

(No Model.)

2 Sheets—Sheet 1.

H. H. HIGHAM.
MANUFACTURE OF HOOPED BOXES.

No. 497,876.

Patented May 23, 1893.

FIG. 1.

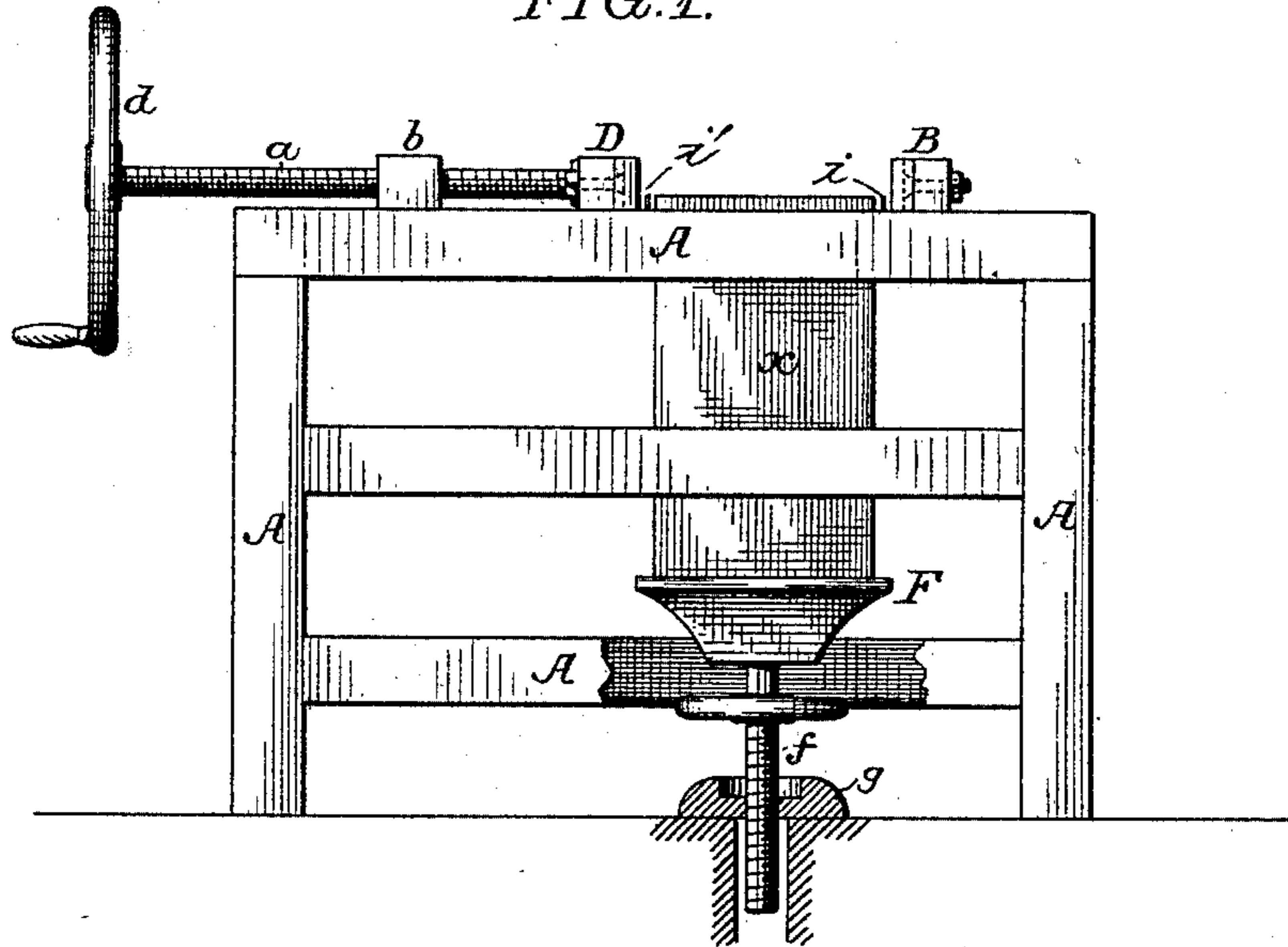
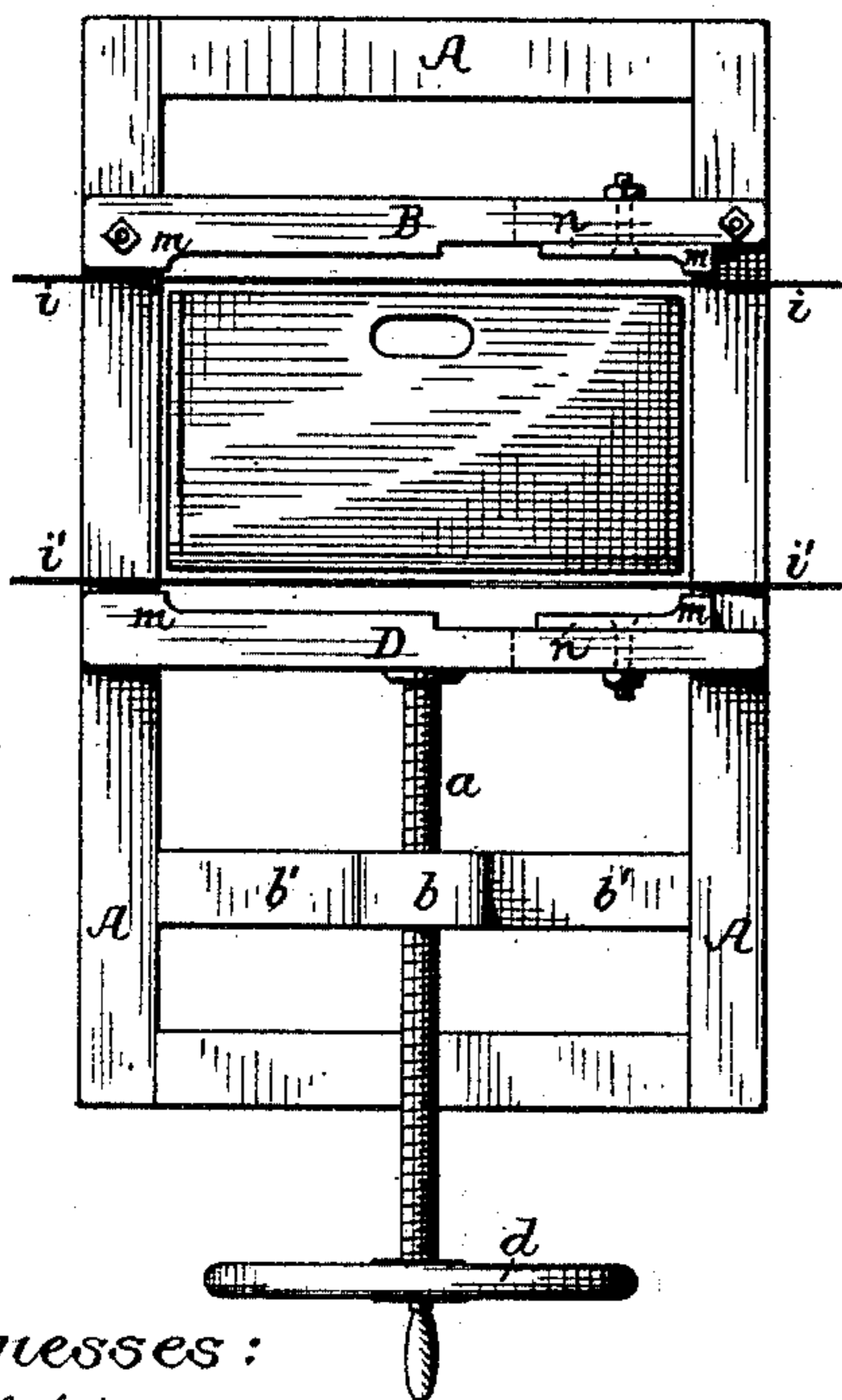
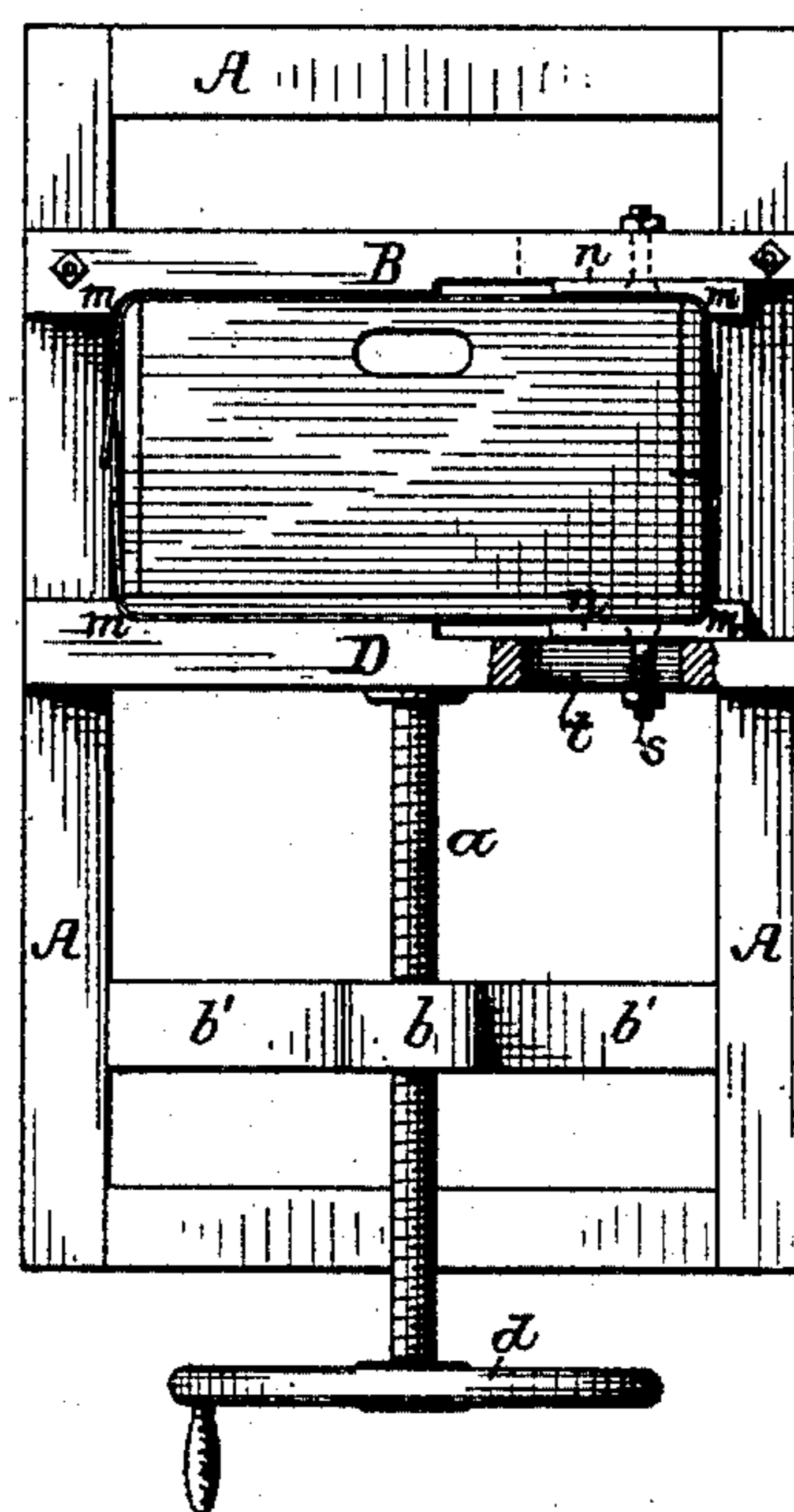


