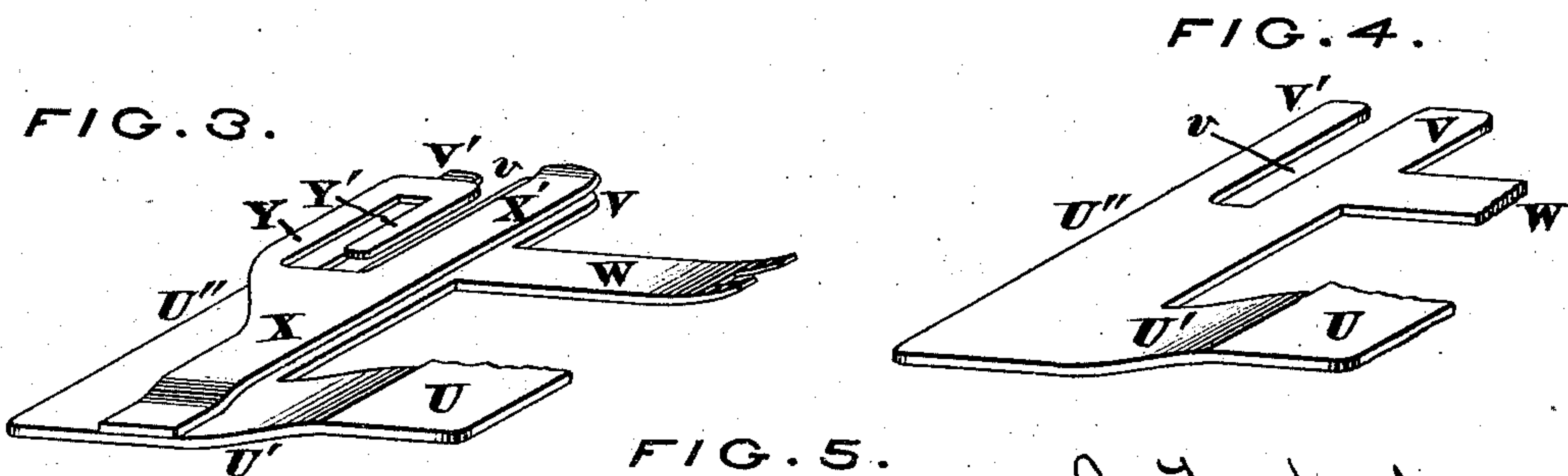
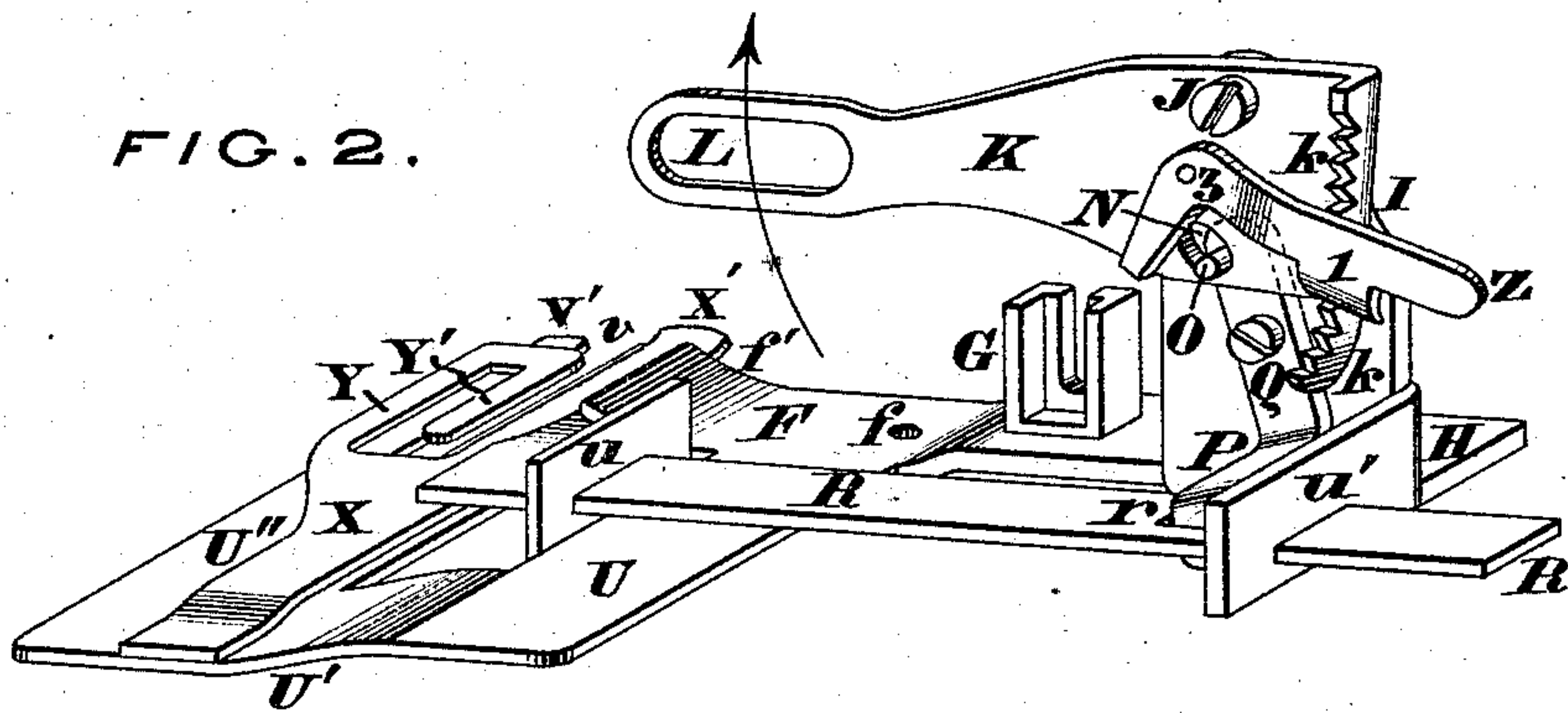
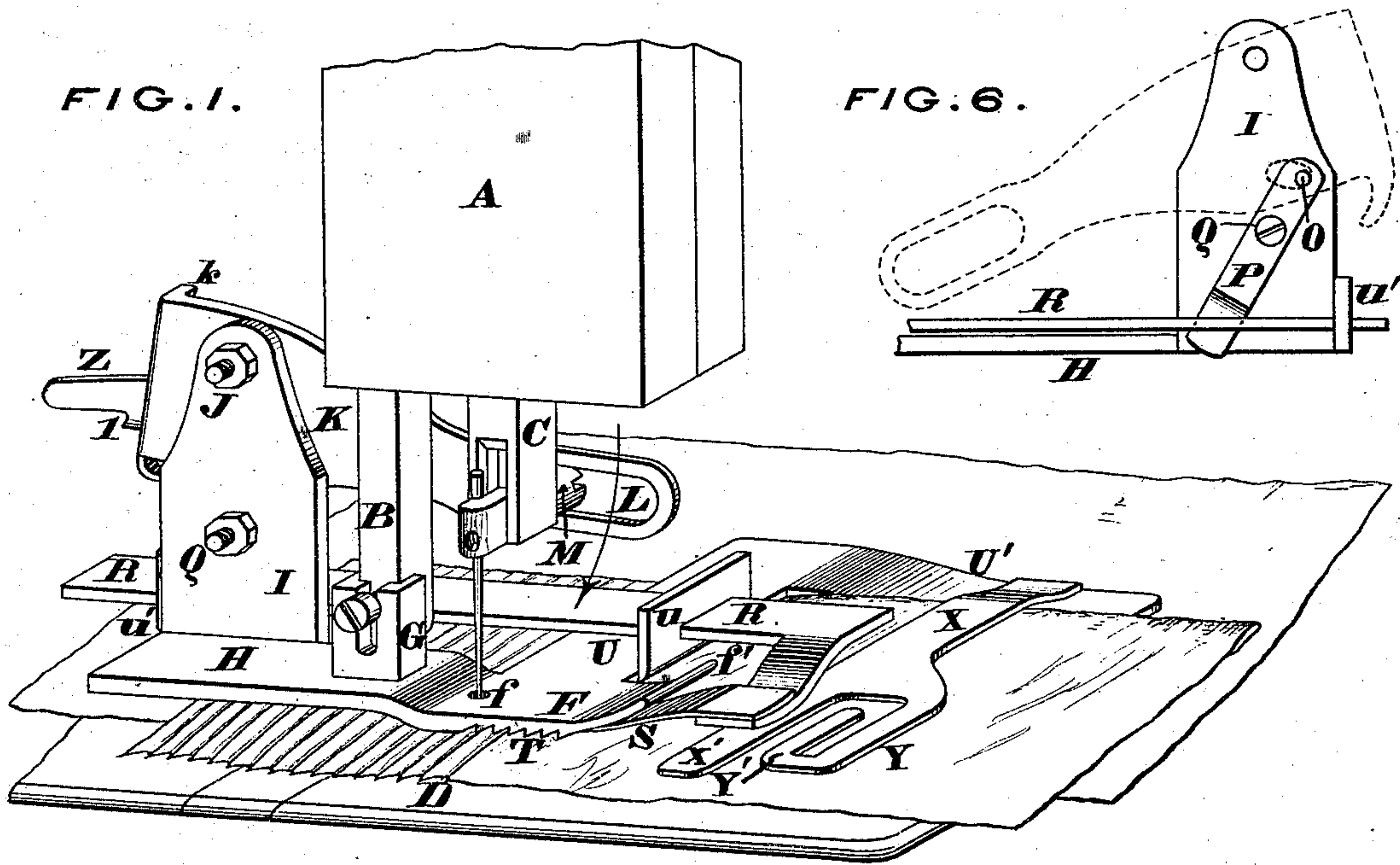


