

(No Model.)

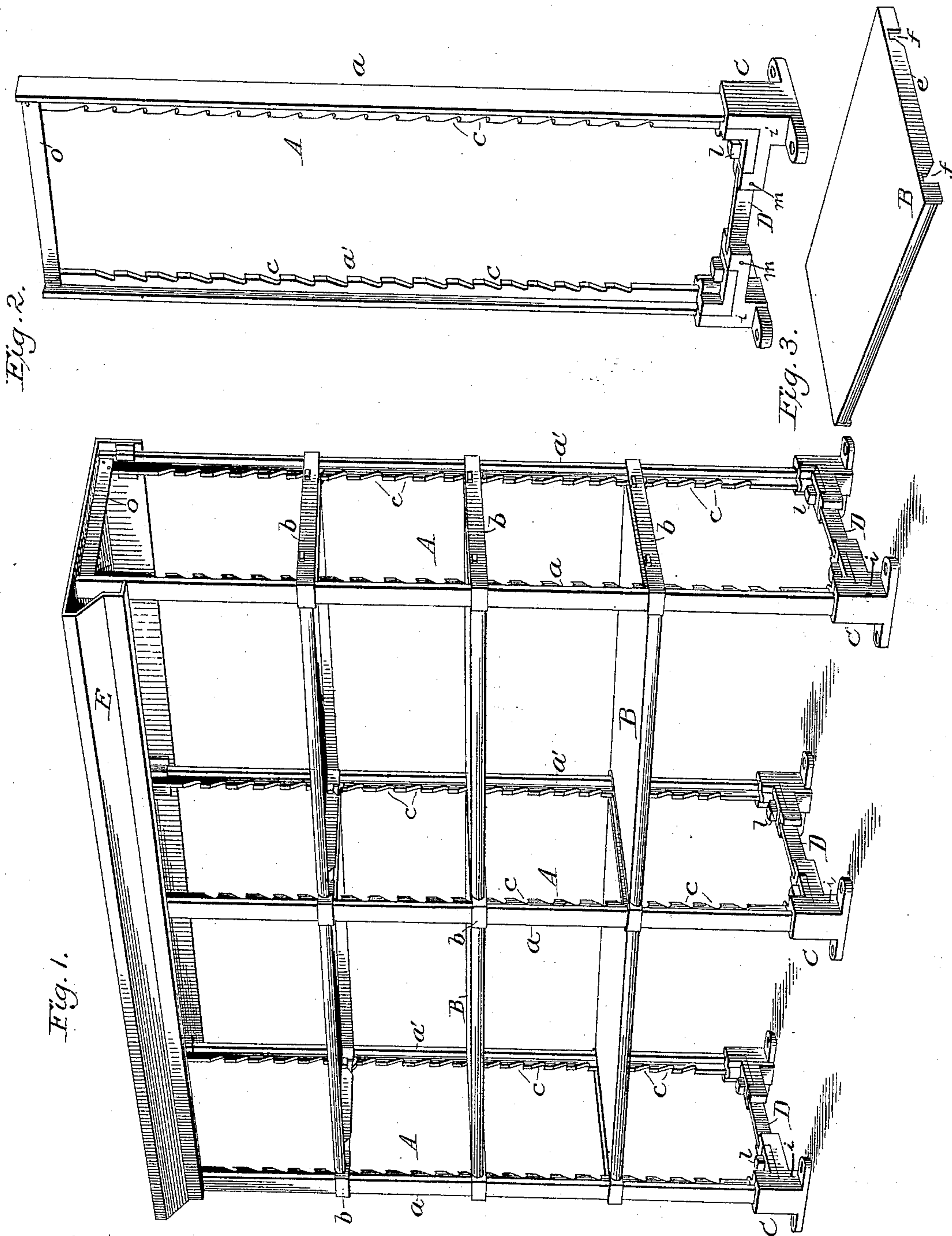
3 Sheets—Sheet 1.

M. R. JEWELL.

METAL SHELVING.

No. 395,328.

Patented Jan. 1, 1889.



WITNESSES

James F. Duhamel
F. J. Chapman

INVENTOR

M. R. Jewell
By Phil. T. Dodge Attorney

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Fig. 4.

