(No Model.) 6 Sheets—Sheet 1.

D. K. OSBOURNE.

JAIL.

No. 487,448. Patented Dec. 6, 1892.

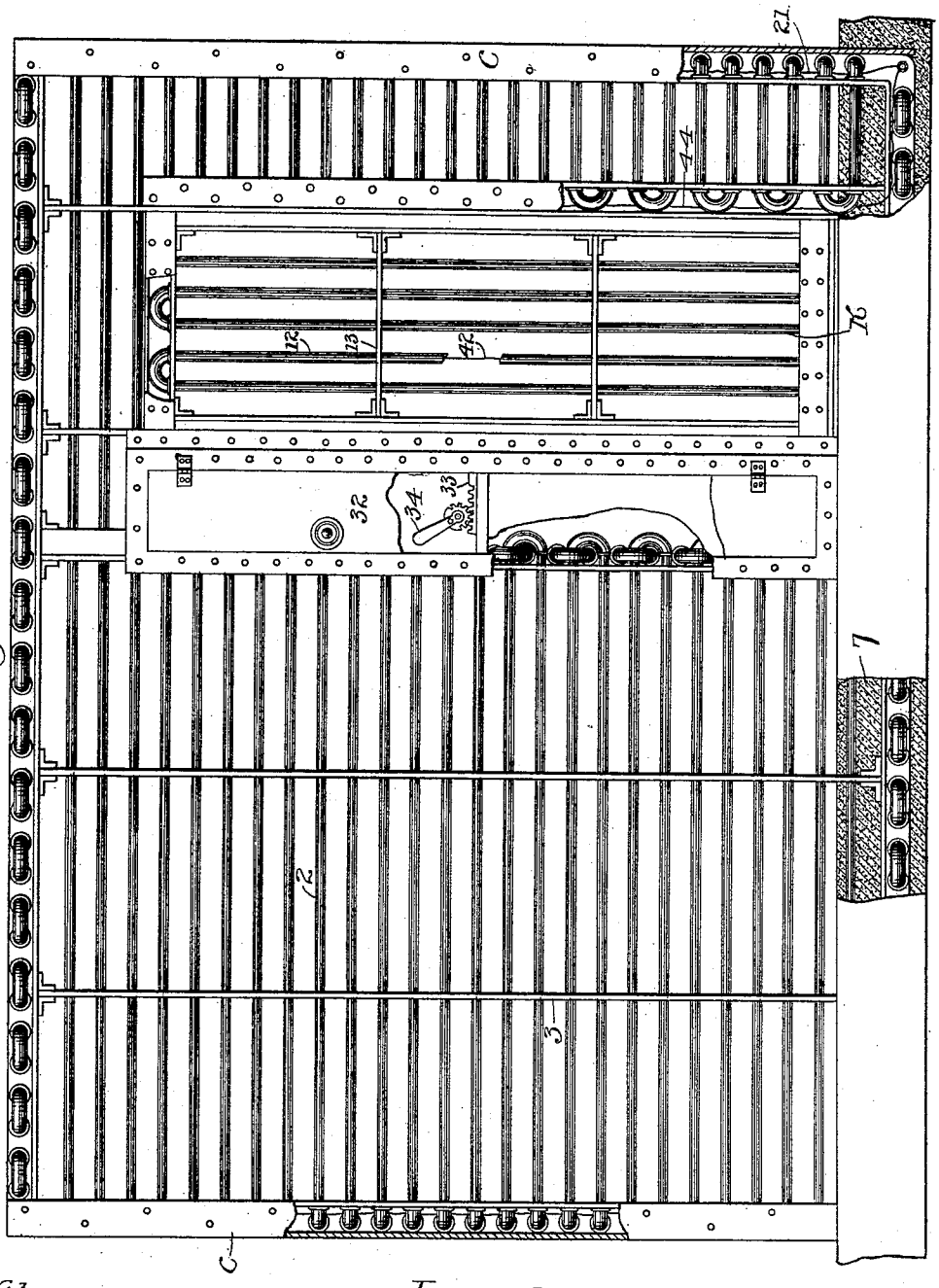

Fig. 1.

Witnesses:-
C. L. Caldwell.
A. MacNeill.

Inventor:
David K. Osbourne,
per Paul & Merwin
Attorneys.

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JAIL.