FIG. 2.



Witnesses:
R. Schleicher
G. D. Goodwin

FIG. 3.



Inventor:
Howard H. Higham
by his Attorneys
Howson & Howson

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FIG. 4.

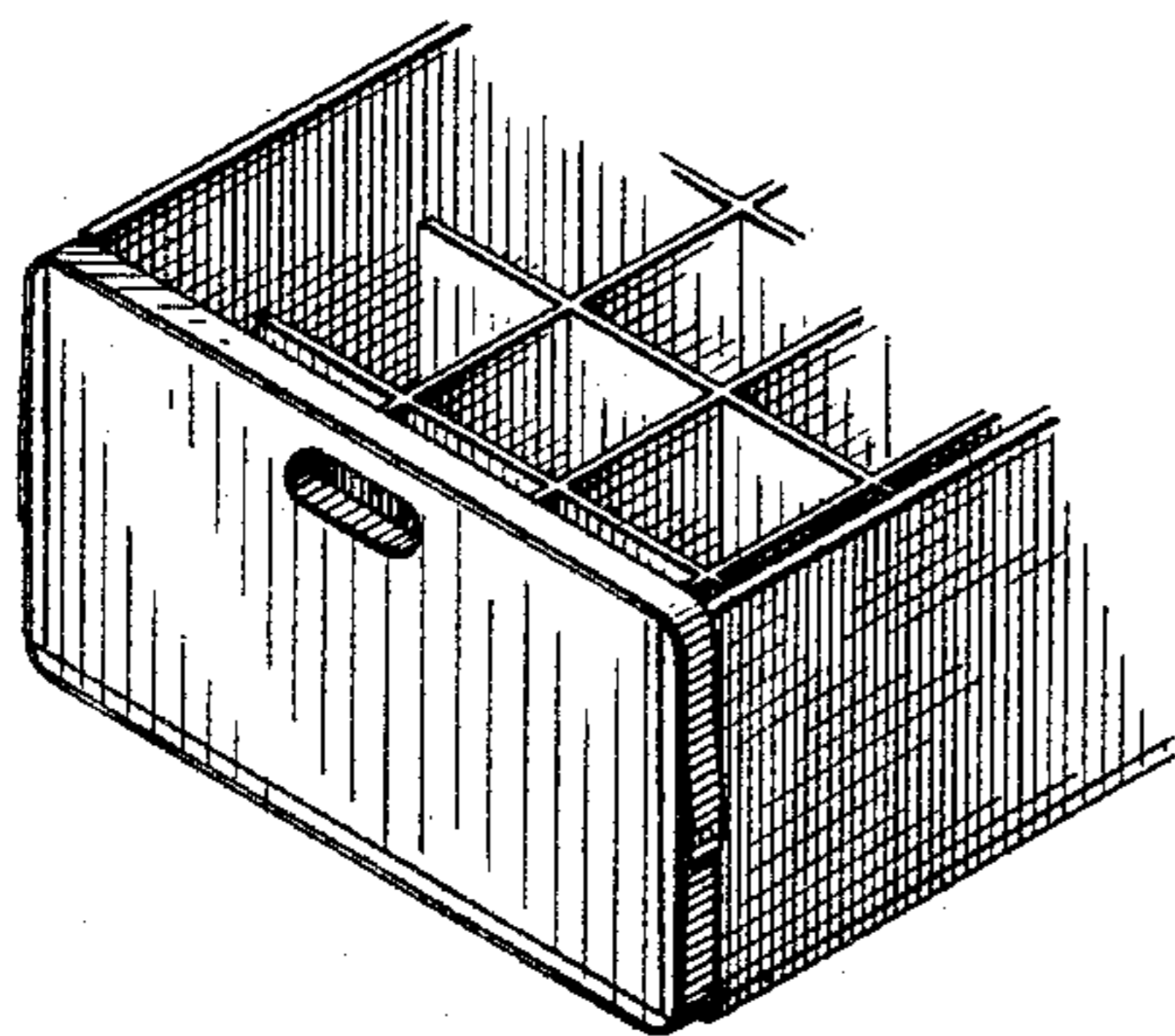


FIG. 5.