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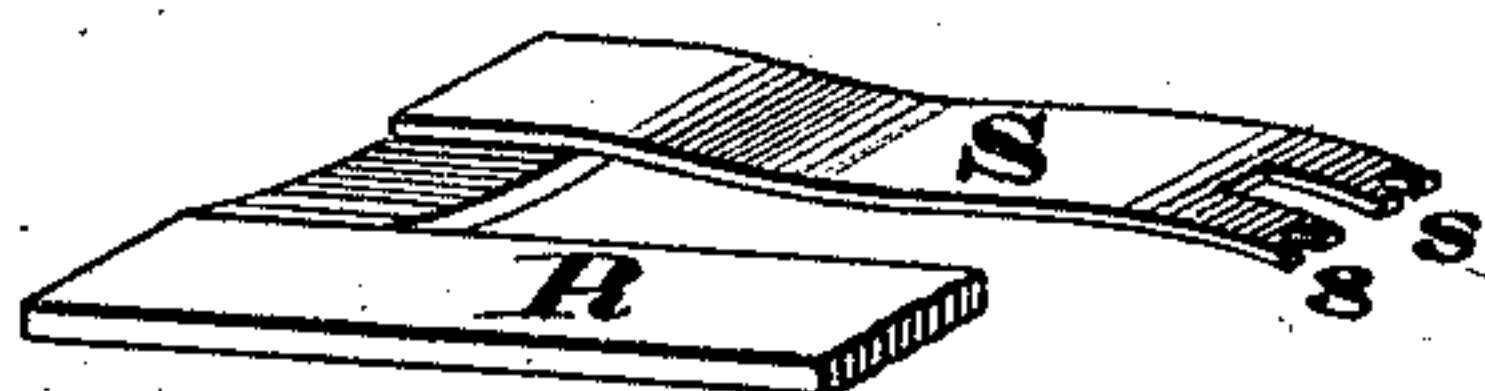
Ruffers for Sewing-Machines.

No. 158,834.

Patented Jan. 19, 1875.



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FIG. 7.

