front of the jail the fence was only four feet high."[127]

This rotary jail had two tiers with ten cells per tier for a capacity of twenty prisoners, as compared to the Montgomery rotary jail that featured two tiers with only eight cells per floor. The Waxahachie rotary jail was closed prior to 1929 when it was replaced by a much larger jail. During the Great Depression, the old rotary jail building served as the home to the Relief Work Commission.

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[124]Jim McCarty, "The Squirrel Cage: Gallatin's Rotary Jail Was No Place To Do Time," Rural Missouri, June 1987, 9.
[125]Cydney Millstein, "Daviess County Rotary Jail and Sheriff's Residence," National Register of Historic Places nomination, February 23, 1990.
[126]John Hancock, "Ellis County Jail: 1888," Online, http://www.rootsweb.ancestry.com/~txecm/index.htm#historical%20info
[127]Ibid.

In October 1941, a bid was accepted for the removal of all metal from the jail. The cages were dismantled at this time, although the building envelope remained in place until 1947, when the jail property was sold at public auction. Thomas Hipp, owner of an automobile business, purchased the building and began making structural changes to accommodate his business. The sheriff's residence, which remained largely intact with a few interior alterations, became Hipp's residence. The jail was substantially altered when Hipp removed the entire two-story section that once housed the rotary cage to accommodate his garage and office space. A lift for raising cars was installed in the basement.

The building, as it stands today, is dominated by a round turret and conical roof, visible at the main façade. It is in very good condition but lacks historic integrity as a rotary jail. Over the decades, it housed a variety of commercial businesses and at the time of this writing, provides office space for a law firm.[128] The Ellis County Rotary Jail and Sheriff's Residence is part of the Ellis County Historic Courthouse District in the Waxahachie Multiple Resource Area which was listed on the National Register of Historic Places on April 23, 1975.[129]

CONCLUSION

The Pottawattamie County Rotary Jail and Sheriff's Residence, located at 226 Pearl Street, Council Bluffs, Iowa, is nationally significant under NHL Criterion 4, Theme III Expressing Cultural Values, for its distinctive architecture and design that combines a sheriff's residence with a unique form of incarceration as presented in the form of the patented rotary jail. The property retains a very high degree of historic integrity for the period of national significance, 1885 to 1889. The property is one of only two extant rotary jails that have survived since the inception of its engineering and technological design as patented in 1881 by Haugh and Brown. Although disabled in 1960, the machinery is fully intact. Stewards continue to preserve the property in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

The eighteen rotary jails constructed in fourteen states between 1882 and 1888 represented a transitional phase during a period when the United States prison system was under growing criticism as a brutal form of punishment for the incarcerated. The rotary jail design was seen as a way to offer security for county governments while implementing a more humane form of incarceration for the prisoners. Although many jails of the period included the sheriff's residence, which was an accepted, cost effective and convenient system of law enforcement during the mid to late 19th century, the uniqueness of the "rotating jail cell" added a dimension of technology that had not been seen prior to that time nor after.

The unusual design of the jail represents NHL Theme VI Expanding Science and Technology, as an example of the use of technology to address the economic and social changes in rural America. Antebellum technology was rudimentary when compared to the explosion of new technology, innovative design, and the entrepreneurial spirit that led to an increased number of patent applications submitted to the U.S. Patent Office after the Civil War. Benjamin F. Haugh, the owner of a large steel and iron manufacturing firm, was also an inventor. When he joined forces with William H. Brown, the two men developed their patent for the rotary jail.

The rotary jail's unique design is a reminder of the ingenuity that abounded at the beginning of the Industrial Revolution in the United States, applying technology to social and economic problems. Until the introduction of

[128]"The Old Jail," Article obtained from archives located at Rotary Jail Museum, Crawfordsville, Indiana. See also: Ellis County Jail 1888, On-Line, http://www.rootsweb.ancestry.com/~txecm/ellis_county_jail_1888.htm and http://www.virtualtourist.com/travel/North_America/United_States_of_America/Texas/Waxahachie-881856/Things_To_Do-Waxahachie-Ellis_County_Jail-BR-1.htm

[129]"Ellis County Jail: 1888," Online, http://www.rootsweb.ancestry.com/~txecm/index.htm#historical%20info

the rotary jail technology in 1882, county jails resembled much smaller versions of typical state penitentiary facilities. Additionally, it was not unusual for jails to contain living quarters for a guard staff or as in the case of county level facilities, a residence for the sheriff and his family, yet did not feature the distinctive rotary jail portion within the building envelope. What makes the architecture of the building unique is the polygonal or octagonal space designed to house the round cell cage of the patented rotary jail. The innovative rotary technology offered an economic solution to small county government systems by solving the problem of costs incurred from the necessity of incarcerating local law breakers. Additionally, it was the intention of Haugh and Brown that their invention offered a safe, secure, and humane structure for the purpose of incarceration as a scientific means of addressing the social reforms of the prison system during the late 19th century.

When completed in 1885 the Pottawattamie County Rotary Jail and Sheriff's Residence represented a key high style architectural expression in a residential neighborhood of Council Bluffs. While it includes a jail in its overall highly textured building envelope, it was designed to blend in with the surrounding architectural environment. Although the urban landscape has changed with the addition of the modern Pottawattamie County Courthouse, built in 1975 across the parking lot to the south of the jail, the Pottawattamie County Rotary Jail and Sheriff's Residence continues to be a key component in the historical and architectural legacy of Council Bluffs, Iowa.

Additionally, of the eighteen rotary jails, the Pottawattamie County Rotary Jail and Sheriff's Residence is the largest rotary jail ever constructed. It is the only remaining rotary jail designed for a three-tier rotary cage unit and illustrates the flexible nature of the Haugh and Brown patented design. The Pottawattamie Rotary Jail continued to rotate until 1960, nearly three decades longer than the Montgomery County Rotary Jail.[130] The Pottawattamie County Jail with its unique patented rotary jail design is a reminder of the ingenuity that abounded during the Industrial Revolution in the United States. All the physical features of the property convey the intent, purpose, design, and character of this unique property for the period of national significance, 1885 to 1889.

[130]While the building was undergoing renovations for use as a county museum, it was decided to repair the cog and wheel mechanism to allow the Montgomery County Rotary Jail cells to rotate for the first time once again since they were locked down in 1938.

6. PROPERTY DESCRIPTION AND STATEMENT OF INTEGRITY

Ownership of Property	Category of Property
Private:	Building(s): x
Public-Local: x	District:
Public-State:	Site:
Public-Federal:	Structure:
	Object:

Number of Resources within Boundary of Property:

Contributing	Noncontributing
Buildings: 1	Buildings: 0
Sites: 0	Sites: 0
Structures: 0	Structures: 0
Objects: 0	Objects: 0
Total: 1	Total: 0

PROVIDE PRESENT AND PAST PHYSICAL DESCRIPTIONS OF PROPERTY
(Please see specific guidance for type of resource[s] being nominated)

Site

The Pottawattamie County Jail and Sheriff's Residence, sited on less than one acre, is surrounded by an eight-foot high open metal fence at the south, north and west facades. A narrow concrete drive, accessed from the adjacent alley to the north of the property, reaches the entrance at the main (east) façade. Three wood benches are placed at the south end of the drive and face inward toward the building. The grass lawn surrounding the building extends to the foundation except at the east façade. A large oak tree is sited in a triangular-shaped green sward at the east side of the building. The tree and lawn outside the iron fence are maintained by the Pottawattamie County Conservation department. A memorial honoring the late Pottawattamie County Sheriff's Deputy Mark Burbridge was placed inside the fence at the west boundary of the building in 2017. Purchased through private donations, the memorial was made possible through the *Horses of Honor* project which originated in Chicago in 2014.

Exterior

The exterior design of the Pottawattamie County Sheriff's Residence and Rotary Jail suggests the influence of mid-nineteenth century Romanesque architectural treatments that would have been familiar to E. J. Eckel, who trained in Strasbourg, France. Unlike the earlier Montgomery County Jail, the Pottawattamie jail exhibits a simpler, more function appearance characteristic of prison design. typifies the hallmarks of that once popular architectural expression. Features of the Pottawattamie County jail that exemplify the Italianate style include the overall massing and shape of the structure (cross gable), the centered gabled entrance bay with a double-door, bracketed cornice at all facades, and a prominent square cupola.
It should be noted that while this building combines two distinct functions, they are both placed in one building envelope.

The main facade faces east, where a centered projecting gabled bay, with corbelling and buttressing, dominates. Features also include a deeply recessed double-door entry, placed in a pointed, Gothic Revival styled limestone arch surround within a steeply pitched gable. Fenestration of this centered bay features paired double-hung, one-over-one wood sash windows at the second story and two, quarter-round fixed windows at the third story set in an arch surround. Limestone mullions and sills further define the fenestration. Limestone amortizements and a recessed spandrel between the second and third stories, also articulate the entry bay. Flanking the entry bay are slender, one-over-one, double-hung wood sash units, one to a floor. These units are embellished with limestone sills and surrounds, like those of the center bay.

The north and south gabled bays contain similar architectural vocabulary as articulated at the main façade. The gable ends are corbelled, and fenestration is of the same configuration and material, except for the third story windows, which are covered with steel grates. Another variation can be found on the south façade where a single-leaf wood door and storm door, crowned by a multipaned transom, is centered below the second story window. Flanking the entrance are two stone tablets carved with the names of the designers, contractors and suppliers (to the west of the door) and the Board of Supervisors from 1885 and 1886 (to the east of the door).

Additional detailing of the Pottawattamie County Rotary Jail and Sheriff's Residence include brick belt coursing, brick lintels at the fenestration, a molded sheet metal cornice with inverted bracketing throughout the roofline, and truncated sheet metal finials flanking the gables at the east (main façade), south and north sides. The Rotary Jail is housed to the rear of the Sheriff's quarters in a rectangular shaped (with clipped corners), pyramidal roof unit, crowned by a pyramidal, wood cupola topped by a decorative metal finial. The overall massing and detailing of the jail portion of the building corresponds to the Sheriff's Residence (the eastern third of the structure), as described below. Each cross gable is corbelled and features truncated finials at the roofline.

Fenestration, set in limestone surrounds at the first and second stories, is steel-framed industrial sash, set in threes at the first and second stories. The third story units are tripartite, multipaned, wood-framed, sash; the whole set in a recess and divided at each story by recessed panels. All units are covered with steel bars at the upper portion of the exterior and the lower portion of the interior to provide for ventilation. Each semi-hexagonal bay (placed at the corners) of the rotary jail section features at the first and second story, double-hung, sash fenestration with steel bars matching those of the east façade. Steel panels obscure the second story fenestration at the southwest and northwest corners.

In 2003-2005, the exterior of the Rotary Jail and Sheriff's Residence building was tuckpointed and some deteriorated limestone windowsills were replaced with new, in-kind limestone by Renaissance Restoration, Inc., of Galena, Illinois. The project also included the following: masonry cleaning, replacement (where necessary), stone patching and tuckpointing. In addition, interior masonry basement walls were repaired and tuckpointed; sheet metal cornice, downspouts and gutters were repaired. All work followed the *Secretary of the Interior's Standards for Rehabilitation*. [131]

The building has a faux slate roof, composed of EcoStar Majestic slate roof tiles, with galvanized steel flashing and original built-in gutters also define the exterior. The failing roof was replaced 2013-2014 with the new material, which mimics the appearance of the original roof material at a fraction of the cost. Large portions of the original slate roof had been removed and repaired over the years until a leaky patchwork remained. Replacement with true slate was cost prohibitive and the deteriorating roof was failing, damage to the interior of the building was beginning to occur. The National Park Service and Iowa State Historic Preservation Office

[131] See AIA contract between the Historical Society of Pottawattamie County and Renaissance Restoration, Inc., August 14, 2003.

determined that the project met the *Secretary of the Interior's Standards for Rehabilitation* and was required to preserve the building.

Interior

The Pottawattamie County Rotary Jail contains the only three-tier cage ever built. It has thirty cells, ten on each floor. The jail portion of the structure is reached through the Sheriff's Residence through the main double-door entrance of the east facade, which opens to a center hall. Here, the entrance to the first floor of the Rotary Jail and the metal single-run stairs to the upper floors of the jail are located. The first floor of the jail is situated behind the first-floor stair run.

The rotary cylinder measures 28' in height and 24' in diameter and is "suspended from an iron beam on the fourth floor."[132] The cylinder weighs approximately 90,000 pounds or 45 tons (deadweight). A hand crank was used to turn the jail (it was located in a small room adjacent to the rotating portion of the jail).

The design of the Pottawattamie Rotary Jail is based on Haugh and Brown's original 1881 patent (U.S. Patent No. 244,358) and subsequent revisions. While the original patent includes a lengthy and sometimes complicated specification, *The Pauly Jail Building and Manufacturing Company Catalogue*, contains a description that includes the general features and mechanics of the jail based on the original patent. While any exception and/or variation to this general description is addressed below, the following account pertains to the overall mechanics of the rotary portion:

> The circular cell structure is intended to be any required number of stories in height, with ten or less cells to each tier and rotates, bodily, on a central vertical shaft, turning upon conical steel rollers, like a railway turn-table…The cells are surrounded with a heavy stationary combination iron and steel grating, extending from floor to ceiling, with only one door opening it for each tier of cells. As the cell structure revolves and the several cells contained therein are successively presented in front of the door in the stationary grating, it is possible for prisoners to be put into or taken out from the cells, provided the door is opened by the keeper, but at no other time is this possible, as all the cells except the one opposite the door, are securely closed by the grating behind which they move. By this means all possibility of a rush of prisoners upon the keeper is removed and the prisoners can be handled and controlled at all times with perfect safety, as the keeper never comes in contact with more than the occupants of one cell at a time.
>
> The cells are rotated by a crank at the entrance door; or during the nighttime in large jails, the cells can be kept slowly rotating by a small water motor, or any motive power most convenient and cheapest; thus prisoners are deprived of the chance of working for escape.
>
> A ventilating shaft…eight feet in diameter extends up through the cell structure and discharges into the open-air through a turret on the top of the building. Each cell is provided with a permanent water closet…projecting from the rear end of the cell into the ventilating shaft and is suspended over an open trough of running water, with a grated ventilating register over each closet. Now, with the great cast iron heated smoke stack from the furnace in the cellar running up through this ventilating shaft, it will readily be seen that a powerful upward current of the air is created, which will cause all the prison

[132]Roenfeld and Warner, *Tales From The Squirrel Cage Jail*, 5.

> odors to be rapidly drawn from the cells and discharged into the open air above the roof, thus affording the best system of ventilation known.[133]
>
> The cells, which rotate about the vertical shaft, are made of a combination of iron and steel jail plates or iron plates lathed with five-ply bars, three layers of iron and two of steel, which makes it most difficult for prisoners to work at, even if provided with tools. The stationary lattice work which encases the cells is made of either round or flat bars…This outside grating is always made of the combination bar, or iron and steel, unless otherwise specified in contract.[134]

The walls between the cells were constructed of solid steel-plate metal to prevent prisoners from seeing each other. The rotary portion was placed inside an outer, gridded stationary cylindrical cage, bolted to a flagstone floor and iron plates in the ceiling. Generally speaking, the cage features rectangular bars (2 ½" by ½", spaced 3 ½" apart) and ribbed with horizontal bars of the same size (1', spaced 3 ½" apart). Prisoners were taken from the holding or turnkey area to the cells through heavy iron door or could be sent to the exercise room (bull pen area) located outside of the stationary cage.

Variations from Haugh and Brown's original 1881 design are minimal. As in the other rotary jails, the stationary portion of the jail in Council Bluffs was made of heavy metal bars measuring 2 ½" x 1 ½." Cells are a bit larger than other facilities, though, measuring eight' high and 7 ½' deep to the center and hold a single bunk bed. The passageways from the outside entrance to each of the floors inner cylinders featured a screened, sliding door that opened to a small room. Opposite the sliding door is a swinging door built on a vertical rocker arm with segmental gridded frames at the opposite end reaching from floor to ceiling. In order to open each passageway, the rocker door opens to the right or left, which in turn, opens both entrances.

As in the other rotary jails, the area between the outer shell (two layers of brick) and the brick exterior (three layers of brick) was used as a general day room for the prisoners.[135] Activities such as bathing, dining and exercising were permitted in this area. The grub hole used for food delivery was located in the kitchen.