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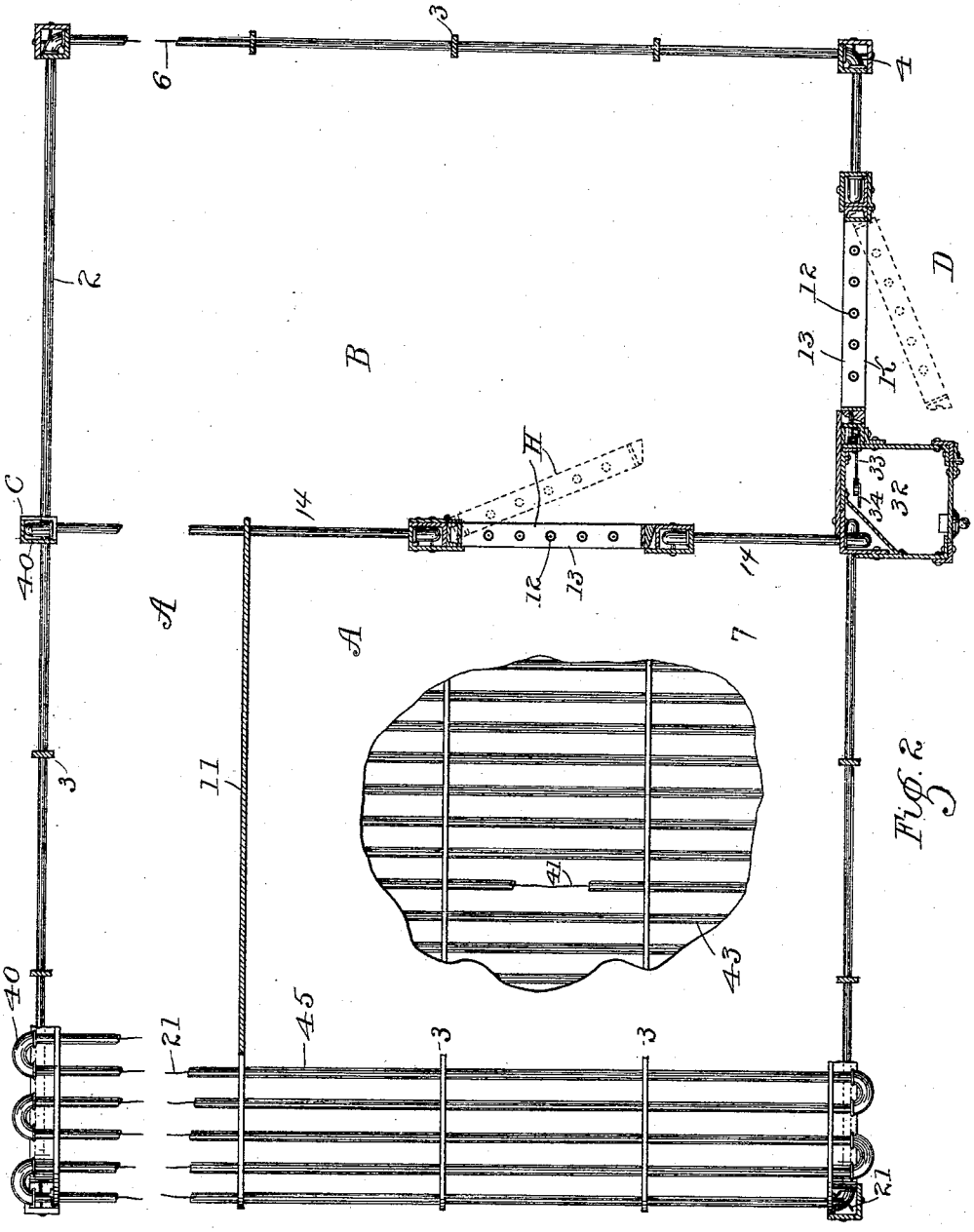

Fig. 2.

Witnesses:-
C. L. Caldwell
A. MacNeish.

Inventor:-
David K. Osbourne,
per: Paul Synnestvedt
Attorneys.

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(No Model.) 6 Sheets—Sheet 3.

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JAIL.

No. 487,448. Patented Dec. 6, 1892.

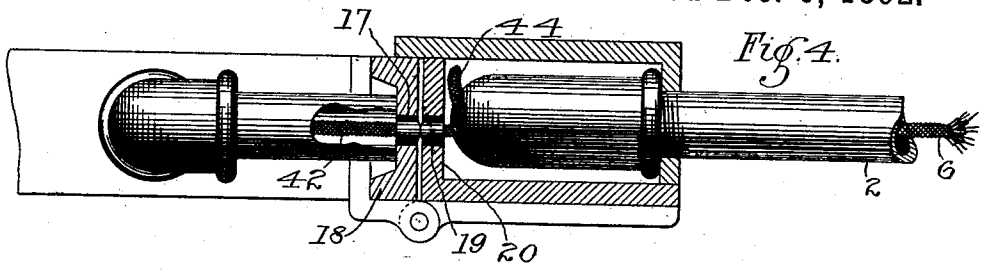


Fig. 4.