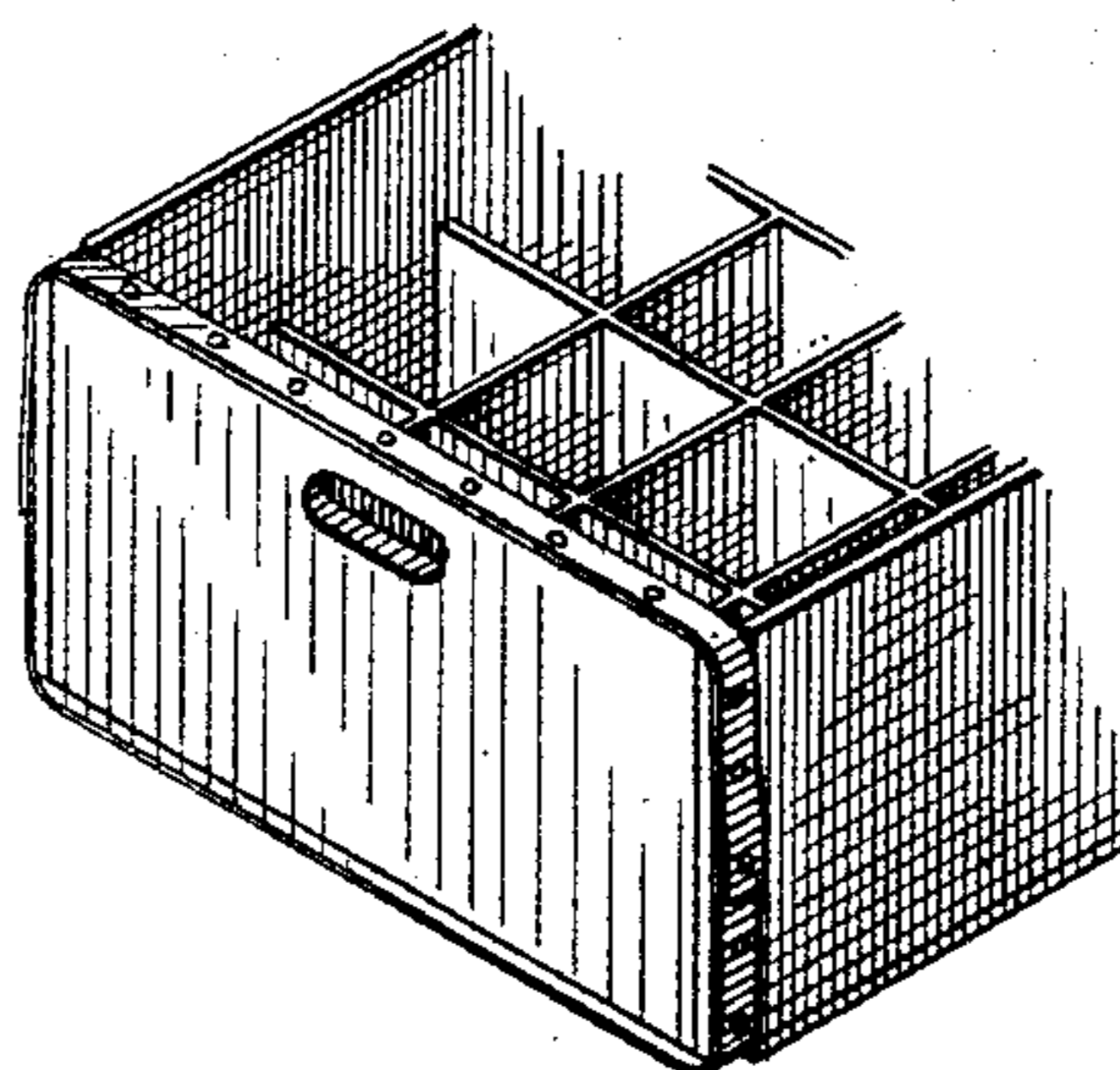


FIG. 6.