The rotary portion was fixed in place in 1960 with concrete, inserted around the base of the rotational shaft, and some of the gears in the turning mechanism were removed. The revolving and stationary cages are equipped with built-in bunk beds and privies. The cog and wrench used to turn the cage are visible on the attic-floor level. Additionally, the State Fire Marshall ordered modifications to the jail including cutting doors in each cell at the first floor for access to the bullpen and at the second and third stories to allow for better ventilation. These modifications reduced the number of cells to eighteen (ten on the first floor, five on the second and three on the third) from the original thirty.

Originally, the Sheriff's Residence was placed on two levels: the attic level of the jail featured three bedrooms and a bathroom, while the kitchen and the living room were located on the first floor, south and north ends respectively. Over time, the Sheriff chose to live outside of the jail as affordable housing became available. While the Sheriff worked at the jail during the day, jailers were hired to oversee the prisoners during the night hours. This arrangement more than likely occurred due to inconvenience of location (several floors from the entrance to the structure) and problems with ventilation (and excess heat during the summer months). As a

[133]As the cells made a revolution, a valve would open, thereby clearing the bowl. This particular aspect of the rotary function of the jail was a subsequent improvement by Peter J. Pauly, Sr., of the 1881 patent.

[134]"The Pauly Jail Building and Manufacturing Company Catalogue," c. 1887, 21-22.

[135]Ryan Roenfeld and Dr. Richard Warner, "Tales From The Squirrel Cage Jail," Vol. I, 2009, 4.

result, the night jailer slept on the second floor (south end) where the original women's jail was located, opposite the juvenile quarters (north end). Subsequently, the women's jail was moved to the third floor.

The original kitchen and holding room, designed as part of the Sheriff's residence, are accessed through a small vestibule on the first floor, through the main entrance at the east facade. The interior wood apron door opens to a single-run, steel staircase. A room located to the right, north of the stair hall, served as the original holding room for the prisoners. It then became the living room for the Sheriff's Residence. It now houses the office of the Historical Society of Pottawattamie County. While the original door has been removed, the doorway and original single-light, fixed wood-framed transom remains. This room features original wood flooring, plaster walls covered with wallpaper, wood baseboard, and crown molding.

A kitchen is located on the left of the vestibule, to the south of the stair hall. This kitchen was originally used to make meals for the prisoners and for the Sheriff and family. Currently the space is partially used for exhibit space, while the remainder was renovated to house a c. 1920s kitchen. The flooring is linoleum.

A single-run, steel staircase reaches to the second floor. The north room of the second floor originally housed the juvenile prison. The room displays an arched steel gate. Many of the original features of this section of the second floor, such as the food slot, toilet, sink and bunks, remain. The south room, originally the location of the women's jail, was later converted to a bedroom and bath for the night jailer and spouse. Walls, floor and ceiling are steel, left over from the women's jail cells.

Two rooms flank the double-run, steel staircase at the third story. The north room was originally the location of the infirmary; the south room housed female prisoners. Both rooms have wood floors, plaster walls and wallboard covered ceilings.[136]

The fourth floor or attic is accessed by a single run, steel staircase. This portion of the building originally served as the 'warden's apartment' or living quarters for the sheriff and his family, but due to the oppressive heat in the summer and problems with ventilation, the rooms were vacated and converted to storage. The entry way provides a small parlor area. A small polygonal-shaped enclosure or machinery room is located in the center of the apartment and provides access to the top of the cage for maintenance to the rotary mechanism. In addition to the center floor space, five additional rooms, located off the central area served as bedrooms/guestrooms/storage and office space over the years, dependent on the needs at any given time.

The rooms to the left and right of the entry way have two steps down into the rooms. The room to the east now has a claw-foot tub and a toilet. It was converted from a bedroom to a bathroom in 1940 when indoor plumbing was installed. A smaller room is accessible from the bathroom and once served as a guest room for a traveling state physician who made regular visits to provide physical exams and health care to the inmates and to ensure that the prisoners were being treated humanely and within state standards.

The room on the west side of the entry is used as a library by the historical society. As with the east room prior to 1940, this room would have served the Sheriff's family in whatever way was necessary. A smaller room is accessed through this room. However, it was sealed off in 1940 when steam heat was installed. The museum staff opened a small hole in the wall through which evidence of the ventilation for an old wood-burning stove can be seen. As financing becomes available this room will be re-opened and converted into an archival repository.

[136] "Pottawattamie County Jail," Draft National Historic Landmark Nomination, 8-11.

The last room opposite the entryway and behind the machine room, is the living room. The floor was painted around the edges, indicating where a throw rug was once used. This room is entered through a two-panel wood door with a transom. All rooms feature wood floors and plaster walls. Doors are typically four-paneled wood with the exception of the door to the current living room, which as stated, is two-paneled.

HISTORIC INTEGRITY

The Pottawattamie County Jail and Sheriff's Residence retains a high degree of historic integrity for the period of national significance, 1885 to 1889. The building remains in its original location at 229 Pearl Street and is now surrounded by late 20th century governmental and civic buildings, mainly of brick construction. To the north is Willow Avenue, to the south is 5th Avenue and 6th Street is to the west. The Union Pacific Railroad Museum (originally the Carnegie Public Library) is to the north; The Pottawattamie County Courthouse is sited to the southwest. Over time, there have been changes to the surrounding environment of the historic property. As illustrated in a 1928 Sanborn Map, the Pottawattamie County Jail and Sheriff's Residence was sited in a neighborhood consisting of large multi-story brick residences to the north, and smaller, modestly scaled frame residences to the west. To the southwest was St. Paul's Episcopal Church and the southeast stood the former Pottawattamie County Courthouse, a large brick structure. Bayliss Park is located to the north. The streetscape along South Main Street, consisting of mostly late nineteenth century brick commercial buildings, still stands to the east of the rotary jail.

The Pottawattamie County Jail and Sheriff's Residence reflects the historic function, technology and aesthetics as originally planned from 1882 to1884 by the architectural firm of Eckel & Mann, St. Joseph, Missouri, responsible for the exterior envelope and layout of the first floor of the Sheriff's residence (and quite possibly the attic level). William H. Brown and Benjamin Haugh designed the rotary portion. The form, massing, textures, patterning, materials, style, and placement of fenestration convey the original appearance and intent of the architects and engineers of this historic property. Changes to the exterior include replacement of a minimal number of original windows over time and replacement of the roof in 2013-2014.

The interior of the jail retains the original layout, configuration, and appearance of the interior rooms. The historic character and arrangement of the Sheriff's Residence is effectively intact from the period of significance. The operation of the rotary shaft and the metal cage were modified for safety concerns in the latter years of the jail's use. The rotary mechanism was fixed in place in 1960 with concrete, inserted around the base of the rotational shaft, and some of the gears in the turning mechanism were removed. Doors were cut in each cell at the first-floor level to provide access to the bullpen and at the second and third stories to allow for better ventilation. These alterations reduced the number of cells to eighteen (ten on the first floor, five on the second and three on the third) from the original thirty.

Overall, these changes have not diminished the building's historic design or its historic integrity. The property retains the key exterior and interior materials from the original design, including brick, masonry, wood, and steel. The ongoing maintenance by the Historical Society of Pottawattamie County has carefully retained the majority of the historic materials, per the *Secretary of the Interior's Standards for Rehabilitation*. The overall craftsmanship of this historic property, including brickwork, mortar joints, tooling, carving, ornamental detailing of the interior (especially the woodwork), and painting is of good quality. The skill and workmanship required to manufacture the rotary portion of the jail, including cells, roller bearing, hand crank, gears, shafts, and of the outer, surrounding cage is reflected in these components and are representative of the era in which the facility was constructed. It should also be mentioned that the Pottawattamie Rotary Jail retains much of the original feeling and association, in that the patina of the interior spaces (graffiti can be found throughout the jail walls), as well as an atmosphere that elicits the aromas and smells once associated with incarceration remain

extant. While the rotary portion was fixed in place in 1960 and some of the gears in the turning mechanism were removed, it is possible to restore the functionality of the rotary mechanism if resources become available. All the physical features of the property convey the intent, purpose, design, and character of this unique property, which served as the Pottawattamie County Jail from 1885 to 1969.

The property was listed in the National Register of Historic Places on March 16, 1972. In 1978, the Historical Society of Pottawattamie County bought the building for $8,001 (they had been leasing the jail for one dollar prior to that time). Rehabilitation under the direction of the historical society began in 2003. Today, the jail serves as a museum and home to the county historical society. The Historical Society of Pottawattamie County is committed to the ongoing stewardship of the building, which serves as a local historic site and museum.

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Previous documentation on file (NPS):

_x_ Previously listed in the National Register (fill in 1 through 6 below)
__ Not previously listed in the National Register (fill in **only** 4, 5, and 6 below)

1. NR #: 7200481
2. Date of listing: March 16,1972
3. Level of significance: National
4. Applicable National Register Criteria: A_x_ B__ C_x_ D__
5. Criteria Considerations (Exceptions): A__ B__ C__ D__ E__ F__ G__
6. Areas of Significance: Architecture, Social/Humanitarian, Penal Institution

__ Previously Determined Eligible for the National Register: Date of determination:
__ Designated a National Historic Landmark: Date of designation:
_x Recorded by Historic American Buildings Survey: HABS No. IA-88-1
__ Recorded by Historic American Engineering Record: HAER No.
__ Recorded by Historic American Landscapes Survey: HALS No.

Location of additional data:

State Historic Preservation Office: x
Other State Agency:
Federal Agency: x
Local Government: x
University:
Other (Specify Repository): Pauly Jail Company, Reyerson Library, Chicago, Il., Colorado State Historic Preservation Office for E. J. Hodgson; Local History, Paducah Public Library, Paducah, Kentucky; Old Jail Museum, Crawfordsville, Indiana; Squirrel Cage Jail Museum, Council Bluffs, Iowa;

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Photograph Log

Name of Property	Pottawattamie County Jail and Sheriff's Residence
City or Vicinity	Council Bluffs
County	Pottawattamie County
State	Iowa
Name of Photographer	Richard Welnowski
Date of Photographs	November 2012
Number of Photographs	28
Number of Figures	19

Photograph 1 shows the east or main façade of the Pottawattamie County Jail. This is the front of the building featuring a centrally located front door. The photo was taken with the camera facing west.

Photograph 2. This image shows the east and north façades of the Pottawattamie County Jail, which are the front and side of the building. The photo was taken with the camera facing southwest.

Photograph 3. This view shows the north façade of the Pottawattamie County Jail and three cars parked in a small lot on the left side of the photo. It was taken with the camera facing south.

Photograph 4. The image shows the north and west façades of the Pottawattamie County Jail, with a close view of three cars parked in a small lot beside the building. The camera faces southeast.

Photograph 5. Shows the rear or west façade of the jail building. A wood picnic table and two benches are located on this side of the building. The camera faces east.

Photograph 6. This view features the west and south façades of the jail building shown from a distance across the street. The camera faced northeast when this photo was taken.

Photograph 7. This view of the Pottawattamie County Jail shows the south façade of the building with two cars parked in a small adjacent parking lot. The camera faced north when this photo was taken.

Photograph 8. This image was taken at a distance from across the street from the Pottawattamie County Jail. It shows the south and east façades, as the camera faced northwest when the photo was taken.

Photograph 9. This image shows the interior of the building. It features the central hallway at main entrance showing the metal staircase leading to the second floor. There is a door at the top of the stairway with a numeral 2 on it, indicating the second floor level. This doorway leads to the rotary jail portion of the building. The camera faces west.

Photograph 10. This image shows a detail of the Grub Hole, located on the first floor off the kitchen. The Grub Hole was a hole in the wall with a flat shelf that was used to slide food trays to the cell area of the jail, providing food to the prisoners. The camera faces southwest.

Photograph 11. The image was taken from an entry hall on the first floor leading into a rotary jail cells. The cell door is open, a bed frame is located on the left wall of the cell and a urinal at the back. The view camera faces west. Photograph 11. The image was taken from an entry hall on the first floor leading into a rotary jail cells.

The cell door is open, a bed frame is located on the left wall of the cell and a urinal at the back. The view camera faces west.

Photograph 12. The image shows a close-up detail of cogs in the mechanism on the rotary floor. This is located on the first floor of the building, shown through an opening in a jail cell.

Photograph 13. Here is the bullpen area of the first floor of the rotary jail portion of the building. Prisoners could leave their cells and stand in this small open area. The camera faces southeast.

Photograph 14 shows a larger bullpen area on the first floor of the building featuring a picnic table where prisoners could relax outside of their cells. The camera faces southwest.

Photograph 15. The image shows an open metal staircase that leads to second floor. Portions of the rotary jail cage is shown on the left of the image and the staircase is to the right. The camera faces northwest.

Photograph 16. This photo was taken on the second floor, at the base of the metal staircase leading to the third floor. A door on the stair landing above features the numeral 3, indicating that the door leads to the third floor of the rotary jail portion of the building. The camera faces southeast.

Photograph 17. This image shows a detailed view of the interior of a second floor cell unit. A metal bed frame is located on the left side of the cell unit and a urinal is at the back. The camera faced southwest.

Photograph 18. This image shows the typical interior of a rotary jail cell, with bed frame to the left and urinal at the back. This cell is located on the third floor of the building.

Photograph 19. This photograph shows the open bullpen area on the third floor outside of the jail cells. This area was used by prisoners as a break area. Here, the camera is facing west.

Photograph 20. Here, a metal staircase leads from the third floor to attic, which featured the sheriff's apartment. A door is open at the top of the metal staircase. The camera faced west when taking this photo.

Photograph 21. The first floor kitchen is featured in this photograph. It has a small table in the center of the room, several chairs to the side, a sink, and wood stove. The open doorway at the back shows the central stairway leading from the entrance of the building to the second floor. In this photo, the camera faced north.

Photograph 22. This image shows the first floor kitchen with the camera facing south. It includes a small table in the center of the room, with chairs and the kitchen sink on the wall to the left.

Photograph 23. The Sheriff's office, located on the first floor, is shown in this image. The room is small and has a large desk to the right, with desk chair, and a small desk to the rear of the room. A model of a three-story rotary jail is located on the left side of the room. The camera faced north when this photo was taken.

Photograph 24. A bedroom located on the second floor is shown in this image. It contains a single bed on the left wall and a small table in the back. The camera view faced southwest.

Photograph 25. This image shows the Trustees bedroom located on the third floor. The room was later used as the Women's cell. The room has some chairs and a small lavatory tucked in a rear corner. The camera faces southeast.

Photograph 26. The Sheriff's apartment room, shown in this photo was located in the attic space of the Pottawattamie Jail building. A clothes cupboard and chair are shown. The door in the center of the photograph leads to the top of the rotary mechanism. The camera view faces west.

Photograph 27. This image shows the crank shaft for the rotary mechanism, located on the first floor. It appears as if the metal wall was cut away to expose the crank shaft. The camera faces west.

Photograph 28. The image shows the interior of the machine room, located on the fourth floor attic level. It features the suspended central column of the rotary mechanism, which was based on 1887 Patent No. 360,508. A horizontal steel beam extends across the space and a wrench to turn the rotary mechanism lies on the beam.

Figures Log

Figure 1. This figure shows the exterior footprint of the Pottawattamie County Jail building and features arrows that indicate the locations of some photographs taken of the exterior of the building. A north arrow below the image points to the right.

Figure 2. This figure shows the first floor plan of the Pottawattamie County Jail and features arrows that show the locations of some of the photographs taken of the interior of the building. A north arrow below the image points to the right.

Figure 3. This figure shows the floor plan of the Second Floor and the locations of some photographs taken for this nomination. A north arrow below the image points to the right.

Figure 4. This figure provides the floor plan of the third floor. A north arrow below the image points to the right.

Figure 5. This figure shows the floor plan of the attic, which is on the fourth floor. A north arrow below the image points to the right.

Figure 6. This map shows the geographic location of the Pottawattamie County Jail and Sheriff's Residence on Pearl Street between Willow and 5th Avenues in Council Bluffs, Iowa. The area around the building location is delineated by a hexagon. Source U.S. Geological Survey online.

Figure 7. A historic image of a Sanborn Fire Insurance Map from 1891 shows the location of the Pottawattamie County Jail and Sheriff's Residence on Pearl Street. It is located in the Bayliss Addition and labeled County Jail. Source Sanborn Fire Insurance Map, Council Bluffs, Iowa.

