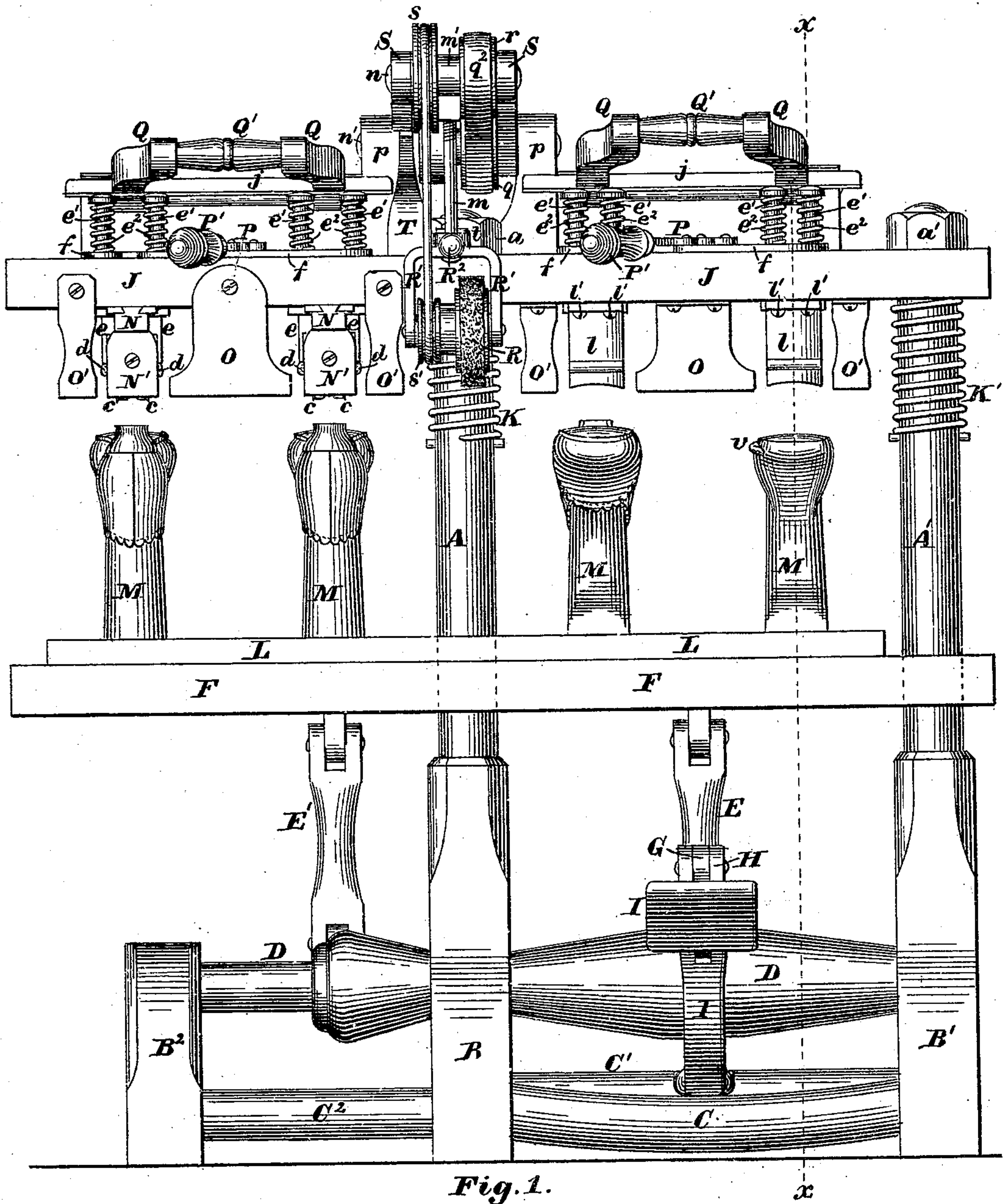


(No Model.)

4 Sheets—Sheet 1.

A. W. MUSSELLS & J. PRAY.
Shank Creasing, Coloring, and Stamping Machine.
No. 243,599. Patented June 28, 1881.



Witnesses:

E. A. Kemmenway
Walter Lombard

Inventors:

Arthur W. Mussells
John Pray
by *N. C. Lombard*
Attorney.

(No Model.)