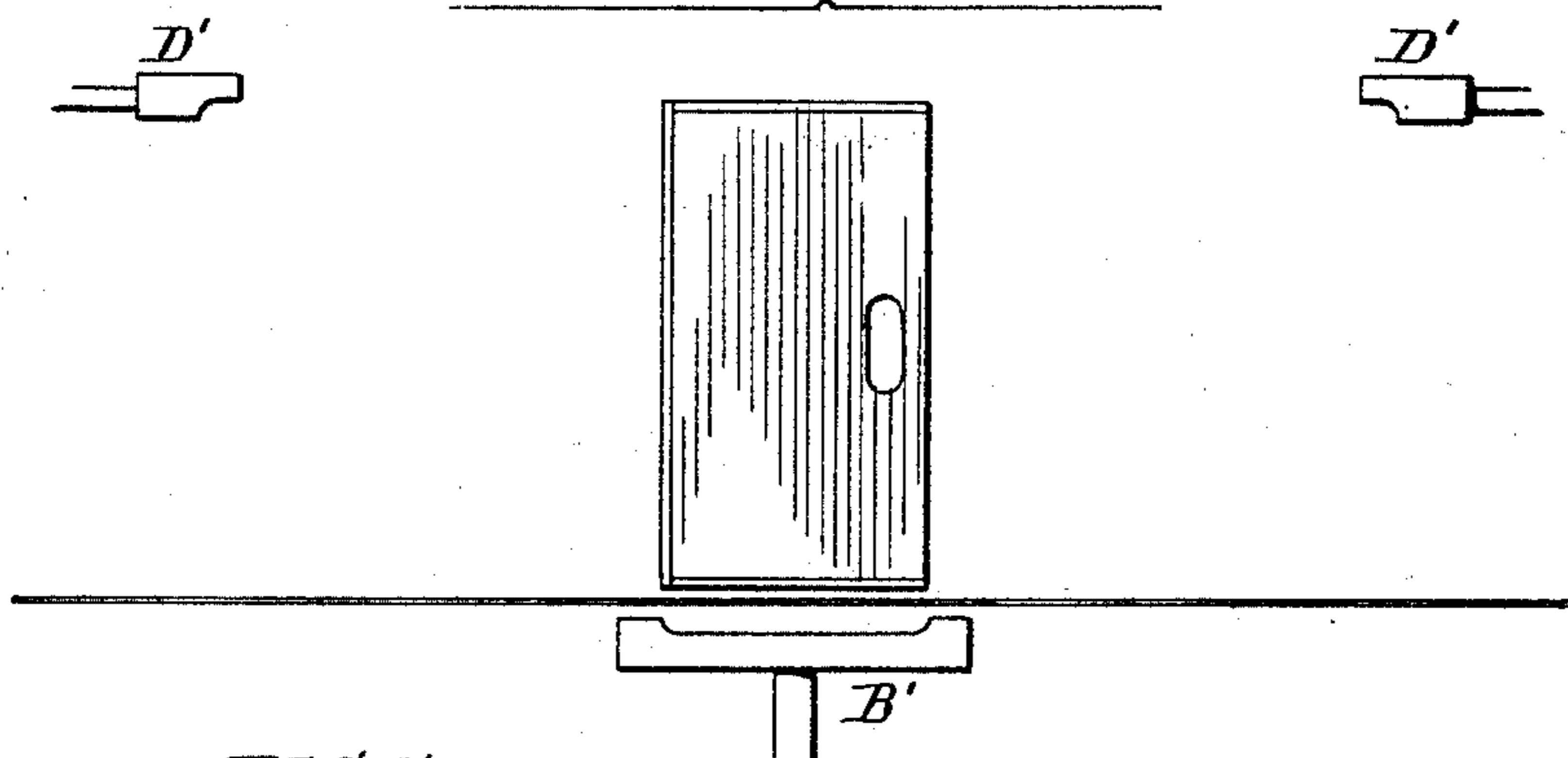


FIG. 7.