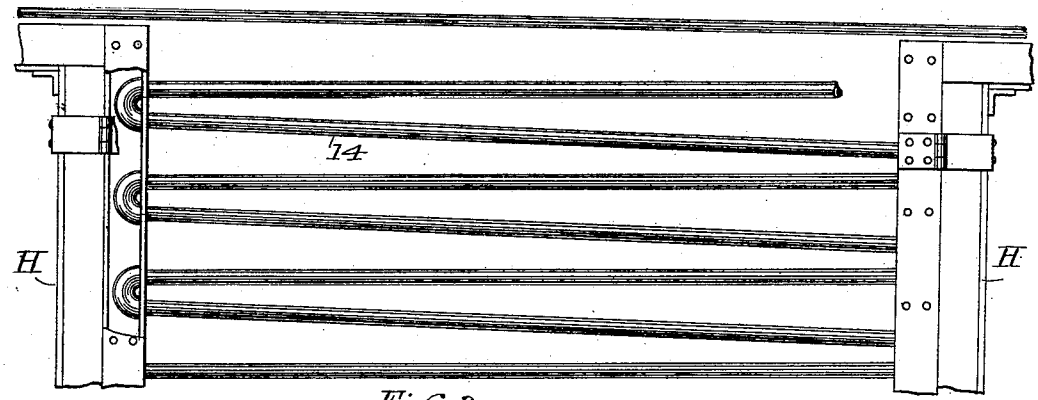
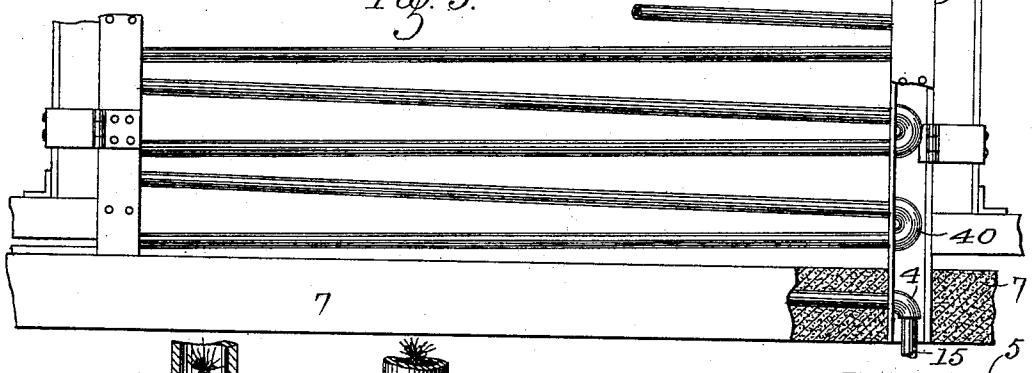


Fig. 3.



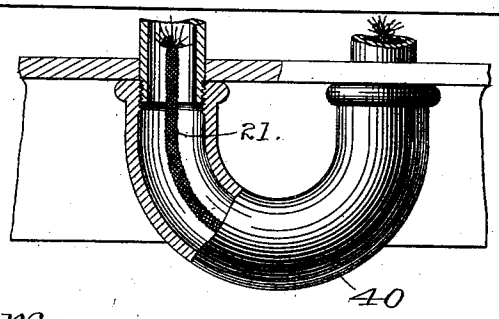


Fig. 5.

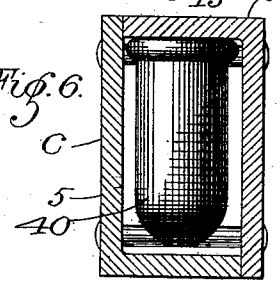


Fig. 6.

Witnesses:-
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Fig. 7.

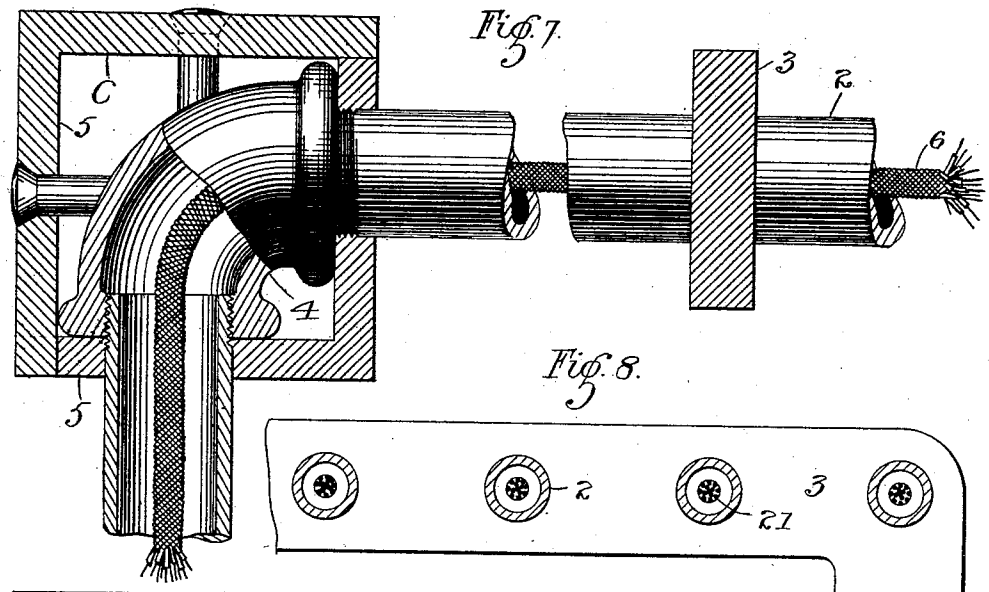

Fig. 8.