4 Sheets—Sheet 2.

A. W. MUSSELLS & J. PRAY.
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No. 243,599. Patented June 28, 1881.

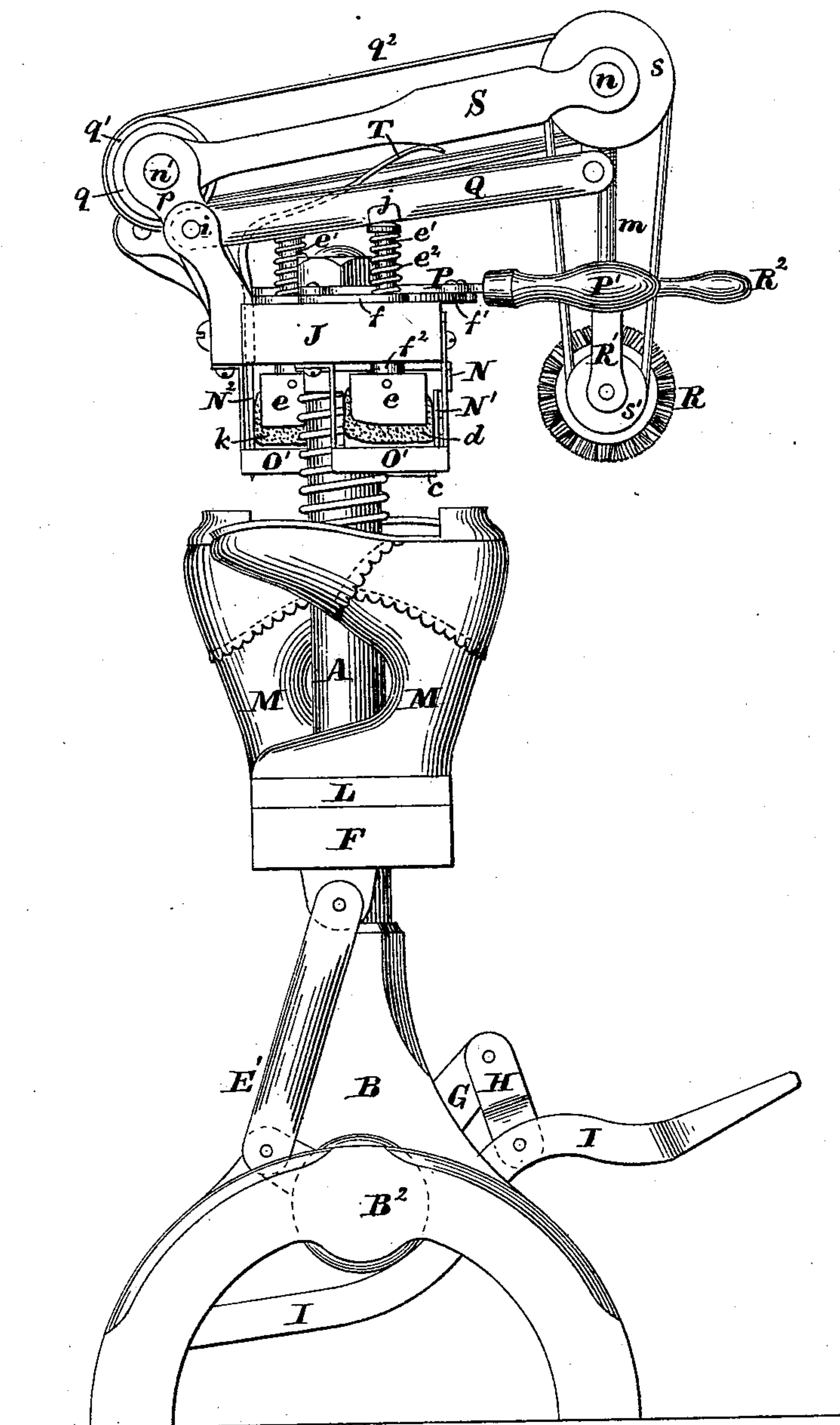


Fig. 2.