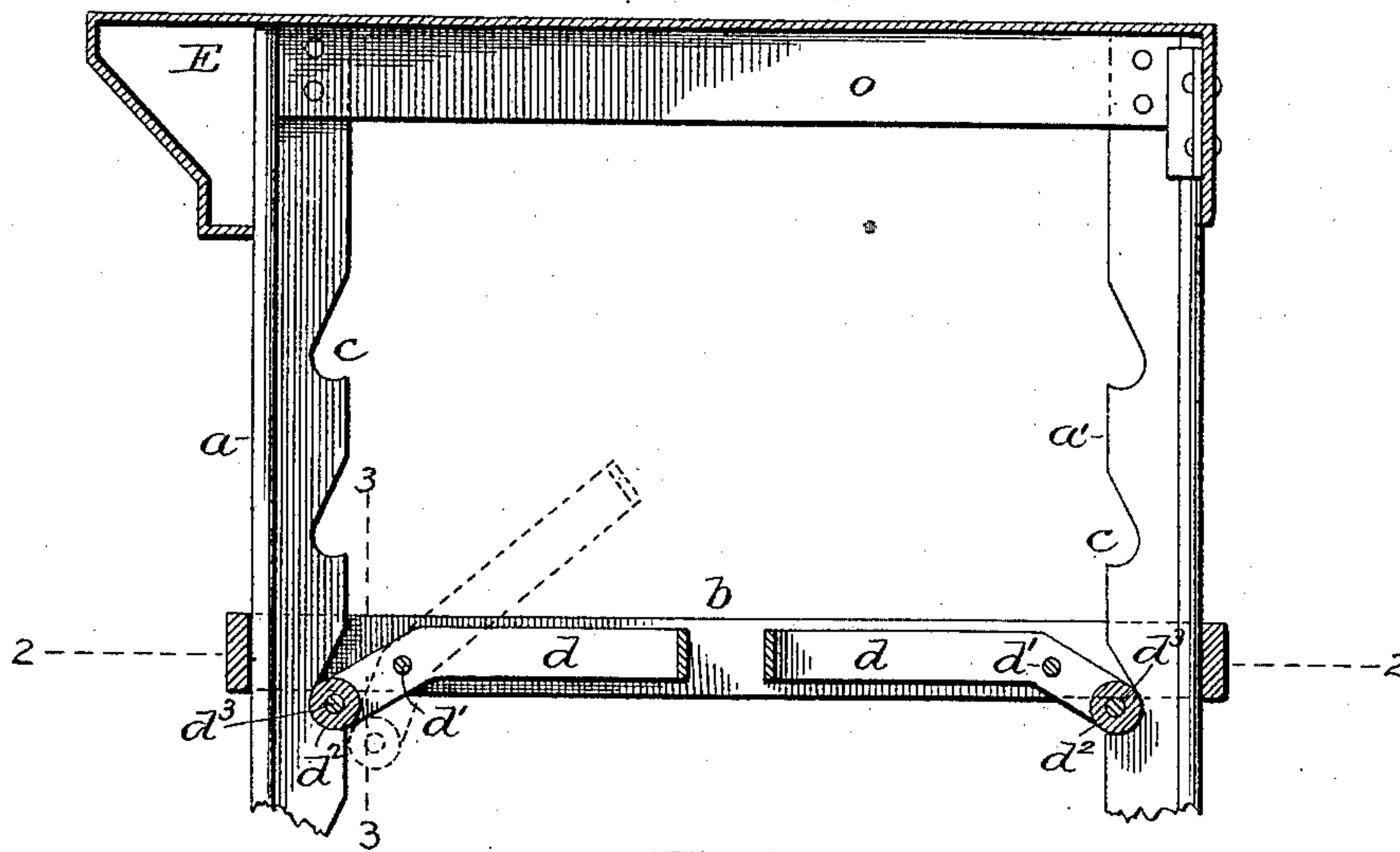


Fig. 5.

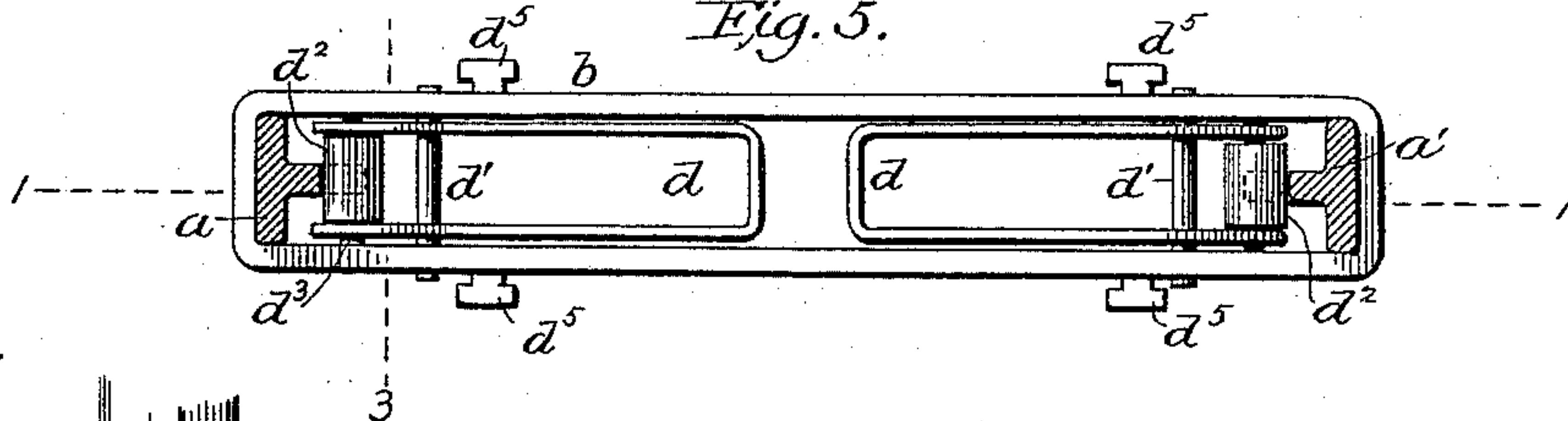


Fig. 6.