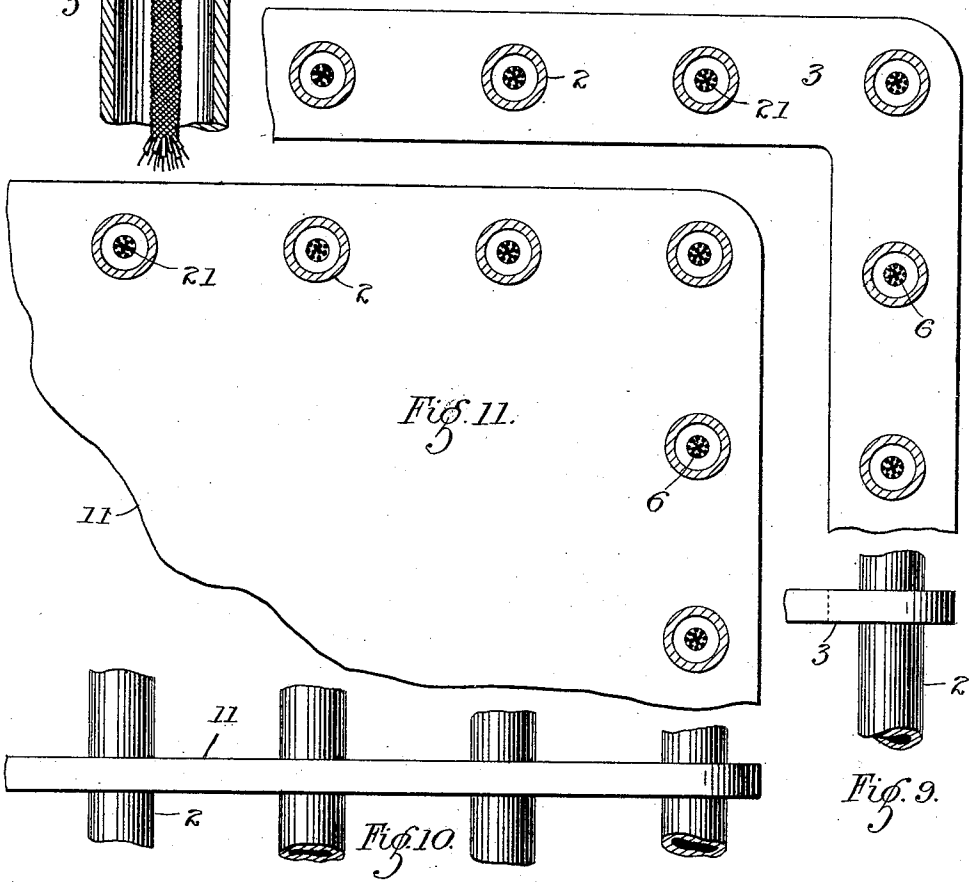

Fig. 11.

Fig. 9.

Fig. 10.

Witnesses:-
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JAIL.

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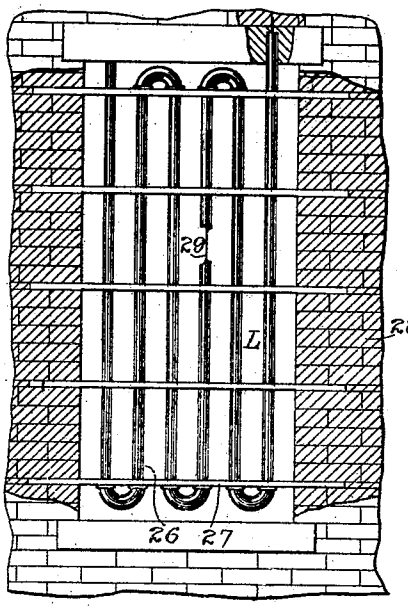

Fig. 12.

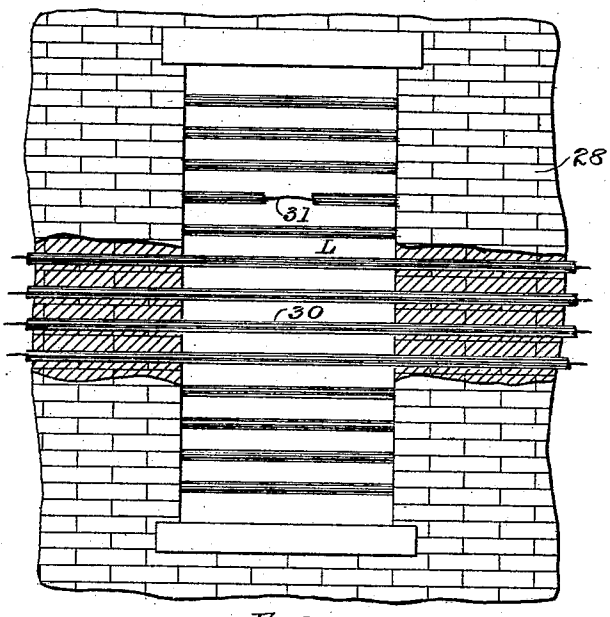

Fig. 13.

Fig. 14.

