

(No Model.)

3 Sheets—Sheet 1.

H. C. GOODRICH.

RUFFLING ATTACHMENT FOR SEWING MACHINES.

No. 329,548.

Patented Nov. 3, 1885.

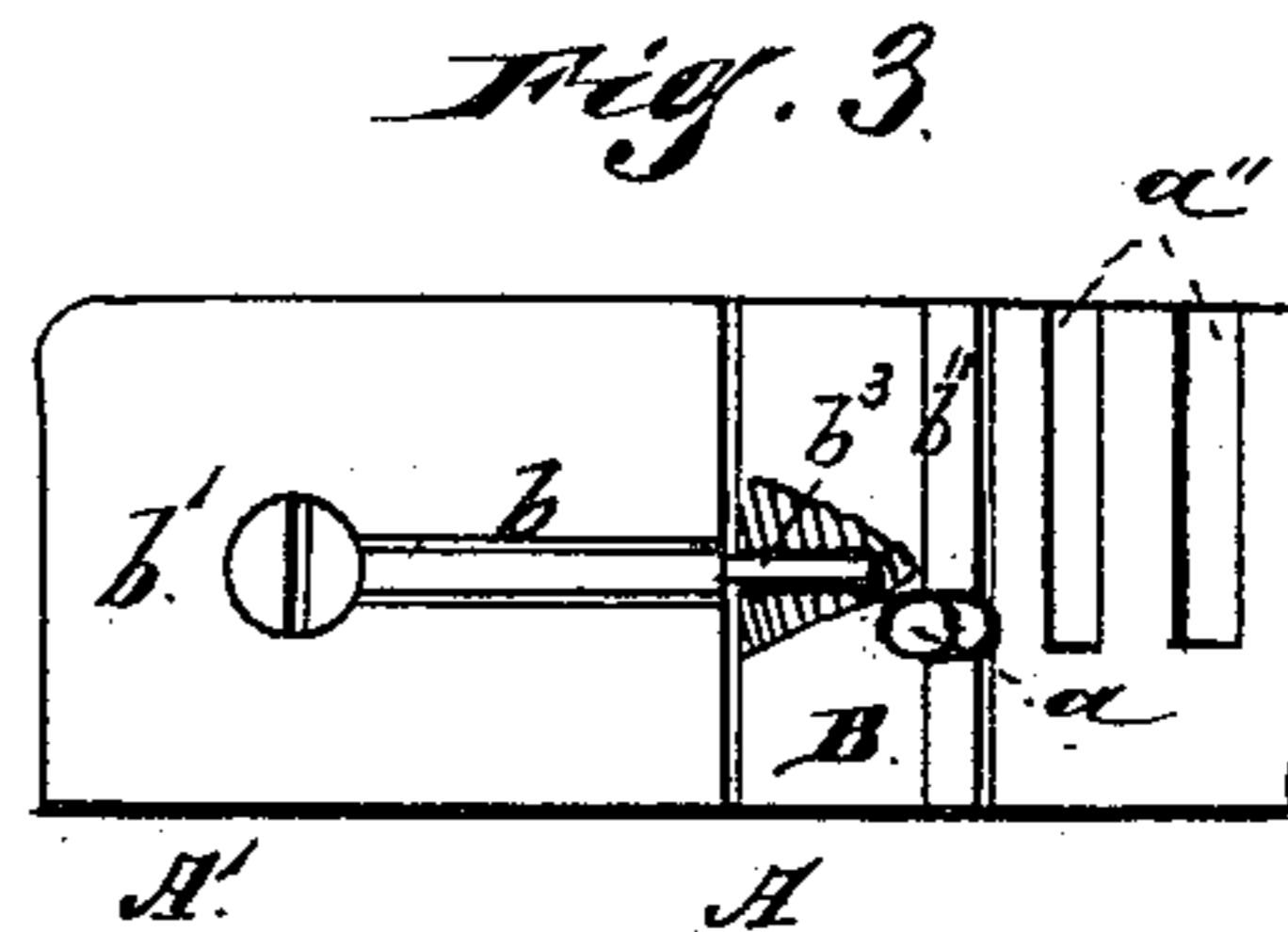
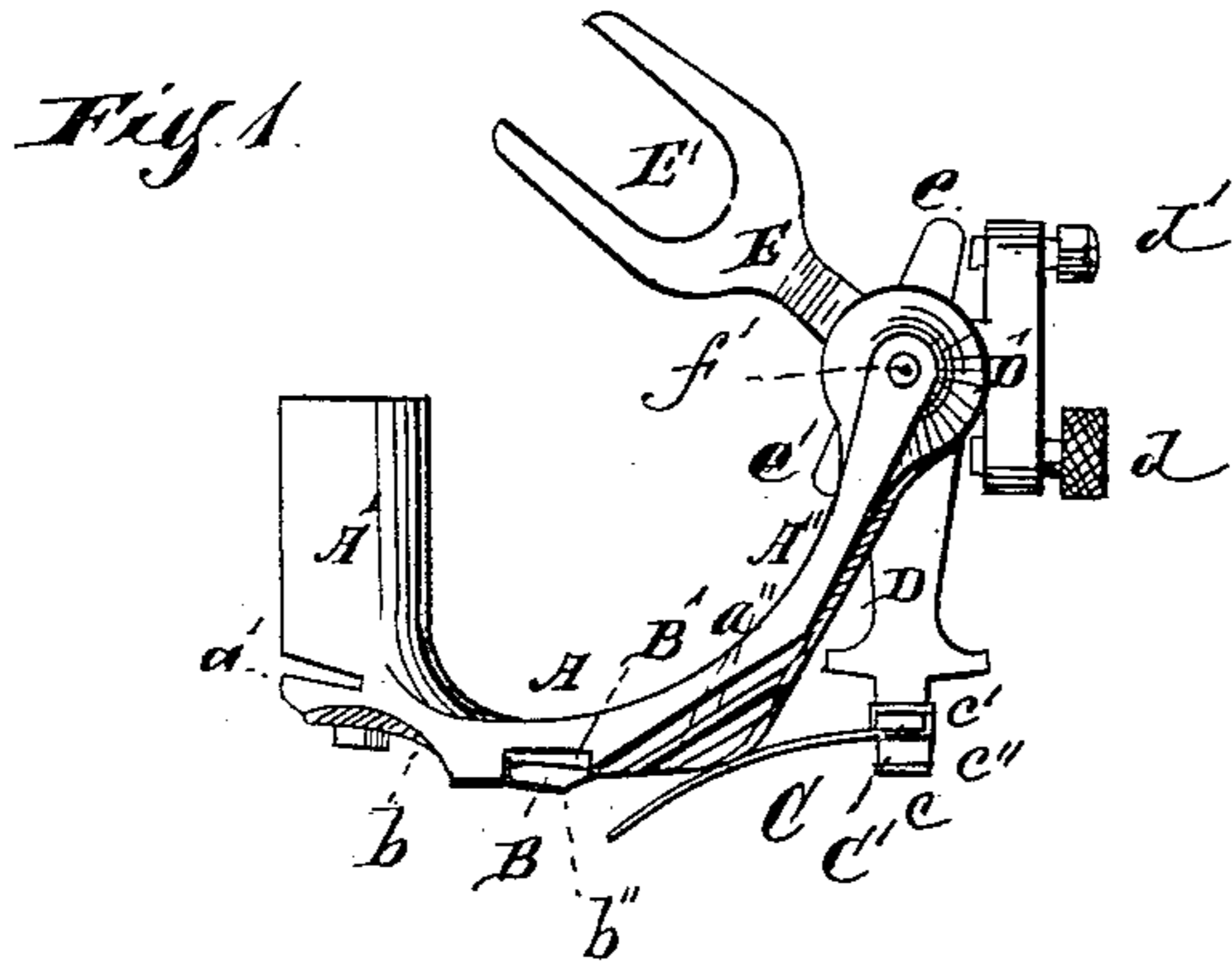