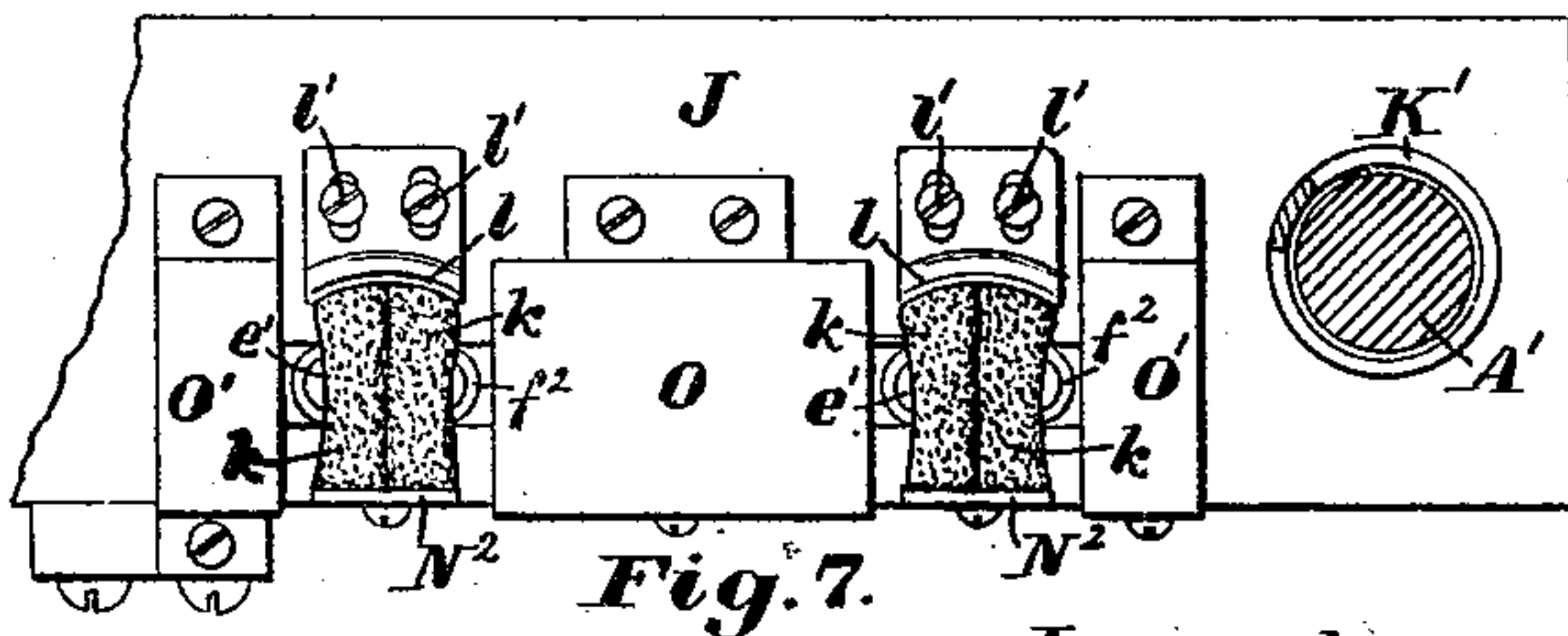
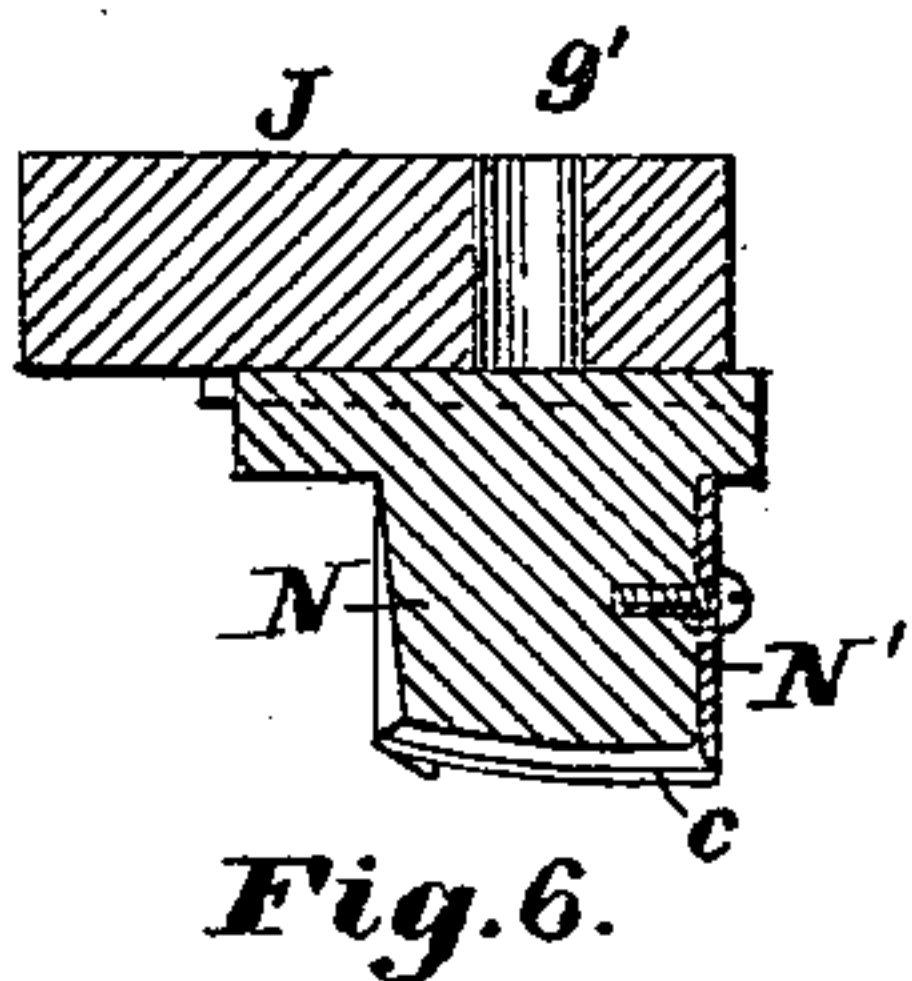
