

(No. Model.)

4 Sheets—Sheet 1.

R. W. HUNTON.

MACHINE FOR PREPARING CARD CLOTHING FOR ATTACHMENT TO FLATS.

No. 538,419.

Patented Apr. 30, 1895.

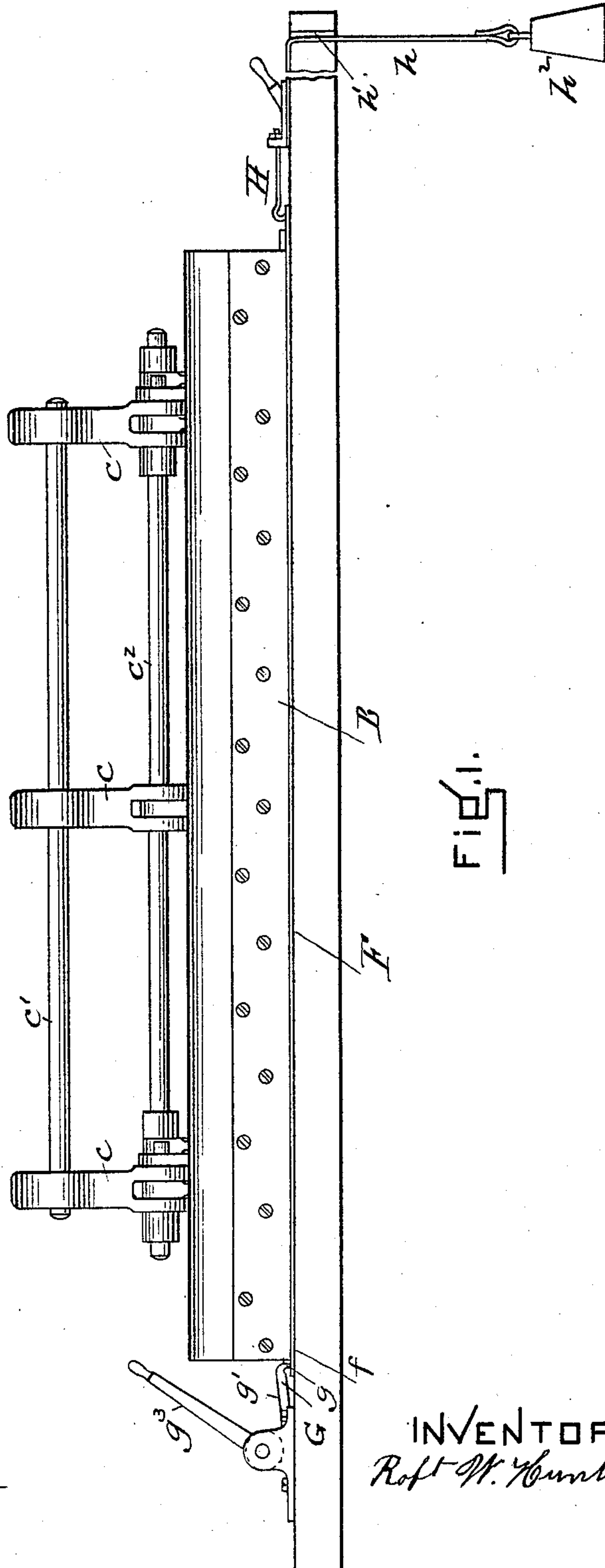


FIG. 1.

WITNESSES

A. J. McKim
Wm. L. Thompson

INVENTOR
R. W. Hunton

(No Model.)

