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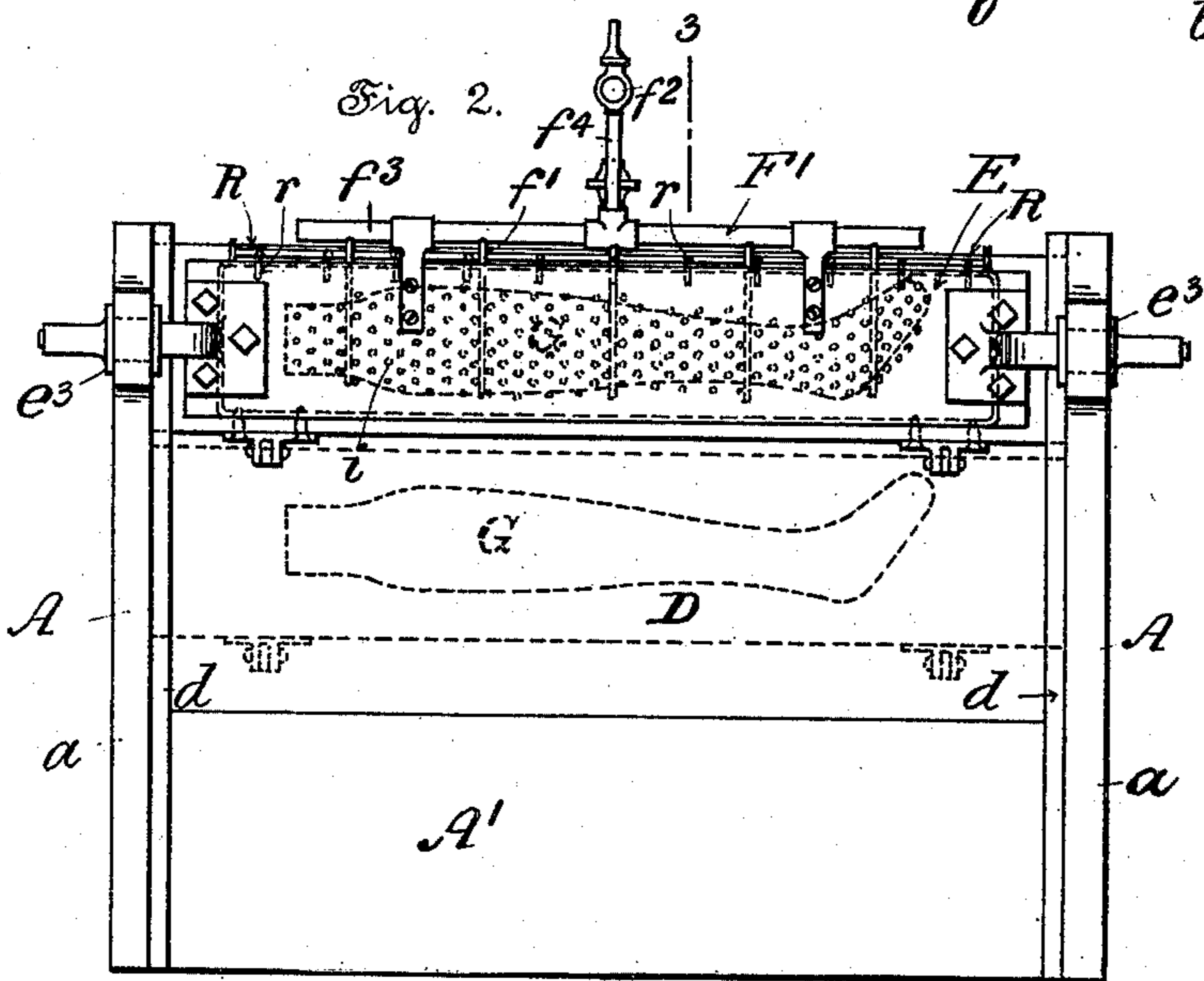
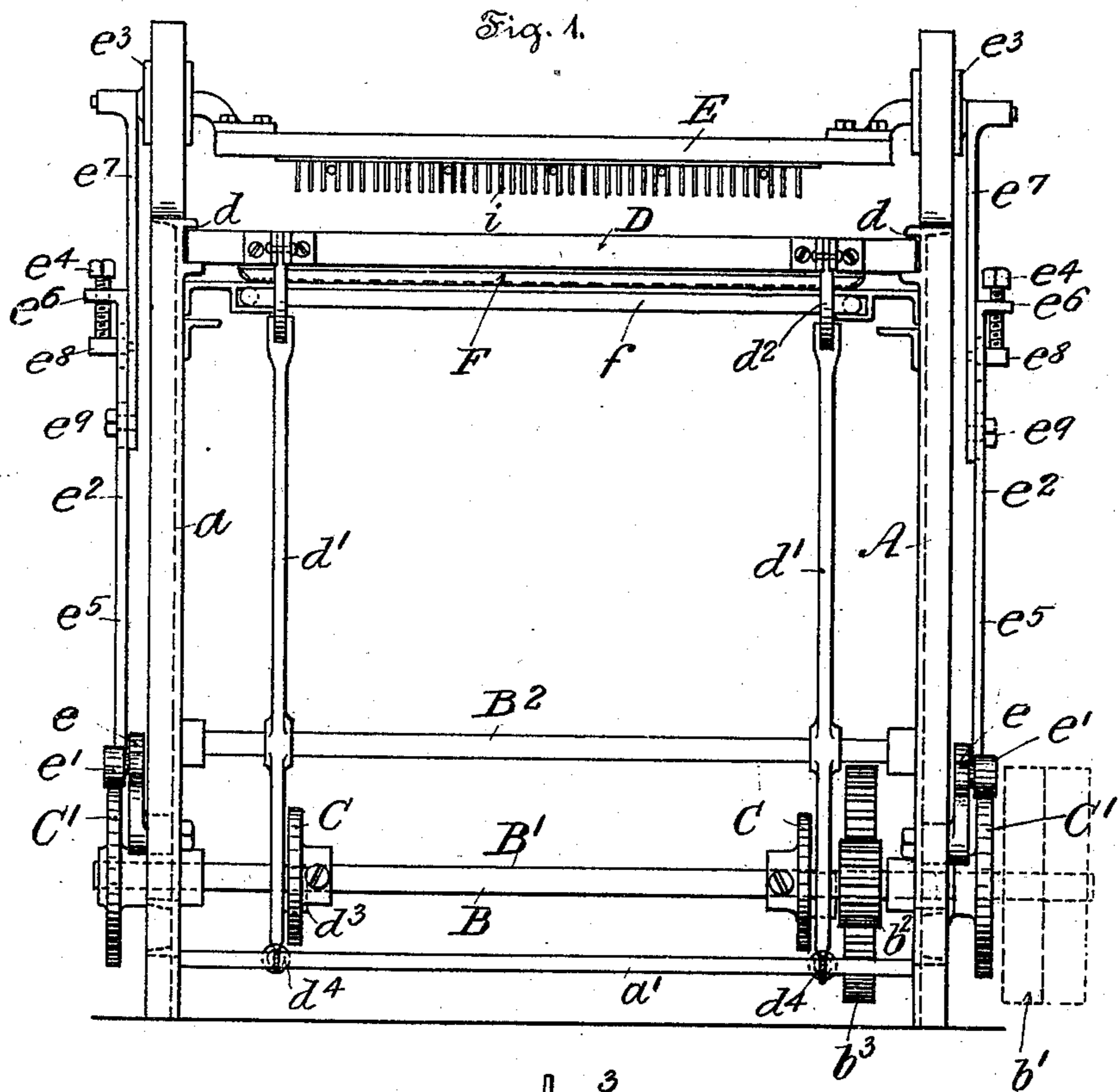
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MACHINE FOR PRODUCING POLKA DOTS, &c., ON KNIT OR OTHER FABRICS.