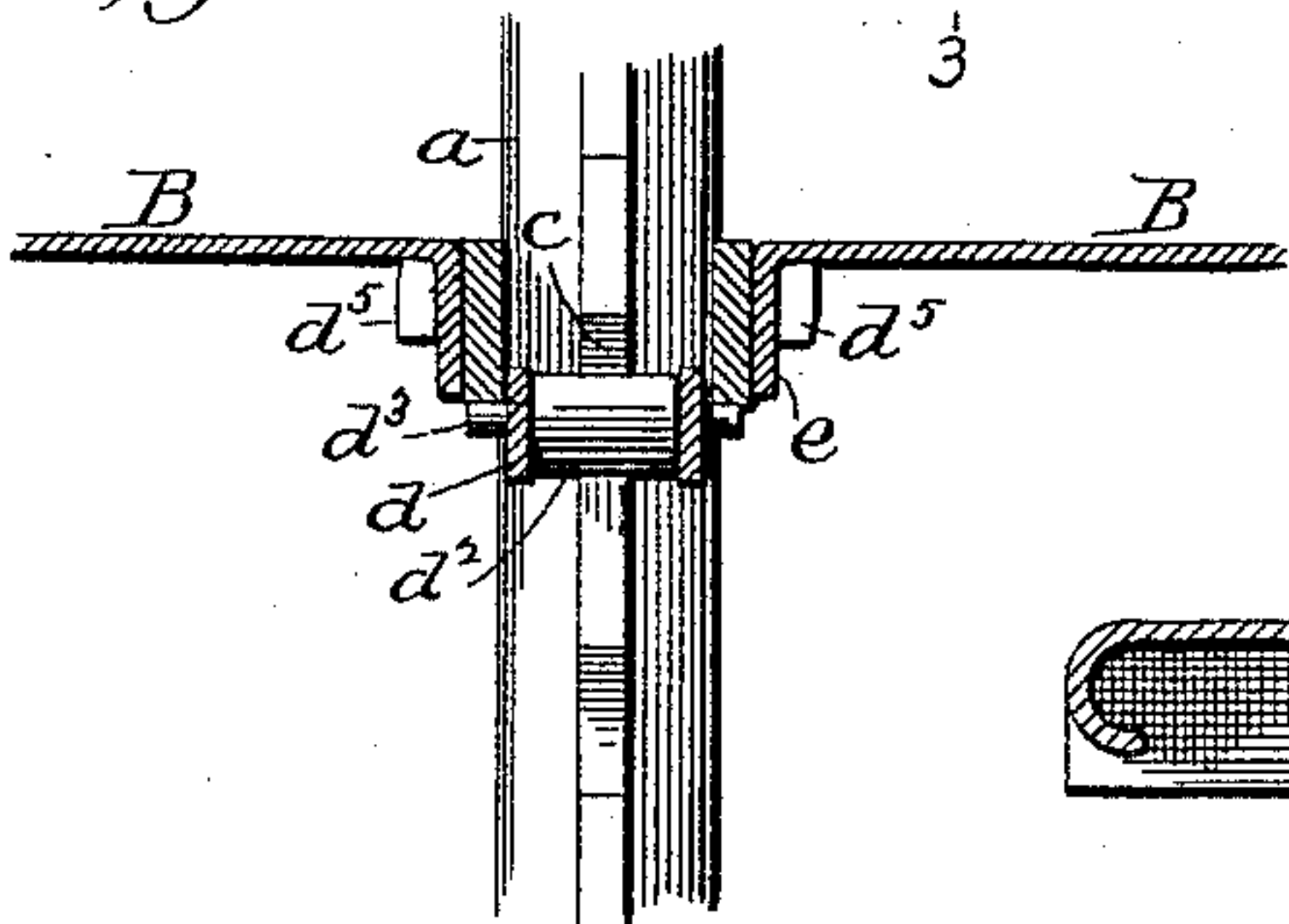


Fig. 7.

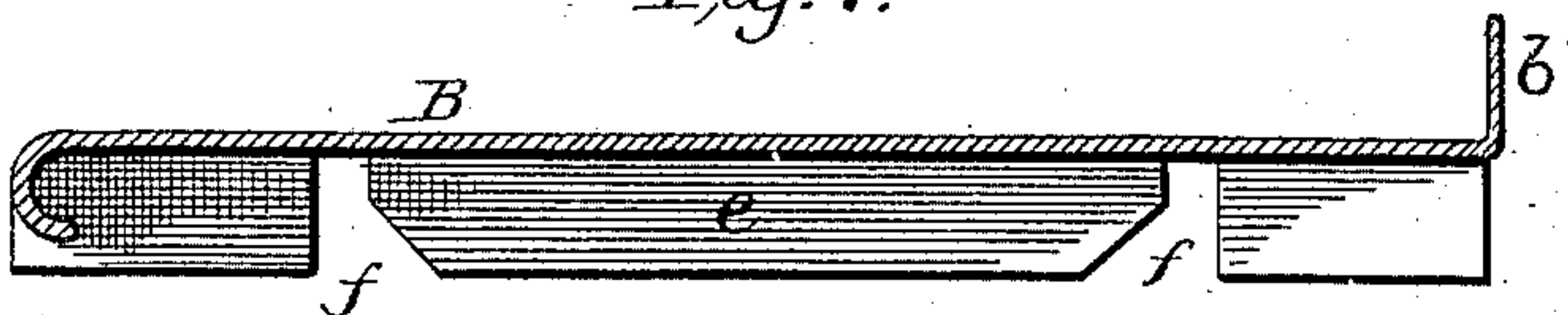


Fig. 8.