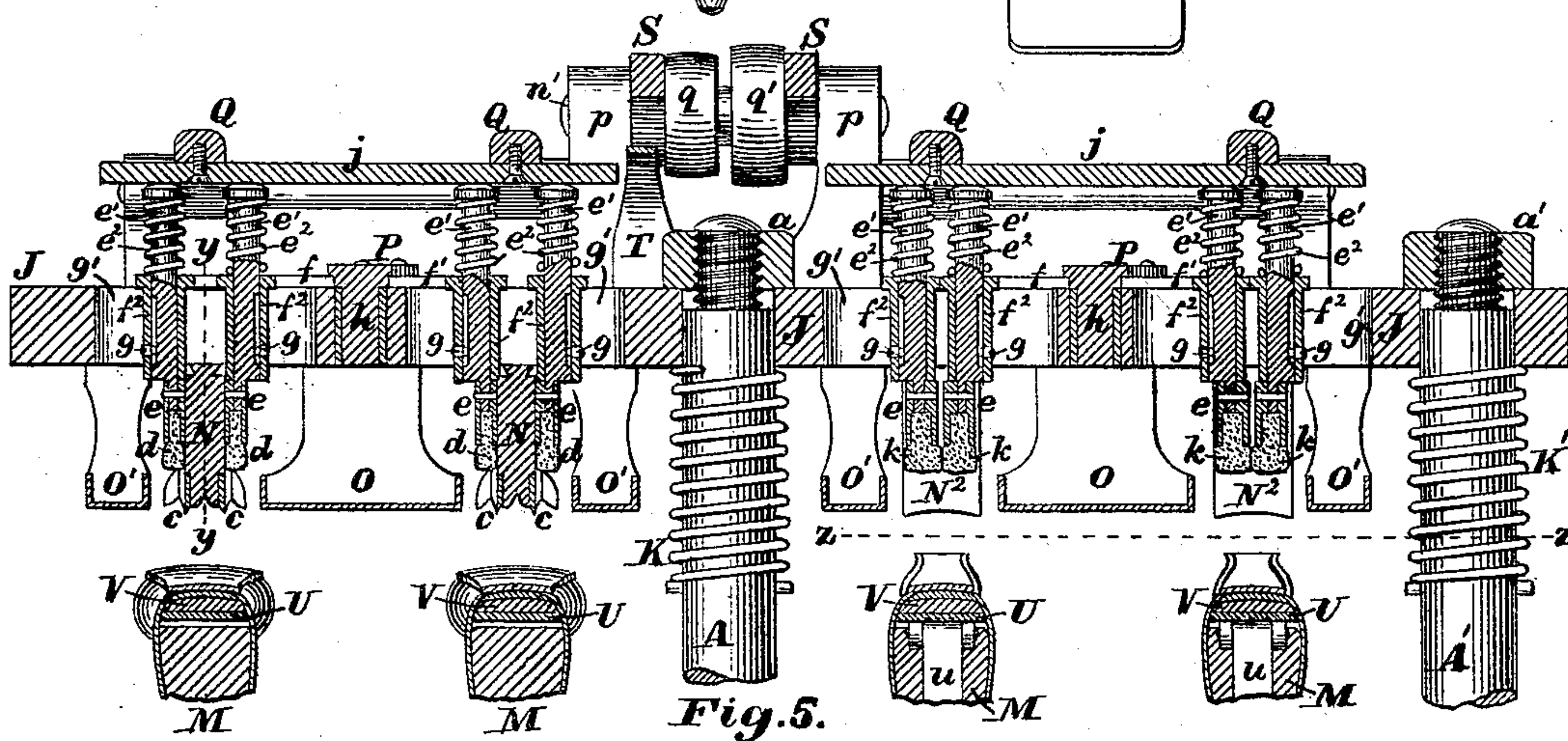
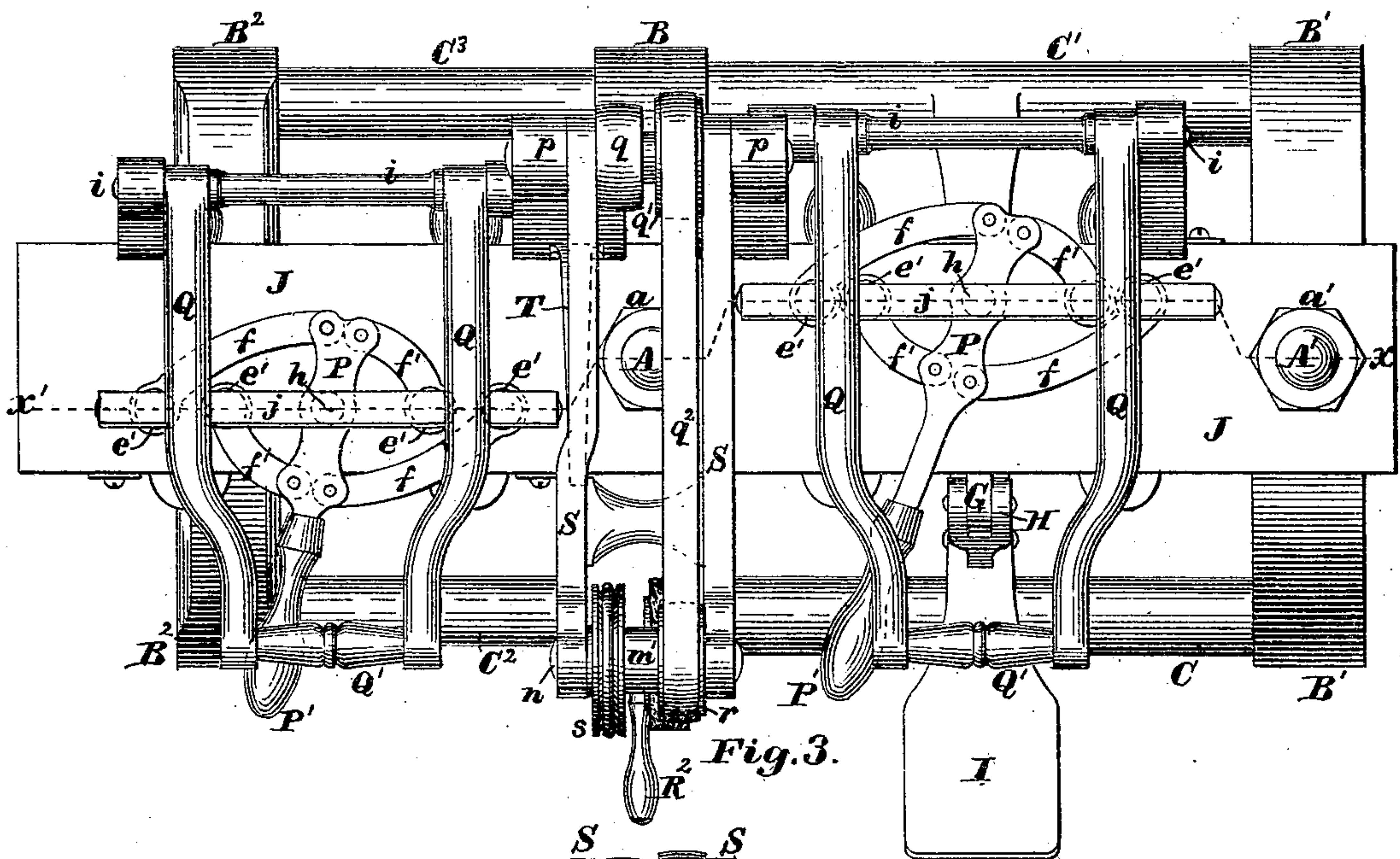
Witnesses:

