

(No Model.)

3 Sheets—Sheet 1.

R. P. MANLY.
GRATING FOR JAILS.

No. 537,897.

Patented Apr. 23, 1895.

Fig. 1

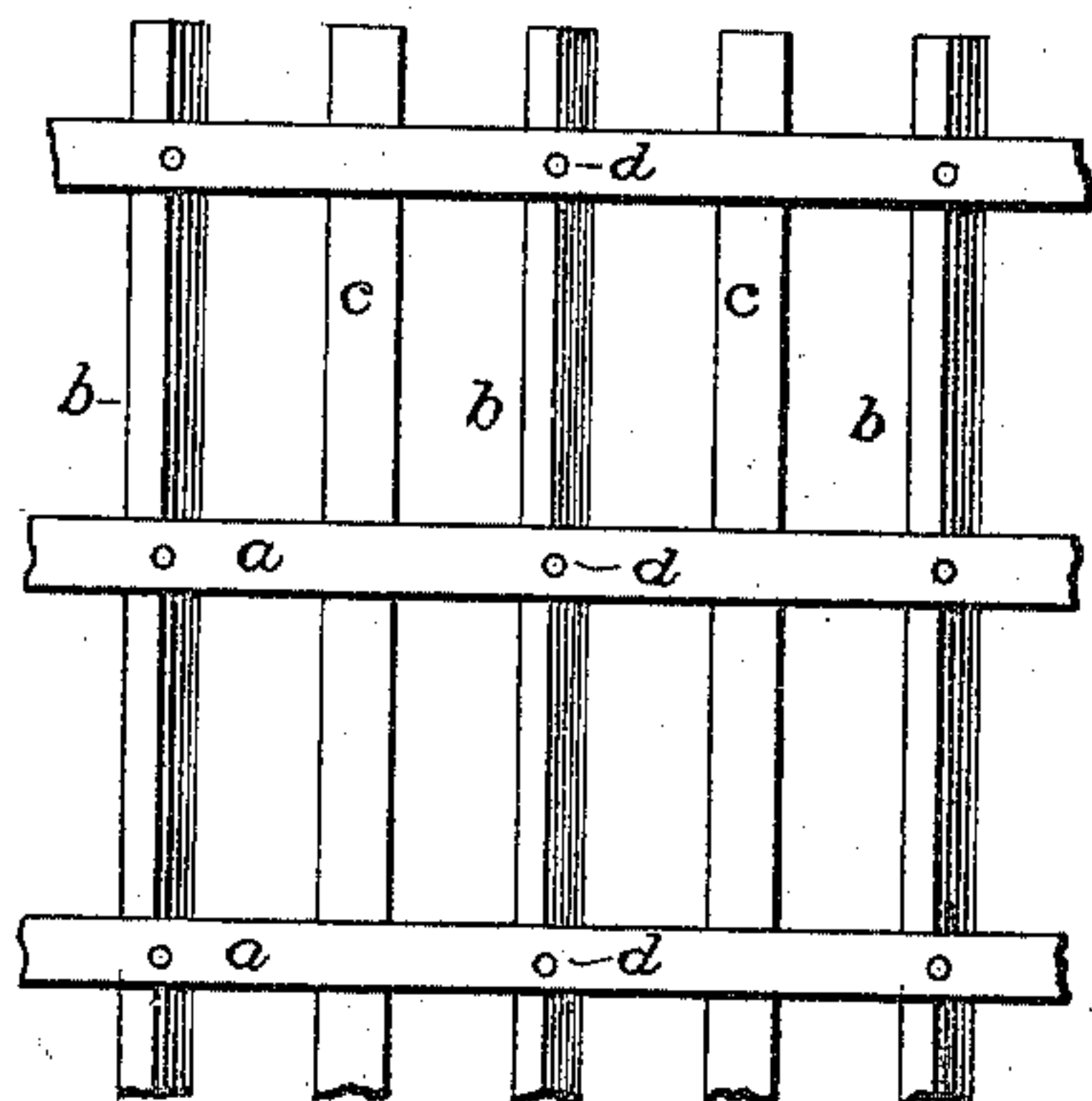


Fig. 2



Fig. 3