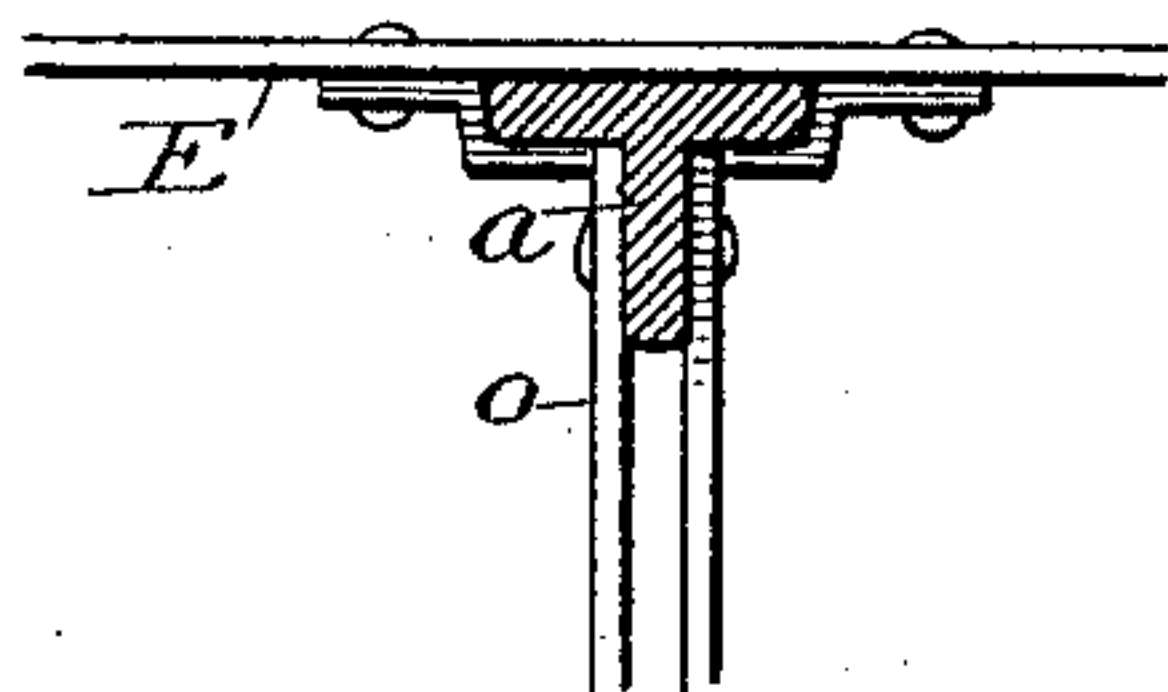
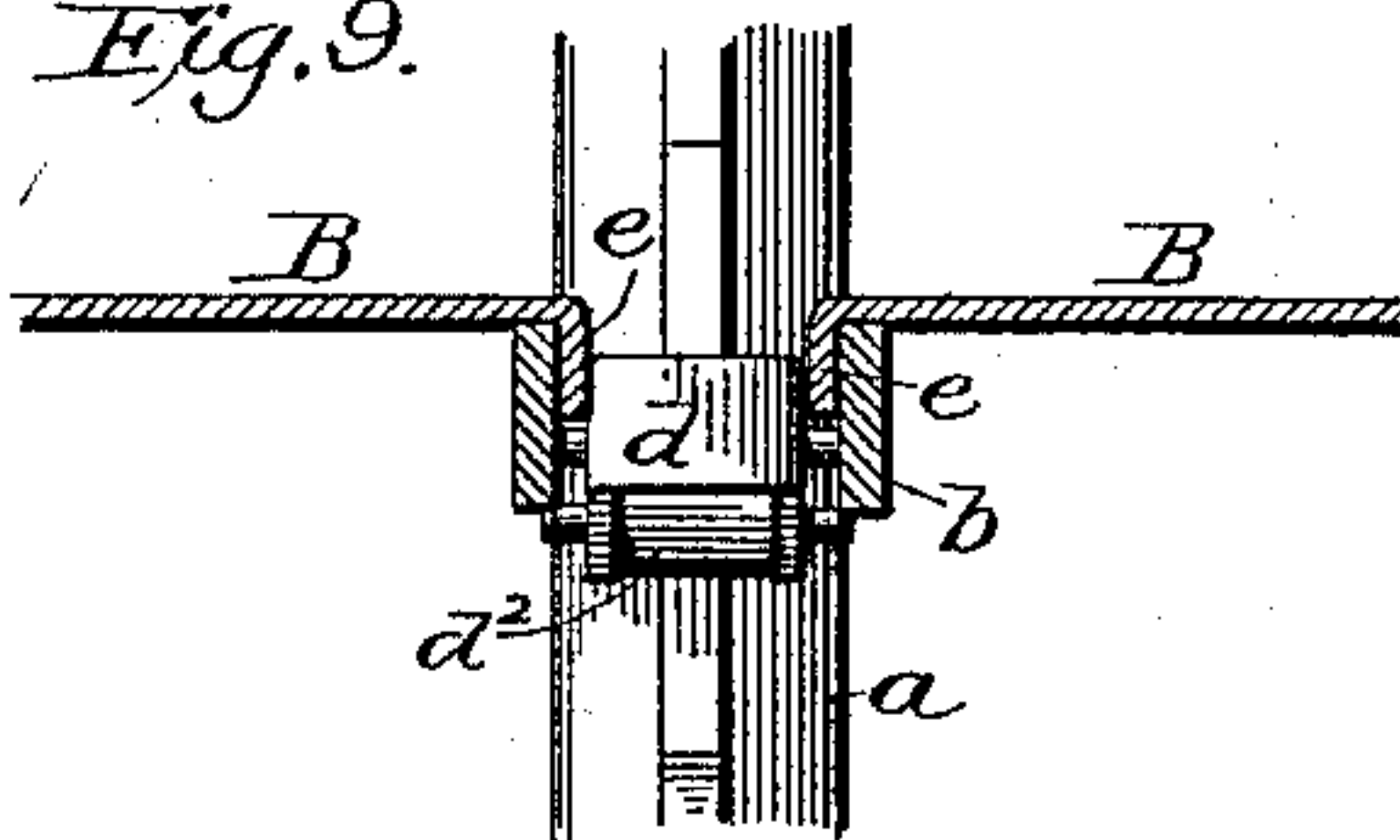


Fig. 9.



WITNESSES

James F. DuHamel
F. J. Chapman.

INVENTOR

M. R. Jewell
By Phil. V. Dodge, Attorney

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Fig. 14.