(No Model.)

(Application filed Dec. 18, 1899.)

2 Sheets—Sheet 1.



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# UNITED STATES PATENT OFFICE.

HENRY H. SKEVINGTON AND WILLIAM L. WHITEHEAD, OF PHILADELPHIA, PENNSYLVANIA, AND HENRY H. HAWTHORNE, OF WILMINGTON, DELAWARE.

MACHINE FOR PRODUCING POLKA DOTS, &c., ON KNIT OR OTHER FABRIC.

SPECIFICATION forming part of Letters Patent No. 647,162, dated April 10, 1900.

Application filed December 18, 1899. Serial No. 740,679. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY H. SKEVINGTON and WILLIAM L. WHITEHEAD, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, and HENRY H. HAWTHORNE, residing at Wilmington, in the county of New Castle, in the State of Delaware, citizens of the United States of America, have invented a new and useful Machine for Producing Polka Dots or other Designs or Figures on Knit or other Fabric, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to apparatus for producing polka dots or any other design or figure on dyed knit or other fabric. Heretofore the polka dots or other design on knit fabric—for instance, on stockings—were produced by applying by hand-operated stamping devices wax dots in the shape desired to the undyed fabric. The latter was then dyed in any preferred manner and the wax removed by heating, washing, &c., of the dyed fabric. Great difficulty is, however, experienced in obtaining good results with these hand-operated devices, as the dots or other design will not be of such uniform size or distinction as is desirable, and it has been found that this only can be had when the pressure exerted on the platen applying the wax or other suitable material is at all times the same and the wax or other material is always in the same liquid state when applied to the goods. With our machine, which is power-driven, we not only overcome entirely these difficulties, but cheapen the goods, as the machine is capable of turning out five times the goods that could be done by the hand-operated devices. Our machine is also adapted to apply a hot dye by heated forms or molds to a fabric in such a way that the design is directly printed onto the goods desired to be ornamented.

Our invention will be more fully understood taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a front elevation of our machine embodying our invention, having as principal features a movable table supporting the fabric to be operated upon, a movable platen carrying the heated mold, and a trough for containing and heating the liquid or wax to

be applied to the fabric. Fig. 2 is a top view of the machine, showing a stocking on the movable table to be provided with polka dots from pins secured in the platen forming the mold. Fig. 3 is a cross-section of the machine on the line 3 3 of Fig. 2; and Fig. 4 is an end view of the machine, showing the mechanism for operating the platen.

Referring now to the drawings for a further description of our invention, A is the frame, comprising the sides *a*, stationary table *A'*, and distance-rods *a'*. On the frame in journal-boxes are supported the main shaft B, counter-shaft B', and rock-shaft B<sup>2</sup>. The counter-shaft B' is driven from the main shaft B, having fast and loose pulleys *b b'*, by gearing *b<sup>2</sup> b<sup>3</sup>*, and on the counter-shaft B' are secured two sets of cams C and C'. The set of cams C is adapted to reciprocate the table D, held in guideways *d* of the frame A, by means of the two-arm levers *d'*, secured to the rock-shaft B<sup>2</sup>, and link *d<sup>2</sup>*, connecting the upper arm of the levers *d'* with the movable table D. The lower arm of the lever *d'* is provided with a roller *d<sup>3</sup>*, bearing on the peripheral edge of the cam C, and this roller *d<sup>3</sup>* is kept in contact with said edge by the spiral spring *d<sup>4</sup>*.

The platen E is vertically reciprocated by the set of cams C', also secured to the counter-shaft B'. On the sides *a* of the frame are hinged the arms *e*, having the rollers *e'* bearing on the peripheral edges of the cams C', and on the free end of the arms *e* are pivotally attached the adjustable connecting-rods *e<sup>2</sup>*, the upper ends of which are mounted to the sliding blocks *e<sup>3</sup>* and platen E. The connecting-rods *e<sup>2</sup>* are made in two pieces and may be adjusted in length by the set-screws *e<sup>4</sup>*, Figs. 1 and 4. The lower portion *e<sup>5</sup>* of the rod is bent at a right angle, as shown at *e<sup>6</sup>*, and is threaded to receive the set-screw *e<sup>4</sup>*, while the upper portion *e<sup>7</sup>* is provided with a stud *e<sup>8</sup>*, on which the set-screw *e<sup>4</sup>* bears. After the adjustment of the platen with reference to the height of the table D is made the two portions *e<sup>5</sup>* and *e<sup>7</sup>* are clamped together by means of the bolt *e<sup>9</sup>*.

The platen E is provided on its under face with a mold or design composed of pins *i*, fastened to a metal plate, which is removably fastened to said platen E in any preferable

manner and for the purpose of changing the design, if desired.