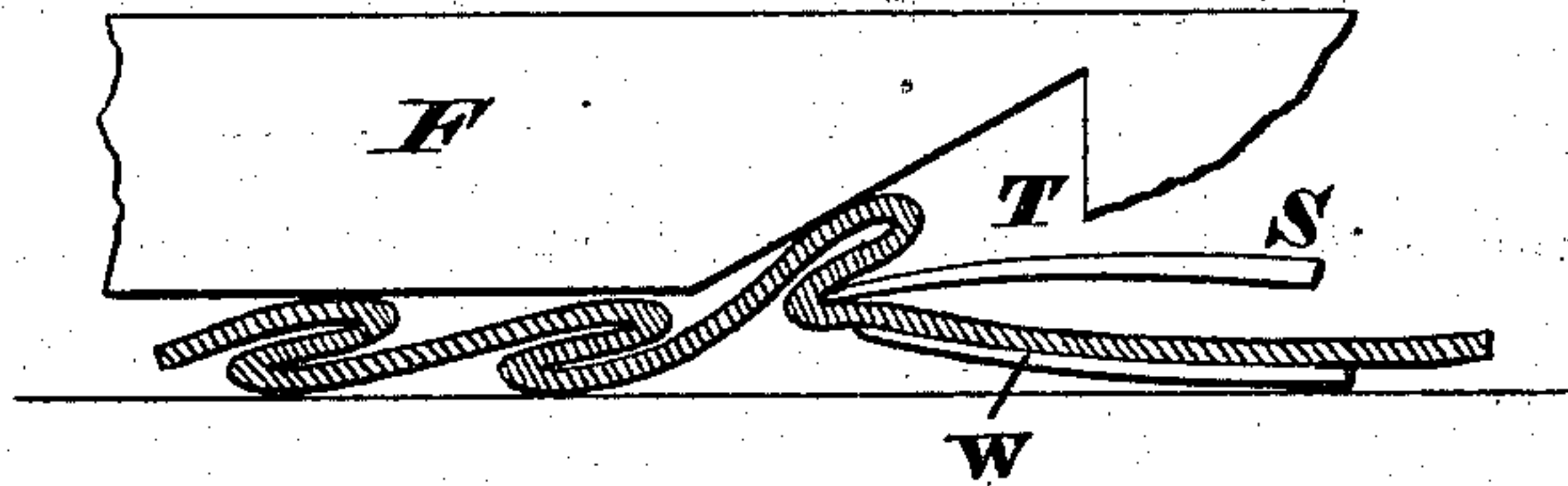


FIG. 8.

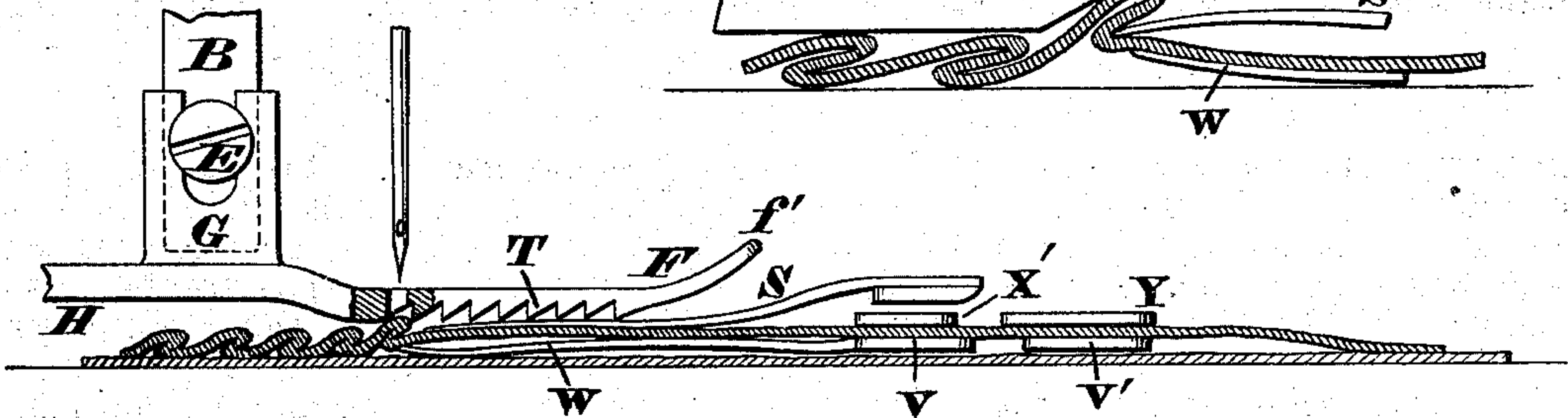


FIG. 9.

FIG. 10.