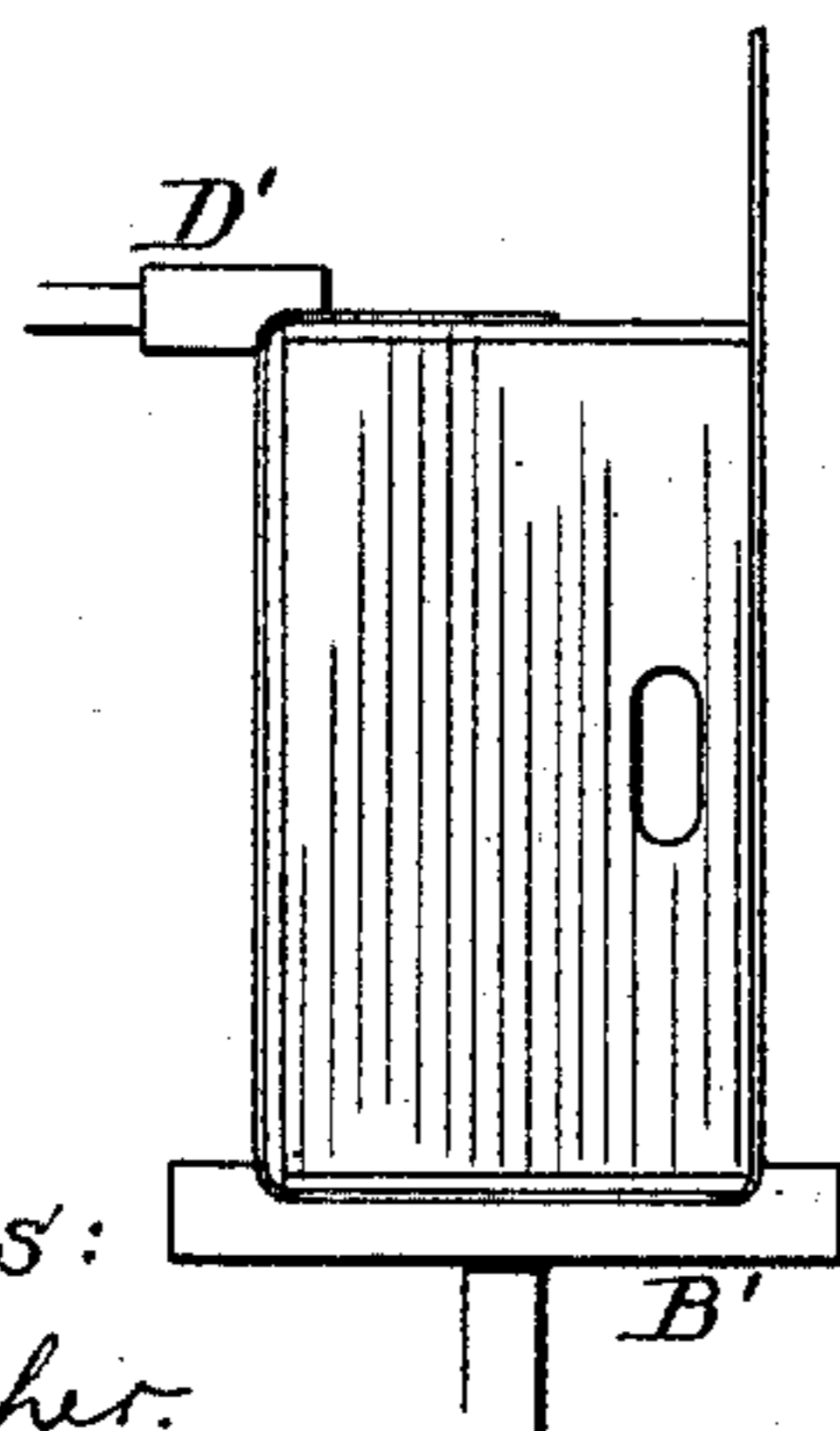
