3 Sheets--Sheet 1.

J. B. COOK & J. W. HEATH.

Construction of Prisons.

No. 168,232. Patented Sept. 28, 1875.

FIG. 2.

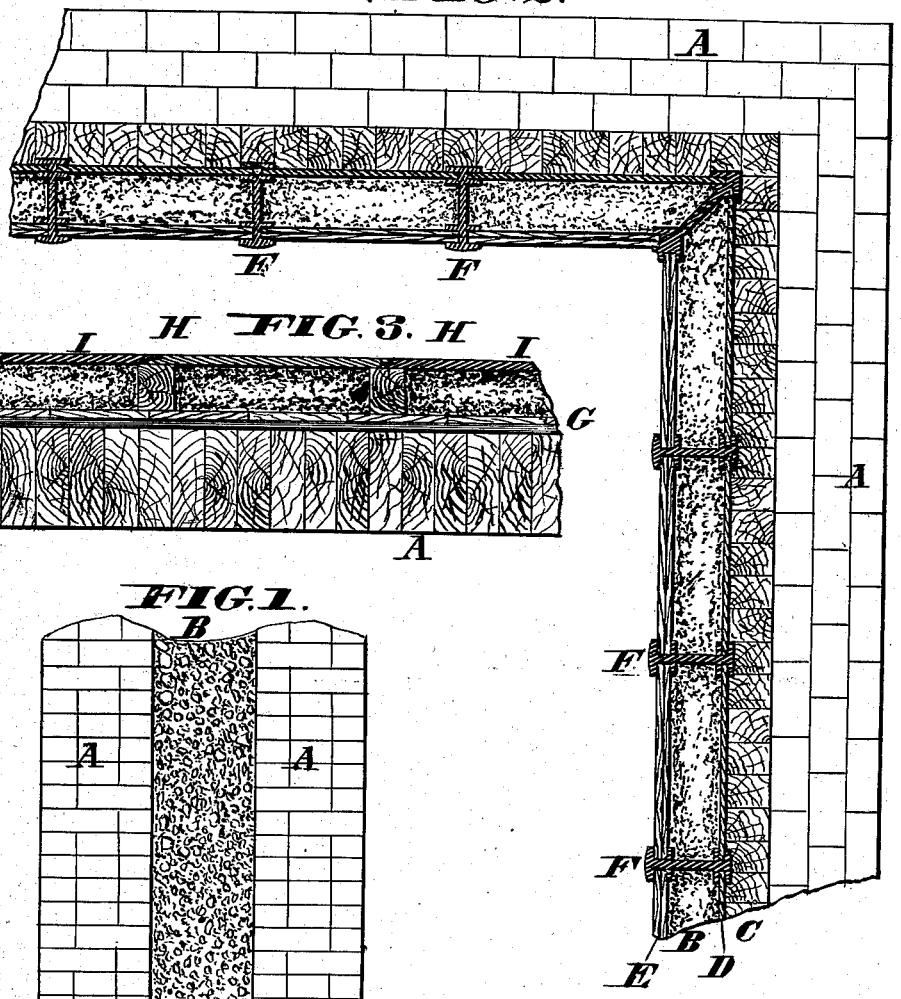
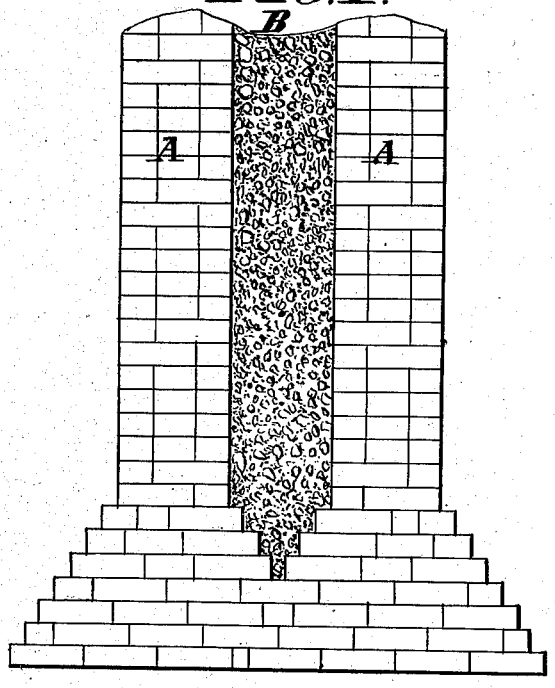


FIG. 3.

FIG. 1.



WITNESSES

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FIG. 4.