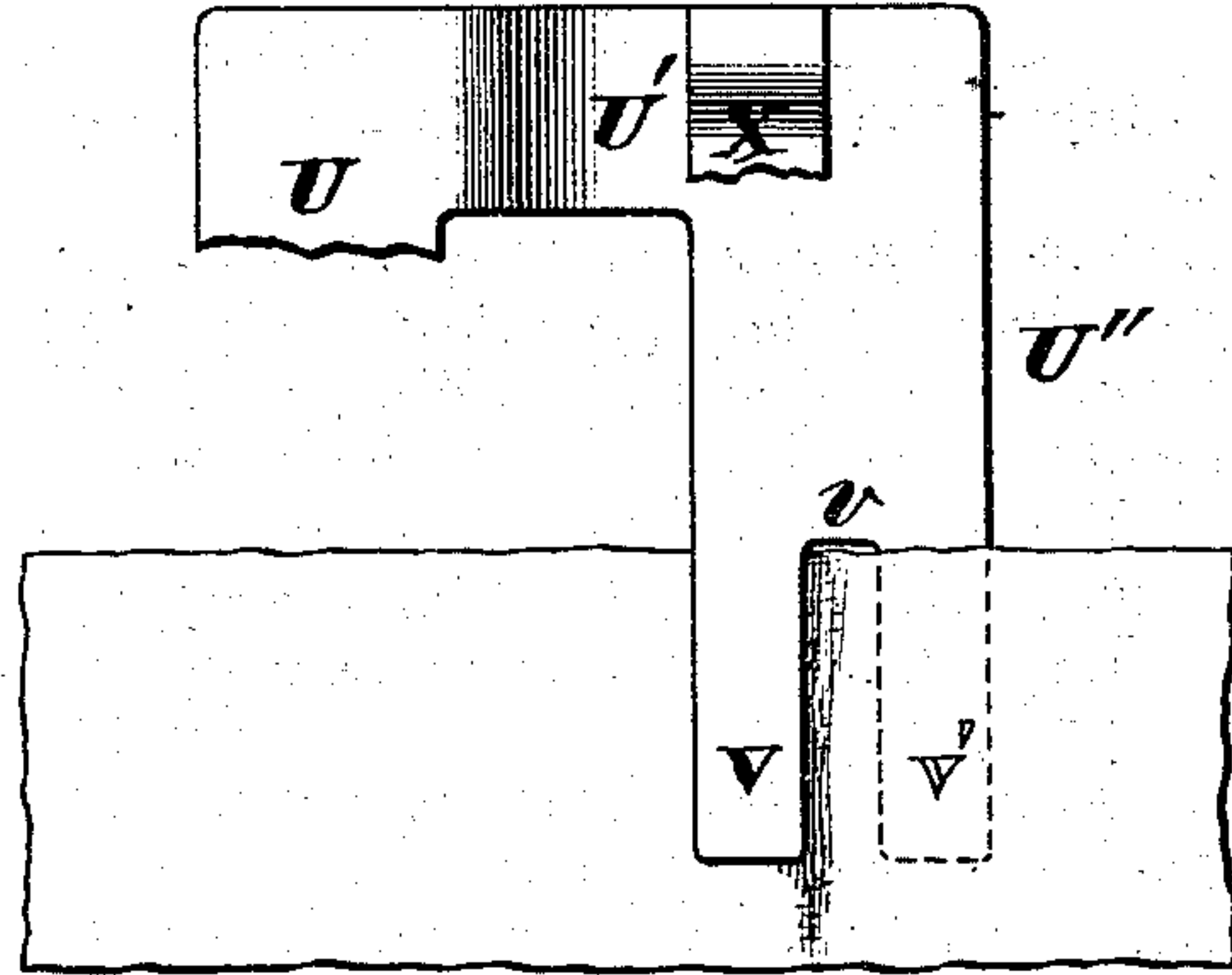