C. A. Hemmenway
Walter & Lombard.

Inventors:

Arthur W. Mussells
John Pray
by N. B. Lombard
Attorney.

A. W. MUSSELLS & J. PRAY.
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Witnesses:

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Walter & Lombard.

Inventors:

Arthur W. Mussells
John Pray
by N. C. Lombard
Attorney.

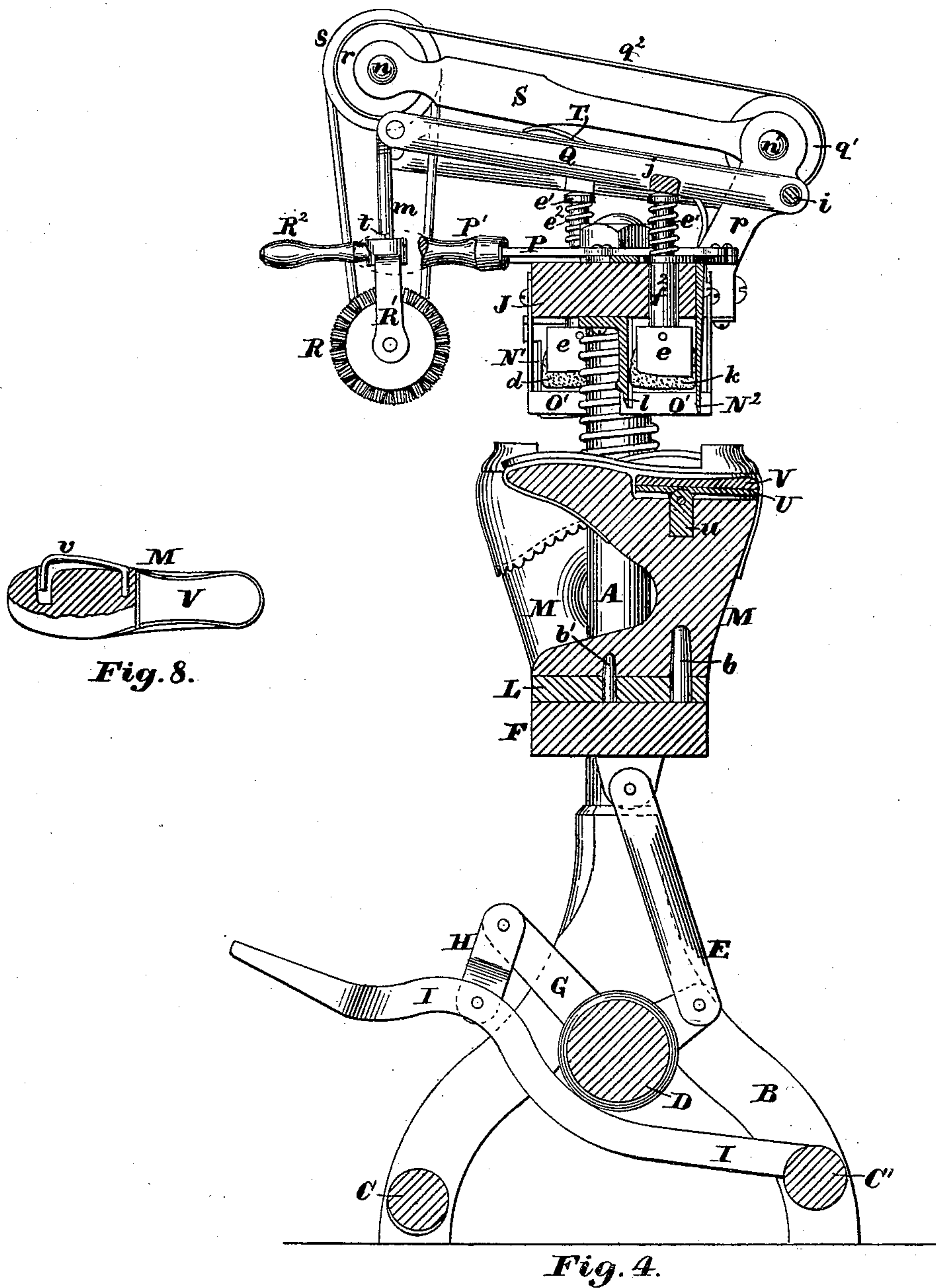
(No Model.)