Fig. 2.

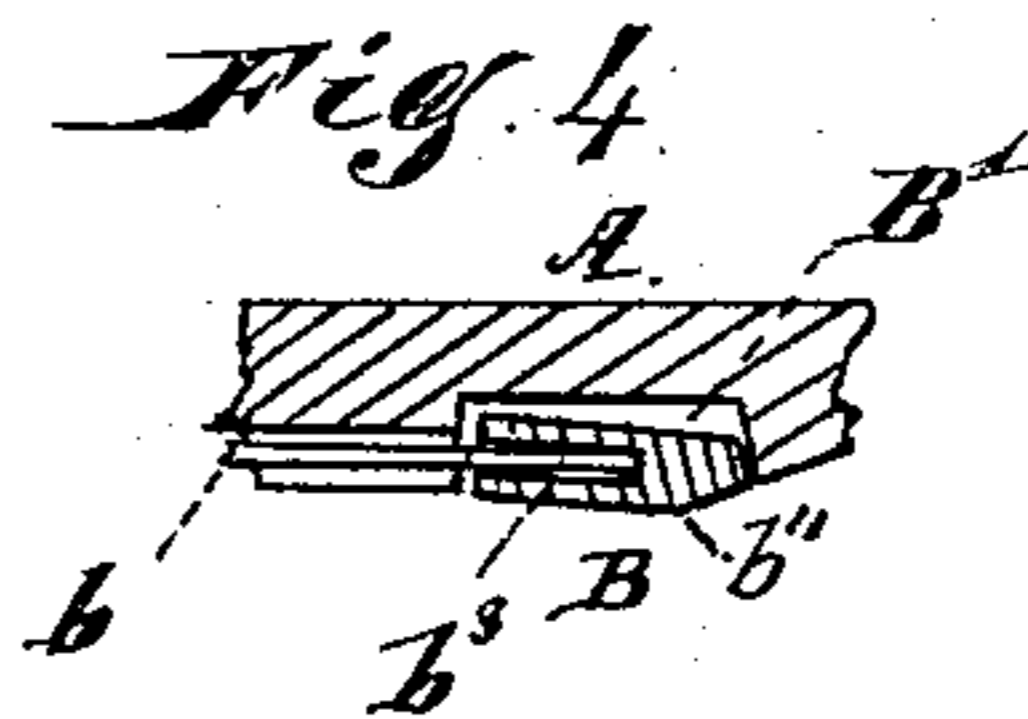
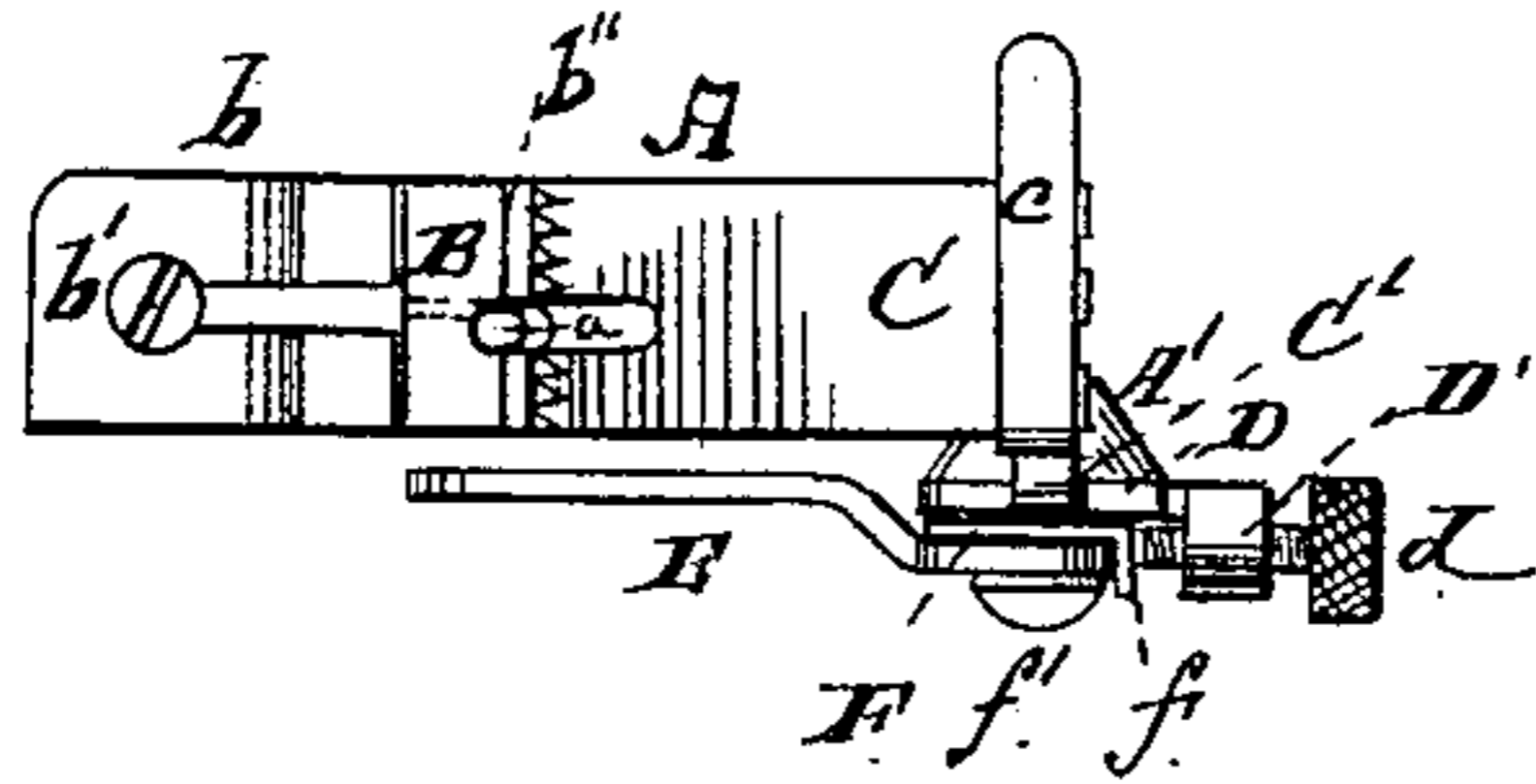


Fig. 5.