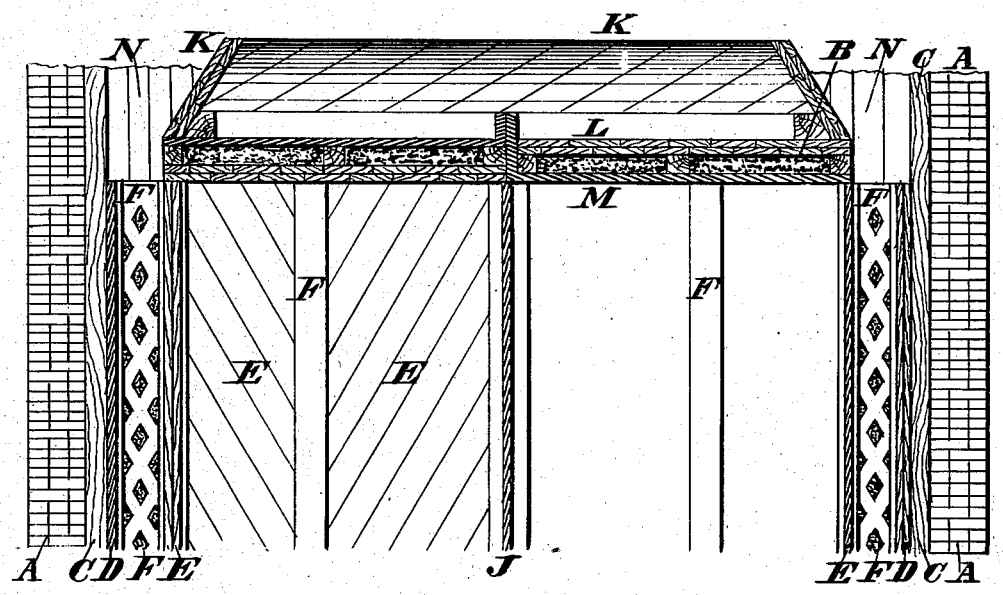

FIG. 5.

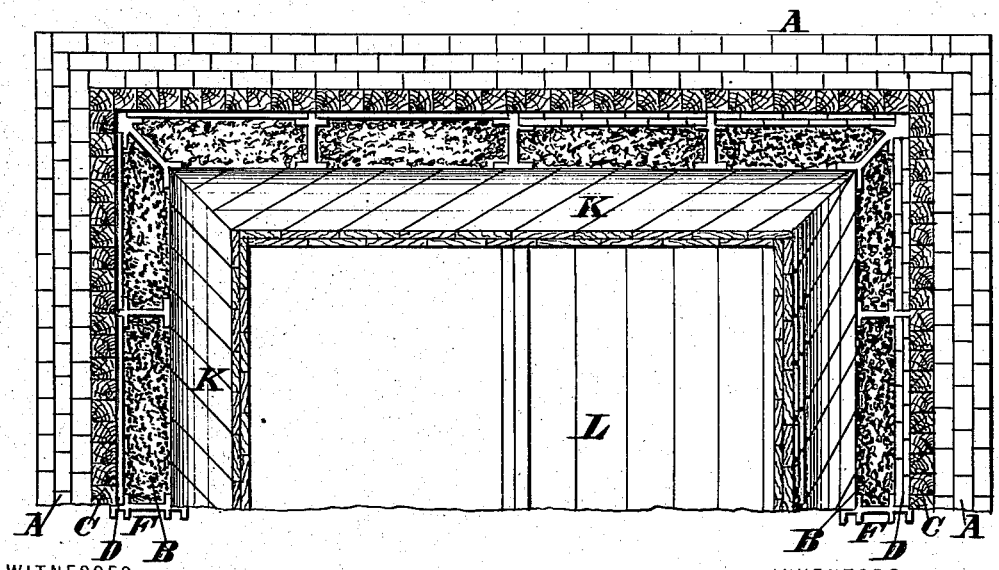

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FIG. 6.