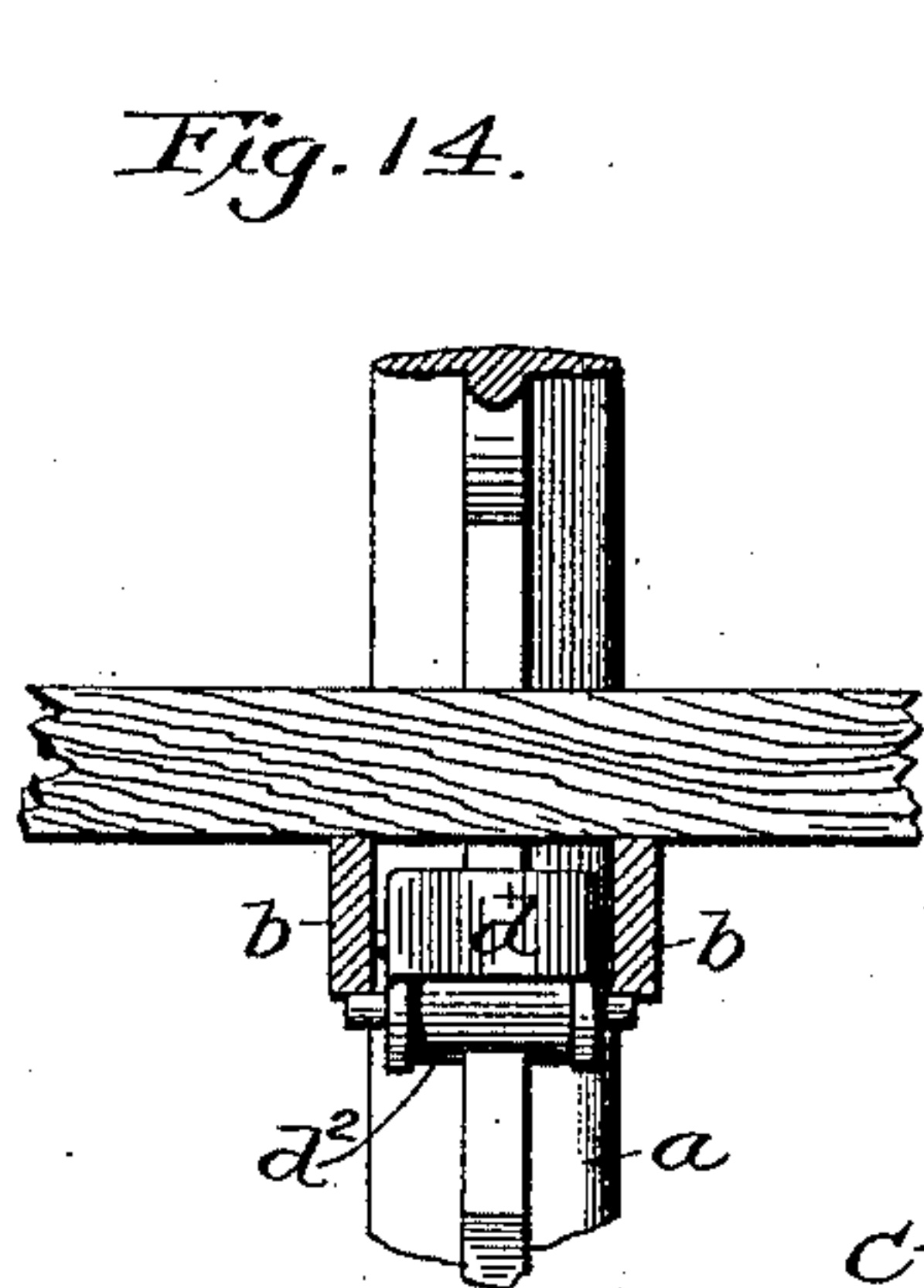


Fig. 10.

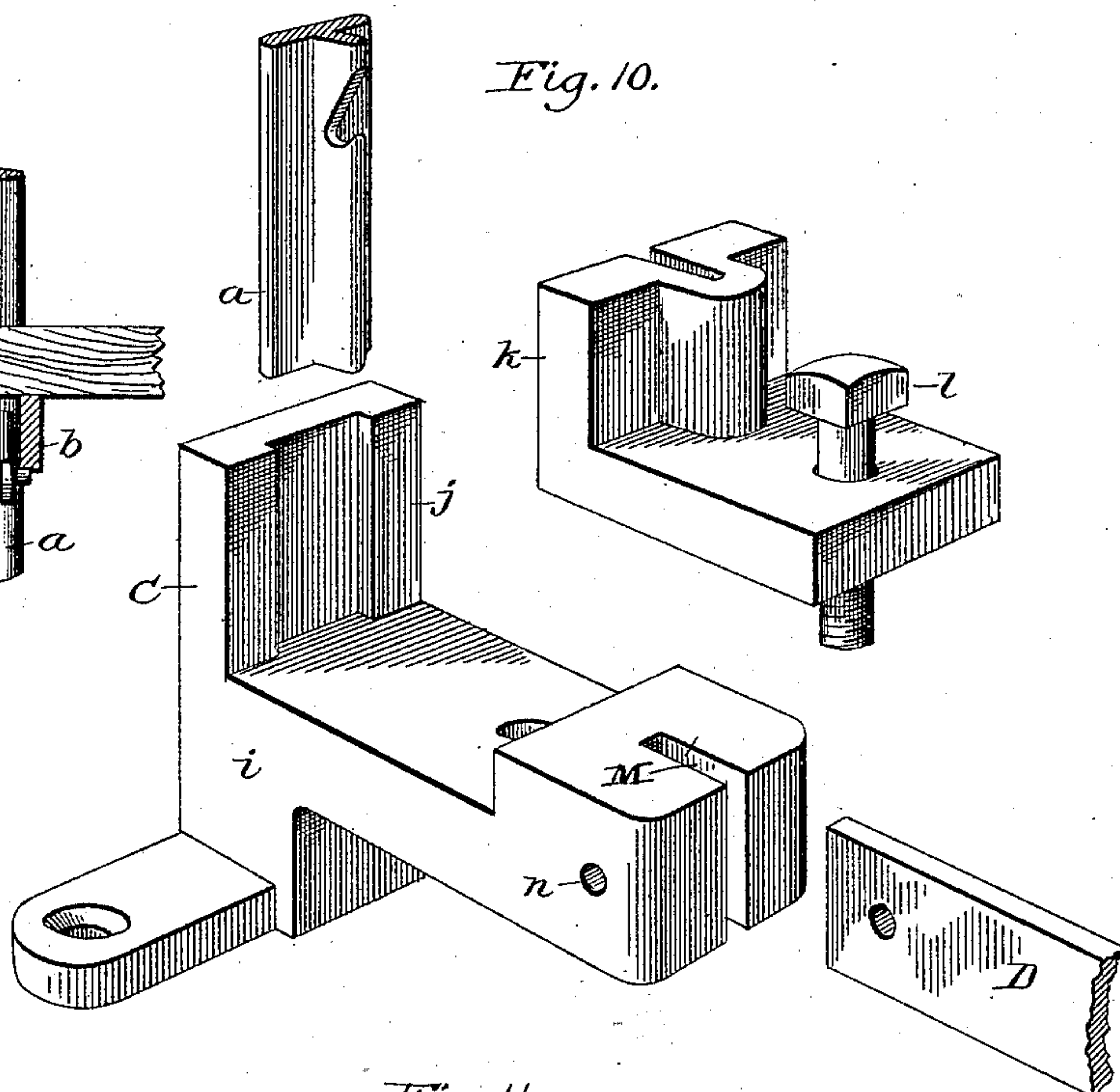


Fig. 11.