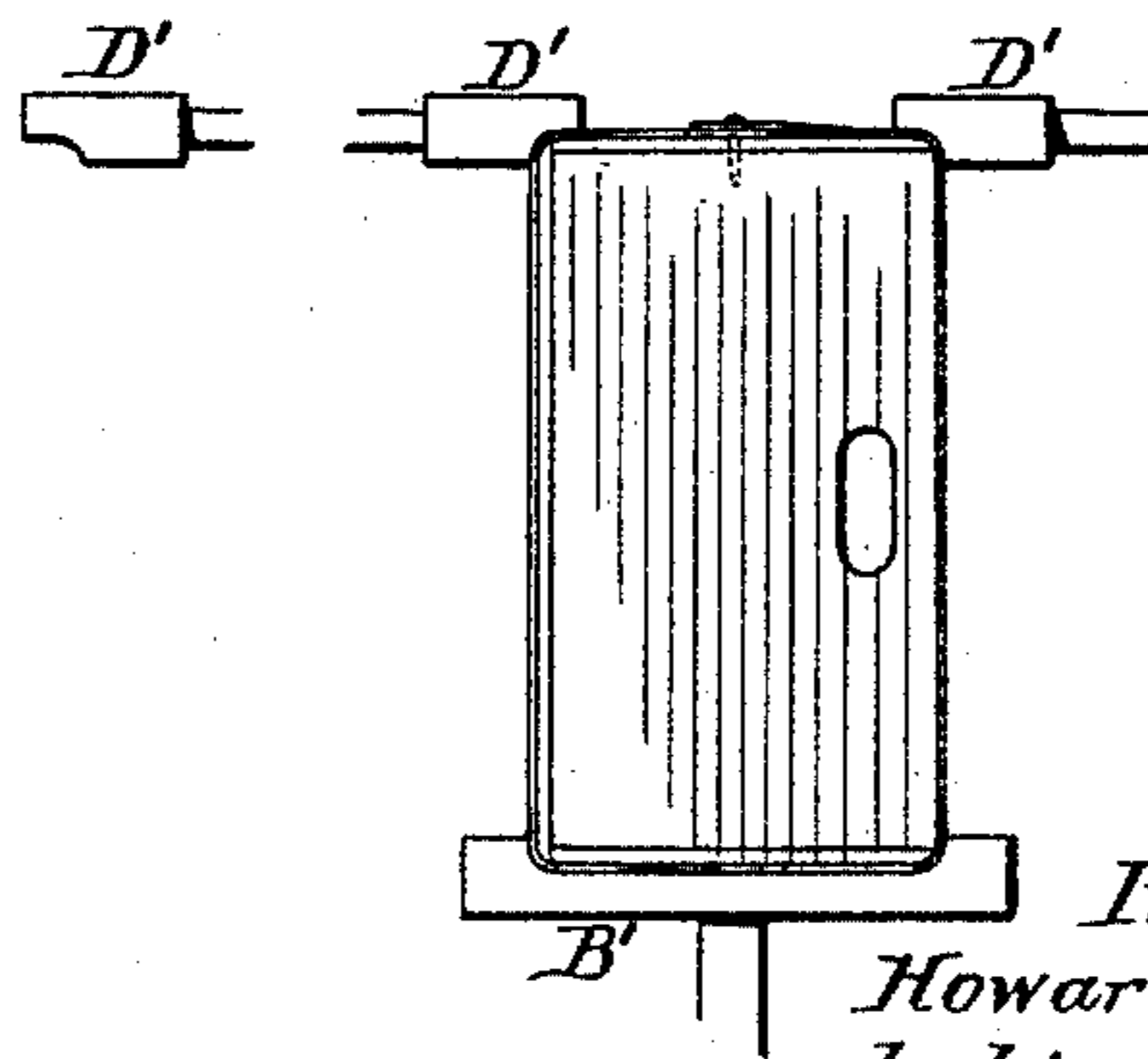