Figure 8. This figure shows the plan of the ground floor. The drawing indicates the exterior walls of the building with a circle inside of it, representing the rotary jail cell unit. The drawing was used in Walter Lunden's 1957 article about the Squirrel Cage Jail. Source Archives of the Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 9. This figure shows an elevation and typical view of the rotary cage unit. Source Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 10. This image shows the footprint of the circular jail cage floor, looking down on the cage unit. Source Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 11. This figure shows the elevation of the main entrance to the jail cells and detail of the metal security bard. The drawings were used by Walter Lunden in his 1957 article about the Squirrel Cage Jail. Source Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 12. This figure, used by Walter Lunden in his 1957 article about the Squirrel Cage Jail, shows the elevation and footprint of the entry door mechanism to the jail cells. Source Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 13. The figure shows detailed drawings of components used in the jail cell, such as the metal bed on the left wall and urinal in the back of the cell. This was used by Walter Lunden in his 1957 article about the

Squirrel Cage Jail. Source Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 14. The figure shows a detail of the outer shell of the rotary jail cell unit. Walter Lunden used this drawing in his 1957 article about the Squirrel Cage Jail. Source Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa.

Figure 15. This map indicates the locations of the eighteen Rotary Jails constructed between 1882 and 1888. Source Base Map from Google Maps Online.

Figure 16. The figure shows William H. Brown and Benjamin F. Haugh's Rotary Jail Patent No. 244358. It illustrates a cross section of a rotary jail.

Figure 17. The figure shows William H. Brown and Benjamin F. Haugh's Rotary Jail Patent No. 244358. It features a detail of the center shaft, turntable floor and bearings.

Figure 18. The figure shows William H. Brown and Benjamin F. Haugh's Rotary Jail Patent No. 244358. It served as a footprint for the rotary jail designed by Brown and Haugh.

Figure 19. This historic photograph shows the Pottawattamie County Jail in the late 1950s, known locally as the Squirrel Cage Jail. The source of the image is Historic Photos, Local History, Council Bluffs Public Library, Council Bluffs, Iowa.

Photographs



Photograph 1. East or main façade of the Pottawattamie County Jail. Camera facing west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 2. East and north façades of the Pottawattamie County Jail. Camera facing southwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 3. North façade of the Pottawattamie County Jail. Camera facing south.
Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 4. North and west façades of the Pottawattamie County Jail. Camera faces southeast. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 5. Rear or west façade of the jail building. Camera faces east. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 6. West and south façades of the jail building from across the street. Camera faced northeast. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



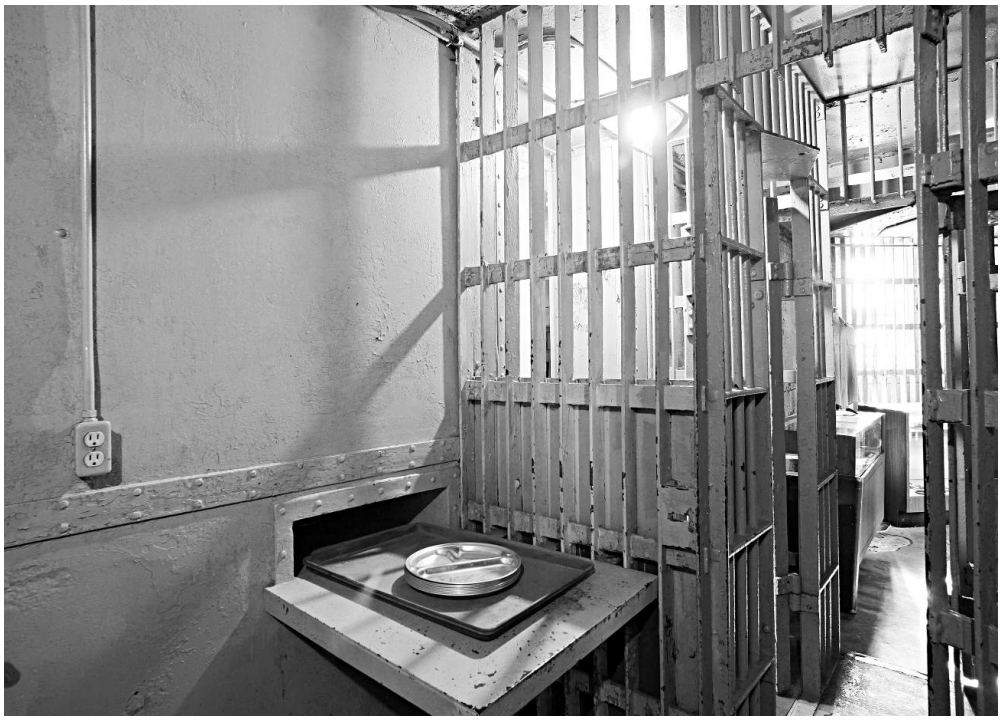
Photograph 7. South façade. Camera facing north. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



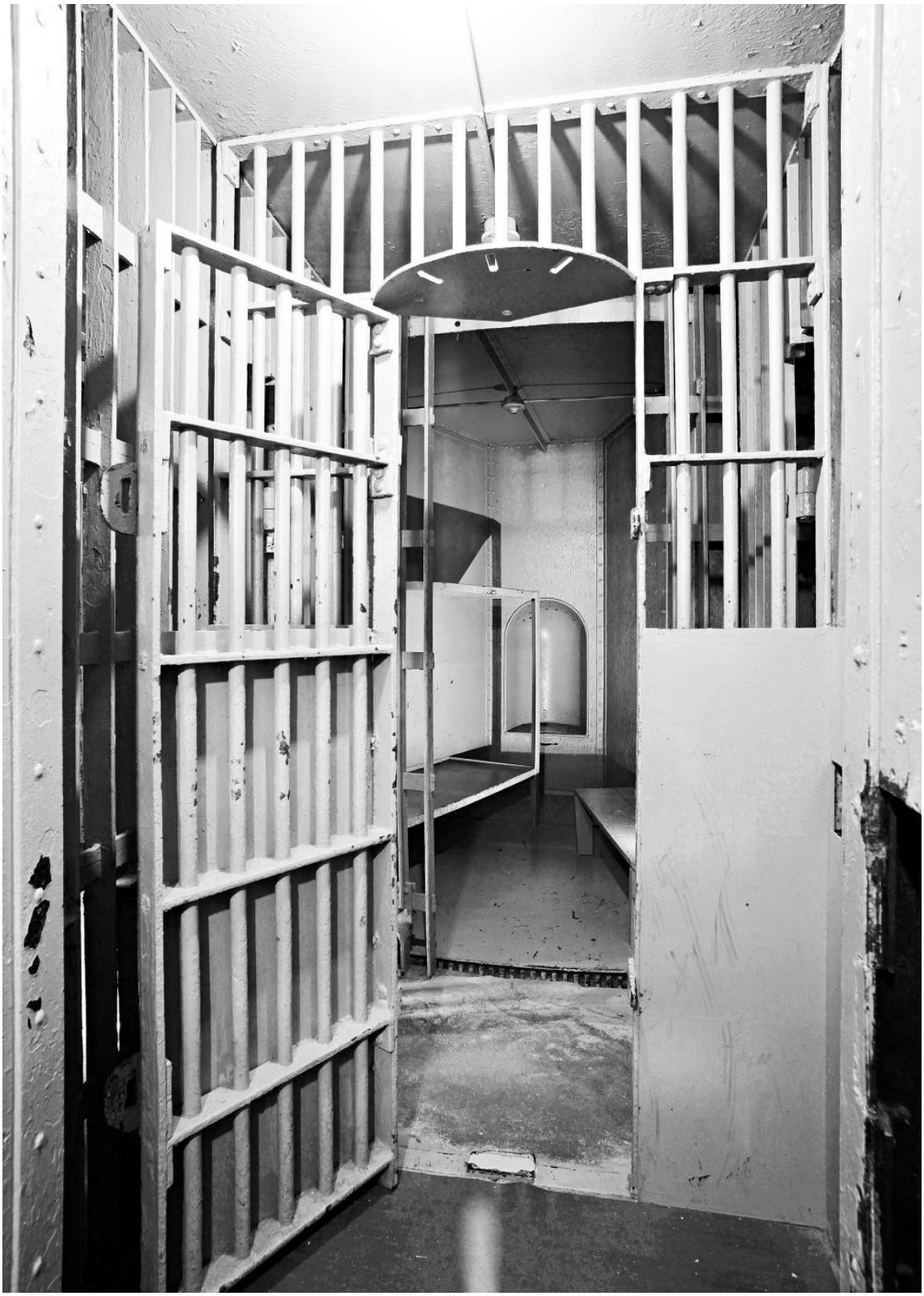
Photograph 8. South and east façades from across the street. Camera facing northwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 9. Central hallway at main entrance with metal staircase leading to the second floor. Door at top leads to the rotary jail portion of the building. Camera faces west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



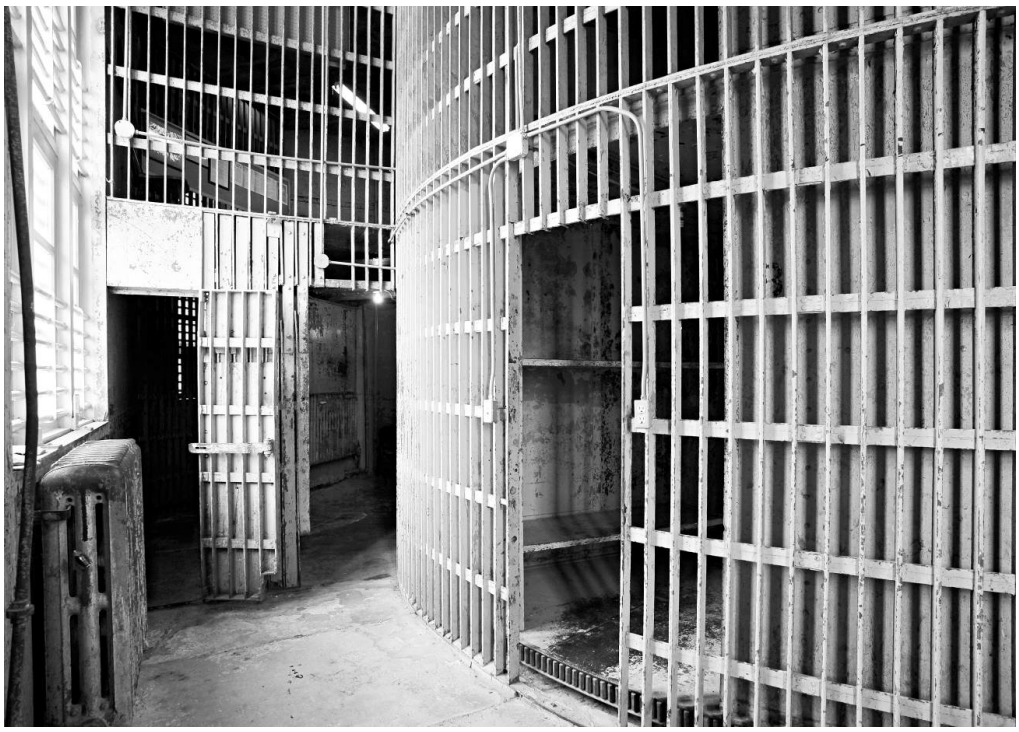
Photograph 10. Detail of the Grub Hole, used to slide food trays to the cell area of the jail, located on the first floor off the kitchen. Camera faces southwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 11. Cell door leading into a rotary jail cell. Camera faces west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



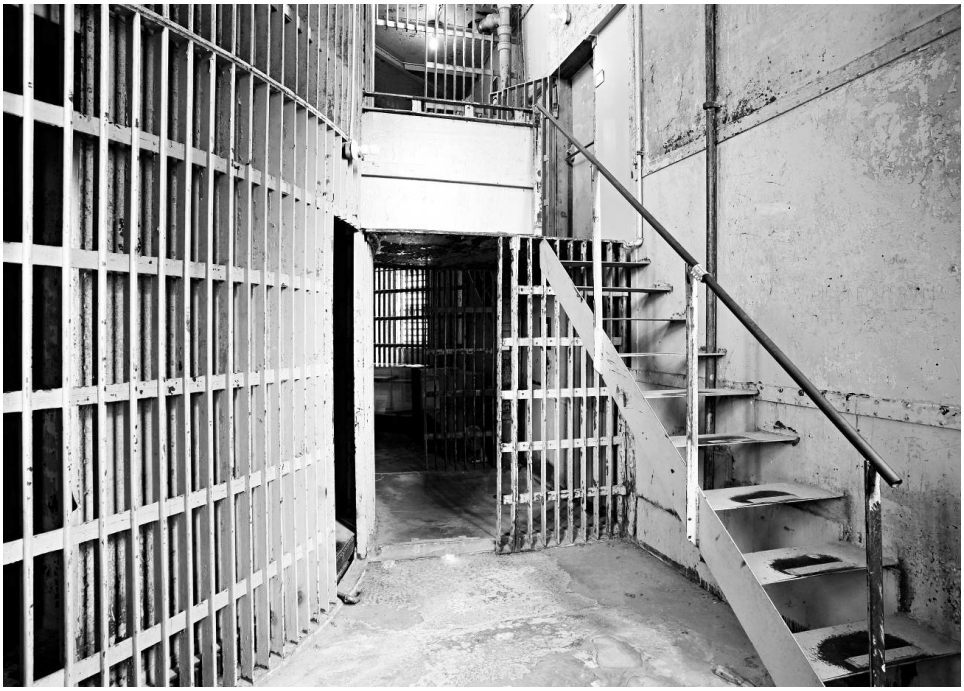
Photograph 12. Close-up detail of cogs in the mechanism on the rotary floor located on the first floor. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 13. Bullpen area of the first floor of the rotary jail. Camera faces southeast. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



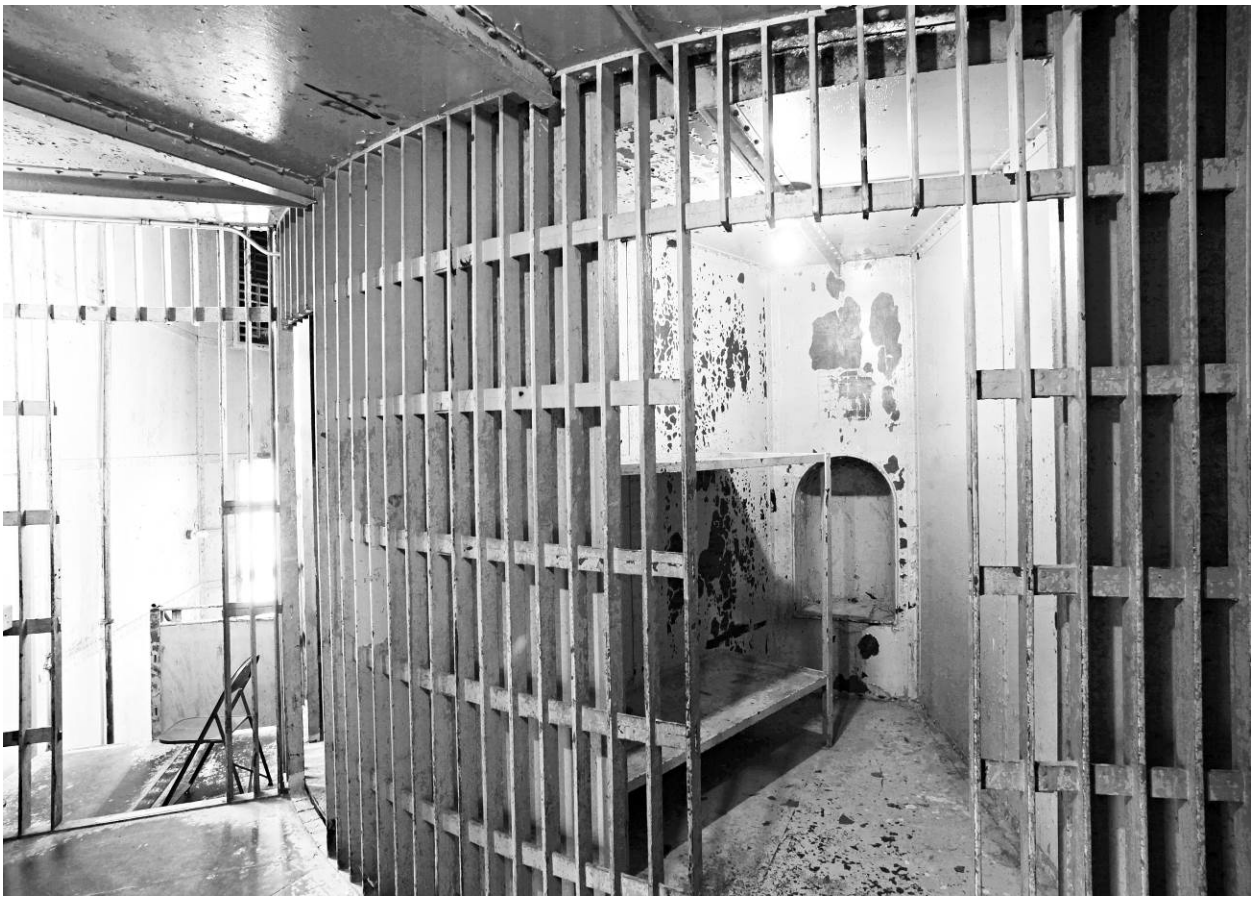
Photograph 14. Larger bullpen area on the first floor of the building featuring a picnic table. Camera faces southwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