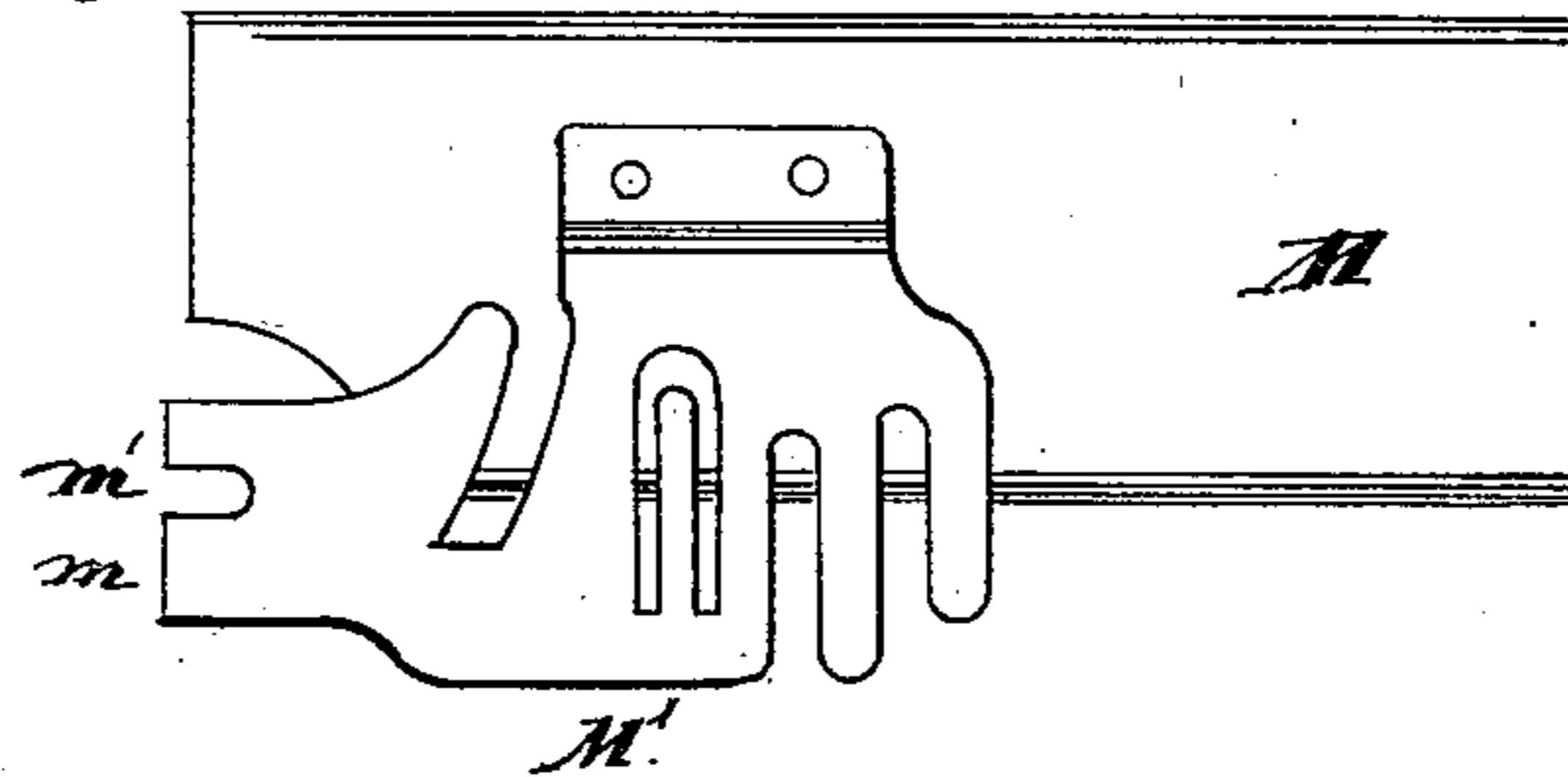


Fig. 6.

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Fig. 7.