FIG. 8.



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UNITED STATES PATENT OFFICE.

HOWARD H. HIGHAM, OF PHILADELPHIA, PENNSYLVANIA.

MANUFACTURE OF HOOPED BOXES.

SPECIFICATION forming part of Letters Patent No. 497,876, dated May 23, 1893.

Application filed July 8, 1892. Serial No. 439,320. (No model.)

To all whom it may concern:

Be it known that I, HOWARD H. HIGHAM, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in the Manufacture of Hooped Boxes, of which the following is a specification.

My present invention has objects the same as that forming the subject of my patent No. 449,413, of March 31, 1891, that is to say, the facilitating of the nailing of metal bands or hoops to boxes at each end in order to strengthen the box, the further object being to prevent any subsequent loosening or buckling of the band or hoop such as might be caused by the shrinking or warping of the box.

My former invention consisted in first applying the band or hoop to the box while so tightly drawn that it would remain permanently under tension and subsequently nailing the hoop, whereby, owing to the tension upon the latter, the nails could be driven either singly or in series without any previous puncturing of the hoop.

My present invention involves the compression of the wood in those portions of the box which are to be hooped and the application of the hoops simultaneously with such compression of the box, so that, when the latter is released from pressure, the natural tendency of the wood to expand will cause such tension upon the hoops as will facilitate their nailing, without puncturing, in the same manner as before and will also prevent the subsequent loosening or buckling of the hoops.

In the accompanying drawings:—Figure 1, is a side view of a simple form of apparatus which I have devised for carrying out my invention. Figs. 2 and 3, are plan views of the same showing some of the parts in different positions. Fig. 4, is a perspective view of one end of a box as it is delivered by the machine. Fig. 5, is a like perspective view showing the nailing of the hoops completed; and Figs. 6, 7 and 8, are diagrams illustrating modified mechanism for carrying out my invention.

In the machine shown in Figs. 1, 2 and 3, A represents a suitable rectangular framework upon the top of which are mounted two cross bars B and D, the bar B being stationary, but the bar D being adjustable longitudinally on the frame, such adjustment being effected in

the present instance by means of a screw shaft *a* adapted to a nut *b* in the transverse bar *b'* on the frame, said screw shaft having at the outer end a hand wheel *d* whereby it can be readily manipulated.

The box *x* which is to be hooped is mounted upon a vertically adjustable table or platform F which can be raised or lowered by turning a screw stem *f* adapted to a nut *g* on the floor so that the upper end of the box may be caused to project above the top of the frame A to the extent necessary for the application of the hoop.

As shown in Figs. 1, 2 and 3, the hoop is made in two parts, *i*, *i'*, which are laid upon the top of the frame, one between the box and the fixed bar B, and the other between the box and the movable bar D, each hoop projecting beyond the box to an extent slightly in excess of one-half of the depth of said box, as shown in Fig. 2. When the parts are in this position the bar D is caused to move toward the bar B, and this movement is continued until the upper end of the box, projecting above the top of the frame A, is squeezed tightly between the two bars, the wood being thereby compressed and at the same time the projecting ends of the hoops *i*, *i'* are bent in against the sides of the box and are caused to overlap as shown in Fig. 3, so that they can be secured in position by nails passing through said overlapping portions. On withdrawing the bar D the wood which has been compressed between the two bars will expand and thus impart an extreme degree of tension to the hoops. Hence the subsequent driving of the nails for securing the said hoops to the box can be effected without the necessity of any previous puncturing of the hoops.

It is preferable to round those portions of the bars B and D which act upon the corners of the box as shown for instance at *m* in Figs. 2 and 3, and it is also preferable to provide each of the bars B and D with an adjustable plate or block *n* in which one of said round portions is formed so that the machine is adapted for acting upon boxes of different widths, the adjustable platform F providing for the hooping of the boxes of different lengths. The plates *n* are, in the present instance, secured to the bars by means of bolts *s* passing through slots *t* in the bars, but in

place of the adjustable plates, detachable plates may be employed, a new plate being applied to the bar when there is any change in the width of the box which is to be hooped.

5 Although I prefer to make the hoop in two parts as described, a single hoop can be used, if desired, in connection with three bars B', D', D', as shown for instance in Figs. 6, 7 and 8, the box being supported in any suitable
10 manner and the bar B' first compressing one side of the box and bending the hoop along the top and bottom of the same, and the bars D' D' then acting successively to compress the other side of the box and bend the projecting
15 ends of the hoop over the same so as to overlap, as shown in Figs. 7 and 8. If desired also, both bars B and D in the machine shown in Figs. 1, 2 and 3 may be movable, but the construction shown is preferred.

20 Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The mode herein described of effecting the hooping of boxes having metal hoops, said
25 mode consisting in compressing the end portion of the box and simultaneously applying the hoop thereto, securing said hoop in position on the compressed end of the box, then removing the pressure and permitting the box
30 to expand so as to impart tension to the hoop, and finally driving the securing nails through

the hoop and into the box whereby said nails can, owing to the tension upon the hoop, be driven through singly or in series without any previous puncturing of the hoop, substan- 35 tially as specified.

2. The mode herein described of effecting the hooping of boxes having metal hoops at the ends, said mode consisting in first compressing the end portion of the box and simul- 40 taneously rounding the corners of the box and folding the hoop around said box, then securing the hoop in position, then removing the pressure and permitting the compressed portion of the box to expand so as to impart ten- 45 sion to the hoop and finally completing the nailing of the hoop while it is thus under tension, substantially as specified.

3. The combination of the frame, the box support and the compression bars having 50 rounded portions for acting upon the corners of the boxes, one of said rounded portions of each bar being on a movable plate whereby the machine is adapted for acting upon boxes of different widths, substantially as specified. 55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HOWARD H. HIGHAM.

Witnesses:

FRANK E. BECHTOLD,
HARRY SMITH.