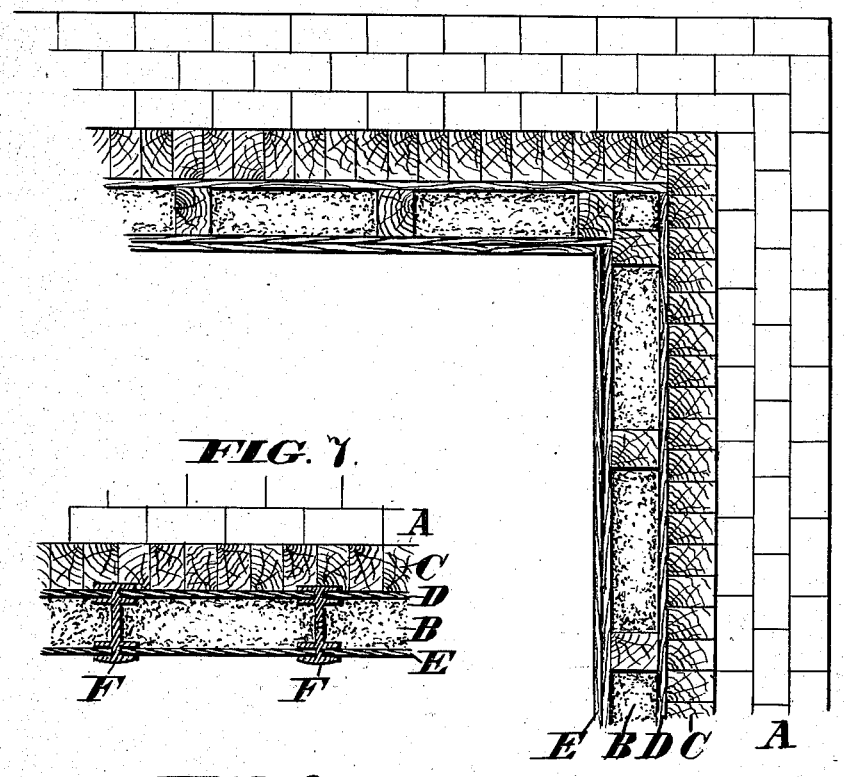


FIG. 7.

FIG. 8.

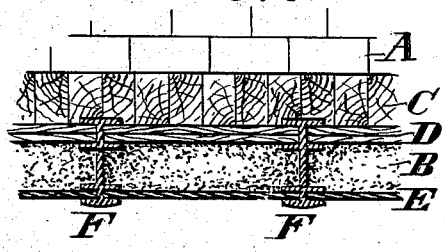
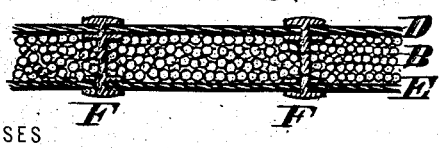


FIG. 9.



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UNITED STATES PATENT OFFICE.

JAMES B. COOK AND JAMES W. HEATH, OF MEMPHIS, TENNESSEE.

IMPROVEMENT IN THE CONSTRUCTION OF PRISONS.

Specification forming part of Letters Patent No. **168,232**, dated September 28, 1875; application filed April 23, 1875.

To all whom it may concern:

Be it known that we, JAMES B. COOK and JAMES WILSON HEATH, both of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in the Construction of Prisons, of which the following is a specification:

In order to prevent the escape of prisoners, and to cause the detection of any attempt at escape, we construct the walls, floors, ceilings, or roofs, or all of them, hollow, or employ in connection therewith a hollow lining, and fill the space in said hollow walls, floors, ceilings, roofs, or linings with a body of sand, gravel, and broken stone, or other loose and mobile material adapted to flow through any puncture which may be made in the wall, floor, ceiling, or other part of the structure.

In order to maintain a flow of the filling material, we employ, in connection with the hollow walls, floors, ceilings, or linings, hoppers to contain any necessary supply of the loose or mobile filling material, which will thus be adapted to take the place of that which may flow out through an opening, so as to keep the spaces constantly full.

The invention further consists in combining, with the double plates or shells of hollow walls or wall-linings constructed for the reception of a mobile filling, as specified, flanged or grooved pillars or standards, within which plates of metal, wood, or other material are inserted without the use of bolts or rivets, as hereinafter described.

The invention further consists in constructing the standards or frames in lattice or other open form, so as to provide communication between the chambers within the walls or wall-linings.

In the accompanying drawings, Figure 1 is a sectional elevation of a double wall with a filling of loose material illustrating the invention. Fig. 2 is a horizontal section of a corner of a building, showing external walls of brick, bulkheading of wood, flanged or grooved standards, metallic plates set in such standards next to the bulkheading, a double thickness of wood on the inner face, and a body of loose or mobile material interposed between the wooden facings and the metallic plates. Fig. 3 is a horizontal section, illustrating a modification, the face of the wall being made of metal, and the back of the space or chamber of two thicknesses of wood running in opposite directions. Fig. 4 is a vertical section, illustrating the hoppers formed in the roof for the supply of mobile material, the lattice form of the frames or standards, and the chambered ceilings. Fig. 5 is a horizontal section of the structure shown in Fig. 4, the cutting-plane being within the roof. Fig. 6 is a horizontal section of a corner of a building, illustrating the application of the invention to structures where metal is entirely dispensed with. Fig. 7 is a horizontal section, showing the combination of metallic flanged or grooved frames or standards and wooden plates secured therein against a bulkheading of wood. Fig. 8 is a horizontal section of another modification. Fig. 9 is a horizontal section, illustrating a modification in the filling material.