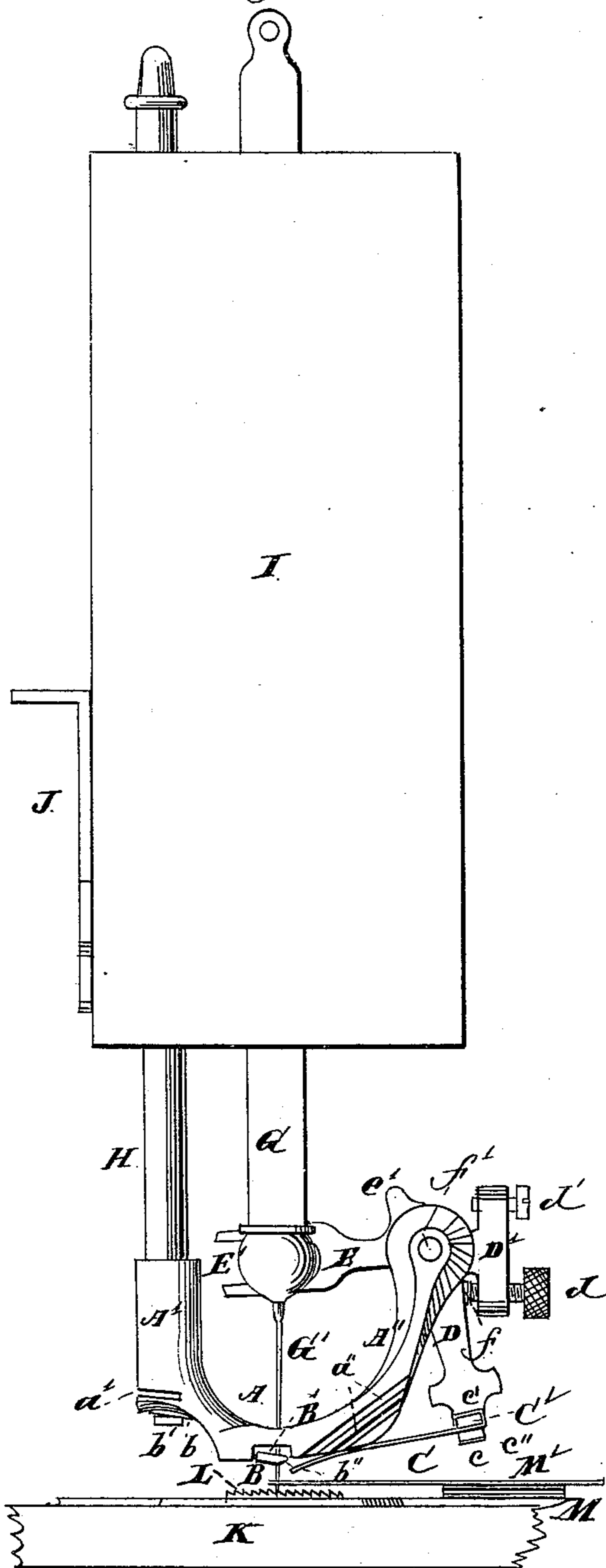
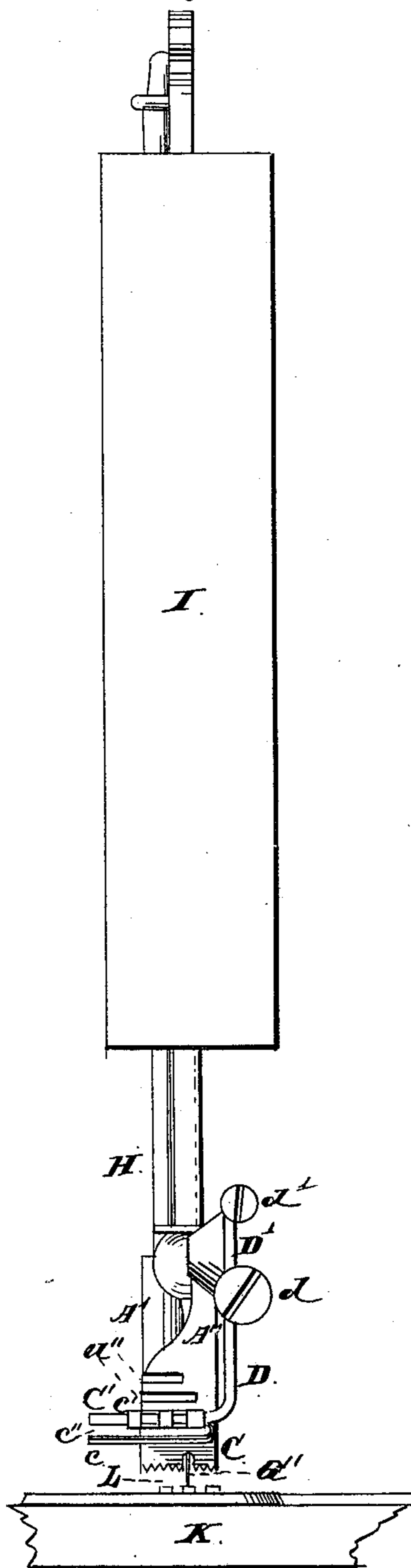


Fig. 8.



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