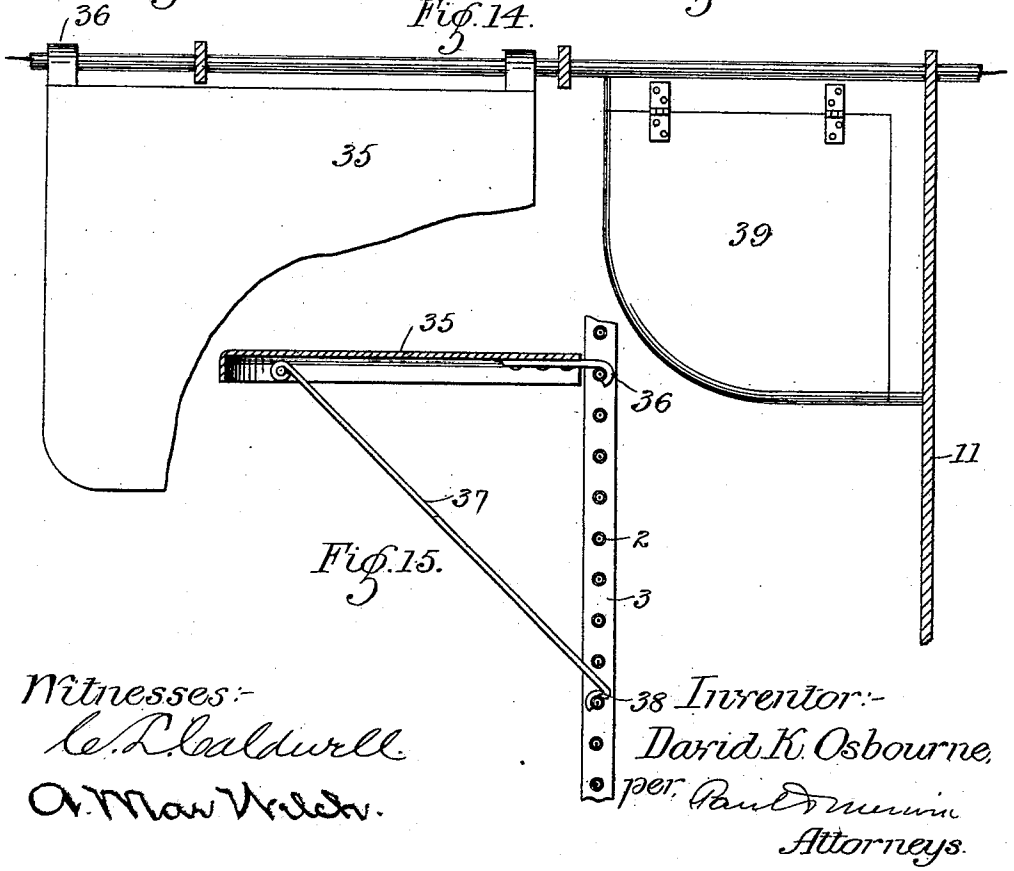

Fig. 15.

Witnesses:-
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D. K. OSBOURNE.

JAIL.

No. 487,448. Patented Dec. 6, 1892.

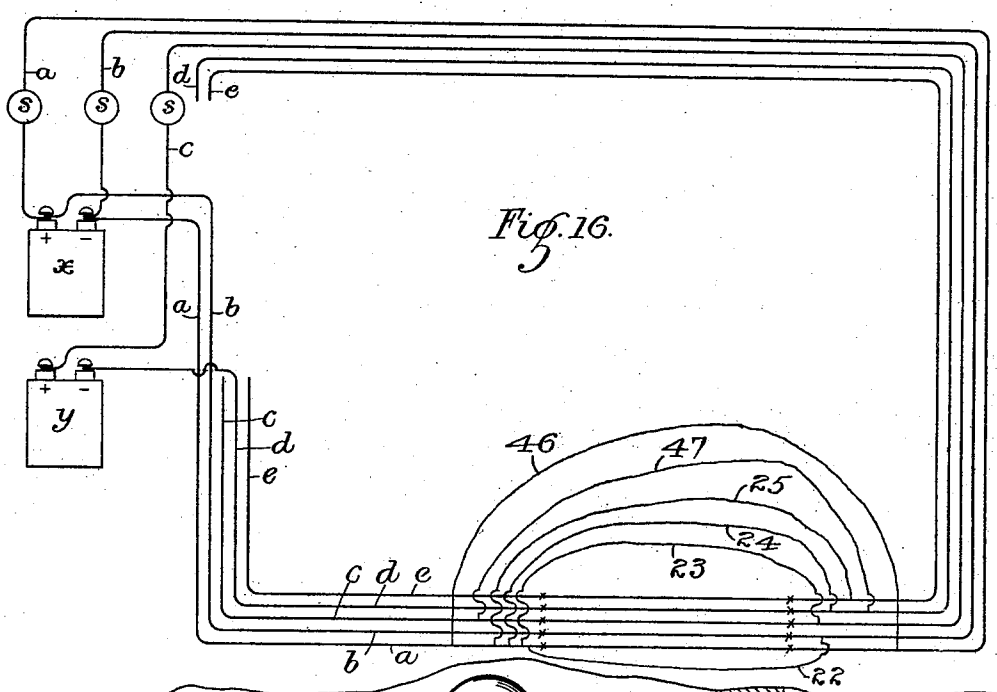

Fig. 16.