Below the movable table D is secured a trough F, in which the material—wax or dye—to be applied by the pins *i* to the goods supported on the table D is contained. The trough and its contents are kept in a heated state by a suitable heating appliance, such, for instance, as shown, which consists, preferably, of perforated gas-pipes *f*.

To avoid the clogging of wax or other material on the pins *i*, constituting the sign or mold of the platen E, a heating appliance F' is provided and comprises a number of perforated gas-pipes *f'*, located at suitable distances apart between the pins *i*. The perforations in the pipes *f'* are in such direction, however, that the small gas-jets do not contact with the goods G, held on the table D, and to allow the reciprocation of the platen E the supply gas-pipe *f*<sup>2</sup> is connected with the distributing-pipe *f*<sup>3</sup> by the flexible connecting-tube *f*<sup>4</sup>.

The operation of the machine is as follows:  
The goods G to be ornamented are placed on the table D when the same is near the stationary table A', the pins *i* of the platen E in this position being immersed in the contents of the trough F. The platen E now rising to its highest position, the table D, with the goods, moves in the position shown in Fig. 3, when the platen E descends sufficiently to make an impression on the goods, after which it ascends, and the table D moves toward the table A' again, while the platen E descends to again immerse its pins *i* into the contents of the trough F.

If it is desirable, the liquid contained in the trough F may be agitated to prevent the settlement of the ingredients mixed with the wax or contained in the dye, &c., and this stirring is accomplished by a rake R, hinged to the back of the reciprocating table D and having teeth *r*, which when the table moves backward and forward scrape along the bottom of the trough and keep the mixture from settling. This rake R, however, is so arranged that it does not interfere with the operation of the platen E.

It is obvious to those skilled in the art to which our invention pertains that modifications may be made without departing from the spirit of our invention, and,

Having thus described the nature and objects of our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A machine of the kind described comprising a frame, a reciprocating table, a platen moving vertically and coming in contact with the said table, a trough below the said table and platen, and means for heating the said trough and platen, substantially as and for the purposes set forth.

2. A machine of the kind described comprising a frame, a stationary table, a horizontally-reciprocating table, a vertically-re-

ciprocating platen having a design removably attached thereto, said platen adapted to meet the said reciprocating table for the purpose of making an impression on goods placed on said reciprocating table, a trough below the platen and reciprocating table, and means for maintaining the trough, its contents and the design on the platen in a heated condition, substantially as and for the purposes set forth.

3. In a machine of the kind described a frame, a stationary table supported on said frame, a vertically-reciprocating platen having a design composed of pins on its under face, a counter-shaft, a set of cams thereon, levers pivoted to the frame and having their free extremities in contact with said cams, adjustable connection-rods between the ends of the levers and the platen, and guides for the latter, a reciprocating table held in guides and adapted to move in front of the said platen so that the goods to be operated upon may be placed in position thereon, after which the said table moves directly under the platen and receives an impression, and a trough containing a liquid placed directly under the platen, so that the pins thereof may be immersed in said liquid before each impression, substantially as and for the purposes set forth.

4. In a machine of the kind described a frame, a table supported in guides on said frame, means for reciprocating the said table and comprising a shaft, a set of cams thereon, double-armed levers secured to a rock-shaft and having their upper ends connected to the said table, a platen held in guides and being reciprocated vertically by a set of cams on the said shaft, connection-rods between the said cams and the ends of the platen, a trough below the said platen and an agitator, comprising a rake hinged to the rear of the said table, substantially as and for the purposes set forth.

5. In a machine of the kind described, a frame, a reciprocating table, a platen moving vertically and coming in contact with the said table, a trough below the said table in combination with an agitator for the said trough, comprising a rod hinged to the reciprocating table and pins attached to the said bar, substantially as and for the purposes set forth.

6. In a machine of the kind described, a frame, a reciprocating table, a platen moving vertically and coming in contact with the said table, a trough below the said table and platen, a stirring device for the said trough, and heating appliances for the said trough and platen, substantially as and for the purposes set forth.

In witness whereof we have hereunto set our signatures in the presence of two subscribing witnesses.

HENRY H. SKEVINGTON.  
WILLIAM L. WHITEHEAD.  
HENRY H. HAWTHORNE.

Witnesses:

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