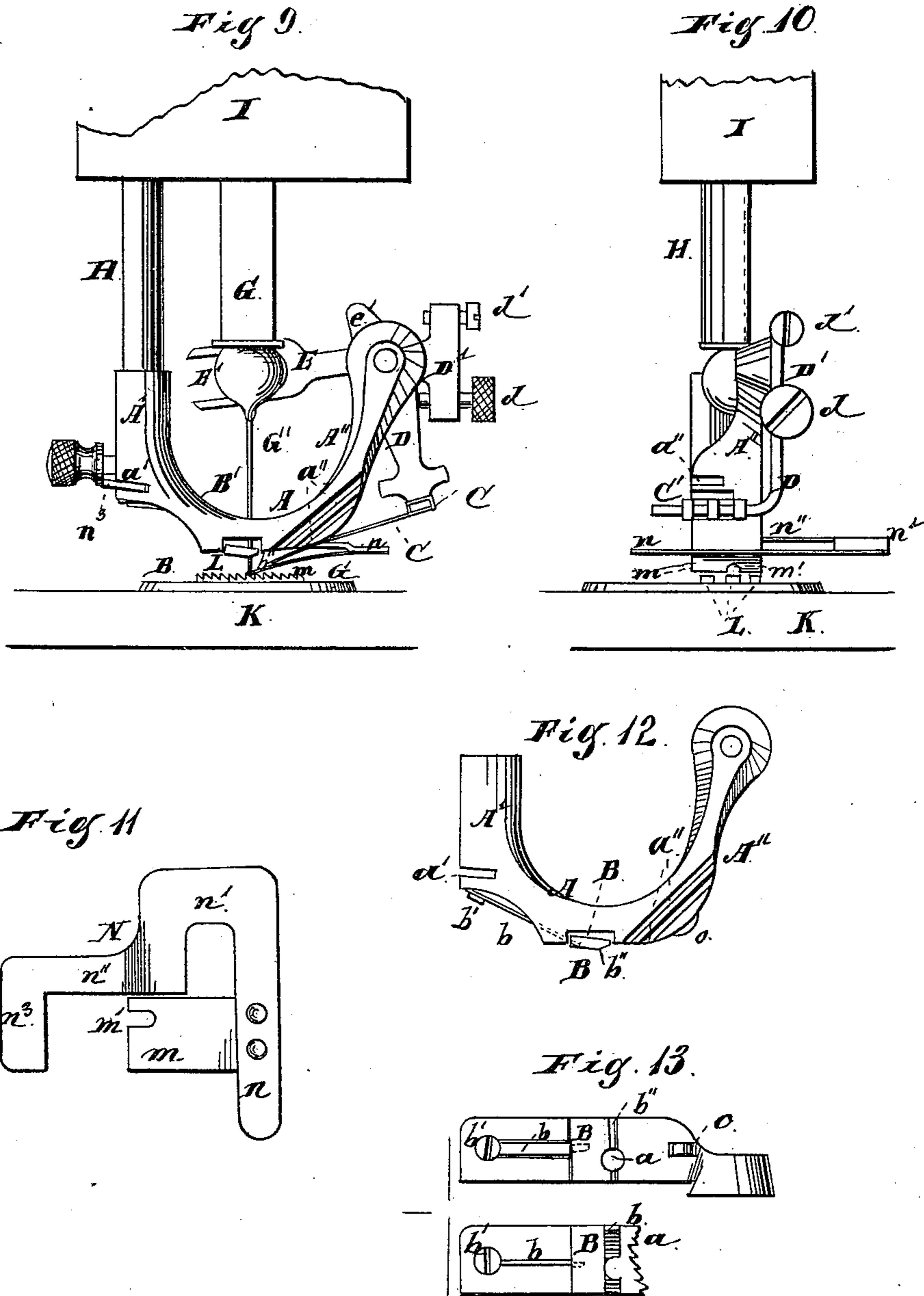
3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