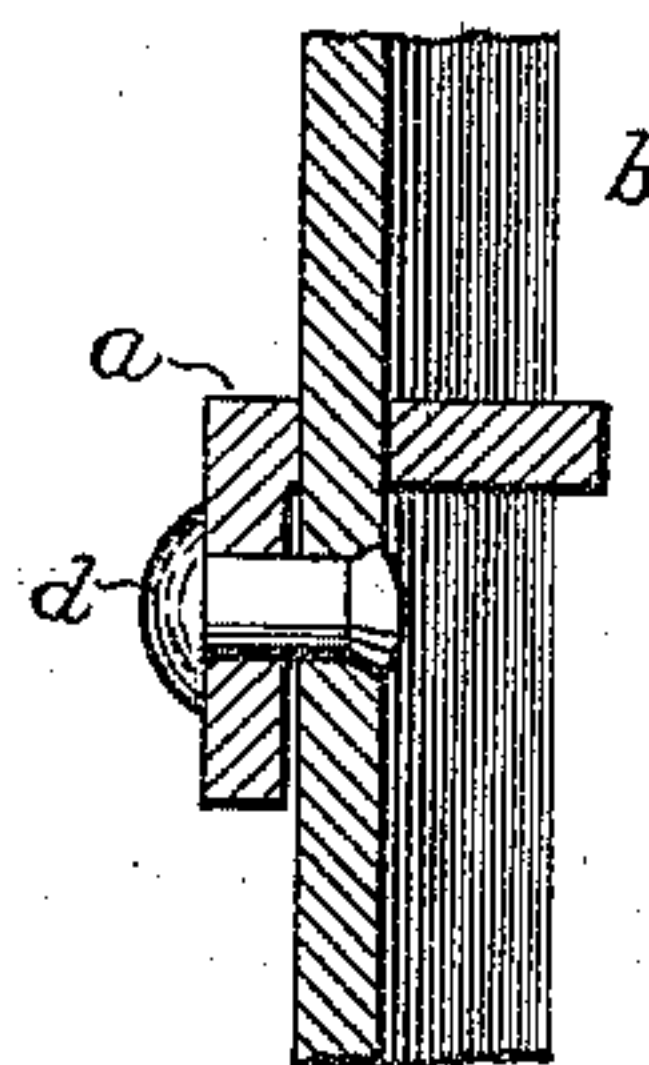


Fig. 4

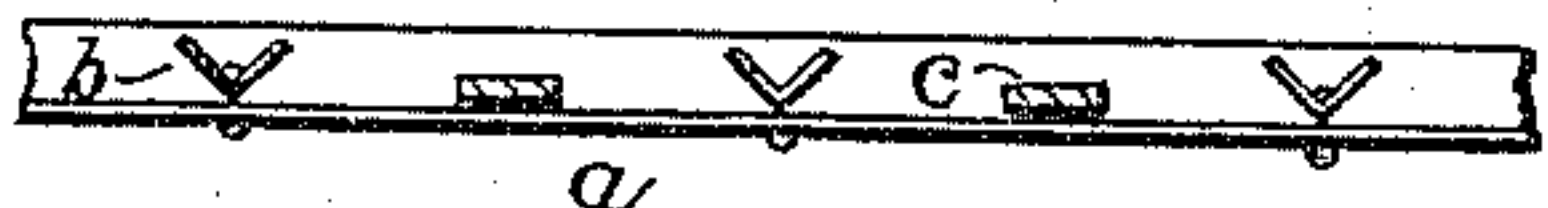


Fig. 5

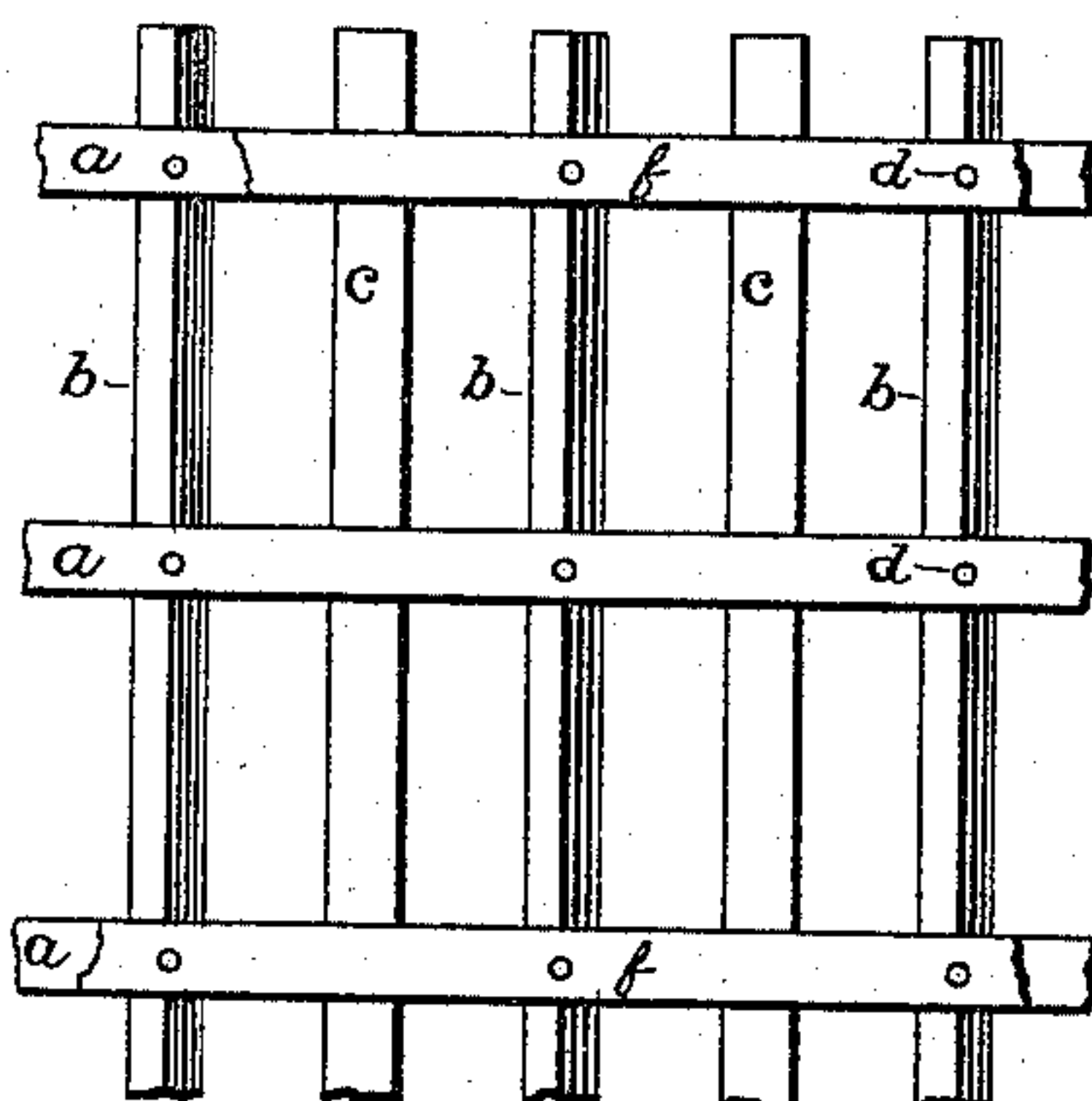


Fig. 6

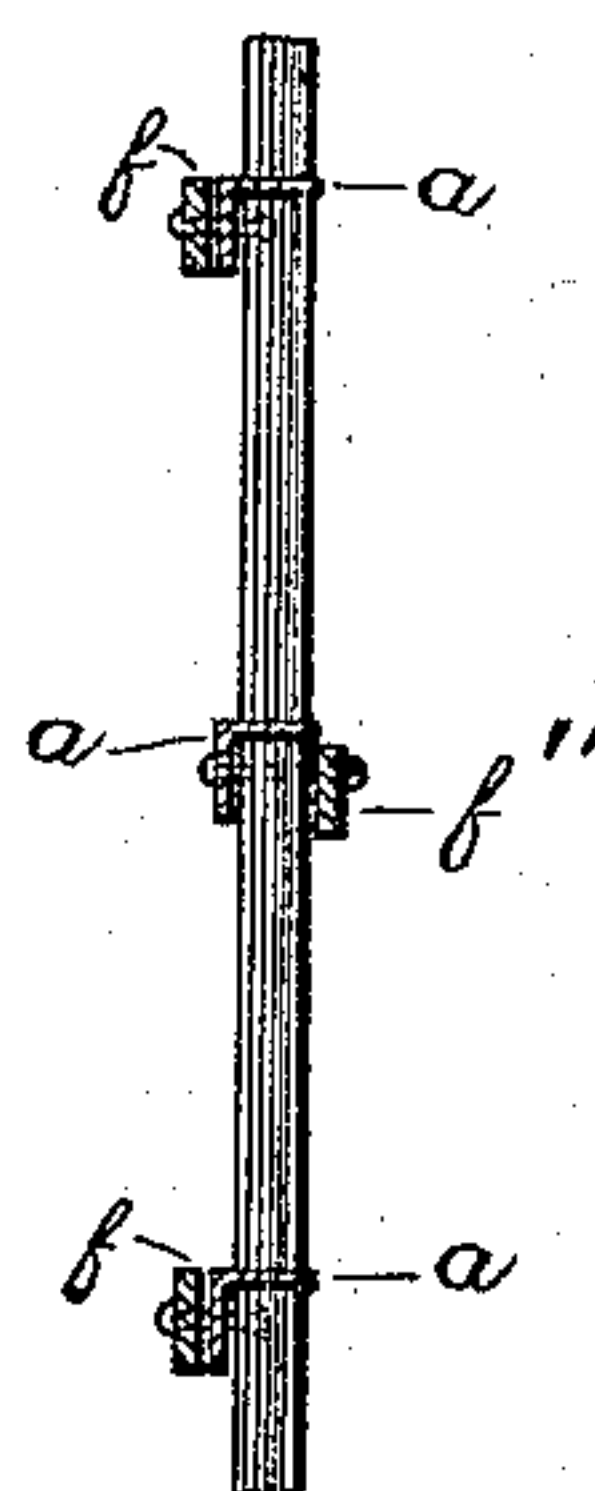