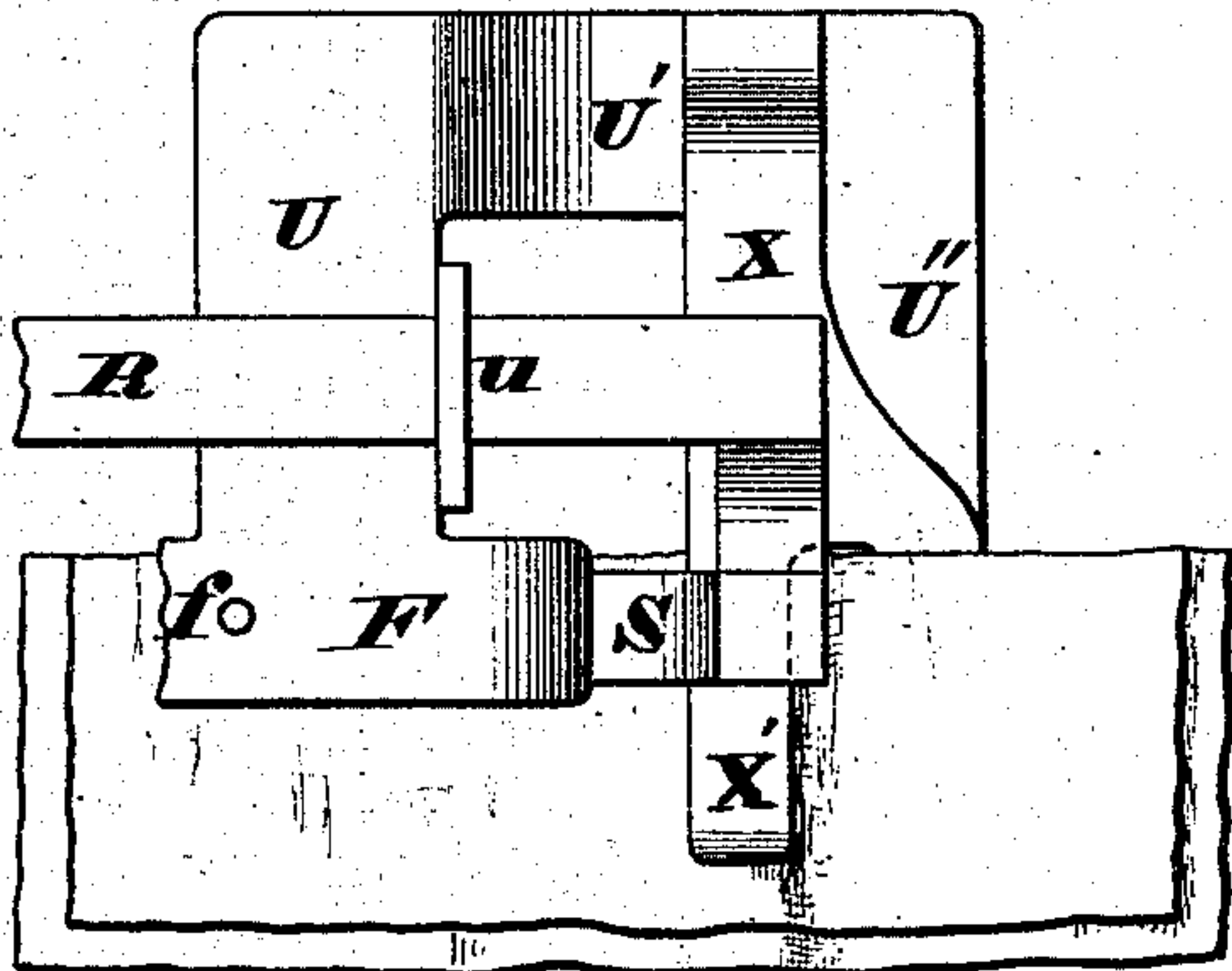


FIG. 11.