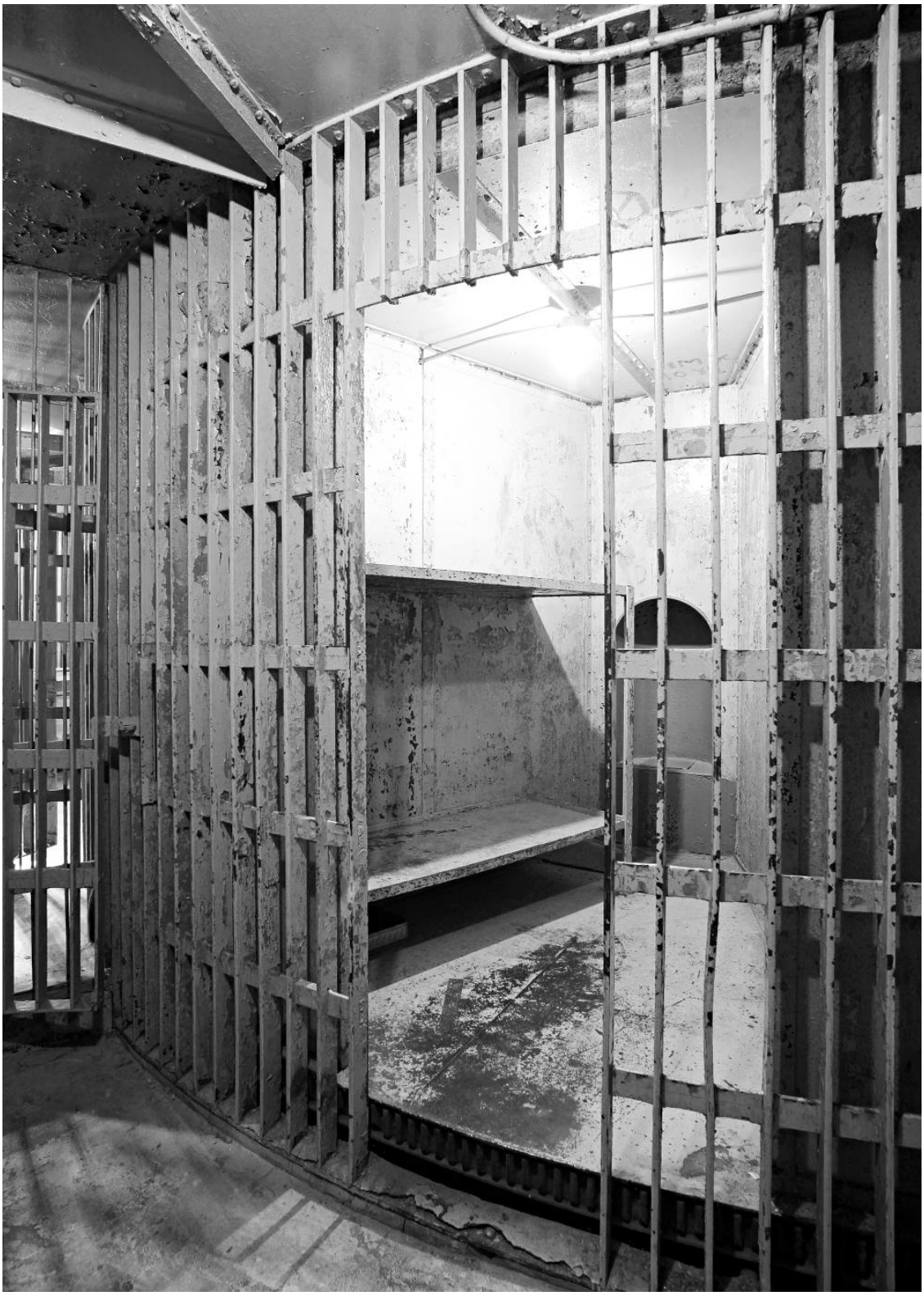
Photograph 15. Open metal staircase leading to second floor. Camera faces northwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



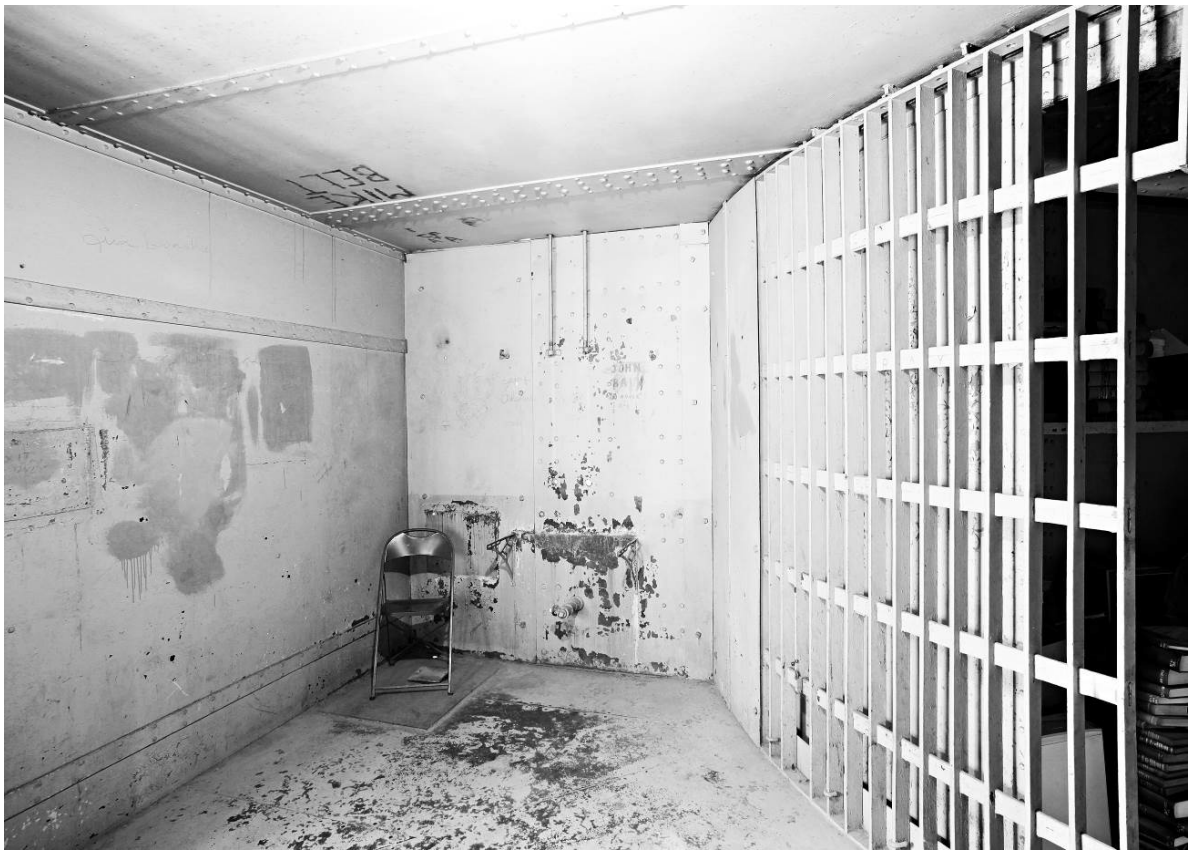
Photograph 16. Base of the metal staircase leading to the third floor. Camera faces southeast. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 17. Detailed view of the interior of a second floor cell unit. Camera faces southwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 18. Typical interior of a rotary jail cell on the third floor of the building.
Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 19. Open bullpen area on the third floor outside of the jail cells. Camera is facing west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 20. Metal staircase leads from the third floor to attic, which featured the sheriff's apartment. Camera facing west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 21. First floor kitchen. Open doorway leads to the central stairway. Camera faces north. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 22. First floor kitchen. Camera facing south. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 23. Sheriff's office located on the first floor. The camera faced north when this photo was taken. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



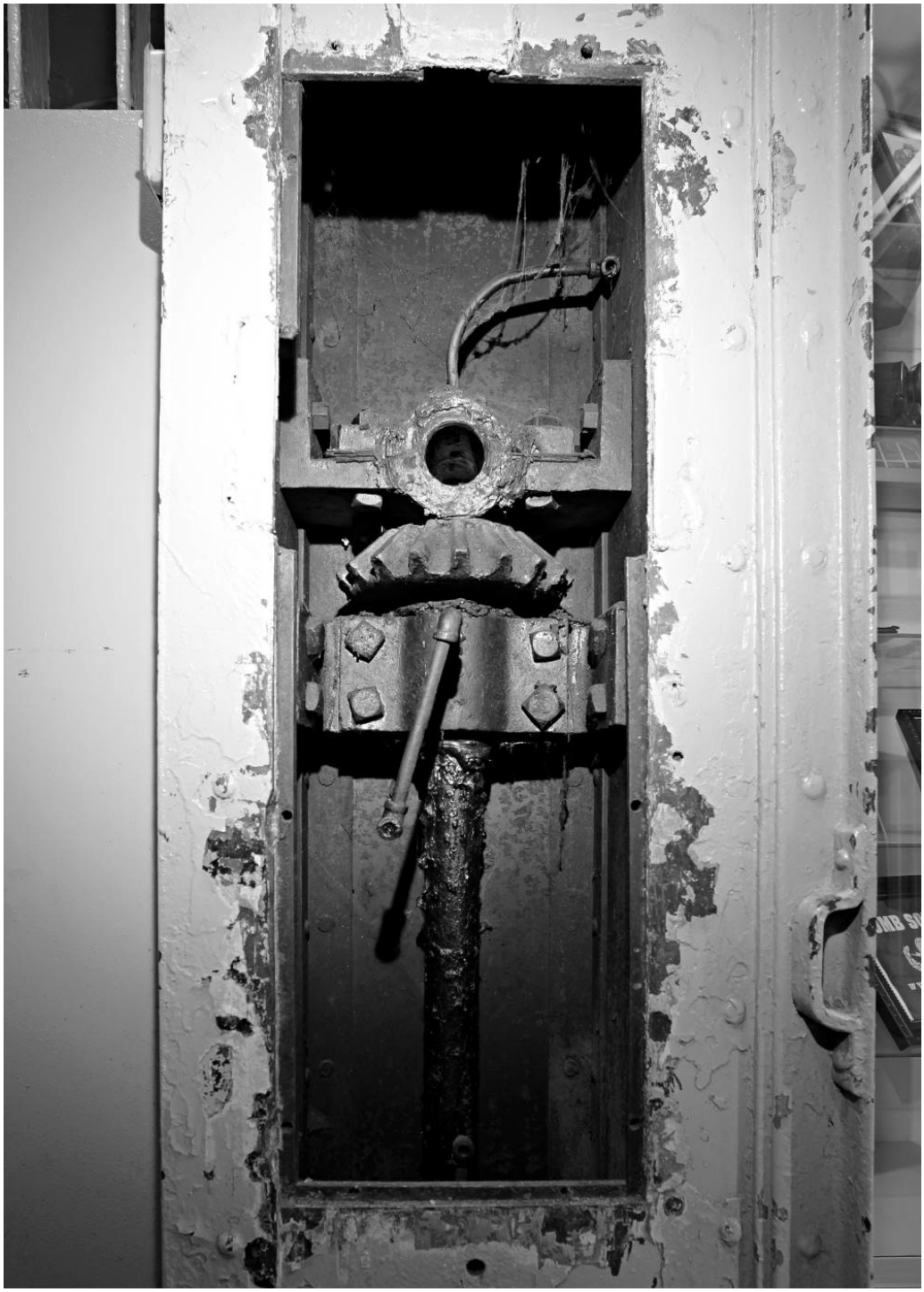
Photograph 24. Bedroom located on the second floor. Camera facing southwest. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 25. Trustees bedroom located on the third floor. The room was later used as the Women's cell. Camera faces southeast. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 26. Sheriff's apartment was located in the attic space of the Pottawattamie Jail building. The door in the center of the photograph leads to the top of the rotary mechanism. Camera faces west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 27. Crank shaft for the rotary mechanism, located on the first floor. It appears as if the metal wall was cut away to expose the crank shaft. Camera faces west. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012



Photograph 28. Interior of the machine room, located on the fourth floor attic level, featuring the suspended central column of the rotary mechanism. Photographer Richard Welnowski, Kansas City, Missouri, November 12, 2012

Figures

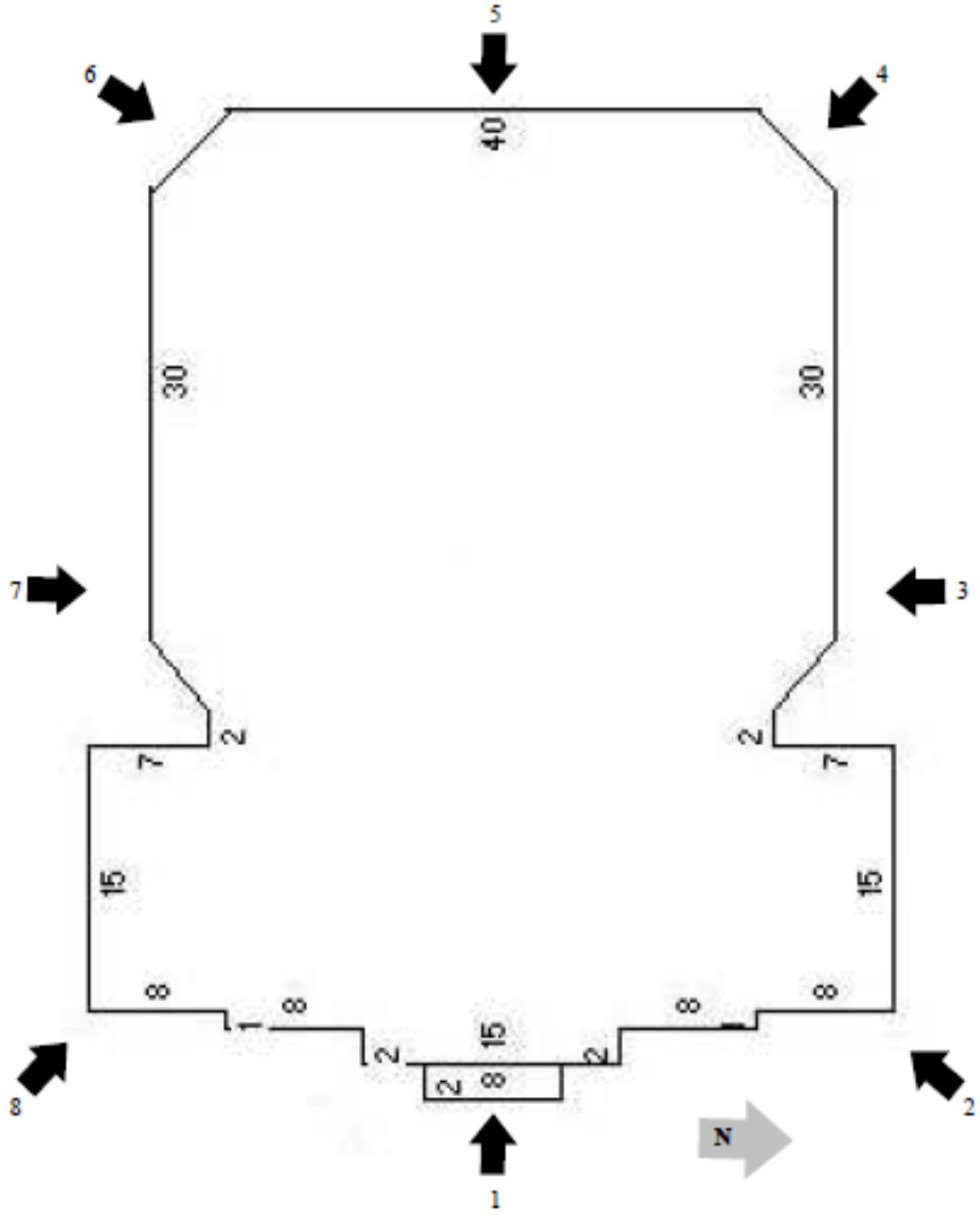


Figure 1. This figure shows the exterior footprint of the Pottawattamie County Jail building and features arrows that indicate the locations of some photographs taken of the exterior of the building. A north arrow below the image points to the right.