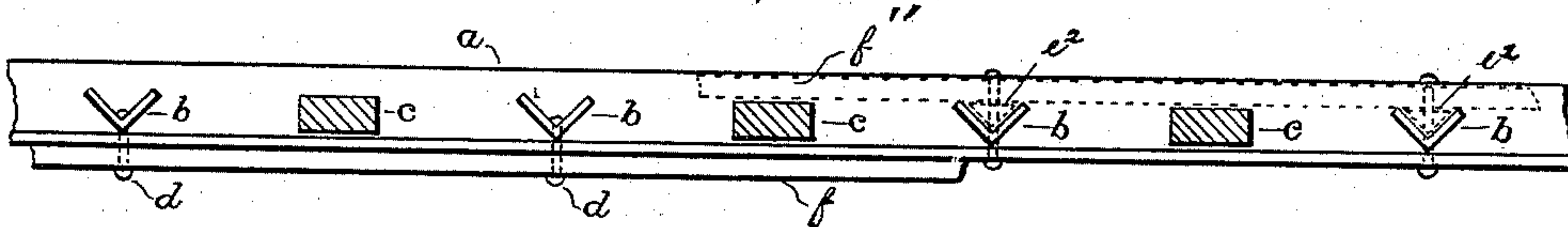


Fig. 7



WITNESSES

James Kennedy

Charles T. Moore

INVENTOR

Robert Patterson Manly
By his Attorney,
Fred W. Boyce.