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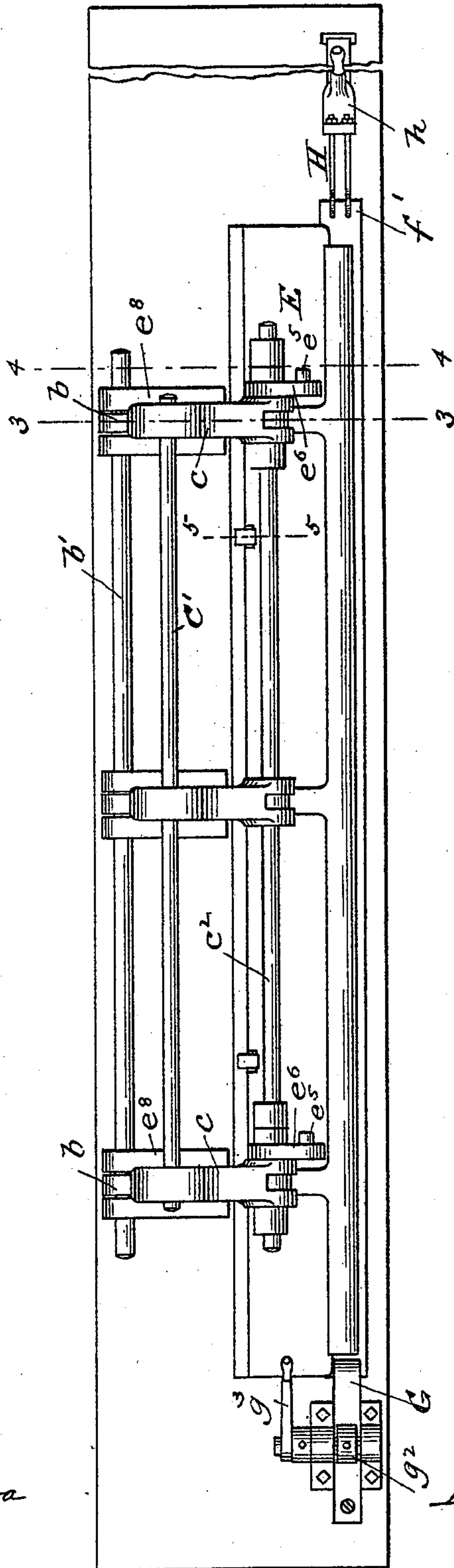


Fig. 2.

WITNESSES

A. J. Mc Namara
Wm. L. Thompson

INVENTOR

Robt W. Hunton

(No Model.)

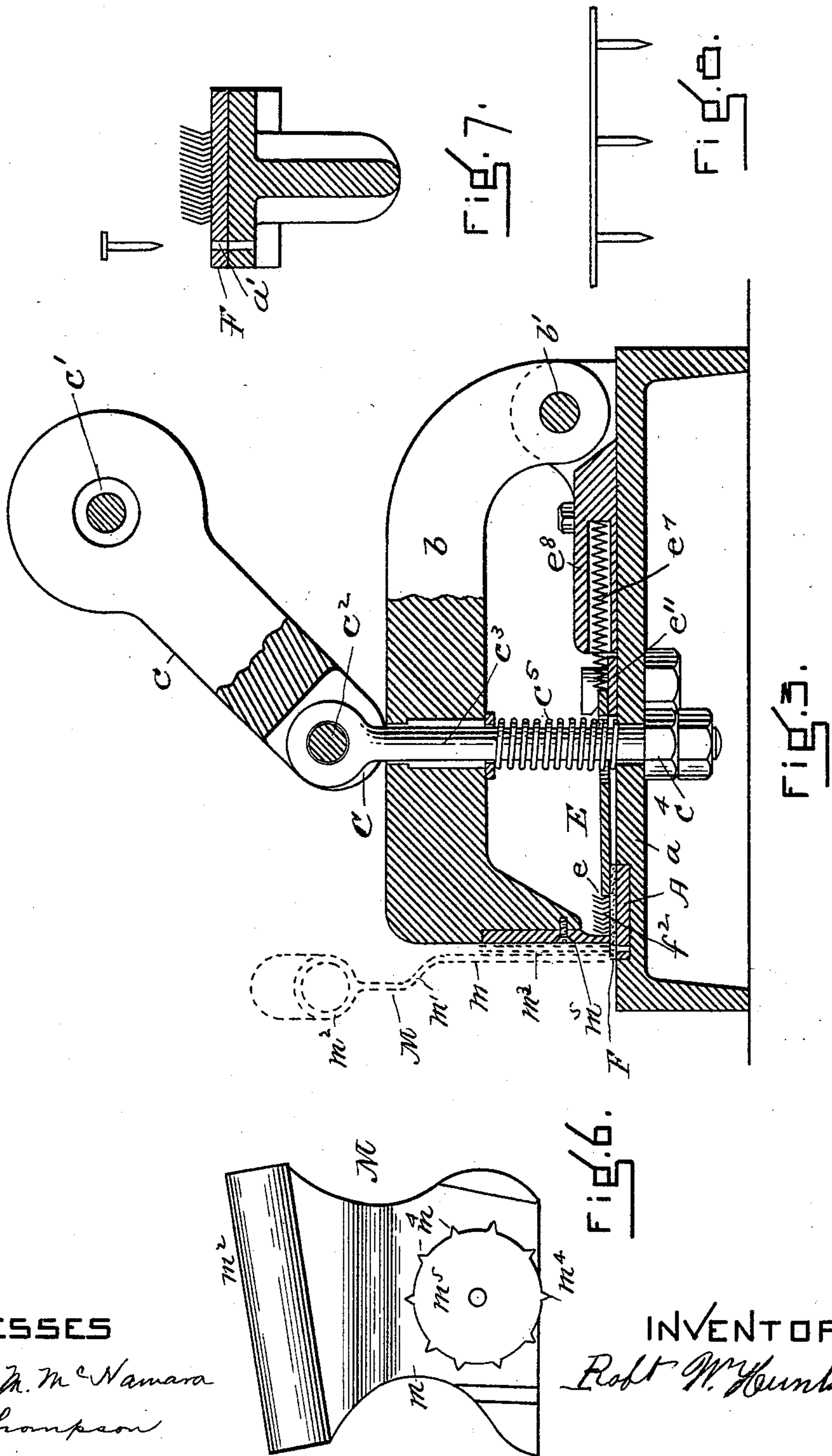
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Wm. L. Thompson