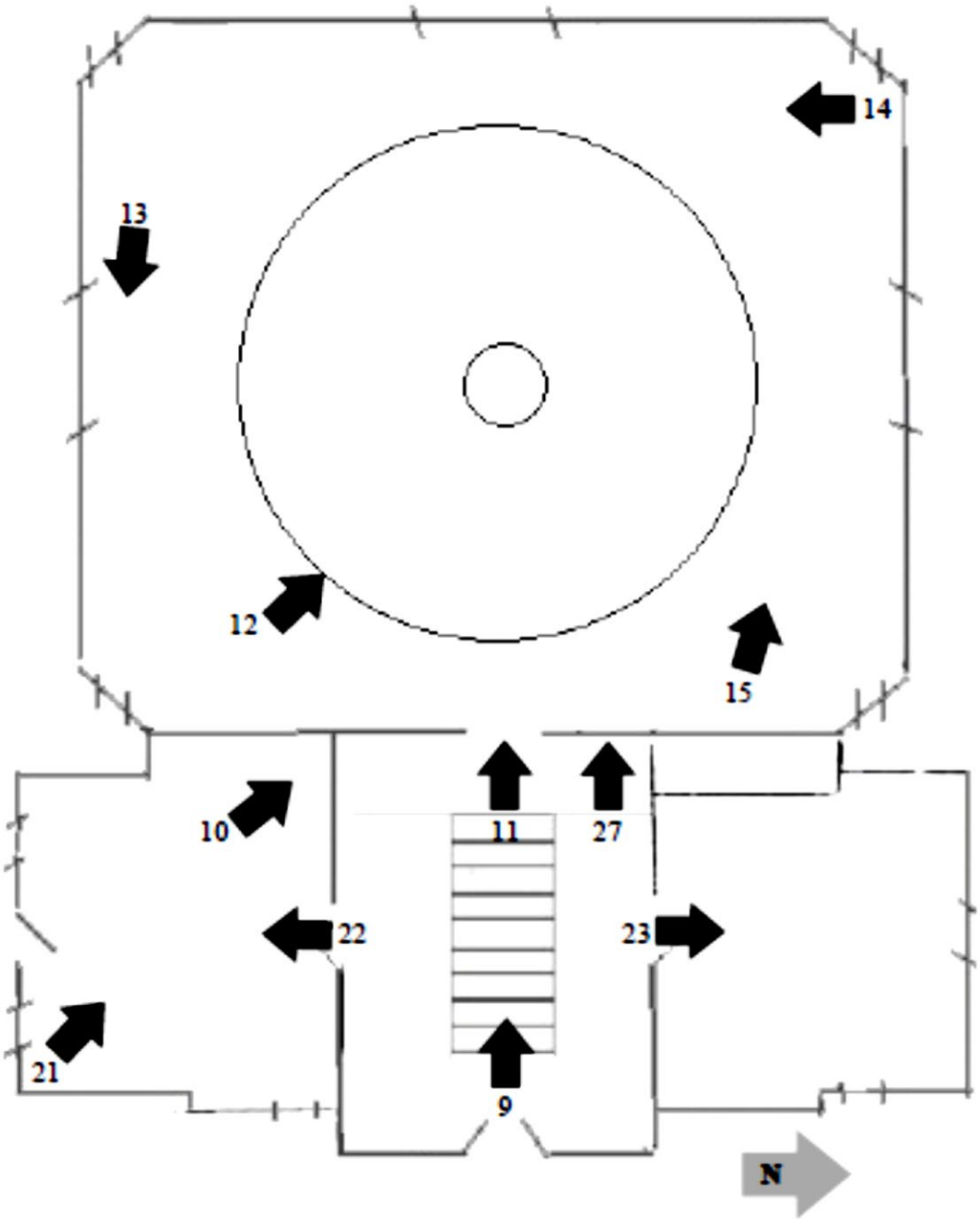


Figure 2. This figure shows the first floor plan of the Pottawattamie County Jail and features arrows that show the locations of some of the photographs taken of the interior of the building. A north arrow below the image points to the right.

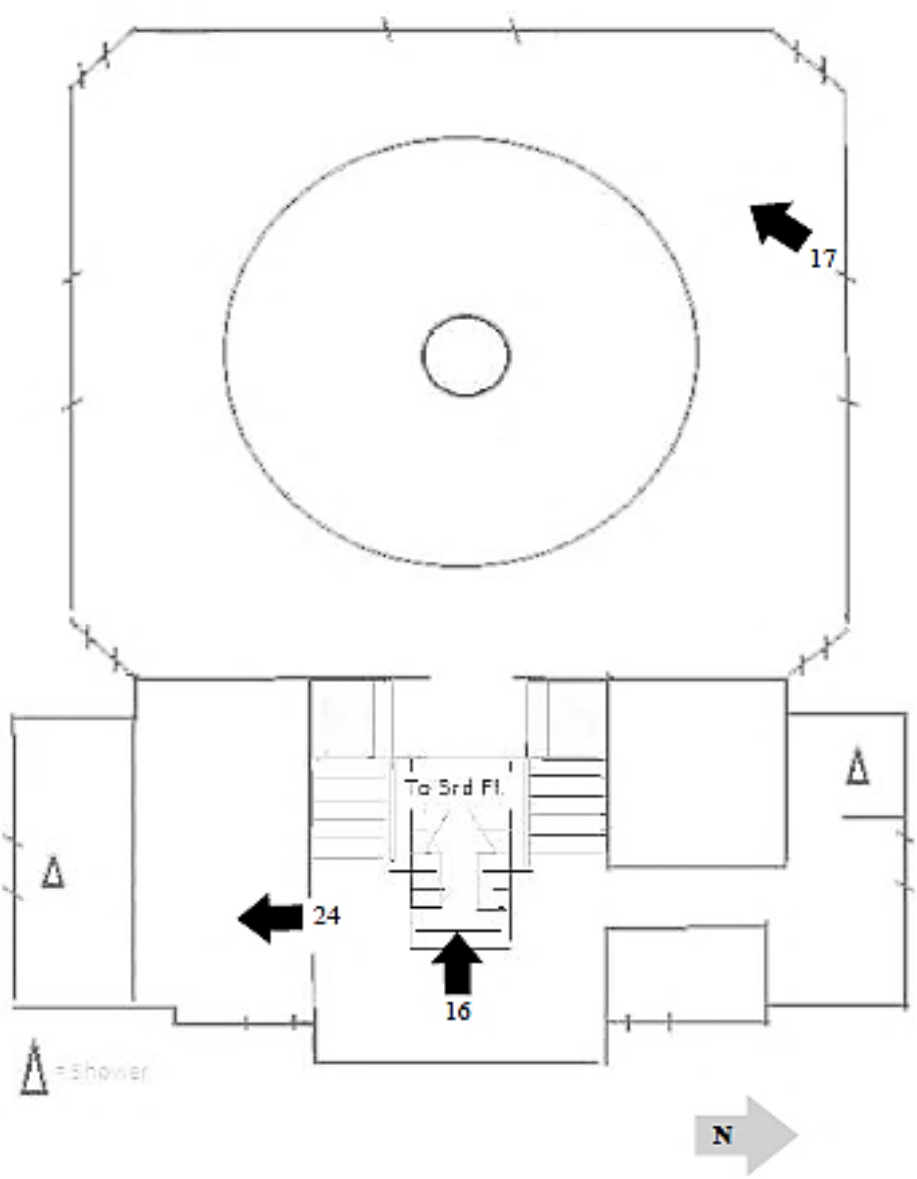


Figure 3. This figure shows the floor plan of the Second Floor and the locations of some photographs taken for this nomination. A north arrow below the image points to the right.

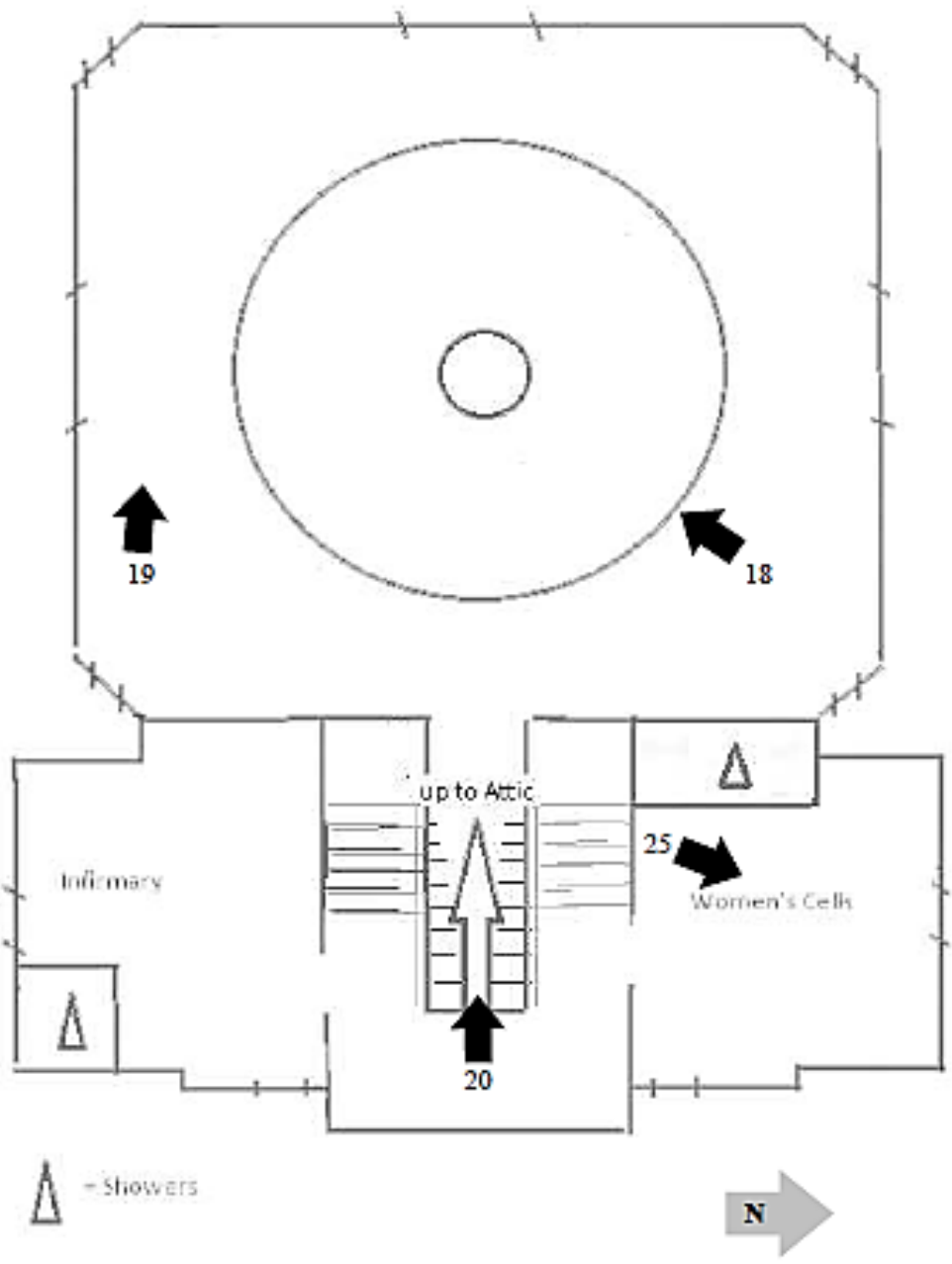


Figure 4. This figure provides the floor plan of the third floor. A north arrow below the image points to the right.

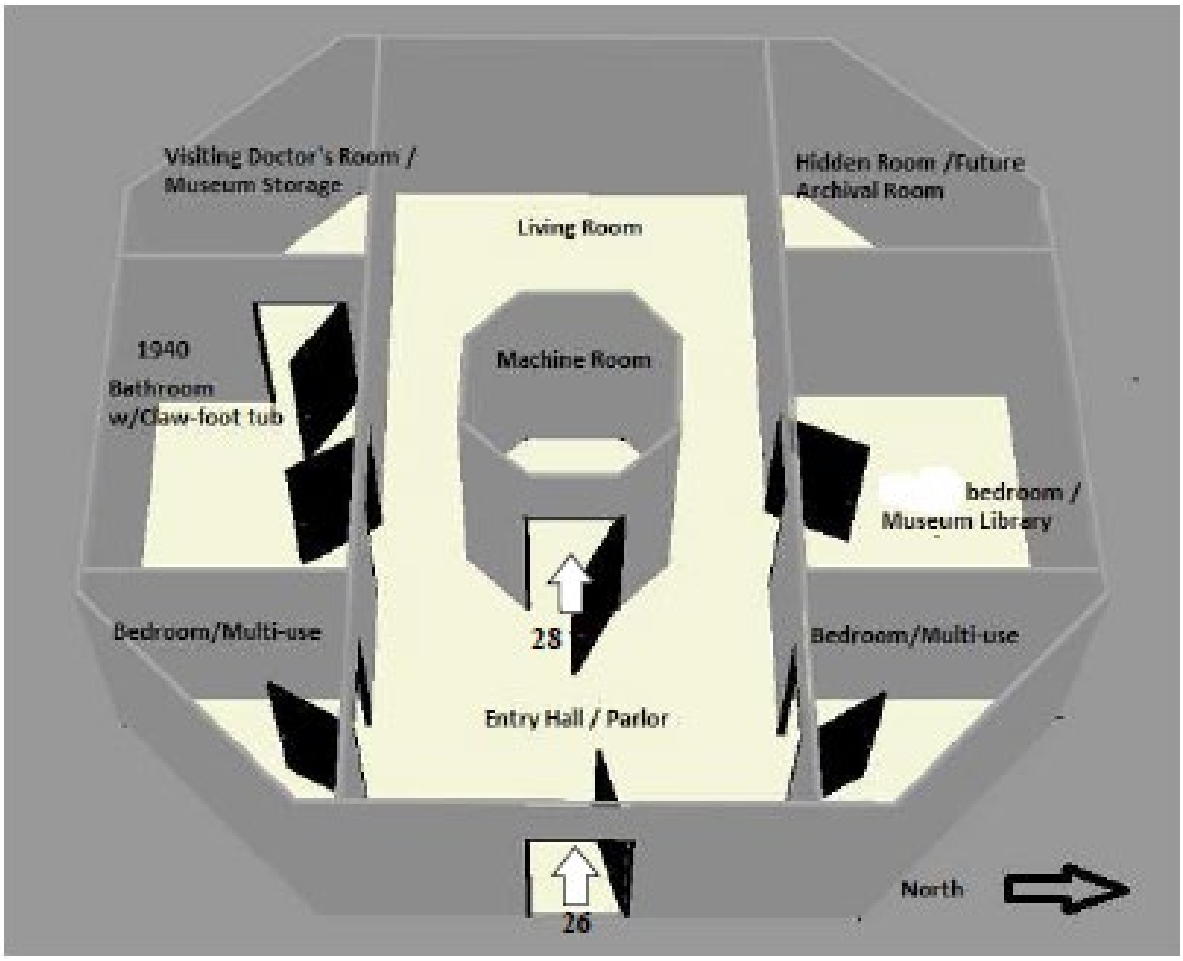


Figure 5. This figure shows the floor plan of the attic, which is on the fourth floor. A north arrow below the image points to the right.