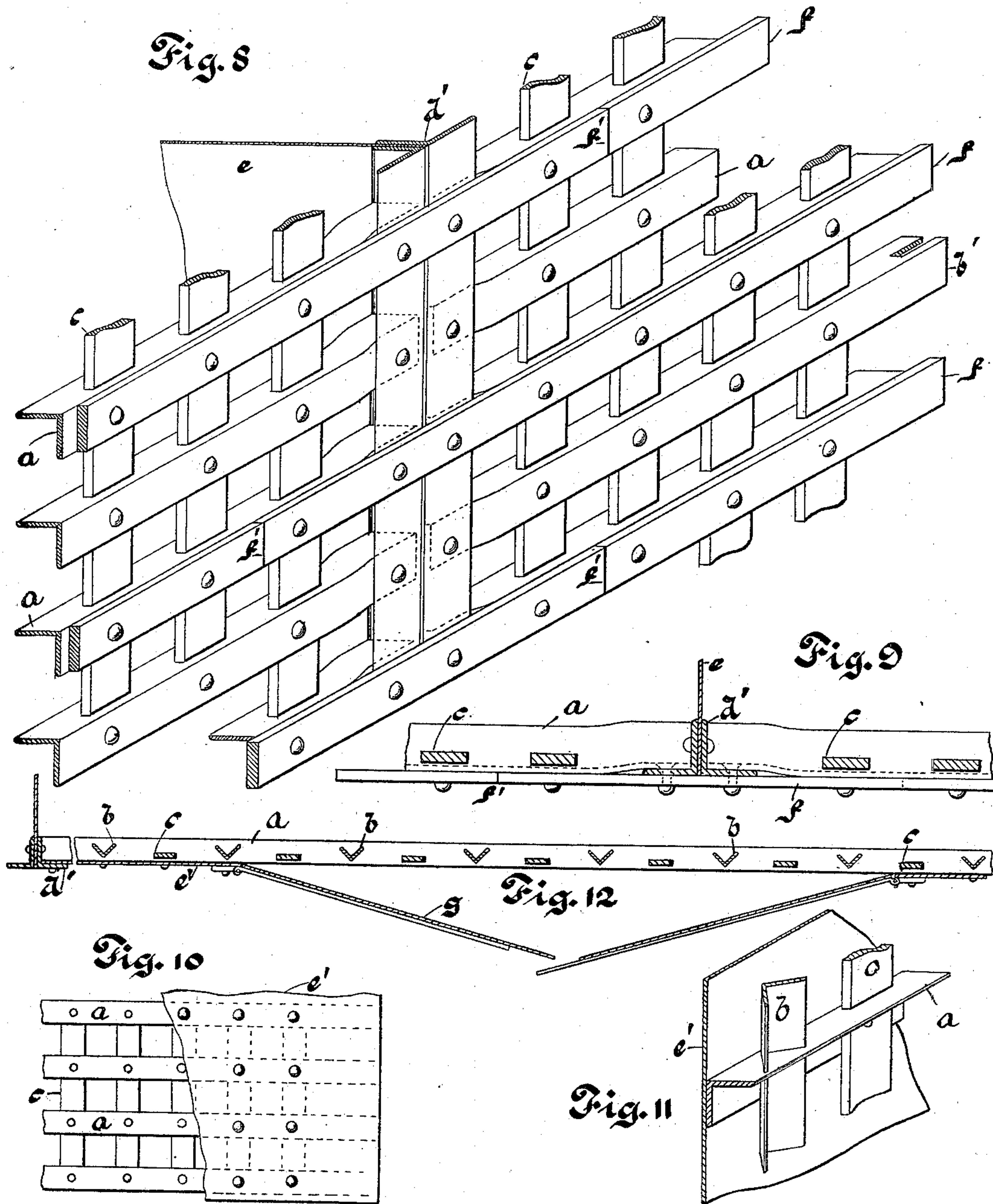
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Patented Apr. 23, 1895.



WITNESSES

James Kennedy

Charles T. Moore

INVENTOR

Robert Patterson Manly
By his Attorney,
Fred W. Hoyle

(No Model.)