4 Sheets—Sheet 4.

A. W. MUSSELLS & J. PRAY.

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Patented June 28, 1881.



Witnesses:

E. A. Hemmenway.
Walter C. Lombard.

Inventors:

Arthur W. Mussells
John Pray
by N. C. Lombard
Attorney.

UNITED STATES PATENT OFFICE.

ARTHUR W. MUSSELLS AND JOHN PRAY, OF LYNN, MASSACHUSETTS.

SHANK CREASING, COLORING, AND STAMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 243,599, dated June 28, 1881.

Application filed March 28, 1881. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR W. MUSSELLS and JOHN PRAY, both of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Shank Creasing, Coloring, and Stamping Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

Our invention relates to an improved machine for creasing, coloring, and stamping the tread-surface of a boot or shoe shank, and is designed as an improvement upon the machine shown and described in Letters Patent No. 224,030, granted to us February 3, 1880; and it consists in a novel arrangement of the ink-fountains and coloring-pads and method of operating said coloring-pads.

It further consists in the addition of a guard plate or plates to protect the breast or front face of the heel of the boot or shoe and prevent it from receiving any coloring-matter during the operation of coloring the shank portion thereof, and also in the addition of an improved knife for creasing the front portion of the shank, to be used when it is desired to color the whole surface of the shank, as distinguished from coloring the outer portions or edges thereof.

It further consists in an improved last for supporting the boot or shoe, so constructed as to more firmly hold the shoe during the several operations to which it is subjected, and at the same time allow the shank portion of the sole to yield in a certain degree to the pressure applied thereto, so that it may accommodate itself to slight differences between the horizontal curvature of said sole and the lower edges of the creasing-knives.

Figure 1 is a front elevation of a machine embodying our invention. Fig. 2 is an end elevation. Fig. 3 is a plan. Fig. 4 is a vertical section, the cutting-plane being on line xx on Fig. 1. Fig. 5 is a vertical section of the upper portion of the machine on line $x'x'$ on Fig. 3. Fig. 6 is a partial vertical section on line yy on Fig. 5. Fig. 7 is a partial horizontal section on line zz on Fig. 5, looking upward; and Fig. 8 is a sectional plan of the shoe-supporting last.

B, B', and B² are three arched bases or standards, connected together by the tie-girts C, C', C², and C³, and have mounted in bearings formed therein the rocker-shaft D, connected by the toggle-links E and E' to the movable bed F, adapted to slide up and down on the two vertical rods A and A', which are set in the bases B and B', respectively. The shaft D is also connected, through the medium of the arm G and link H, to the treadle-lever I, which enables the operator to impart a vertical movement to the bed F, said treadle-lever being pivoted to the tie-girt C'.

Upon the upper ends of the rods A and A' is mounted the cross-head J, which rests upon the spiral springs K and K' surrounding said rods, and is made adjustable in a vertical direction by the combined action of said springs and the nuts a and a' .

L is a table mounted upon the rod A, about which it may be revolved, and resting upon the top of the movable bed F, and adapted to be moved up and down therewith, and having secured upon its upper side the four shoe-supporting lasts M, which are attached to the table L by means of pins b and b' in such a manner that they may be readily removed and others of different shape or size substituted therefor.

The machine as thus far described is similar in construction and operation to that shown in our former patent before cited, and constitutes no part of our present invention; but we will now proceed to describe the improvements which pertain directly thereto.

Upon the cross-head J is mounted the mechanism for creasing and coloring the desired portions of the shoe-shanks, that on the left-hand side of the rod A, as shown in Fig. 1, being arranged to color the outer portions of the shanks between the edges of the sole and the cuts or creases, and that upon the opposite side of the rod A being adapted to color the entire tread-surface of the shank.

To the lower side of the cross-head J, at the left of the rod A, are secured two stands, or a pair of stands, N N, each of which carries at its lower end two knives, $c c$, for creasing the shoe-shanks, they being secured upon the concave sides of the stands N, and shaped simi-

lar to those shown in our former patent. The stands N N are secured to the cross-head J by dovetailed slides, the upper ends of each of said stands being each provided with a dovetailed portion fitted accurately to guides formed upon or secured to the under side of the cross-head J, as shown in Fig. 1. This method of securing the stands N N allows them to be easily removed and others carrying creasing-knives of different size or shape substituted therefor, and at the same time renders them adjustable in the direction of the length of the shoe.