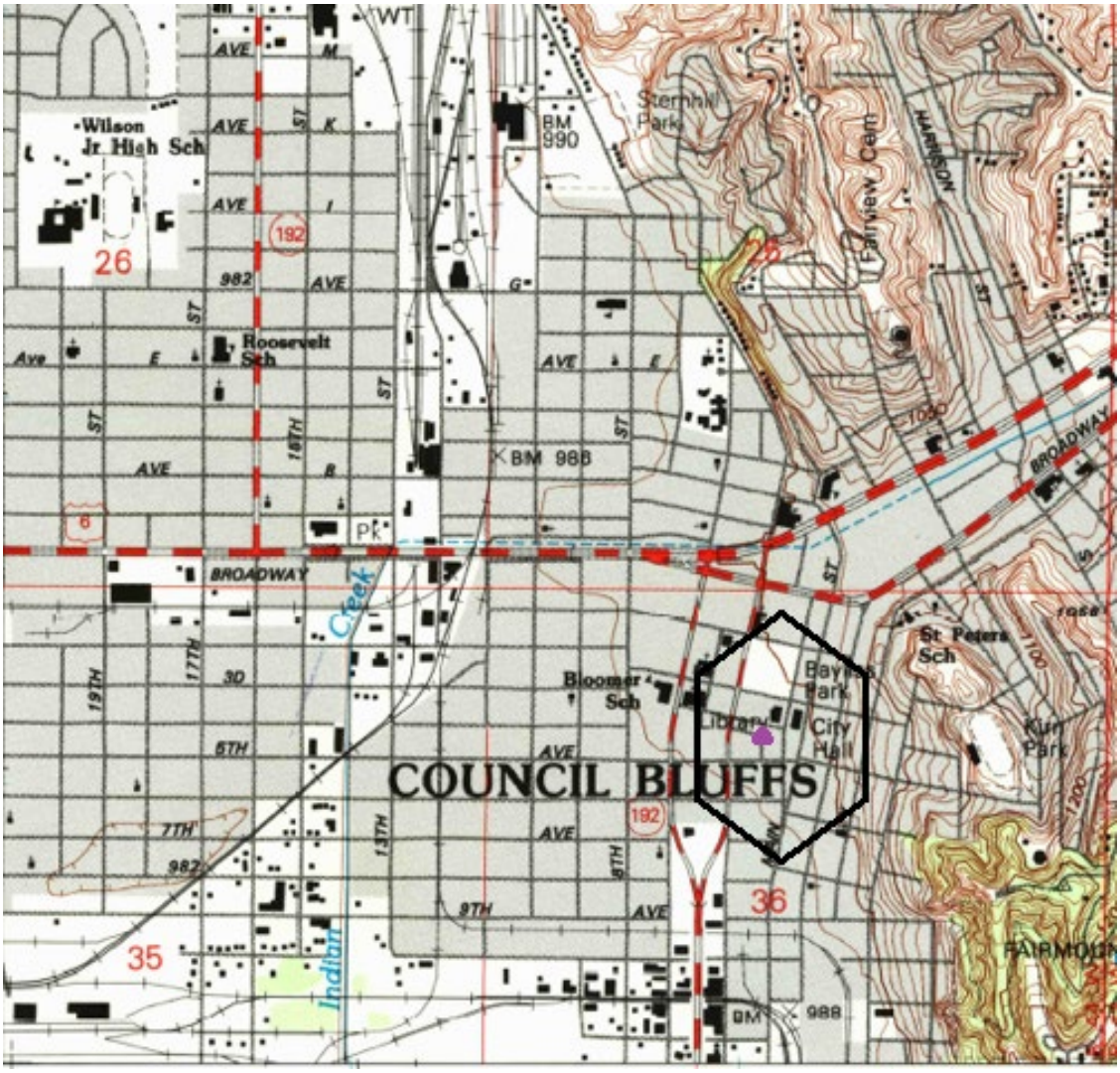


Figure 6. This map shows the geographic location of the Pottawattamie County Jail and Sheriff's Residence on Pearl Street between Willow and 5th Avenues in Council Bluffs, Iowa. The area around the building location is delineated by a hexagon. Source U.S. Geological Survey online



Figure 7. A historic image of a Sanborn Fire Insurance Map from 1891 shows the location of the Pottawattamie County Jail and Sheriff's Residence on Pearl Street. It is located in the Bayliss Addition and labeled County Jail. Source Sanborn Fire Insurance Map, Council Bluffs, Iowa.

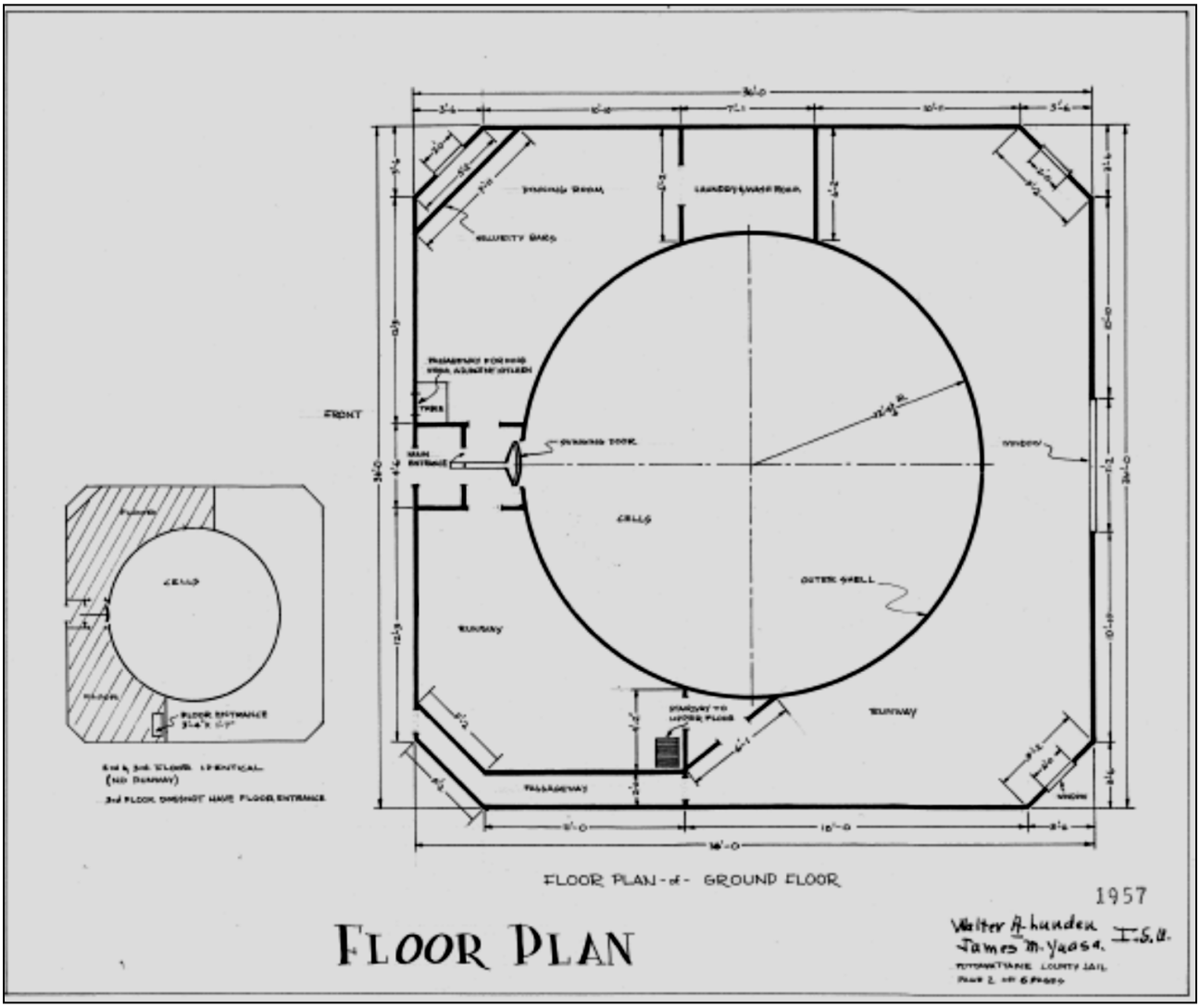


Figure 8. This figure shows the plan of the ground floor. The drawing indicates the exterior walls of the building with a circle inside of it, representing the rotary jail cell unit. The drawing was used in Walter Lunden's 1957 article about the Squirrel Cage Jail. Source: Archives of the Squirrel Cage Jail Museum, Council Bluffs, Iowa

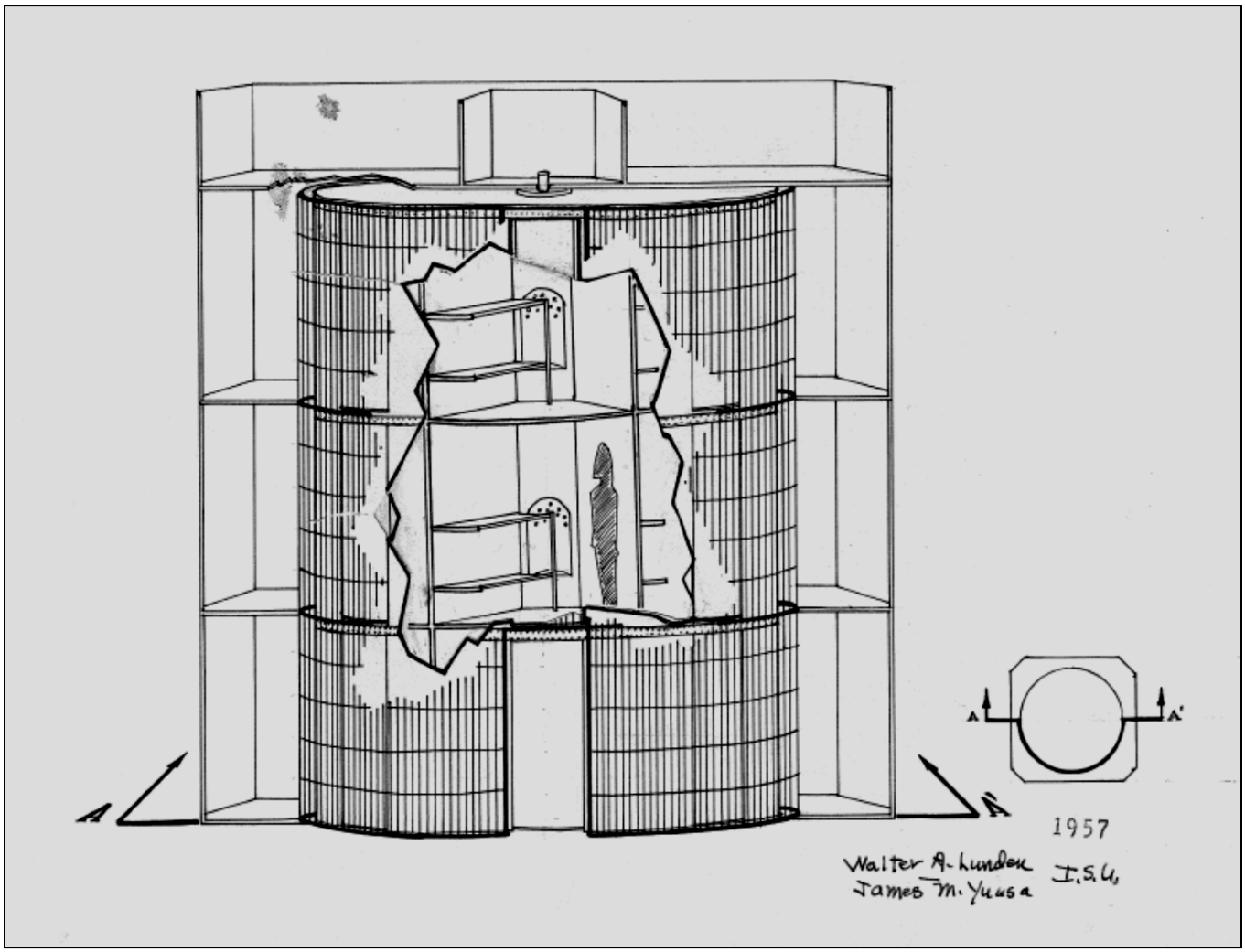


Figure 9. This figure shows an elevation and typical view of the rotary cage unit.
Source: Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa

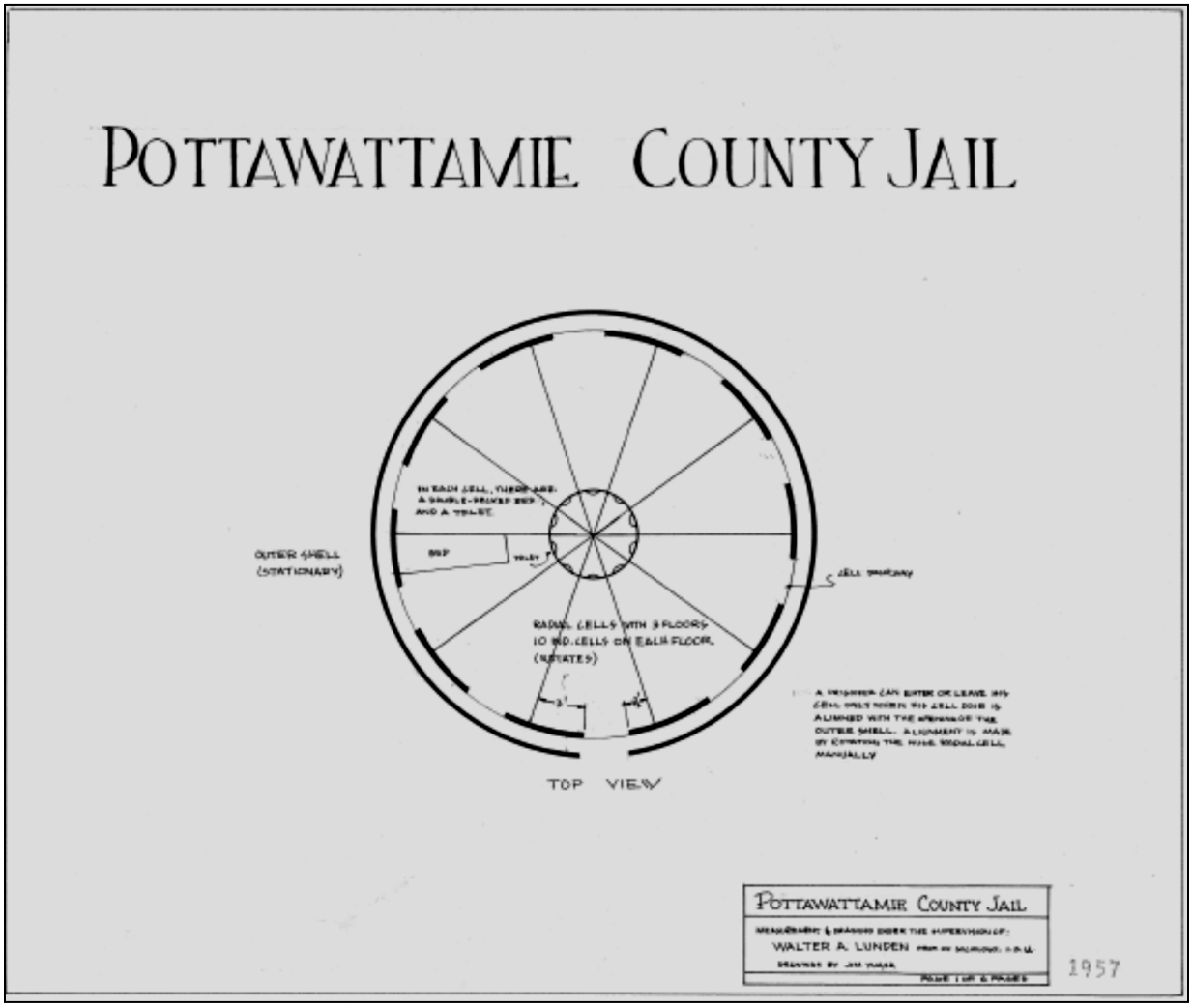


Figure 10. This image shows the footprint of the circular jail cage floor, looking down on the cage unit. Source: Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa

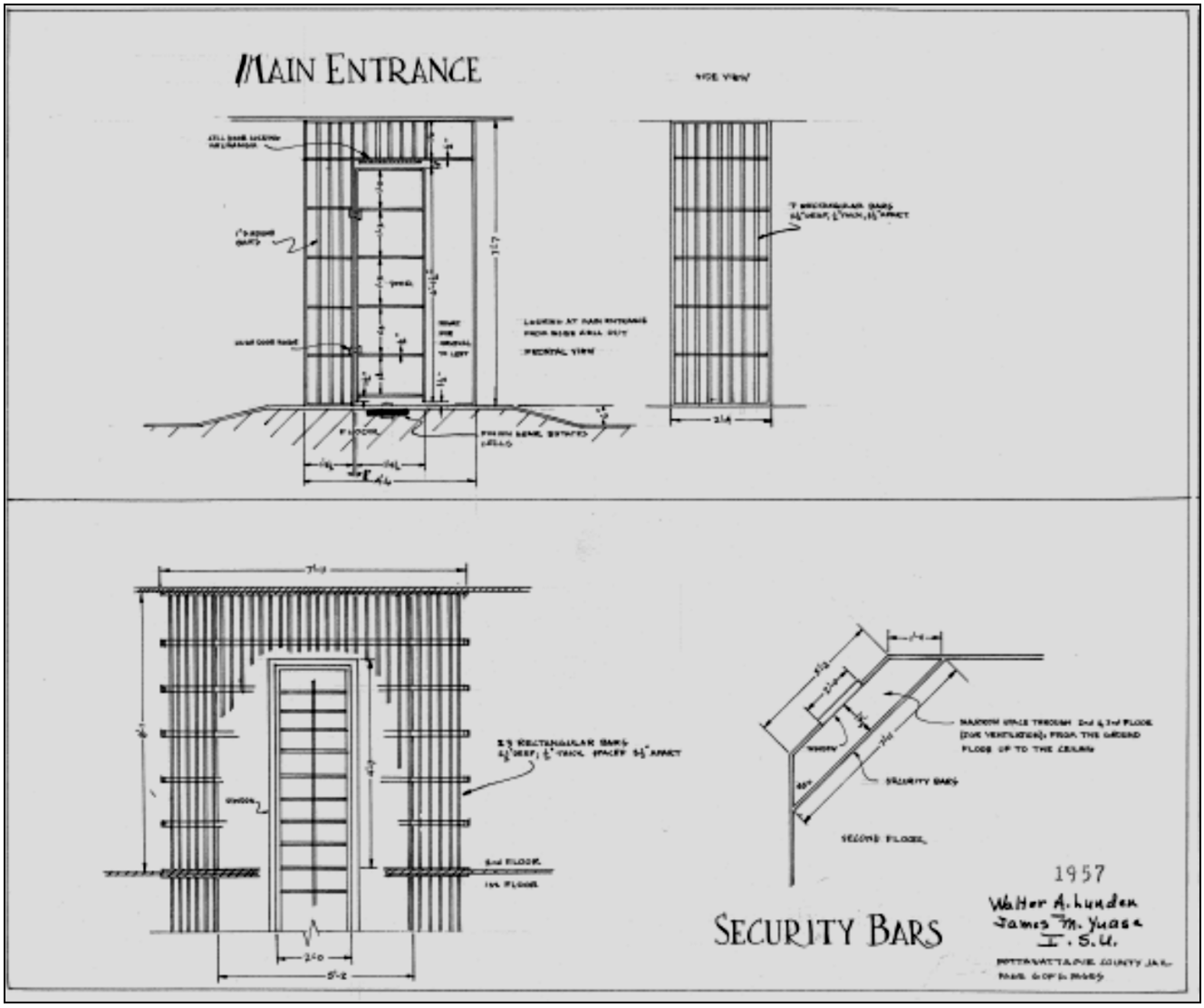


Figure 11. This figure shows the elevation of the main entrance to the jail cells and detail of the metal security bard. The drawings were used by Walter Lunden in his 1957 article about the Squirrel Cage Jail. Source: Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa

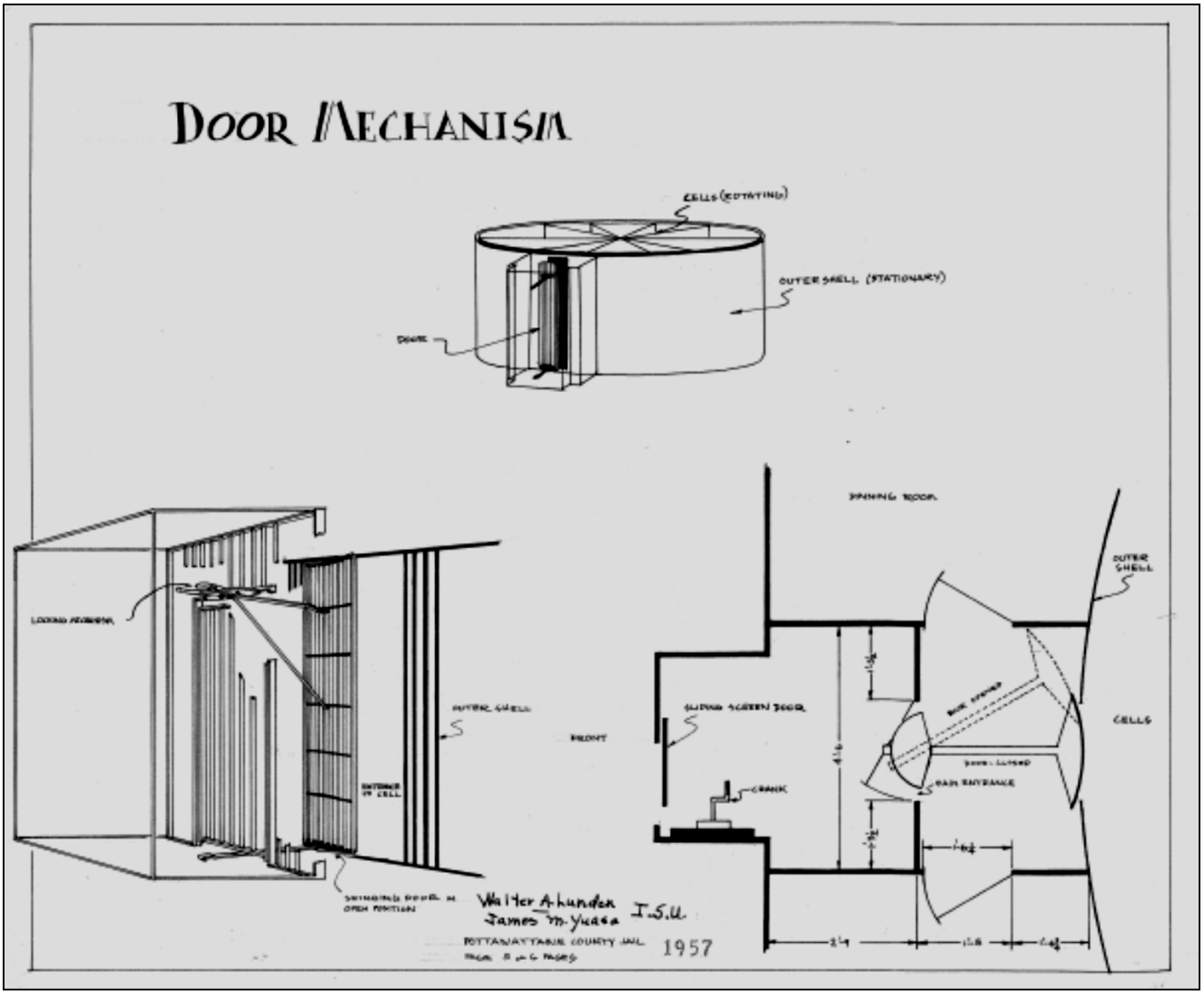


Figure 12. This figure, used by Walter Lunden in his 1957 article about the Squirrel Cage Jail, shows the elevation and footprint of the entry door mechanism to the jail cells. Source: Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa

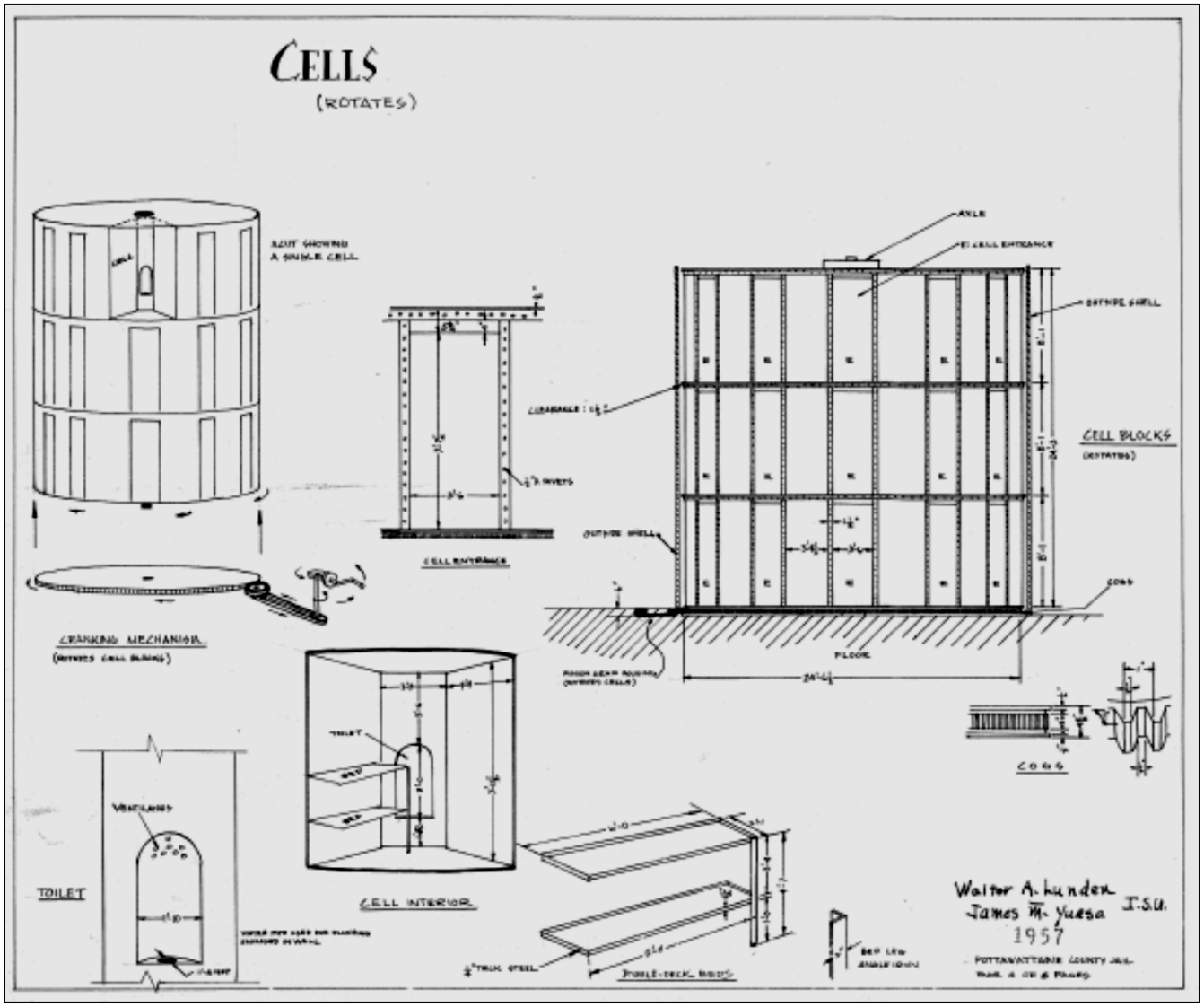


Figure 13. The figure shows detailed drawings of components used in the jail cell, such as the metal bed on the left wall and urinal in the back of the cell. This was used by Walter Lunden in his 1957 article about the Squirrel Cage Jail. Source: Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa

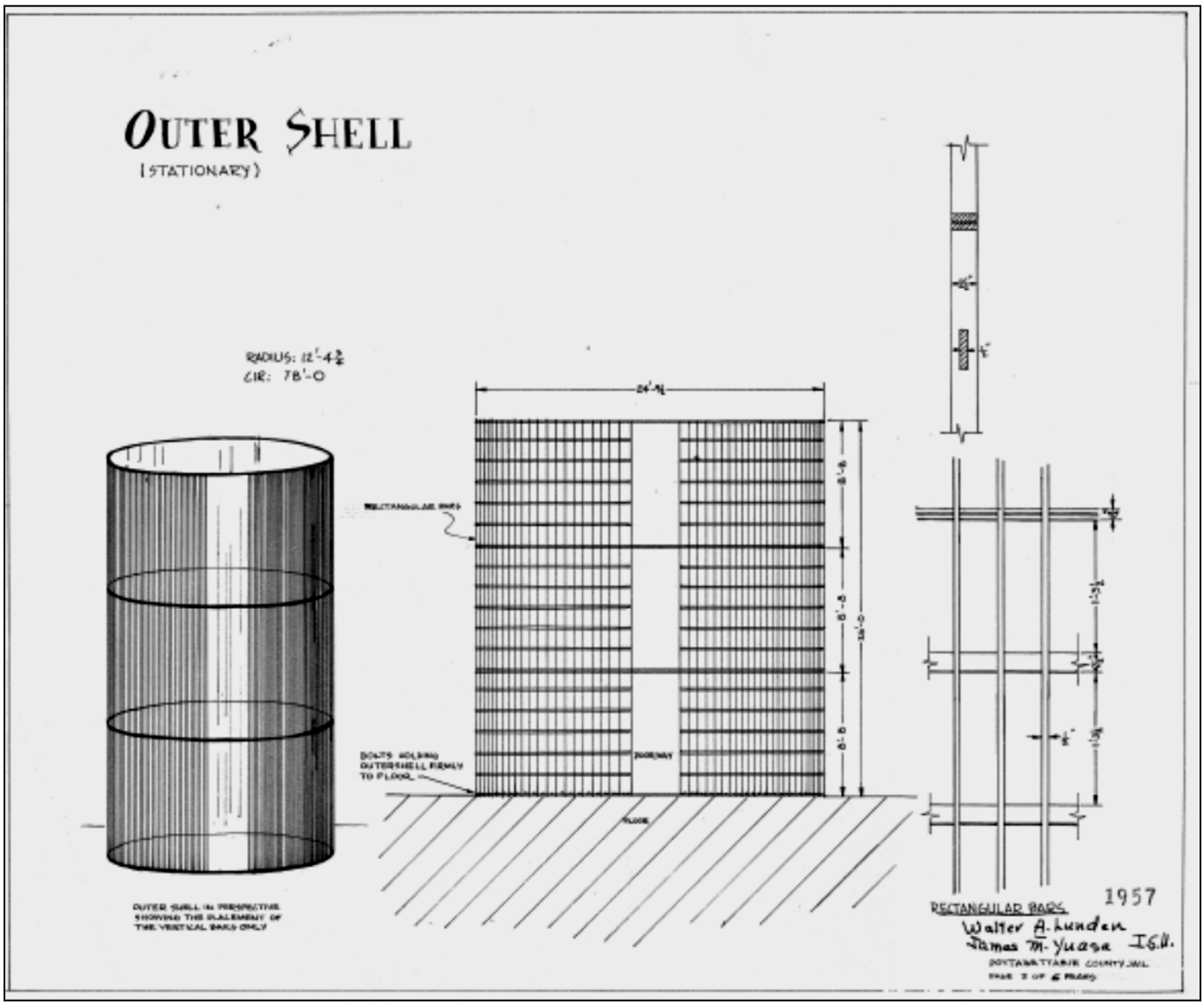
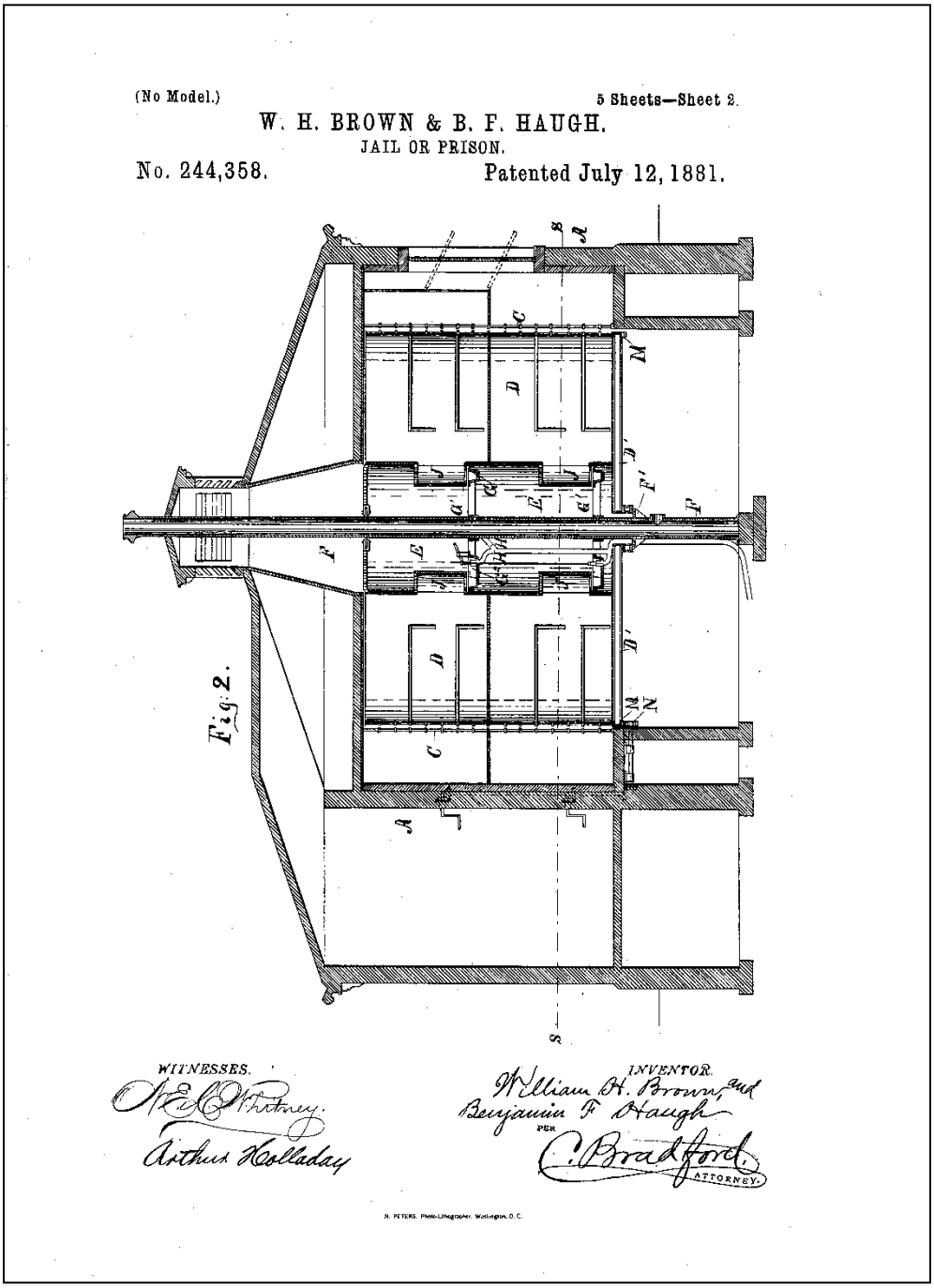