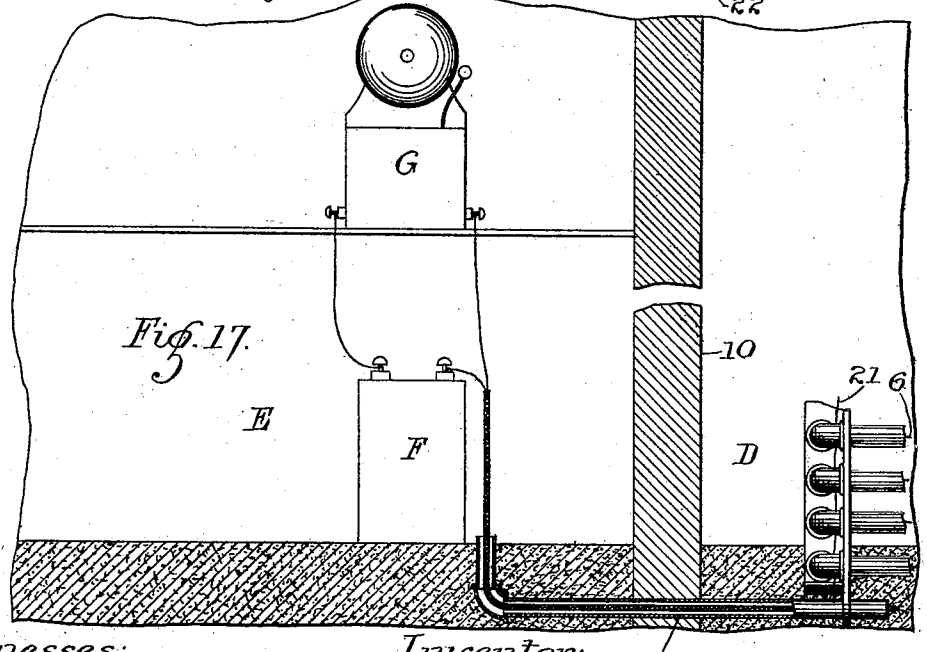

Fig. 17.

Witnesses:-
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A. MacWatters.

Inventor:-
David K. Osbourne,
per: Paul & Minnis
Attorneys.

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UNITED STATES PATENT OFFICE.

DAVID K. OSBOURNE, OF ST. PAUL, MINNESOTA.

JAIL.

SPECIFICATION forming part of Letters Patent No. 487,448, dated December 6, 1892.

Application filed August 6, 1891. Serial No. 401,937. (No model.)

To all whom it may concern:

Be it known that I, DAVID K. OSBOURNE, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in Jails, of which the following is a specification.

My invention relates to improvements in the construction of jails, particularly of the class in which the cells are arranged in the interior of the building with an open passage-way or corridor entirely surrounding and separating them from the outer walls of the building, the cells themselves being constructed with open-work metallic walls and ceiling.

The object of my invention is to simplify and reduce the cost of the structure, to so arrange the parts that the greatest amount possible of light and air is admitted through the walls, to utilize the wall structure itself for the purpose of heating the cells, and, further, to protect the walls in the most efficient manner from being cut or broken through by prisoners attempting to escape.

To this end my invention consists, primarily, in employing in the construction of the walls of the cells and other exposed barriers ordinary iron pipes, the different sections of which are coupled together in the ordinary manner by elbows and return-joints, so that the sections are held substantially parallel with each other and several inches apart, the pipes being supported in proper position by being carried through openings in flat steel bars which entirely surround the structure, thus constituting a substantial frame. The entire structure is then preferably anchored in a bed of solid concrete, which entirely covers and conceals the bottom of the frame and the series of floor-pipes. The outer portions of the structure are protected against the attack of prisoners attempting to cut through the same by means of electric wires inclosed in the pipes and arranged in closed circuits with electric batteries and alarm-signals. The inner portions of the structure—such as the partitions between the cells and exercise-corridors—I utilize for heating purposes by connecting the series of pipes with a suitable source of steam or hot-water supply. This feature, however, I do not specifically claim herein, as it is embodied in another application. I also disclaim a lattice for jail-cells and the like, comprising pipes, insulated conductors forming a circuit, passing through said pipes, and a battery and alarm included in the circuit of said conductors.

My invention further consists in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a jail-cell and its connecting exercise-corridor, showing the outer door of the corridor. Fig. 2 is a sectional plan view of the same, showing a portion of the cell-ceiling, the concrete floor, and the pipes embedded in the concrete. Fig. 3 is a partial front elevation of the partition-wall between the cells and the exercise-corridor, the pipes of which are connected with a source of steam-supply. Fig. 4 is a sectional detail showing the construction of the door jambs and frames and the contacts connected to the electric wires inclosed in the pipes of the door. Fig. 5 is a sectional detail showing one of the return-joints connecting the ends of the pipe-sections inclosed by an iron casing. Fig. 6 is a detail of the casing for the return-joint of the pipes of one wall abutting against another. Fig. 7 is a detail showing an elbow in the corner of the structure and its casing, a frame-bar supporting the pipe, and the electric-wire cable in the pipe. Figs. 8 and 9 are details of a part of one of the frame-bars. Figs. 10 and 11 are details of a portion of the sheet-metal cell-partition. Fig. 12 is a detail of a window-guard. Fig. 13 is a sectional detail of a part of the outer prison wall and window, showing series of pipes inclosed in the wall and provided with inclosed electric wires, the pipes extending across the window and serving as a guard. Fig. 14 is a detail showing a detachable sheet-metal cell-table. Fig. 15 is a sectional side elevation of the same, showing the manner of attaching it to the pipes of the wall. Fig. 16 is a diagrammatic plan view of the system of electric wires arranged in the pipes of the structure and their battery and alarm-signal connections. Fig. 17 is a detail diagrammatic view showing the manner of connecting the cable of wires with an electric battery and signaling apparatus located in the jailer's apartment.