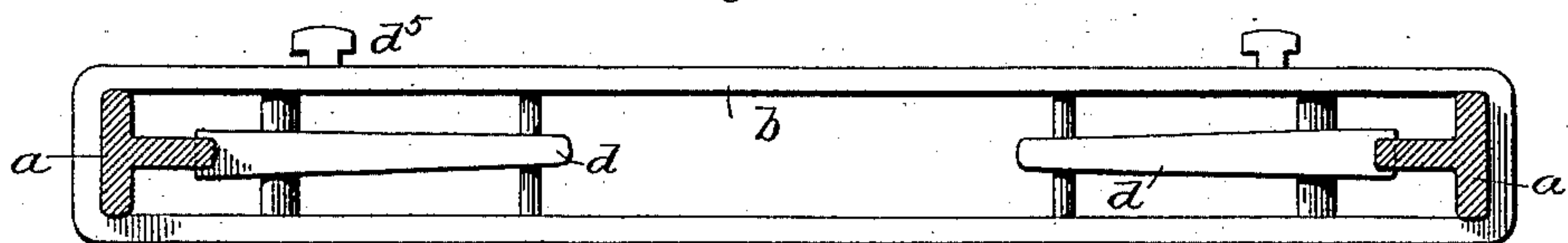


Fig. 12.

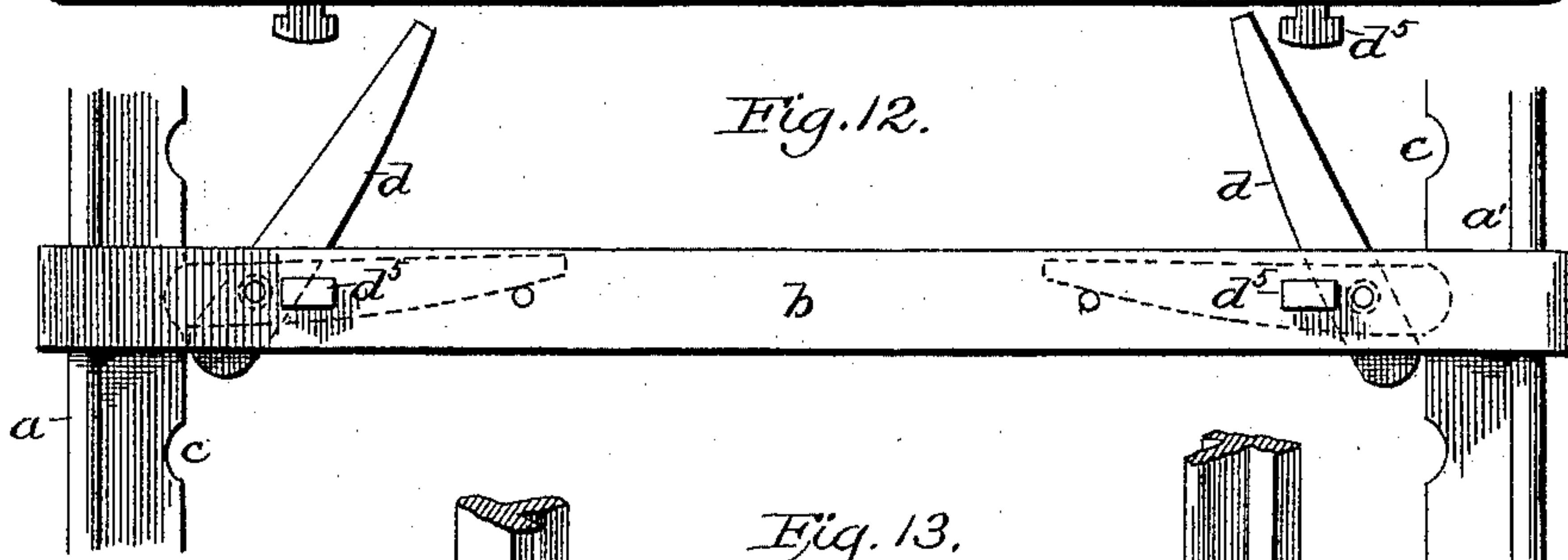
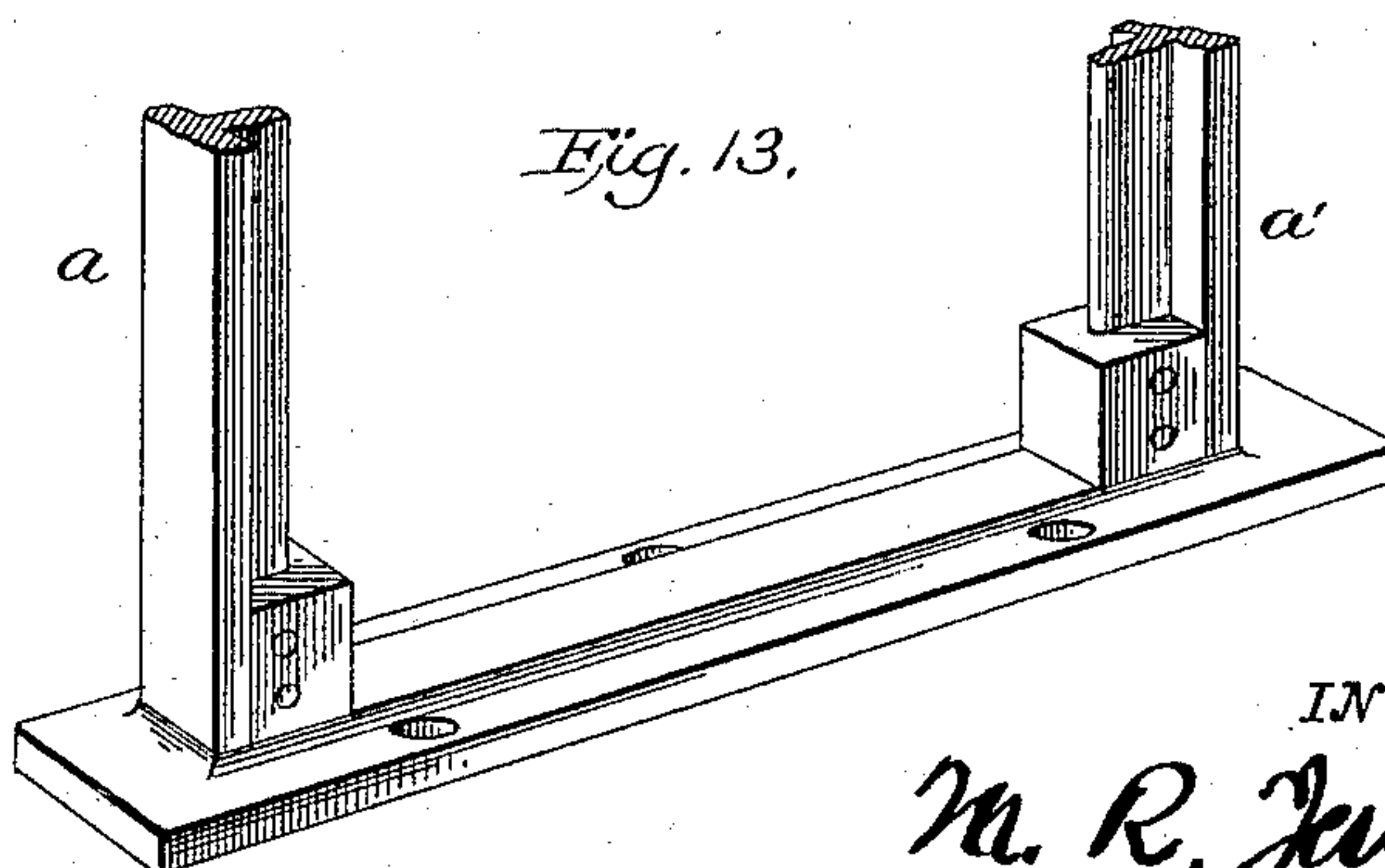