Figure 14. The figure shows a detail of the outer shell of the rotary jail cell unit. Walter Lunden used this drawing in his 1957 article about the Squirrel Cage Jail. Source: Archives, Squirrel Cage Jail Museum, Council Bluffs, Iowa



Figure 15. This map indicates the locations of the eighteen Rotary Jails constructed between 1882 and 1888. Source Base Map from Google Maps Online


(No Model.) 5 Sheets—Sheet 2.

W. H. BROWN & B. F. HAUGH.

JAIL OR PRISON.

No. 244,358. Patented July 12, 1881.

Fig. 2.

WITNESSES.

Arthur Holladay

INVENTOR.

William H. Brown, and Benjamin F. Haugh

PER

C. Bradford

ATTORNEY.

N. PETERS, Photo-Lithographer, Washington, D. C.

Figure 16. The figure shows William H. Brown and Benjamin F. Haugh's Rotary Jail Patent No. 244358. It illustrates a cross section of a rotary jail.

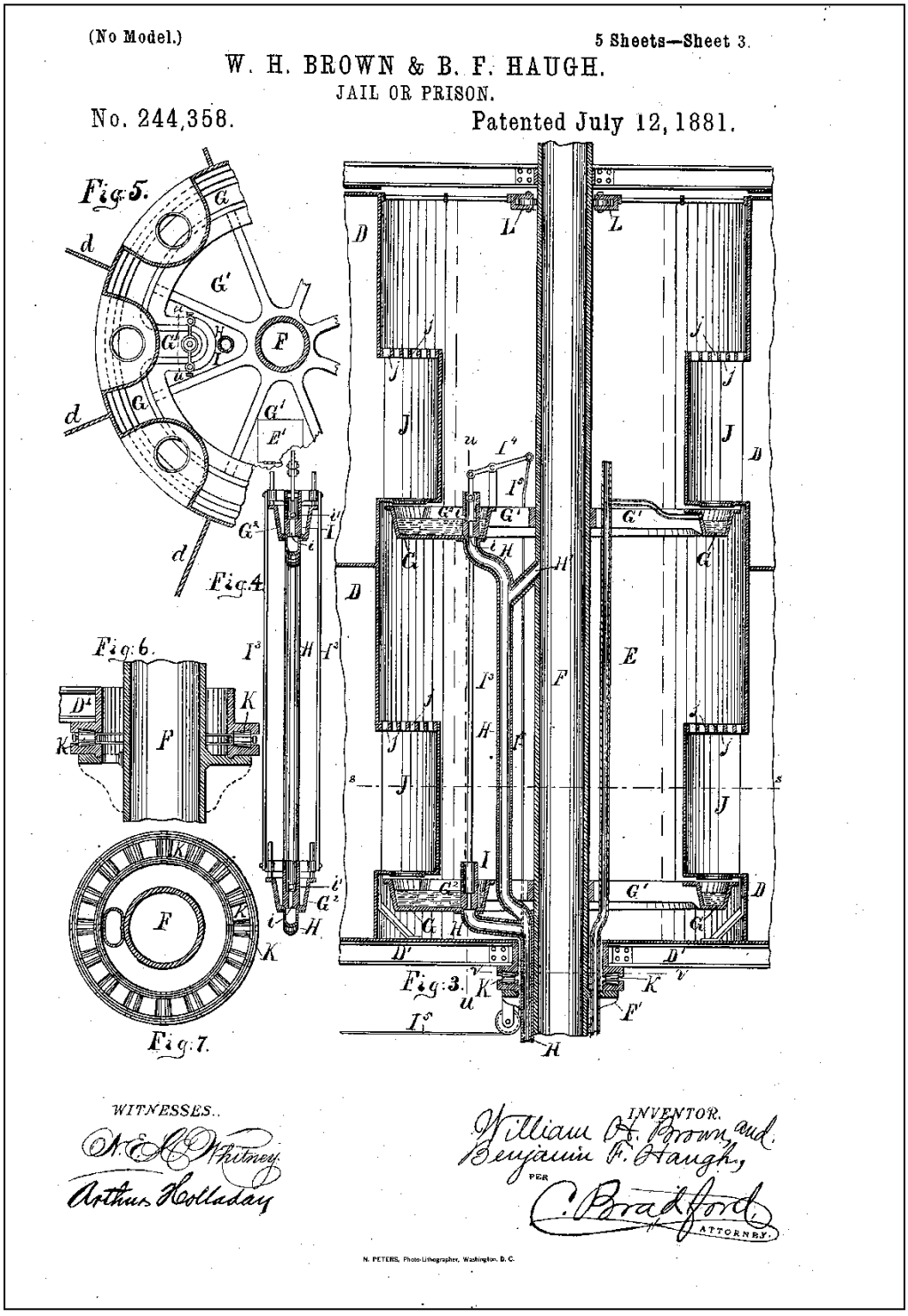


Figure 17. The figure shows William H. Brown and Benjamin F. Haugh's Rotary Jail Patent No. 244358. It features a detail of the center shaft, turntable floor and bearings.

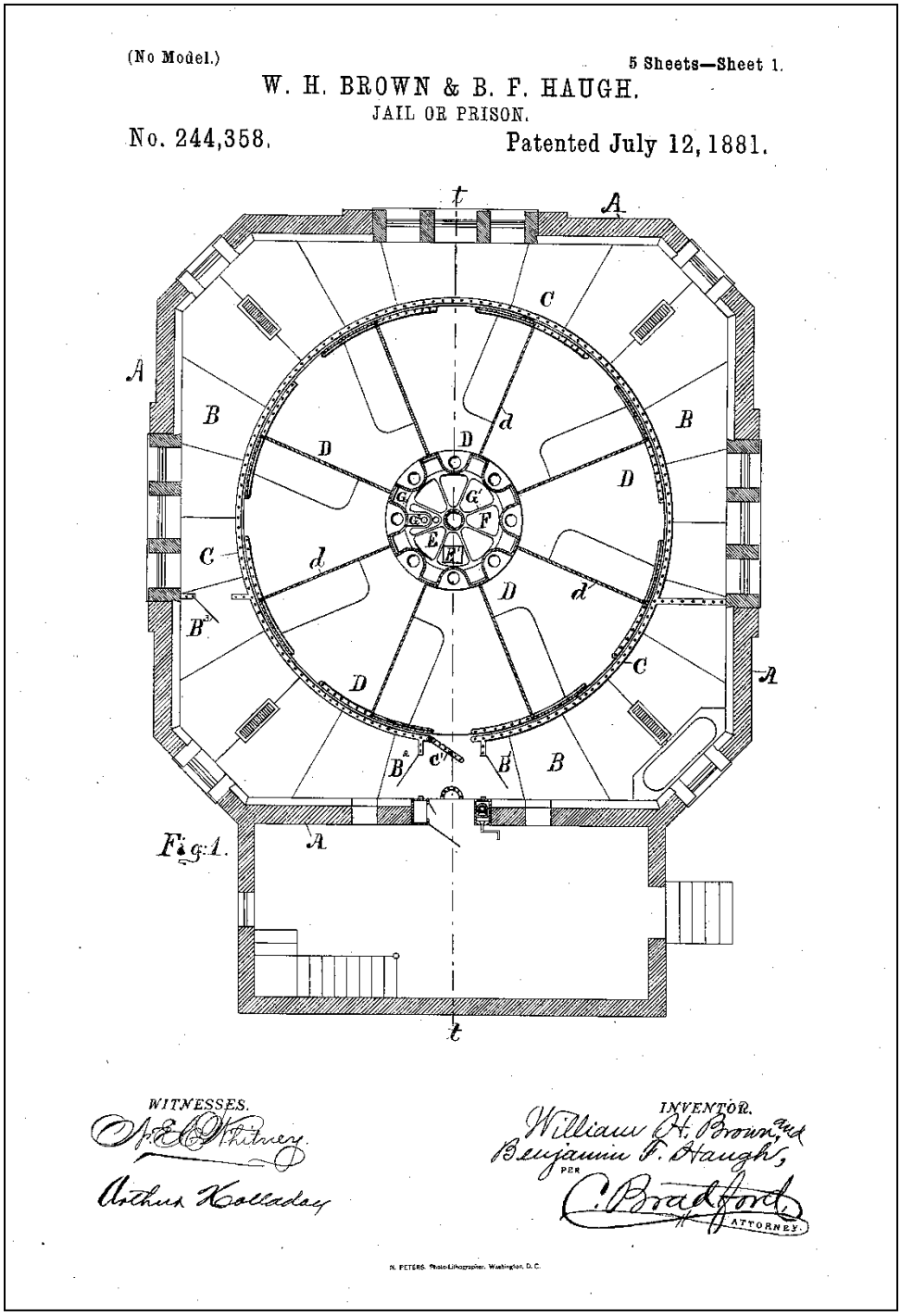


Figure 18. The figure shows William H. Brown and Benjamin F. Haugh's Rotary Jail Patent No. 244358. It served as a footprint for the rotary jail designed by Brown and Haugh.

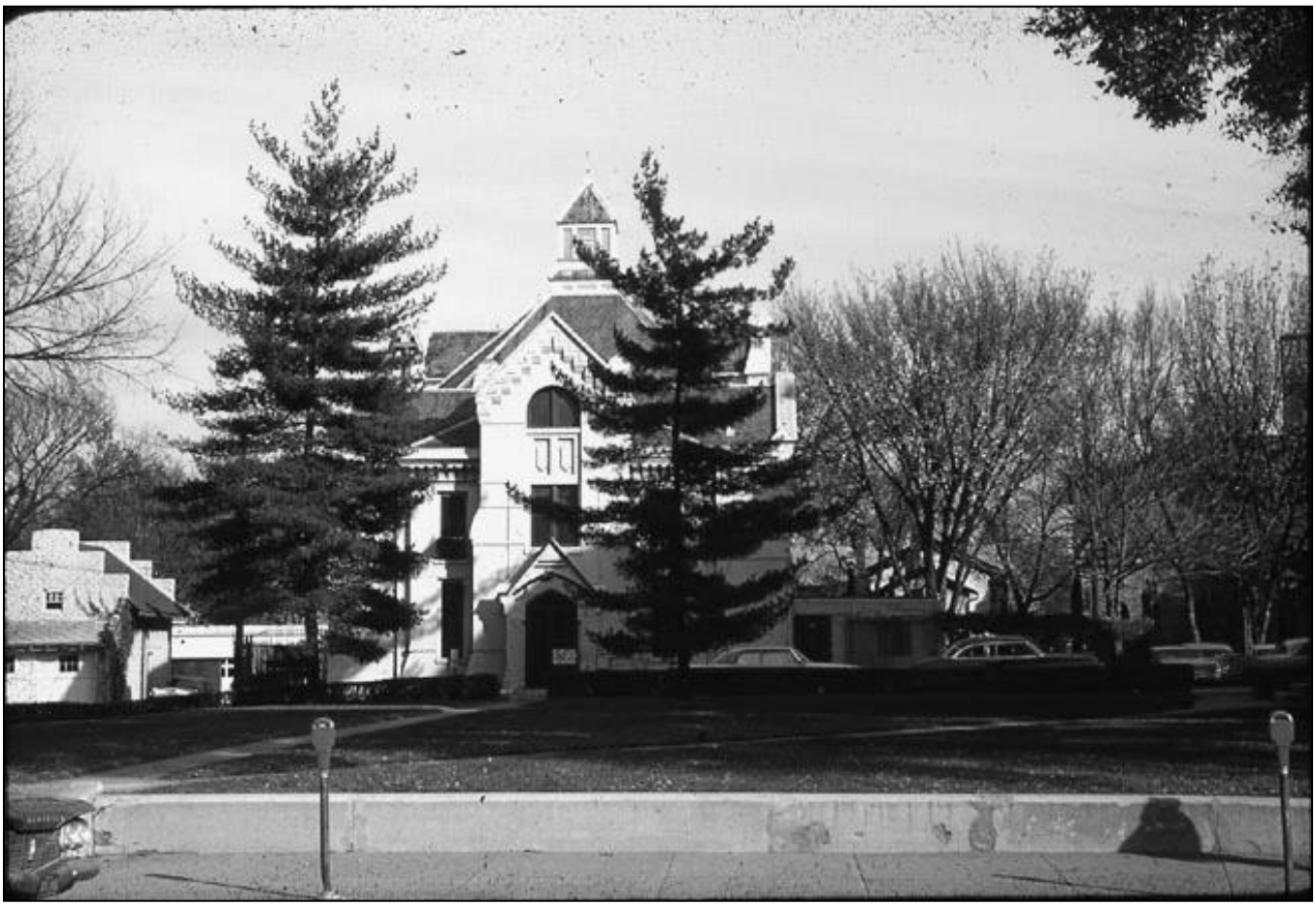


Figure 19. Historic photograph of the Pottawattamie County Jail in the late 1950s, known locally as the Squirrel Cage Jail. The source of the image is Historic Photos, Local History, Council Bluffs Public Library, Council Bluffs, Iowa.