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RUFFLING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 329,548, dated November 3, 1885.

Application filed January 2, 1885. Serial No. 151,883. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. GOODRICH, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Ruffling Attachments for Sewing-Machines, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the complete attachment; Fig. 2, a bottom view of the same; Fig. 3, a bottom view with the blade removed and the compensating block partly in section, with the toe of the foot broken off; Fig. 4, a detail in section showing the manner of hanging the compensating block; Fig. 5, a top or plan view of a shirrer-plate; Fig. 6, a detail in section showing the relative positions of the compensating block and shirrer-plate in use; Figs. 7 and 8, elevations of a sewing-machine head, showing the ruffling attachment in position, with the presser-foot elevated, showing also a portion of the bed of the machine with the shirrer-plate in position; Figs. 9 and 10, elevations showing the attachment in position for use with a separator-plate carried by the presser-foot, and Fig. 11 a detail, being a top or plan view of the separator; Figs. 12 and 13, a side elevation and bottom view of a presser-foot with a bearing-point for rocking the ruffling-blade, showing the pressure-head serrated.

It is a common occurrence in the use of ruffling attachments for sewing-machines to have the material slip more or less, producing unequal widths of crimps and varying spaces between the crimps, and these defects arise mainly from the fact that the material passing beneath the presser-foot is not held with equal pressure the entire width of foot, for the reason that the planes of the under surface of the foot and the top surface of the feed of the machine do not run parallel, but are apt to be more or less diverging from each other, so that a wider space is left on one side of the foot between it and the feed than on the other, and even if this defective fitting be overcome by leveling the surfaces of the foot, and feed to make their planes parallel the material is still liable to slip or be pushed through by the blade, as the bearing-point of the foot is liable to be too far forward or too far back of a ver-

tical plane passing through the center of the needle, at which point the pressure should occur to form a bite against the withdrawal of the crimp formed by the withdrawal of the blade, and a resistance against the next crimp, by which the first crimp will not slip until it has been caught and fastened by the thread.

The object of this invention is to insure a firm bite on the material at the point required for holding the first crimp as a backing for the next crimp, and also against the withdrawal of the first crimp until it has been caught by the thread; and its nature consists in the combination, with a presser-foot and a ruffling-blade, of a compensating block arranged at the under side of the presser-foot, and a spring to which the block is pivoted, and by which it is carried so as to have vertical play, said block being adapted to rock transversely.

The invention also consists of other features, which will be fully hereinafter described in detail, and set forth in the claims.

In the drawings, A represents a presser-foot adapted to be attached to the presser-bar of a sewing-machine by a socket, A', and having a forward and upward extension from its toe, which forms a support, A'', for the attachment of the ruffling-blade and its operating devices.

The presser-foot proper, A, is provided with the usual hole, a, for the passage of the needle, and, as shown, the heel portion on the rear face of the socket is provided with a slot, a', for the attachment of an arm which carries a separator, and the side of the presser-foot at the toe end is provided with slots a'', to form guides for overlay-strips to be sewed onto the ruffled strips.