Fig. 13.



WITNESSES

James F. Sutherland.
F. T. Chapman.

INVENTOR

M. R. Jewell
By Phil T. Dodge Attorney

UNITED STATES PATENT OFFICE.

M. ROMEYN JEWELL, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE
SCHLICHT & FIELD COMPANY, OF SAME PLACE.

METAL SHELVING.

SPECIFICATION forming part of Letters Patent No. 395,328, dated January 1, 1889.

Application filed June 24, 1887. Serial No. 242,351. (No model.)

To all whom it may concern:

Be it known that I, M. ROMEYN JEWELL, of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Metal Shelving, of which the following is a specification.

The aim of my invention is to provide a system of shelving which may be cheaply manufactured, reduced to a compact form for storage or transportation, speedily erected when required, which shall be fire-proof, and which shall admit of the shelving being adjusted in height at will.

In the accompanying drawings, Figure 1 is a perspective view illustrating my shelving and the manner in which it is formed and united in sections connected with each other. Fig. 2 is a perspective view of one of the standards or supporting-frames. Fig. 3 is a perspective view of one of the shelves. Fig. 4 is a vertical section from front to rear in the plane of the shelf-supports on the line 1 1 of Fig. 5. Fig. 5 is a horizontal section on the line 2 2, Fig. 4. Fig. 6 is a transverse vertical section on the line 3 3 of Figs. 4 and 5. Fig. 7 is a cross-section of one of the metal shelves. Fig. 8 is a horizontal section through one of the rear standards or supports, looking upward, and showing the manner in which it is connected to the top of the case. Fig. 9 is a longitudinal vertical section showing a modification of the manner of connecting the shelves to their supports. Fig. 10 is a perspective view showing detached from each other the several parts for supporting the foot of one of the standards. Figs. 11 and 12 are respectively a top plan view and a side view of the shelf-supports in modified form. Fig. 13 is a modified construction of the foot-pieces. Fig. 14 is a view illustrating the manner of applying the wooden shelf in place of the metal shelf illustrated in the other figures.

In my system I employ a series of short shelves, commonly of metal, and sustain them at the ends by frames or standards, each standard consisting of a front and a rear post, and of a series of vertically-adjustable cross-bars, on which the ends of the shelves are sustained. The shelves and standards are made in duplicate, and each of the standards

is adapted to sustain two series of shelves meeting from opposite sides end to end, so that by the addition of standards and shelves the system may be lengthened indefinitely.

In carrying my invention into effect I provide two or more standards or cross-frames, A, such as illustrated in Fig. 2, and a series of metallic shelves, B, such as shown in Fig. 3. Each standard or cross-frame A consists of a front post, *a*, and a rear post, *a'*, provided with suitable feet or cross-connections to maintain them in an upright position, and with adjustable cross-bars *b*, to sustain the ends of the shelves.

The posts are made of cast or rolled metal, preferably of a T form in cross-section, with notches or teeth *c* on the inner edges, to receive the dogs by which the cross-bars are sustained. These bars *b* are preferably made of strap-iron, endless, and of such form as to encircle the two posts, as shown in Fig. 5, and prevent them from spreading or separating. The sustaining-dogs consist each of a lever, *d*, pivoted at *d'* to and within the cross-bar, and provided at one end with a roller, *d²*, to enter the notches in the adjacent post. The roller-journal *d³* is extended so that its ends bear against the under edges of the cross-bar, as shown in Figs. 5 and 6, whereby the lever is relieved from strain and the cross-bar supported from the post directly through the roller, the lever serving simply as a means for adjusting the roller and retaining it in position. The roller is used to reduce the friction and admit of the parts being easily disengaged. It may be omitted and the journal *d³* allowed to engage directly with the post. The two levers *d* terminate near each other, so that they may be grasped and operated simultaneously with one hand, in order to release both ends of the bar *b* and admit of its being raised or lowered, as demanded. When the levers are released, the parts engage automatically and sustain the bar in its new position.