INVENTOR

Robt W. Hunton

(No Model.)

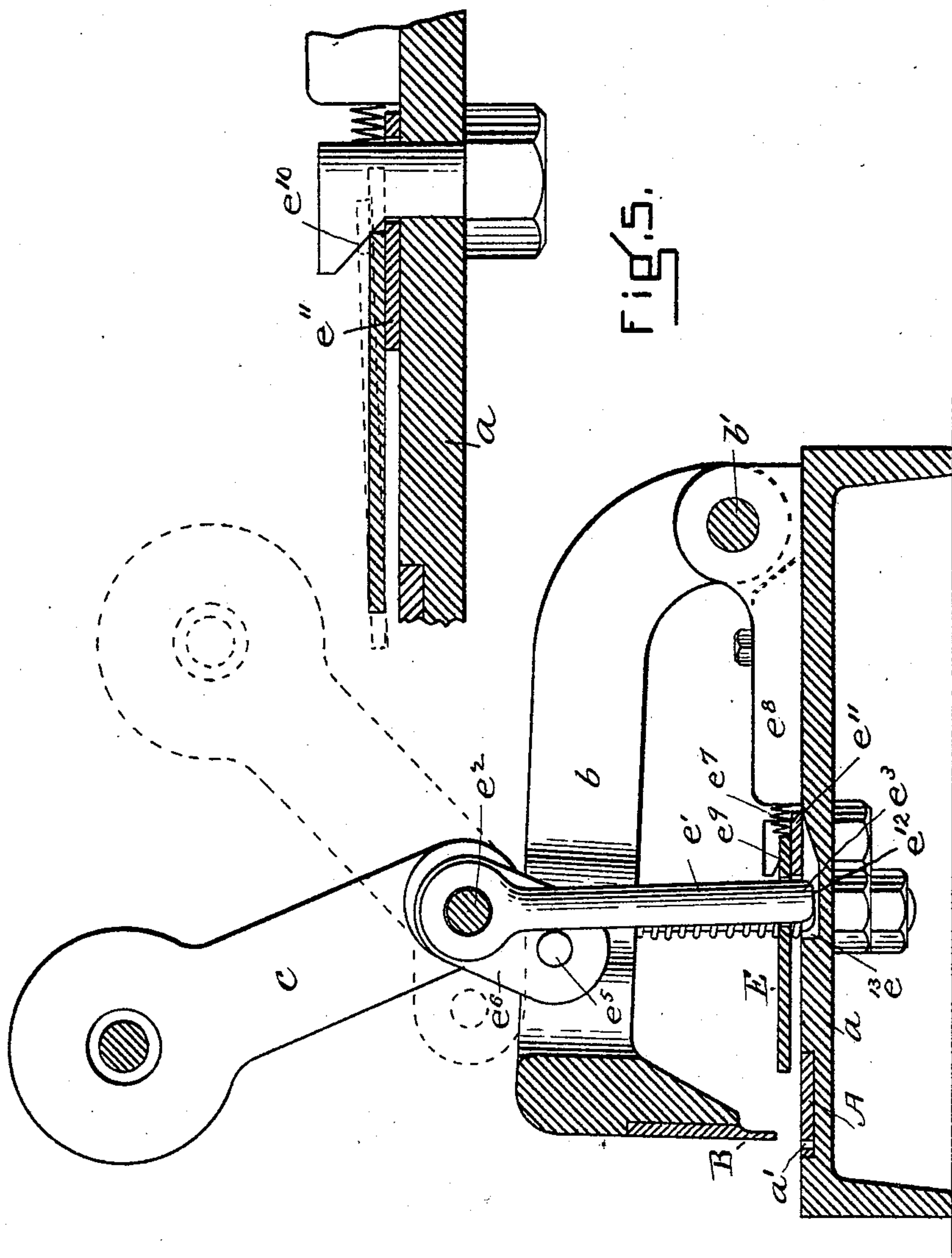
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4.