3 Sheets—Sheet 3.

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Fig. 13

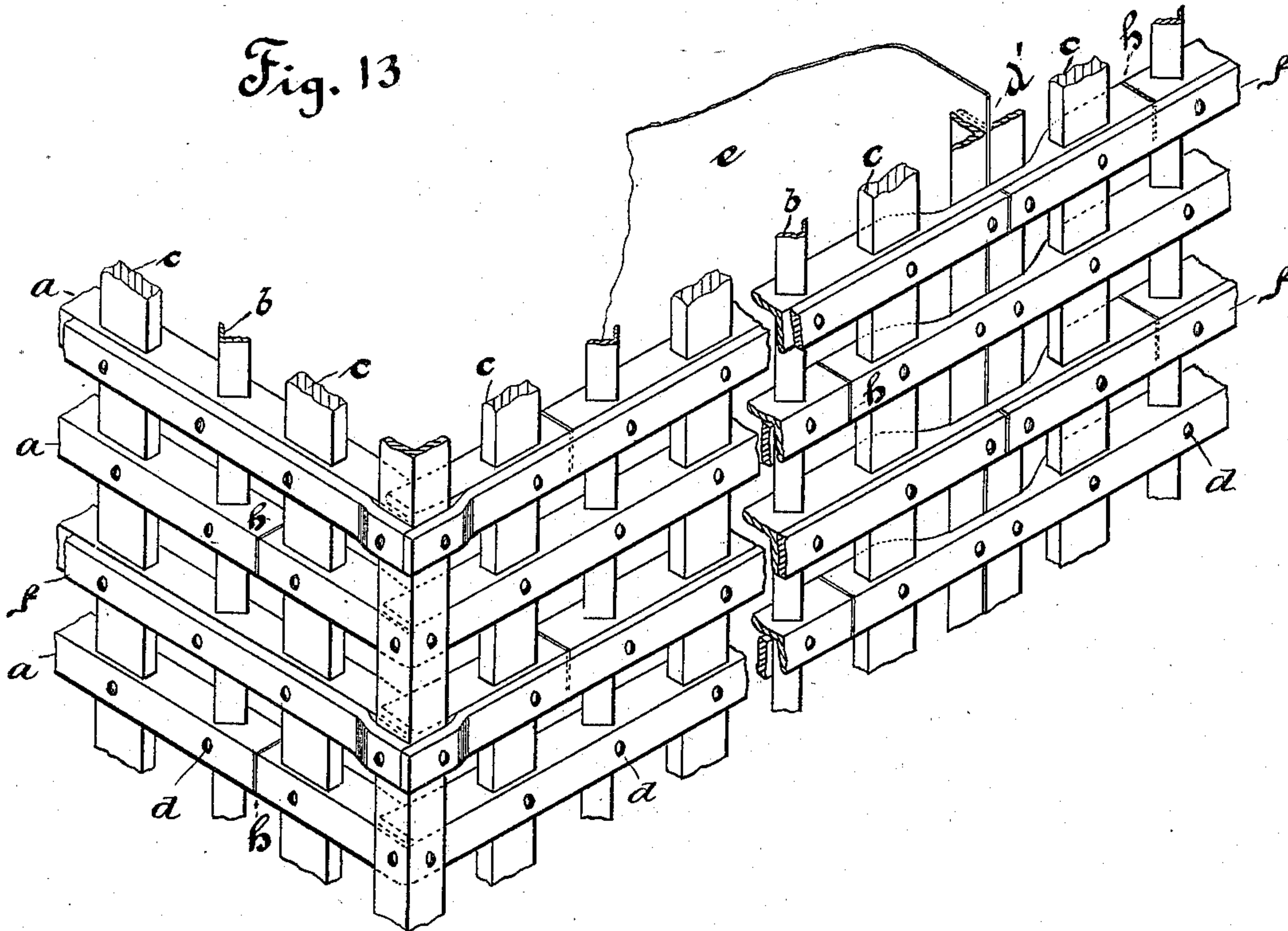
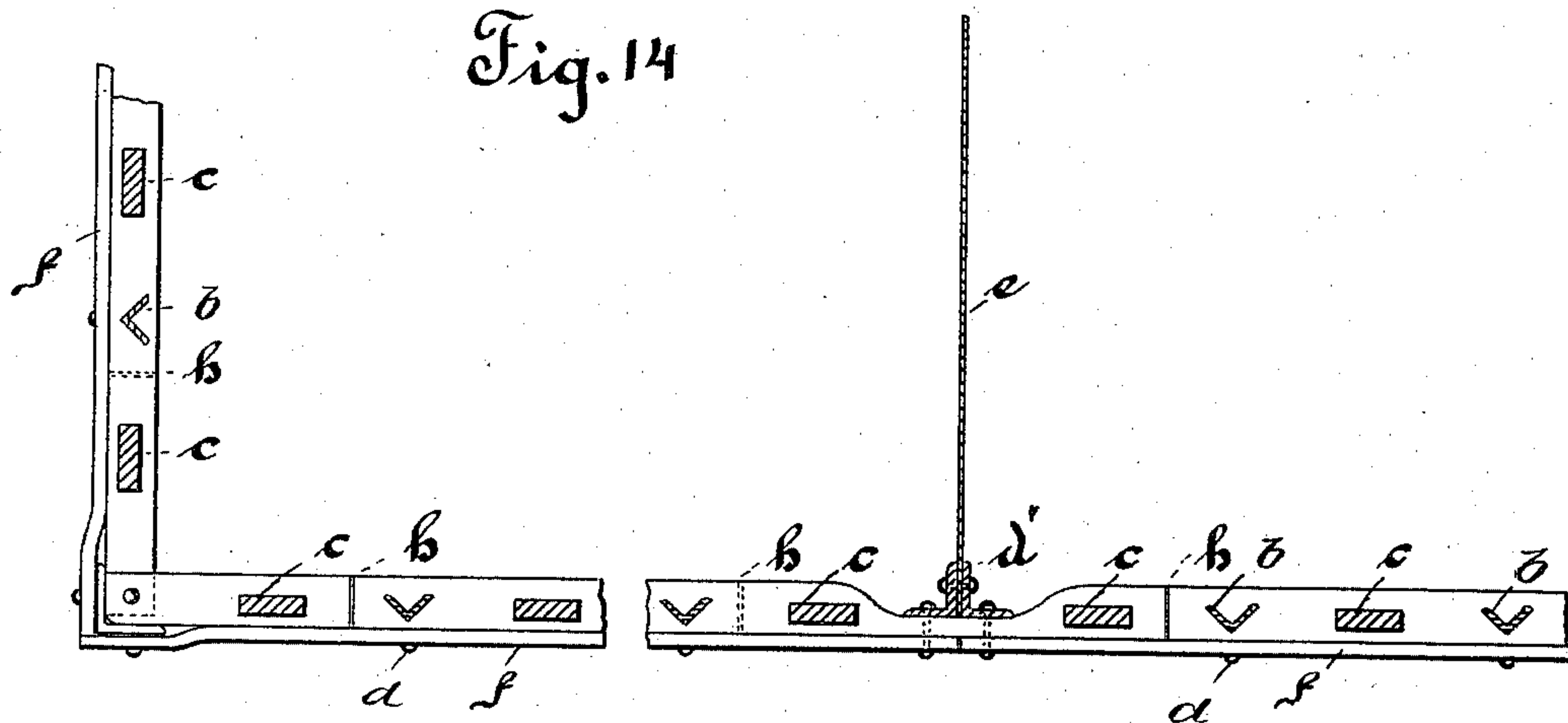