On their outer sides the bars *b* are provided with studs or ears *d⁵*, to engage and carry the ends of the shelves, as hereinafter explained; but in a modified construction, also hereinafter described, these studs may be omitted.

The shelves B are formed each from a single sheet of metal having its front edge turned downward, as shown in Fig. 7, in order to give the requisite strength and rigidity and adapt the shelf to carry its load without having supports between its ends. The rear edge of the shelf is turned upward, as shown at *b'* in Fig. 7, in order to serve as a stop to limit the backward movement of books placed thereon. The two ends of the shelf are bent downward, as shown at *e*, and provided with notches *f* to receive the before-mentioned studs *d⁵* on the cross-bar.

In erecting the structure the standards A are placed at a distance apart corresponding to the length of the shelves, and preferably fixed in position by screwing them to the floor or attaching them to the walls. The shelves are then introduced between them, and the ends of the shelf engage both the studs *d⁵* of the cross-bars *b*, as shown in Figs. 1 and 6.

If preferred, the studs *d⁵* may be omitted and the ends of the shelves extended so that their flanges *e* will engage over and within the edges of the cross-bars, as shown in Fig. 9. In order to adjust the shelf, it is only necessary for the operator to grasp the levers of the cross-bars which sustain its two ends between the thumb and finger and lift the same until the rollers are disengaged from the post, whereby the shelf may be raised or lowered, using the levers as handles, until it reaches the required point, where it will be automatically locked on releasing the levers.

It is to be noted as a peculiar feature of this invention that it is not necessary to disconnect the shelves from their supports in order to effect their adjustment. It is also to be noted that the arrangement admits of the two ends of the shelves being adjusted at the same time by one person.

I have represented the levers *d* as made of strap-iron, bent or doubled into a U form; but they may be cast or otherwise formed, if preferred, the essence of the invention consisting in the use of movable dogs in the ends of the cross-bars to engage the sustaining-post.

The posts may be sustained and secured at their lower ends in any suitable manner; but I prefer to make use of blocks or foot-pieces C—such as shown in Figs. 1, 2, and 10—applying one of these blocks to each of the posts, and engaging the two posts of each standard by a cross-bar, D, attached to the foot-pieces, as shown.

The foot-piece consists of a casting, *i*, having ears or lugs to receive fastening-screws, a vertical rod, *j*, to receive the lower end of the post, a removable block, *k*, grooved to receive the post and secured against the same and upon the block *i* by a bolt, *l*, the bolt serving to draw the parts together, so as to clamp the post firmly between them. At its inner side the block *i* is provided with a vertical slot, M, to receive the cross-bar D, which is secured therein by one or more transverse

screws or pivots, *m*. The parts are so fitted as to prevent play or movement between them, whereby they are adapted to hold the posts rigidly in their upright position and prevent them from swinging laterally or tipping forward.

In place of the foot-piece shown in Fig. 10 a foot-piece such as shown in Fig. 13 may be used. This is cast complete in one piece, with grooved sockets on its two ends to receive the posts, which are riveted therein.

When it is desired to have the shelving present the form of a case or cabinet, a cap or top of any suitable character may be applied to the upper ends of the posts. In Figs. 1 and 4, E represents the sheet of metal proper overlying the post, its forward end being bent downward and finished into an ornamental cornice. At its rear end it is turned downward against the rear faces of the posts. This cap may be riveted or otherwise secured in place.

In order to give additional stability to the structure, I propose to connect the upper ends of the two posts in each standard by a cross-bar, *o*, having its ends riveted firmly to the posts, as shown.

Instead of providing the levers *d* with the rollers or pivots to engage the posts, their ends may be arranged to engage directly in the posts, as shown in Figs. 11 and 12.

In some cases it may be desirable to make use of wooden shelves. In such cases their ends will be rested directly upon the cross-bar *b*, as shown in Fig. 14; or they may be provided with end plates of any suitable form adapted to engage the cross-bar.

Having thus described my invention, what I claim is—

1. In a system of shelving, the toothed front and rear posts, *a a'*, and the vertically-movable cross-bars *b*, in combination with dogs mounted in the opposite end of each bar *b* to engage in the toothed posts, and adapted to be simultaneously disengaged therefrom by one hand, as set forth.

2. In a system of shelving, a series of toothed posts, *a a'*, and two or more shelves adjustable thereon in the same horizontal plane, in combination with the vertically-movable slotted cross-bar *b*, provided with studs *d⁵* on each side to support the shelves, and the pivoted dogs concealed in the slotted bar to engage with the toothed posts, substantially as described.

3. In a system of shelving, the posts *a a'* and shelves B, adjustable thereon, in combination with the slotted cross-bars *b*, having studs *d⁵* for the shelves, and the U-shaped dogs *d*, pivoted on each end of the bars and having a roller mounted in their engaging end, substantially as described.

4. In a system of shelving, the posts *a a'* and the cross-bars *b*, adjustable thereon and provided with the studs *d⁵*, in combination with the sheet-metal shelf B, having its sides bent downward, as shown, to form strengthening-flanges, and provided with notches *f*,

adapted to engage the studs on the cross-bars, substantially as and for the purpose specified.

5 5. In combination with the shelf-sustaining bars, their sustaining-dogs, the posts *a a'*, with which the dogs engage, the foot-blocks secured to the posts, and the cross-bars D, connecting said blocks.

10 6. In combination with the posts *a a'* and cross-bar D, the foot-blocks *i*, each having slot M, groove *j*, and block *k*, bolted in place.

In testimony whereof I hereunto set my hand in the presence of two attesting witnesses.

M. ROMEYN JEWELL.

Witnesses:

F. B. HUTCHINSON,
T. R. ALLEN.