5

WITNESSES

A. J. McNamara
Wm. L. Thompson.

INVENTOR

Robt W. Huntington

UNITED STATES PATENT OFFICE.

ROBERT W. HUNTON, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE
PETTEE MACHINE WORKS, OF SAME PLACE.

MACHINE FOR PREPARING CARD-CLOTHING FOR ATTACHMENT TO FLATS.

SPECIFICATION forming part of Letters Patent No. 538,419, dated April 30, 1895.

Application filed January 12, 1895. Serial No. 534,606. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. HUNTON, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Machines for Preparing Card-Clothing for Attachment to Flats, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

Card clothing is commonly attached to flats by clips having points or prongs which pass through holes in the edges of the clothing and corresponding holes in the flats, and are headed upon the inner surface of the flats; and in the process of preparing the clothing for such attachment to the flat it is desirable, first, to prepare one edge of the clothing by forming therein holes at a uniform distance from the edge of the wire clothing and which shall correspond with the holes in one edge of the flat and which shall be separated by a space equal to that which separates the teeth or prongs of the clip.

My present invention relates to a device for so treating one edge of the card clothing whereby it is thus provided with holes properly spaced and thereby made ready for the reception of the clip which is to secure the edge to the flat.

The invention comprises, broadly speaking, a bed having holes in its forward edge corresponding in size and spacing with the holes of one edge of the flat, a vertically movable presser and gage to close and bear upon the edge of the clothing and clamp it to the bed and to act as a gage in determining the relation of the holes to the edge of the wire clothing, a clothing stretching device to bring tension upon it before it is clamped, and a back presser to bear against the back edge of the wire clothing and to press it against the front gage and down presser.

My invention further comprises a rotary pricking instrument used in connection with the front gage and presser and perforated bed as hereinafter specified.

It further relates to various details of construction all of which will hereinafter be fully set out.

In the drawings, Figure 1 is a view in front elevation of a machine having the features of my invention. Fig. 2 is a view in plan thereof. Fig. 3 is a view in vertical section upon the dotted line 3 3 of Fig. 2. Fig. 4 is a view in vertical section upon the dotted line 4 4 of Fig. 2 and in elevation of parts back of said line. Fig. 5 is a view in vertical section upon the dotted line 5 5 of Fig. 2. Fig. 6 is a view of the rotary pricking device. Fig. 7 is an enlarged view in section of a flat, the clothing thereon, and a superposed clip. Fig. 8 is a view in side elevation of a clip.

A is the bed plate of the machine. It is mounted upon the table *a* of the frame, and it has at its forward end the line *a'* of holes or perforations which correspond to the perforations of the flat to which the clothing is attached.

B is the front presser and gage. When depressed its under surface bears upon the upper surface of the edge of the flat clothing (see Fig. 3), and its side surfaces act as the gage. It is in the form of a long plate fastened to the forward end of the swinging frame *b* which is pivoted at *b'*. The frame is so pivoted as to provide the presser and gage with a vertical movement in relation to the bed A. It is moved downward by the eccentrics or cams C formed on the lower ends of the levers *c* and resting upon the tops of the arms *b'*. The levers *c* are connected at their outer ends by a connecting rod *c'* and are each pivoted at *c²* to rods *c³* each of which extends downward through a hole in the arm *b* with which it is used and through a hole in the table *a* beneath which it has the adjustable stop nut *c⁴* which bears against the under surface of the table.

It will be noticed that each arm *b* has a rod *c³* extending through it. When the levers *c* or more strictly the lever frame is in its forward position, as represented in full lines in Fig. 4, the presser and gage plate is in its highest position and is moved to such position and held there by springs *c⁵* which surround, respectively, the rods *c³*.