B is the compensating block or plate, located on the under side of the presser-foot proper in a transverse recess, B', and pivotally mounted on the end b³ of a spring or spring-arm, b, the rear end of which is attached by a screw, or in some other suitable manner, to the under face of the heel, the body of the spring lying in a recess formed in the under face of the presser-foot, so as to hold the spring against side movement; but such movement could be prevented by other means. This block or head B has its forward edge, b'', formed beveling, the degree of bevel being one that will bring the lower edge in line, or

nearly so, with a vertical plane passing through the center of the needle when the device is attached in position on the machine, as shown in Figs. 7, 8, 9, and 10; and the object of this bevel is to leave a space at the front edge of the compensating block or plate for the passage of the crimp, and to furnish a bite as the crimp is forced under at the point where the needle descends. The rocking movement of the block or plate allows it to assume a position transversely of the foot to take up any unequal space between the under surface of the foot and the feed of the machine, and the vertical movement allows the block or plate to adjust itself to unequal thicknesses of material, and also to rise for the crimp to be forced thereunder. This block, when in position, has a downward forward inclination, by which its rear edge is in a higher plane than the forward biting-edge, thus leaving a wider space at the rear than at the front, by which means a passage is left for the crimps to pass out as the material is carried forward by the feed of the machine without being affected by any pressure from the head or plate after the crimp has passed the biting edge to such an extent as to retard and accumulate the crimps beneath the head or plate by which it would be held up.

C is the ruffling-blade, having its acting end serrated and provided with a slot, which when the parts are together comes in line with the needle-hole *a* in the presser-foot. This blade is attached to an arm, *C'*, by means of rivets, or in any other firm manner, and, as shown, a guide-plate, *c*, is provided attached to the arm *C'* by a socket, *c'*, to leave a space, *c''*, between the guide and arm for the passage of the material to be acted on by the blade.

D is a pendant, the lower end of which, as shown, is bent at right angles to form the arm *C'*, which carries the ruffling-blade, and its upper end has a side extension forming a head, *D'*, in which are adjusting-screws *d d'*, by which the throw of the blade is regulated and controlled.

E is the lever for moving the pendant D, which lever at its forward end is provided with a slot, *E'*, by which it is attached to the needle-bar of the machine to be operated thereby, and the acting end of the lever is provided with ears or projections *e e'*, for engaging the devices by which the pendant D is swung.

F is an adjusting-plate, by which the parts can be set for different widths of crimps, the plate having a side ear, *f*, arranged in line with the end of the screw *d*, against which the projection or ear *e* strikes to move the pendant D backward; the forward movement of the pendant arising from the contact of the ear or projection *e'* with the end of the screw *d'*, and, as shown, the arm or pendant D, lever E, and plate F, are pivotally connected to the upper end of the arm *A''* by a pin or pivot, *f'*, which may be a screw, as shown, or other suitable device.

G is the needle-bar, in the lower end of which is secured the needle *G'*, as usual.

H is the presser-bar, to the lower end of which is secured the presser-foot A by the socket *A'*.

I is the head of the machine, in which the needle and presser-foot bars are located.

J is the cam-lever for raising the presser-bar.

K is the bed of the machine.

L is the feed-dog.

The parts represented by the letters G, H, I, J, K, and L may be of any of the usual and well-known forms of construction and arrangement of such parts in sewing-machines, and need not be specifically described.

M is a plate corresponding to the ordinary throat-plate of the machine, except that it has attached thereto, by rivets or otherwise, a plate, *M'*, constituting a shirrer-plate, the forward end, *m*, of which forms a separator, when the parts are in position for use, between the feed-dog and the material to be acted on forward of the needle, the plate having a slot, *m'*, to coincide with the needle-hole *a* in the presser-foot for the passage of the needle.

N is an arm bent, as shown in Fig. 11, to have a portion, *n*, to which the separator is attached, and a portion, *n'*, running parallel with *n*, to enter the slot *a'*, the two portions *n* and *n'* being connected by the portions *n''* and *n'''*, so that when attached the separator will be properly located in relation to the ruffling-blade, the needle, and the feed-dog. This form of device is to be used with the ordinary throat-plate of the machine, in which case the shirrer-plate shown in Fig. 5 will not be needed, the shirrer-plate being used with that class of rufflers in which it is not feasible or desirable to connect the separator directly therewith. The presser-foot is attached to the presser-bar by the socket *A'*, the lever E is connected with the needle-bar, and the plate M with the shirrer-plate *M'* thereon, or the arm N, with the separator *m* placed in position when the device is ready for use, and when attached the ruffling-blade lies over the separator *m* at its acting end, and the needle-holes in the presser-foot and slot in the separator are in line and in such relation with the block or plate B as to bring the biting-edge of such block in line, or nearly so, with a vertical plane passing through the center of the needle.

In operation the strip to be ruffled is placed on top of the piece to which it is to be attached, and if overlay-strips are to be applied the ruffled strip is to come between the overlay and the piece to which the ruffle is stitched, the piece on which the ruffle is to be sewed is passed beneath the separator *m*, and the strip to be ruffled is passed between the separator and the ruffling-blade, and the overlay is passed over the ruffling-blade, the parts passing in this relation beneath the presser-foot. The block or plate B, when the presser-foot is thrown down, assumes the position required to

press on the material transversely of the foot its full width, owing to the rocking movement on the pivot b^3 , and at the same time the spring allows the block or plate to rise or be forced down to suit the thickness of material, and this block presses down and bites on the material at its forward edge, and at the point where the crimp when forced under would naturally lie to be caught by the thread. The block or plate pressing on the material forms a resistance against the forward movement of the blade, so that as the blade moves the material forward to make the crimp the cloth will not slip from under the block or plate, but will be held firmly until the crimp has been fully formed and is forced under the forward edge of the block by the blade, where it is firmly caught and held against the action of the blade in being withdrawn, and the crimp thus formed forms the backing for the next crimp, and so on, the crimps as formed being pushed from beneath the biting-edge by the action of the next succeeding crimp in passing thereunder; but before each crimp is carried from beneath the biting-edge it has been caught by the thread, so as to remain in position. The crimps as they pass out from beneath the biting-edge have the clear space formed by the inclined position of the block or plate in which to clear themselves from the pressure. The throw of the ruffling-blade should be one that will project its serrated edge underneath the bearing-edge b'' , so as to insure the carrying of the ruffle beneath such biting-edge, as shown in Fig. 6.