A A represent the main walls of a prison, which may be made of brick or stone. B represents a filling, preferably of sand and gravel and broken stone, occupying the entire space in the double walls A A, (shown in Fig. 1,) or in the wall-linings described below. C, in Figs. 2, 4, 5, 6, 7, and 8, represents a bulkheading of wood interposed between the walls and the internal wall-linings.

In Fig. 2 the wall-linings are shown as made up of metallic plates D next to the bulkheading C, and wooden sheathing E in two thicknesses, the grain preferably running in different directions, the said plates D and sheathing E being inserted within the groove of the standards F, which are adapted to receive and hold them, as shown. This mode of putting the parts together dispenses with the necessity of bolting or riveting.

One of the grooved standards is first placed in position. The edges of the plates of metal or wood are then inserted in the edge grooves. The next standard is then placed on the free edges of the plates. The second set of plates is then inserted, then another standard, and so on from one corner of the structure to the next. When a corner is reached the plates are prepared of the necessary width to completely fill it, and the whole is firmly wedged or driven home to close all the joints, the last plates and standards serving to keep the whole

in position. The last or key plates are fitted and inserted, as above described, at each door or opening.

In Fig. 3, A may represent external walls, of wood, for a prison of cheap construction; and G, a sheathing of two thicknesses of wood applied to the inner face thereof, the sheathing being arranged with the grain in different directions. H represents wooden studs or stanchions. I are facing-plates, of metal, secured to the stanchions H.

Figs. 4 and 5 show external walls A, bulk-headings C, metallic lining-plates D, and wooden facings E, substantially as in Fig. 2; and Fig. 4 represents also the lattice or other open construction of the flanged standards F. J may represent a thin partition-wall. Fig. 4 also shows a portion of the roof K, and hollow floors and ceilings L M, between which the loose and mobile filling B is also introduced. The space between the slope of the roof K and the vertical walls A constitutes hoppers N, for the reception of any necessary quantity of mobile filling material to maintain the supply, so that the spaces within the hollow walls, wall-linings, floors, or ceilings may be kept constantly full.

The structure shown in Fig. 6 is similar in all essential respects, excepting that the flanged standards F are dispensed with and wooden stanchions are substituted therefor, a single sheathing, D, being applied next to the bulk-heading, and a double facing, E, to form the inner shell of the hollow lining, which contains the mobile filling B.

Fig. 7 represents the use of the flanged or grooved standards F, in connection with wooden sheathing D and E on both sides of the chamber containing the mobile filling B. Fig. 8 shows a similar structure with the sheathing D double. Fig. 9 is a sectional view, illustrating the use of round shot or iron balls to constitute the loose and mobile filling B.

The invention in its simple form (represented in Fig. 1) is applicable to the construction of the walls of jail-yards, and the external walls of jail-buildings where the cells constitute a separate inner structure. The construction of hollow walls, ceilings, and floors affords the greatest facility for the introduction of hot-air and ventilating flues. Such walls also constitute superior non-conductors of heat, rendering the buildings cooler in summer and warmer in winter. The sand-filling constitutes itself a valuable non-conductor, and by this function is of great value in the application of the invention to fire-proof structures of all descriptions. Smooth pebbles, together with sand, will, in some cases, form a valuable component of the loose mobile filling of the hollow walls, floors, and ceilings.

In a prison constructed or provided, as above described, with hollow walls or wall-linings and hollow floors and ceilings, it will be manifestly impossible for a prisoner to effect his escape by puncturing either the wall, floor, or ceiling, and impossible for him to attempt such escape without the attempt being immediately frustrated and detected. The first effect of a puncture of the inner shell of the cell at any part will cause a flow of the loose mobile material with which the chamber or space within the walls or wall-linings or hollow floor or ceiling is filled, and this flow cannot possibly be arrested without instantly filling the hole which has been made, and abandoning the attempt. In case of any attempt to escape through the floor, the loose material will immediately flow into the apartment below, and thus give warning of the attempt.

The invention in its various forms is applicable to the construction of prisons of all descriptions, from the most cheap and simple jail to the most extensive, elaborate, and costly penitentiary, as well as bank-vaults, safe-deposits, and all other structures where it is desirable to prevent either ingress or egress.

The following is claimed as new:

1. The method of preventing the puncturing of walls by the employment of a loose or mobile filling of sand, gravel, or other material within or between hollow walls or wall-linings or floors or ceilings.

2. The combination of a hollow or double wall or wall-lining or floor or ceiling, a mobile filling, and a supply-receptacle above, from which the space may be kept constantly filled.

3. The combination of the doubly flanged or grooved pillars, the double plates of the hollow wall or wall-lining, and a suitable mobile material filling the space between them, substantially as set forth.

4. The construction of the frame-standards of the hollow walls or wall-linings, with latticed or other openings, substantially as and for the purpose set forth.

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JAMES W. HEATH.

Witnesses:
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CHAS. J. GOOCH.