To move the presser and gage downwardly and lock it in its depressed position, the lever frame is moved from the position represented by full lines in Fig. 4 to the position represented in Fig. 3, and by dotted lines in

Fig. 4. This compresses the springs c^5 and moves the frame down with some stress and serves to lock the presser and gage plate in its lowest position and upon the card clothing.

5 E is the back or rear presser. It is in the form of a long plate and its front edge comes into contact with the rear side of the wired section of the clothing and mover or presses it against the inner surface of the presser gage
10 B, thus assisting the said presser gage in its action. The back presser E is automatic in its movements. It is moved and held out of operative position by the levers e' . (See Fig. 4.) Each lever is connected with the lever
15 frame c at e^2 and engages by its lower end e^3 the plate E, the said end entering a hole in said plate. The levers are actuated to move backward and to hold the plate E in its backward position by means of pins e^5 one for each le-
20 ver, (see Fig. 4,) extending laterally from an arm e^6 upon the lever frame c , and by the movement of this lever frame from the dotted position represented in Fig. 4 to the position represented in full lines therein, the levers e'
25 are caused to be moved backward and the plate E withdrawn. Springs e^7 , (see Fig. 3 and 4,) held in pockets in the block e^8 , bear against the edge e^9 of the plate and serve to press it outwardly automatically when permitted by
30 the levers e' , and the levers are free to permit this outward movement of the plate E when the lever frame c has been swung sufficiently to move the pins e^5 from engagement with the said levers e' . The plate E is free to be tilted
35 somewhat, and when upon its backward movement, its rear edge is brought in contact with the inclines e^{10} , (see Figs. 3, 4, and 5), its front edge is moved upwardly and the plate then rests upon the plate e^{11} . (See Fig. 5.) The
40 plate E is balanced on this plate e^{11} in such a manner, however, that when it is moved forward by the springs its front end e gradually drops as the inclines e^{10} permit the rear end to lift. The ends e^8 of the levers e' enter
45 recesses e^{12} in the table a and the front edge e^{13} of each of these recesses acts as a stop to prevent the plate from being pushed too far forward. Before the edge of the cloth-
50 ing is pricked and to prepare it for the action of the gaging devices it is desirable to subject it to endwise strain whereby it is brought to a taut condition, and this is accomplished by fastening the end f of the clothing at one
55 end of the bed plate by means of a clamp G which is adapted to engage the end and to hold it engaged. The clamp comprises a lever having the engaging end g , the backward extending spring arm g' which acts to lift the
60 engaging end g when permitted, and an eccentric or cam g^2 operated by the hand lever g^3 , the cam serving to depress the lever, engage it with the clothing and hold it engaged. The other end f' of the clothing is engaged by
65 hooks H at the end of a straining strap h , said strap passing through a hole h' in the table of the machine and having attached to its lower end a weight h^2 . (See Figs. 1 and 2.)

The action of so much of the machine as has been described is as follows: The cloth-
ing F is placed with its back upon the bed 70 plate A, the wired section f^2 projecting upwardly. One end is then engaged by the clamp G and the other by the straining hooks H and the clothing is thus brought to a taut condi-
75 tion. The operator then moves backward the lever frame c which causes the presser gage B to be lowered and at the same time releases the rear presser plate E so that before the presser B begins to bear upon the edge of
80 the clothing outside the wired section, the rear presser E has been permitted to move on to the rear edge of the clothing and against the rear edge of the wired section thereof and acts to press it forward against the inner sur-
85 face of the presser B, and this action of the plate E continues until the presser B is finally seated upon the edge of the clothing with a sufficient stress to hold it upon the bed; the
90 condition of the parts then being that the section of the clothing which is wired has been moved into contact with the inner surface of the presser gage B and is held in such con-
95 tact, and that the presser gage is also clamping the edge of the clothing against the bed plate inside of the line of holes a' and leaving exposed a section of the edge in which
100 holes are to be formed, and in proper relation to the edge of the wired section which is bearing against its inner surface. See Fig. 3. The operator thus has exposed before him
105 the edge of the clothing in which the holes for the reception of the prongs of the fasten- ing clip for that edge are to be formed, and the holes are then formed by means of prick-
110 ing tool M comprising a frame m of the form of a thin plate having an offset section m' , a handle m^2 and a rotating or turning pricking wheel m^3 having radial extensions or points m^4
115 which are of a size and length and are so placed as to form holes in the edge of the clothing cor- responding to the holes a' of the bed plate A and of the flat. The inner surfaces m^5 of this
120 hole forming tool act as a guide in connection with the front surface of the presser gage B, and in forming the holes the operator places the tool with the surface m^5 against the said
125 gage B and pressing upon it moves it along the edge of the clothing in front of said gage plate, maintaining the tool in contact there- with as he moves it and thus causing uniform
130 holes to be formed in the edge of the cloth- ing. It is to be understood that the pricking points of the pricking tool are of a size to ex- tend through the clothing into the holes a'
of the bed plate. These operations are very quickly performed, and by the forward move-
ment of a lever frame c the presser gage B is permitted to lift, the side presser E is moved
backward, and the clothing is then released from its straining hooks and end holding
clamp, and it is then in a condition to receive the first of the two flat attaching clips and to have its spaced and punctured edge secured to the flat thereby.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for preparing card clothing for attachment to flats, a bed plate for holding the clothing, and a combined presser and gage plate to act upon its edge to hold it against the bed plate and form an abutment against which the wired section of the clothing is held in contact whereby the inner edge of the clothing is exposed, as and for the purposes described.