The main feature of this invention consists in a compensating block or head having a biting-edge located in a vertical plane through the center of the needle, and a coacting ruffling-blade, and this feature can be applied and used with any well-known form of ruffling device employing a presser-foot as one of the elements of its construction, the compensating head or block having, in addition to its biting-edge, a rocking movement on a pivot, and carried by a spring or spring-arm, by which it is self-adjusting in respect to producing an even bearing its full width on the material being operated on. The locating of the biting-edge in a vertical plane with the center of the needle, as shown and described, insures the crimp which has been formed and forced thereunder by the ruffling-blade being caught by the thread in the descent of the needle, as the crimp will be in line with the descent of the needle in each instance.

Figs. 12 and 13 show a projection, o , formed on the toe of the presser-foot, at the center thereof transversely, and at a point for the ruffling-blade C to come in contact therewith and form a bearing by which the forward end of the blade will be twisted or turned, to more easily adapt itself to the position of the compensating head or block. This bearing-point for the ruffling-blade to rock on, in and by itself, constitutes the subject-matter of my ap-

plication filed of even date herewith, Serial No. 151,886.

An increase in the holding properties of the head or block can be obtained by providing the biting-edge thereof with serrations, producing a roughened surface, and thereby causing the material to slip less readily.

I do not herein broadly claim the combination, with a non-rocking presser-foot, of a rocking block or plate pivotally connected therewith, as such constitutes the subject-matter of my application filed May 19, 1885, Serial No. 166,021; nor do I broadly herein claim, in a sewing-machine ruffler having a reciprocating ruffling-blade, a foot part having a transverse recess in its sole, and provided with a supplemental presser-foot or sole-piece within said recess, and with a spring or springs, adapting the latter to press independently upon the crimps or gathers as they are successively completed and left beneath it, as such is embraced in my application filed December 29, 1884, Serial No. 151,882; nor do I herein broadly claim, in a sewing-machine ruffler having a reciprocating ruffling-blade, a foot part constructed with a pressing-surface which rests upon the sewed ruffles or gathers behind that point at which the crimps or gathers are successively completed or finished, and provided at the point last named with a supplementary presser part or sole-piece free to rise and fall independently of the pressing-surface, as such is embraced in my aforesaid application No. 151,882; nor do I claim herein the combination, with a recessed presser-foot and a ruffling-blade, of a compensating block or plate arranged at the under side of the presser-foot, and a torsion-spring carrying the block and permitting it to rise and fall and twist itself as required for bearing purposes, as such is embraced in my aforesaid application No. 151,882; nor do I here claim the combination of a non-rocking presser-foot having a recess on its under side, and a block rocking endwise on a bearing-point and located in the recess, with a reciprocating ruffling-blade, as such is embraced in my application filed December 29, 1884, Serial No. 151,881; and, finally, I do not herein claim, in a sewing-machine ruffler having a reciprocating ruffling-blade, a foot part constructed with a pressing-surface which rests upon the sewed ruffle or gather behind the point at which the crimps or gathers are successively completed or finished, and provided with a supplemental presser part or sole-piece which rests upon the crimps or gathers at said point where they are completed or finished, and with an independent presser spring or springs between the latter and the top of said foot part, as such is embraced in my application filed December 29, 1884, Serial No. 151,884.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a presser-foot and a ruffling-blade, of a compensating block ar-

ranged at the under side of the presser-foot, and a spring to which the block is pivoted, and by which it is carried so as to have vertical play, said block being adapted to rock transversely, substantially as described.

2. The combination, with a presser-foot and a ruffling-blade, of a compensating block arranged at the under side of the presser-foot, and provided with a front biting-edge, *b''*, and a spring to which the block is pivoted, and by which it is carried to have vertical play and a transverse rocking motion, substantially as described.

3. The combination, with the needle *G'* and a ruffling-blade, *C*, of a presser-foot, *A*, a compensating block, *B*, at the under side thereof, and provided with a biting-edge, *b''*, arranged

approximately in a vertical line with the center of the needle, and a spring, *b*, to which the block is pivoted, and by which it is carried, said block serving to hold the crimp of the ruffle in the vertical line with the descent of the needle, and the needle serving to catch the crimp where it is held, substantially as described.

4. The presser-foot *A*, having a bearing-point, *o*, in combination with the head or block *B*, pivotally supported and carried by the spring *b*, and ruffling-blade *C*, substantially as and for the purposes specified.

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Witnesses:

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