Fig. 14



WITNESSES

James Kennedy

Charles T. Moore

INVENTOR

Robert Patherman Manly
By his Attorney,
J. W. Rouse.

UNITED STATES PATENT OFFICE.

ROBERT PATTERSON MANLY, OF DALTON, GEORGIA.

GRATING FOR JAILS.

SPECIFICATION forming part of Letters Patent No. 537,897, dated April 23, 1895.

Application filed February 20, 1893. Serial No. 463,034. (No model.)

To all whom it may concern:

Be it known that I, ROBERT PATTERSON MANLY, a citizen of the United States, residing at Dalton, in the county of Whitfield and State of Georgia, have invented certain new and useful Improvements in Gratings for Jails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to gratings for jails and for other like constructions, and it has for its object the production of a grating in which the tensile strength of mild steel bars will be united with the tool-proof properties of hardened jail bars of ordinary construction, *i. e.*, laminated, roll welded, alternate layers, of soft iron, and of crucible steel, in which the lightness of the parts will add to the economy of production, and transportation, and at the same time give increased security against forcible blows, thereby correcting the radical weakness in all jail gratings heretofore made.

In the accompanying drawings, Figure 1, is an elevation, showing a portion of one style of my improved grating. Fig. 2, is an end view of the same, the mortised bars being shown in section. Fig. 3, is a fragmentary view, in which both the mortised bars and filling bars are shown in section, exposing the manner of riveting. Fig. 4, is a plan view of a section of the grating, showing the mortised bars with filler bars inserted. Fig. 5, is a similar grating, except that there are, in addition, superimposed, hardened jail bars, riveted to one leg of the mortised angle of the grating, exteriorly, and interiorly. Fig. 6, is an end view of the same, the mortised bars being shown in section. Fig. 7 is a plan view of a section of this style of grating, showing the mortised bars, with filler bars inserted, and also the superimposed bars, heretofore mentioned. Fig. 8, is a perspective, showing two adjacent sections, or cages with some of the joints in the superimposed bars formed on either side of the junction line, the riveting being done when the cages are finally erected in position, and the staggering of joints giving additional impregnability to the

construction. It also shows a portion of the partition plate, used to separate multiple cells in a single cage. Fig. 9, is a plan view of the same. Fig. 10, shows the method of attaching solid steel plates to this grating. Fig. 11, is a similar view, from the opposite side. Fig. 12, is a plan view of a grating with the sheet covering, a portion permanent, and a portion removable. Fig. 13, is an isometric perspective, and Fig. 14 a plan view of a portion of two adjoining cells in a jail cage, in which alternate horizontal bars are spliced or break joints at different points interlap, so that when the grating is erected the insertion of the vertical bars will complete the connection of these several gratings in a manner to prevent the grating from being removed by cutting the rivets which join them to the connecting angles of interior partitions or to each other.