In the ordinary structures of this class there is usually provided a series of two or more cells having doors opening into an exercise-corridor running in front of the cells, this corridor having a door opening into the outer or guard's corridor. Thus the side and rear walls of the cells and the end walls and one side wall of the corridor form the inclosing barrier for the prisoners, separating them from the interior of the building, while there are partitions separating the cells from each other and from the common exercise-corridor.

In order to furnish light and ventilation to the prisoners, the walls and ceiling of the structure are made of open-work, either perforated steel plates or heavy parallel bars supported in a strong frame, or crossed bars in the form of checker-work with square openings between.

In order to make this structure sufficiently strong to resist attack, it is necessarily made of the hardest steel and the parts of such size that only a small amount of light and air can pass through. As in my improved construction I do not seek to provide a structure which in itself is strong enough to resist all possible attack, but simply able to resist all ordinary attempts to cut or break through it, the cost is very much less than that of the other structures described, and is in itself sufficiently strong for use in temporary "lock-ups," so called, where a prisoner cannot procure tools or have sufficient time to cut through. In the case of jails and prisons, however, I protect the pipes of the structure from attack by means of the described inclosed electric wires, so that it is practically impossible for a prisoner to cut through a single pipe of the structure without giving an alarm, which enables escape to be absolutely prevented. I also provide similarly-constructed window-guards for the outer walls of the building, and in the original construction of the building, in some cases, I similarly protect them by embedding in the masonry series of connected pipes having inclosed electric wires arranged in circuit, as described, whereby the outer walls of the building are made practically impregnable, so that in many cases the electrical protection for the cells is dispensed with. Where the walls are thus constructed, the pipes are carried past the windows, and thus serve as efficient guards.

Figs. 1 and 2 of the drawings show a series of cells A A, having independent doors H opening into a common exercise-corridor B, which corridor is provided with a door K, opening outward into the guard's corridor D. The walls of the cells and corridor are made of series of pipes extending preferably horizontally and supported in place by means of iron or steel frame-bars 3, which entirely surround the structure and which are perforated to receive the pipes. The side-wall pipes are designated by 2, the floor-pipes by 43, the ceiling-pipes by 45, and those of the partition between the cells and the corridor B by 14. The elbows 4, connecting the pipes at the corners of the structure, and the return-joints 40, connecting the ends of parallel pipe-sections, are preferably inclosed and protected by angle-bars 5, securely bolted or riveted together to form a case or box C, the pipes entering through the sides of the case, as shown best in detail, Figs. 4, 5, 6, and 7. The return-joints of the pipes, forming the wall of the cells next the exercise-corridor are preferably interlocked with the pipes, or the return-joints of the pipes, as the case may be, of the outer or side wall, against which it abuts, as shown in Figs. 1 and 2, thereby strengthening and staying the walls. The pipes 2, forming the inclosing wall of the cells and exercise-corridor, are preferably connected in one set or series, while the pipes of the roof, those of the floor, and those of the partition-wall between the cells and corridor form other sets. The lower part of the structure is embedded in a mass of concrete 7, which serves as a floor for the cells and corridors and firmly anchors the structure in place.

Each of the series of pipes forming the walls, ceiling, and floor of the structure is threaded with insulated wire—that in the side-wall pipes being designated by 6, that in the ceiling-pipes by 21, and that in the floor-pipes by 41. These wires are preferably conducted to a common inclosing pipe or conduit 8, which is covered by the concrete and extends underneath the jailer's office E, which is separated from the guard's corridor D by the wall 10, where they are connected in closed circuit with batteries F and signaling apparatus G. (Illustrated diagramatically in Fig. 17.) Any suitable signaling device or indicator desired may be employed by means of which an alarm is given when the circuit is broken. Thus, the different parts of the structure are independently connected with signaling apparatus, so that the signal or alarm given will indicate the part of the structure which is being tampered with. The cells are separated from each other preferably by means of solid sheet-steel partitions 11, the pipes of the ceiling, wall, and floor being carried through the openings in the edges of the partition, as well as through the frame-bars 3.

The cell and corridor doors are formed, preferably, with vertical pipes 12, held in the frame-pieces or cross-bars 13, the doors being secured by any suitable locking devices, which form no part of this invention, but are to be included in a separate application. The pipes 14, forming the partition between the cells and corridor B, ordinarily do not need to be protected by electric wires, since they are inclosed by the electrically-protected outer walls of the corridor, and are therefor preferably arranged at a slight angle and connected at the bottom, as shown in Fig. 3, with a pipe 15, extending through the concrete 7 and connected with a suitable source of steam-supply, and thus

utilized for heating the cells. The pipes of the door K, between the exercise-corridor and the guard's corridor D, are provided with an inclosed electric wire 42, which is connected with the system when the door is closed by means of the insulated contacts 17, arranged in the frame 18 of the door and bearing upon the similar contacts 19 in the door-jamb 20, the contacts 19 being connected with the wire 44, which is led downward within the casing of door-jamb to the conduit 8, and thence to its battery and signaling apparatus. For this electrical protection of the pipes of the structure a single insulated wire in each case may be employed, or a plurality of similar wires interwoven in a cable, so that it is impossible to trace any particular wire in the cable. The several wires may then be connected with separate batteries and signals, thereby multiplying the guards for the pipe, so that in case of any battery or other part of the system failing to operate there will be others in readiness to give a signal when their wires are severed.