O is an ink or color fountain or reservoir secured to the under side of the cross-head J, between the stands N N, and O' O' are similar fountains of smaller capacity, located respectively upon the opposite sides of the stands N N, and adapted to supply ink or suitable coloring-matter to the coloring-pads *d*, arranged one on each side of a stand, N. The pads *d* are composed of sponge or other suitable absorbent material, and are fixed in holders *e*, said holders being shown as composed of two plates joined together at the top and having the pad inserted between them. The pads *d* are arranged to have an up-and-down motion to bring them into contact with the shanks of the shoes or raise them therefrom or dip them into the coloring-matter contained in the ink-fountains O O', and a horizontal or lateral movement to convey them from the ink-fountains to the stands N in position over the soles of the shoes, and vice versa. The devices for imparting said motions to the pads *d*, being an essential part of our present invention, will be forthwith described.

The holders *e*, carrying the pads *d*, are each secured at their upper ends to rods *e'*, which are adapted to slide up and down in bearings in the long bosses or sleeves *f*², attached to the ends of the links *f* and *f'*, the rods *e'*, and consequently the pads *d*, being held up in their normal position by the spiral springs *e*², surrounding the rods *e'*, between the sleeves *f*² and enlarged upper ends of said rods. The pad-holders *e* are each secured by a pin to the ends of the rods *e'*, as shown in Fig. 5, and the rods are prevented from turning in their bearings by pins or screws *g* set in the bosses *f*², the ends of the pins entering grooves formed in the sides of the rods *e'*. (Also shown in Fig. 5.) The bosses or sleeves *f*² are arranged to have a lateral movement in the slots *g'* cut through the cross-head J, the slots being of sufficient length to allow the coloring-pads to be moved from a position in contact with the stands N to a position over or within the ink-fountains O O'. This motion is effected, through the medium of the long and short links *f* and *f'*, by the lever P, pivoted at *h* to the cross-head J, and having attached to one end thereof the handle P', by which it is operated. The inner ends of the links *f* and *f'* are connected to the lever P at about equal distances from its fulcrum, one long link, *f*, and one short link, *f'*, being attached on each side of said fulcrum. With

the parts in the position shown in the drawings, if the handle P' of the lever P be moved to the right, the two inner rods, *e'*, or those nearest the fulcrum *h* of the lever P, will be moved, together with the coloring-pads attached thereto, toward the fulcrum *h*, into a position over the ink-fountain O, while the rods mounted in the ends of the links *f* will be moved away from the fulcrum *h*, and the pads attached to said rods will be brought into position over the ink-fountains O' O'.

It will thus be seen that the coloring-pads *d* can be moved simultaneously from positions over the shoe-shanks to positions over the ink-fountains, and vice versa, at the will of the operator, simply by moving the handle P' to the right or left. The coloring-pads *d* are moved downward by the frame Q, pivoted at *i* to suitable stands or brackets secured to the back of the cross-head J, and provided at its front end with the handle Q', and near the middle of its length, or directly over the rods *e'*, with the cross-bar *j*, which rests upon said rods, so that by depressing the movable end of the frame Q the rods *e'* will be forced downward against the tension of the springs *e*², said springs being of sufficient strength to carry the rods *e'* and frame Q upward to their normal position when the pressure is removed from the handle Q'. Thus all the coloring-pads may be applied to the shanks of the boots or shoes and carried to the ink-fountains for a fresh supply of coloring-matter simultaneously, and the operation repeated as often as may be desired simply by the operation of the two handles P' and Q'.

To one end of each of the stands N is secured a plate, N', which extends downward nearly to the lower edges of the knives *c*, and is made very thin at its lower edge, and is designed to protect the front face of the heel of the shoe from the action of the coloring-pads while coloring the shank portion thereof. The plates N' should be of a width not less than the greatest width of the front face of the heel, and are made straight upon the outer side, which bears against the heel, and beveled upon the inner lower edge in contact with the coloring-pads, so that the ink may be applied to the entire length of the shank without getting any upon the breast of the heel.

Upon the right-hand side of the rod A, between it and the rod A', is located mechanism similar to that already described, except that it is designed for coloring the entire tread-surface of the shoe-shank and cutting a single curved crease at the forward limit of said shank. The coloring-pads are mounted in suitable holders, *e*, attached to sliding rods *e'*, having their bearings in sleeves or bosses *f*² on the ends of links *f* and *f'*, which links are connected to a lever, P, a pivoted frame, Q, operating to depress the rods *e'* against the force of the springs *e*², all arranged and adapted to operate precisely similar to the mechanism already described, located equidistant upon