2. In a machine of the character specified, the bed plate A having the holes a' , a presser B having movements toward and from said plate inside of the line of holes and adapted to clamp the edge of the card clothing thereto, the inner surface of which presser acts as a gage or stop against which the edge of the wired section is brought into contact and the outer surface of which presser acts as a guide or gage for determining the line of action of a hole forming instrument, as and for the purposes described.

3. In a machine of the character specified, the combination of the bed plate A having holes a' , the combined presser and gage B and a rear presser E, as and for the purposes described.

4. In a machine of the character specified, a card clothing stretching device adapted to strain the same by the drawing action of one portion of the device in relation to the other, a bed A having holes a' upon which the clothing is stretched, a presser gage B to clamp the clothing to the bed and gage the location of the holes to be formed therein, and a side presser plate E to press the clothing against the gage, as and for the purposes described.

5. In a machine of the character specified, in combination with the bed A and presser gage B, the yielding rear presser E, as described.

6. In a machine of the character specified, in combination with the bed A and presser gage B, the presser E, the edge e of which has a slight downward and outward movement toward the presser gage, as and for the purposes described.

7. In a machine of the character specified, the combination of the bed A, the presser gage B mounted at the forward end of a pivoted frame b , the lever frame c , its rods c^3 connected with the bed plate of the machine as specified, the springs c^5 , and the eccentrics or cams C of the lever frame, all as described.

8. The combination of the bed plate A, the presser gage B, the rear presser E, one or more levers e' to move the plate backward, and one

or more springs e^7 to move it forward, upon the release of the lever or levers e' , as and for the purposes described.

9. In a machine of the character specified, the combination of the bed plate A, the presser gage B, the rear presser E having forward and backward movements, and the rear incline e^{10} and plate e^{11} , as and for the purposes described.

10. In a machine of the character specified, the combination of the bed plate A, the presser gage B, the rear presser E, the springs e^7 , the levers e' the lower ends of which engage the plate E, the lever frame c , and the arms e^6 having pins e^5 which engage the said levers e' , as and for the purposes described.

11. In a machine of the character specified, the combination of the bed plate A, the presser gage B, the rear presser E, its operating levers e' , and the lever stops e^{13} , as and for the purposes described.

12. In a machine of the character specified, the combination of the bed plate A having the holes a' , the presser gage B, its operating pivoted frame b , the rear presser E, its actuating springs e^7 , the lever frame c , having eccentrics or cams to operate the frame b , and the levers e' connected with the lever frame as described, and springs c^5 whereby upon the movement of the lever frame in one direction the presser gage is moved downwardly and the rear presser released to the operation of its springs, and upon its movements in the reverse direction the presser gage is permitted to be moved upward by its actuating springs and the rear presser moved positively backward, as and for the purposes described.

13. In a machine of the character specified, a rotary pricking tool, the points of which register with the holes in the bed supporting the clothing and the back of which acts as a guide in connection with the front surface of the presser, as and for the purposes described.

14. In a machine of the character specified, the combination of the bed plate, the presser gage B, and a hole forming device for which the front of the presser gage acts as a guide, as and for the purposes described.

15. In a machine of the character specified, in combination with the device for clamping the edge of the card clothing, a portable hole forming instrument comprising a frame or plate, a handle, and a rotating plate having radial points or prongs, substantially as described.

ROBT. W. HUNTON.

In presence of—

A. J. M. MCNAMARA,
WM. L. THOMPSON.