In Fig. 16 is diagrammatically illustrated a system of wires, showing an arrangement designed to prevent the possibility of connecting different points of the cable by a loop or loops as a part of the circuit and then cutting out the intermediate portion of the cable, whereby the electric currents would be undisturbed and no signal sounded. In the diagram five wires *a*, *b*, *c*, *d*, and *e* are shown. The wire *a* forms a closed circuit connected with the battery *x*. The wire *b* also forms a closed circuit with the same battery, but with opposite connections, so that the direction of current through the wires *a* and *b*, as they are arranged in the system, is opposite. *c* and *d* are open-circuit wires connected, respectively, with the binding-posts of the battery *y*, while *e* is a dead-wire, being without battery connection. Each of the wires *a*, *b*, and *c* is shown connected with a signaling apparatus *s*.

If it is desired to cut out the portion of the wires of the cable between the points marked with a cross and the cable on one side is connected by a loop 46 with a point on the other side, the currents flowing over both the wires *a* and *b* would be short-circuited, cutting out their signals, which would thus sound the same as if the wires were broken. The wires *c* and *d* would also be connected and a circuit closed through their battery and signal, causing an alarm. If the attempt be made to connect the wires independently by separate loops, it would be practically impossible from the danger of making a single misconnection. For example, if the loop 22, connected at one end to *a*, should be connected at the other to *b* then the currents of both wires would be broken and both signals sounded. Similarly if *a* be connected by either of the loops 23, 24, or 25 with *c*, *d*, or *e* its circuit will be broken. Similarly if *c* is connected by a loop 47 with *d* their circuit will be closed. Any number of wires and batteries desired may be employed to make the difficulties of connection practically insurmountable. The same plan is followed in the construction of window-guards, as shown in Fig. 12, in which a series of vertical pipes 26 is supported in the cross-bars 27 in the window L, the cross-bars being anchored in the walls 28 and the pipes being provided with the electric-wire cable 29, leading to a suitable source of electric energy and signaling apparatus. In the original construction of a prison I prefer to arrange a system of pipes 30, embedded in the masonry of the walls 28, and to provide these pipes with inclosed electric-wire cable 31 in the same manner and with similar attachments as those before described. In such case the window L is protected by the pipes extending across the same from the walls on each side. This feature of the construction, however, is not claimed herein, it being embodied and claimed in a separate application. In Fig. 1 the lock-box 32, arranged adjacent to the door K to conceal and protect the locking rack-bar 33 and its operating-lever 34, may be utilized above and below the locking apparatus for the storing of tools and weapons. In Figs. 14 and 15 is shown a convenient form of cell-table. This table 35 is formed, preferably, of sheet metal, having hooks 36 at its rear edge, adapted to hook over a pipe in the side wall of the cell, and provided, also, with braces 37, each having a fork or crotch 38, which fits over a lower pipe in the wall, as shown best in Fig. 15. The table can thus be readily attached to the pipes of the wall or detached therefrom, although ordinarily arranged at a convenient height for the prisoner seated on the fixed seat 39 in the corner of the cell.

I claim—

1. In a barrier or wall for jails and analogous structures, the combination of the hollow electric conductor and the insulated electric conductor arranged therein.

2. In a wall or barrier for jails and analogous structures, the combination of the tubular electric conductor and the electric conductor included therein, but insulated therefrom.

3. In a barrier or wall for jails and analogous structures, the combination of the tubular electric conductor and the electric conductor arranged therein, but insulated therefrom, and in circuit with a source of electrical energy and a signaling apparatus.

4. In jails and analogous structures, an open-work wall or barrier comprising, in combination, a series of tubular electric conductors, a supporting-frame therefor, and electric conductors threaded through said tubular conductors, substantially as described.

5. In jails and analogous structures, an open-work wall or barrier comprising, in combination, a supporting-frame, a series of tubular electric conductors arranged therein, and insulated electric conductors threaded there-

through in circuit with a source of electrical energy, and a signaling apparatus, substantially as described.

6. A jail-cell comprising, in combination, a series of metallic pipes, a perforate frame holding and supporting said pipes, angle-bars incasing the joints of said pipes, electric conductors threaded through some of said pipes and connected with a source of electrical energy, and a signaling apparatus, and means for connecting other of said pipes with a source of heat, substantially as described.

7. In a device of the class described, having walls composed of series of pipes, the combination therewith of series of wires threaded through said pipes and oppositely connected in closed circuit with a suitable source of electrical energy and a signaling apparatus, substantially as described.

In testimony whereof I have hereunto set my hand this 27th day of July, 1891.

DAVID K. OSBOURNE.

In presence of—
T. D. MERWIN,
A. MAE WELCH.