the opposite side of the rod A. Ink is also supplied to the pads from fountains O O' similar to those previously described. The pads *k* are made wider than the pads *d*, and the two
 5 which are to operate upon the same shank are in contact with each other when in position for applying the color, as clearly shown in Figs. 5 and 7, and the guard-plates N² N² for protecting the heels are secured directly to
 10 the rear edge of the cross-head J. Two knives, *l l*, curved at their lower ends, are located immediately in front of the pads *k*, and are secured to the under side of the cross-head J by screws *l' l'*, as shown in Fig. 7, passing through
 15 slots in the upper horizontal portion of said knives, thus rendering them capable of adjustment in the direction of the length of the boot or shoe, to adapt them to variations in the lengths of the shanks. Each of said knives
 20 *l l* is adapted to cut a curved crease across the surface of the sole at the forward limit of the shank portion to which the color is to be applied. The slight adjustment required by the knives *l l* and the stands N N, before referred
 25 to, may be effected without changing or removing the coloring-pads *k* or *d*, as said pads are made of an elastic compressible material, and will adapt themselves to slight variations in the positions and curvatures of the creasing-
 30 knives.

Each of the lasts or shoe-supports M has a portion cut away at the shank and heel thereof, and has mounted in the place of said cut-away portion a rocking plate, U, covered with a piece
 35 of rubber, V, or other suitable elastic material, said plate U having two ears upon its under side, and being pivoted by a pin passing through said ears to a lug, *u*, fixed in the last M, all as shown in Figs. 4, 5, and 8. The object of this
 40 device is to allow the shanks of the shoes to yield in a certain degree to the pressure applied thereto during the operation of creasing, so that said shanks may adapt themselves to differences between their horizontal curvatures
 45 and those of the knives, thus allowing shanks having slightly different horizontal curves to be creased by the same knives.

Upon one side of each of the lasts M, between the shank and toe, and near the tread-
 50 surface thereof, is fixed the spring *v*, it being secured firmly at one end in the last, near the shank, and, extending along the side of the last, has its movable end inserted in a recess near the toe thereof, as shown in Fig. 8. The ob-
 55 ject of the spring *v* is to hold the shoe more firmly on the last, and also to bring the shoe-shank to the proper position for creasing and coloring, the tendency of said spring being to force the shoe slightly forward on the last
 60 by the action of the forward rounded end of said spring, causing the rear portion of the shoe to bear firmly against the back of the last.

The use of this device enables the same last to adapt itself to slightly different sizes and
 65 different widths of shoes without requiring a separate last for each different size of shoe.

A rotary brush, R, and its appendages are shown in the drawings in connection with our improvements, which form no part of our present invention; but we reserve the right to claim
 70 them in a future application in connection with other devices.

The operation of our invention will be readily understood by reference to the foregoing description, and needs no further explanation. 75

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for creasing and coloring the shanks of boots and shoes, the combination of a last for supporting the boot or shoe, one or
 80 more fixed or stationary color-fountains, and one or more color-pads, arranged and adapted to be moved laterally and vertically to take the color from the fountains and apply it to the sole of the boot or shoe, substantially as and
 85 for the purposes described.

2. In combination with a last for supporting the shoe and suitable pads for coloring the shank portion thereof, the sliding rods *e'*, attached to and carrying said pads, the springs
 90 *e''*, surrounding said rods, and the pivoted frame Q, all arranged and adapted to operate substantially as and for the purposes described.

3. In a machine for creasing and coloring the shanks of boots and shoes, the combina-
 95 tion of one or more stationary creasing or channeling knives, a vertically-movable last or shoe-support, one or more stationary color-fountains, one or more vertically and horizontally movable color-pads, the lever P, links *f*
 100 and *f'*, springs *e''*, and the frame Q, all arranged and adapted to operate substantially as and for the purposes described.

4. In combination with a last for supporting the shoe and pads for coloring the shank
 105 portion thereof, the guard-plate N' or N², arranged and adapted to operate substantially as and for the purposes described.

5. In combination with a last for supporting the shoe and pads for coloring the shank
 110 portion thereof, the knife *l*, located in front of said coloring-pads and adapted to cut a crease across the forward end of the shank, substantially as and for the purposes described.

6. A last for supporting a boot or shoe, hav-
 115 ing the shank and heel portion of its tread-surface made separate from the main body of the last and pivoted thereto, in combination with mechanism for creasing and coloring the shank of a boot or shoe placed thereon, all arranged
 120 and adapted to operate substantially as and for the purposes described.

7. A last for supporting a boot or shoe, provided with the rocking plate U, in combination with a pad of rubber or other suitable elastic
 125 material secured to the tread-surface of said rocking plate, and with devices adapted to crease and color the shanks of boots or shoes placed thereon, all arranged and adapted to operate substantially as and for the purposes
 130 described.

8. In a machine for finishing the bottoms

of the shanks of boot and shoe soles, a last or shoe-support provided with the spring *v*, in combination with creasing and coloring devices, all arranged and adapted to operate substantially as and for the purposes described.

5 9. A last or shoe-support provided with a rocking shank and heel-section U, and with the side spring, *v*, in combination with a creasing device and coloring devices, all arranged

and adapted to operate substantially as and for the purposes described.

Executed at Lynn, Massachusetts, this 23d day of March, A. D. 1881.

ARTHUR W. MUSSELLS.

JOHN PRAY.

Witnesses:

FRANK M. REYNOLDS,

F. F. TAPLEY.