In the grating shown in Fig. 1, both of the angle bars *a* and *b* are preferably rolled from low carbon billets to give high tensile strength, and the flat bars *c* are the ordinary composite jail bars regularly hardened, as is usual. The bars *a* are mortised through one angle for the insertion of the bars *b* as shown in Fig. 4. The bars *a* and *b* are both angle bars. The latter are not mortised, but are perforated at suitable distances along their apex, said perforations coinciding with similar perforations in the unmortised angles of the bars *a* which permits the uniting of the bars *a* and *b* by means of rivets *d* as shown in Fig. 3. The bars *a* and *c* may also be united by rivets but it is not thought advisable to perforate them for this purpose as such perforations will greatly weaken the bars *c* which are liable to fracture. It is preferable, therefore, to drive them forcibly into place so they cannot afterward be removed. This makes an exceedingly rigid structure, the grating being stronger where the bars are united than at any other point, while the combining of tool-proof with blow-proof bars renders the grating practically impregnable to assault.

Figs. 5, 6 and 7 are the same as that just described, excepting that a composite bar *f* is superimposed upon the face of every alternate bar *a* and a composite bar *f'* placed upon the inside opposite each bar *a* not so provided, while fillers *e*² are inserted between

the angles of the bars *b*. The bars *f*, *f'*, and fillers *e*² are secured by rivets. It is apparent that all the bars *a* may be provided with composite bars *f* and the bars *f'* and fillers *e*² may be omitted or vice versa, or the composite bars *f* may be used on every alternate bar *a*, and bars *f'* be placed on the inside opposite the remainder, in which case fillers *e*² will be used in connection with the bars *b* as shown in Fig. 7. This arrangement of alternating may be desirable in forming a net-work of composite and mild bars.

Fig. 8 illustrates a method of "strapping" or "hooping" a cage of several cells so as to make a single structure. It will be understood that where corners occur similar staggering of joints will be made on both sides. In Figs. 8 and 9 the mortised bars are shown as being all angle bars and the filling as all flat bars. The connecting angles are shown at *d'*, *e* indicating the partition plate between cells, and *f'* the staggering of the joints.

In Figs. 10 and 11 *a* indicates the mortised angle bars; *b*, the angle filling bars; *c*, the usual composite flat bars, and *e'* a superimposed plate riveted permanently.

In Fig. 12 similar letters indicate the same parts as in the other figures, but in addition are shown steel plates as indicated by the letter *g*. These plates are hinged to the permanent plate *e'* and open and close upon it.

In Figs. 13 and 14, the horizontal bars *a* are shown as broken alternately at different points as indicated at *h* while the superimposed bars *f* are broken at points differing from the joints in the bars *a*, and alternating in the same way, so that no two joints come in line without an intervening bar. It will also be observed that two or more cages can be connected in this way so that the cutting of the rivets will not permit of the removal of an exterior wall or ceiling, and that the floor, ceiling and gratings can be constructed by interlapping in the same manner as the walls.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grating, the combination of bars of mild steel, with composite bars, substantially as described.

2. The combination, in a grating, of alter-

nate bars, of mild steel, and of hardened composite bars, substantially as described.

3. In a grating, mild steel bars, mortised to receive bars, both of mild steel, and of hardened composite steel, and with rivets at some, or all intersections, connecting the bars in the manner, substantially as described.

4. In a construction of grating, a series of angle bars, mortised and arranged at right angles to a set of filling bars, the apex of the filling set, coinciding with the rivet leg of the mortised set, and the two sets being united by rivets, in the manner described and for the purpose specified.

5. In a grating, a series of angle filling bars of mild steel coinciding with the rivet leg of a mortised set, on both of which alternately arranged is superimposed a series of hardened composite bars, substantially as described.

6. In a grating, a series of mild steel bars upon one face of which is superimposed a series of hardened composite bars, some of the joinings of which are such that the adjacent ends of two composite bars will not coincide with the joinings of the bars of two cells, cages or apartments, substantially as described.

7. In a grating for jails and other like constructions, adjoining compartments or cells, having horizontal interlacing bars, alternately arranged, so that the mortises in the bars of one section will register with those in the adjoining section, and a series of vertical filling bars adapted to unite the sections in the manner described and for the purpose specified.

8. In a grating for jails and other like constructions, adjoining cells, having horizontal interlacing bars, mortised vertically and registering with each other, a series of filling bars adapted to enter said mortises, and a series of bars superimposed upon the horizontal bars, and adapted to bridge the joints, in the manner described and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT PATTERSON MANLY.

Witnesses:

W. E. OSLIN,

R. I. PEAK.