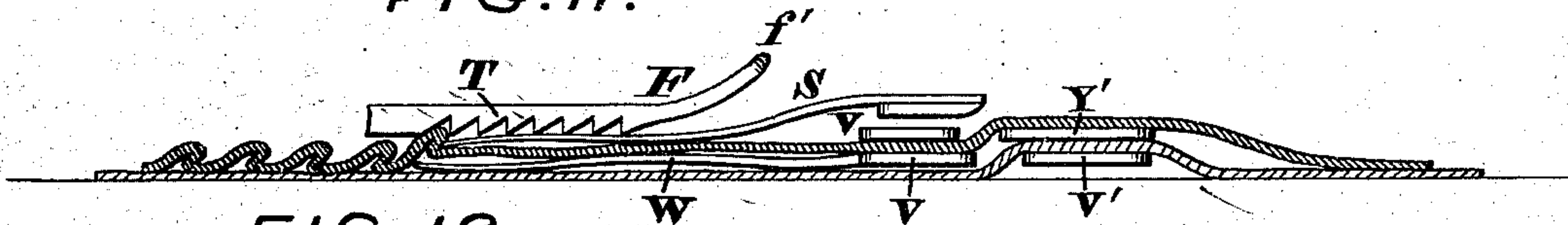
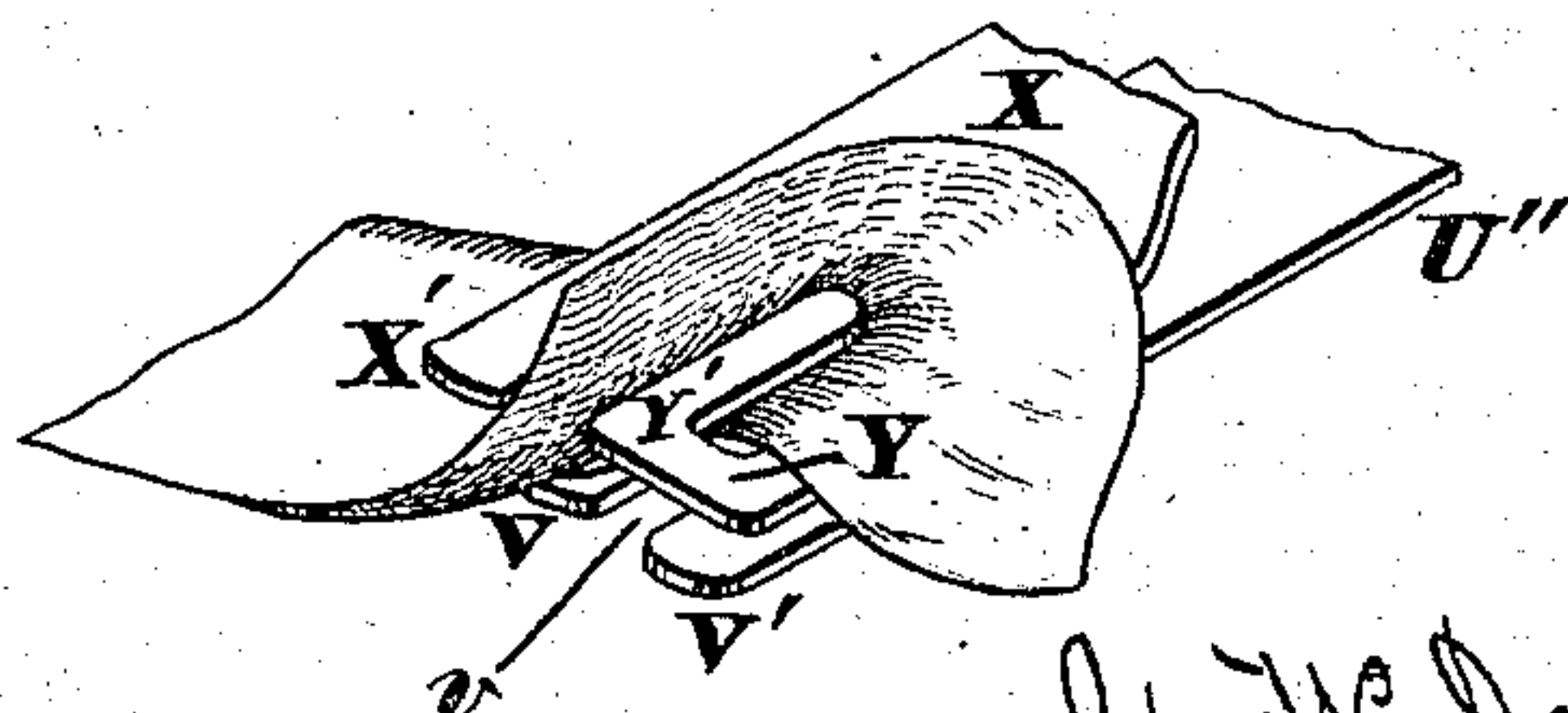
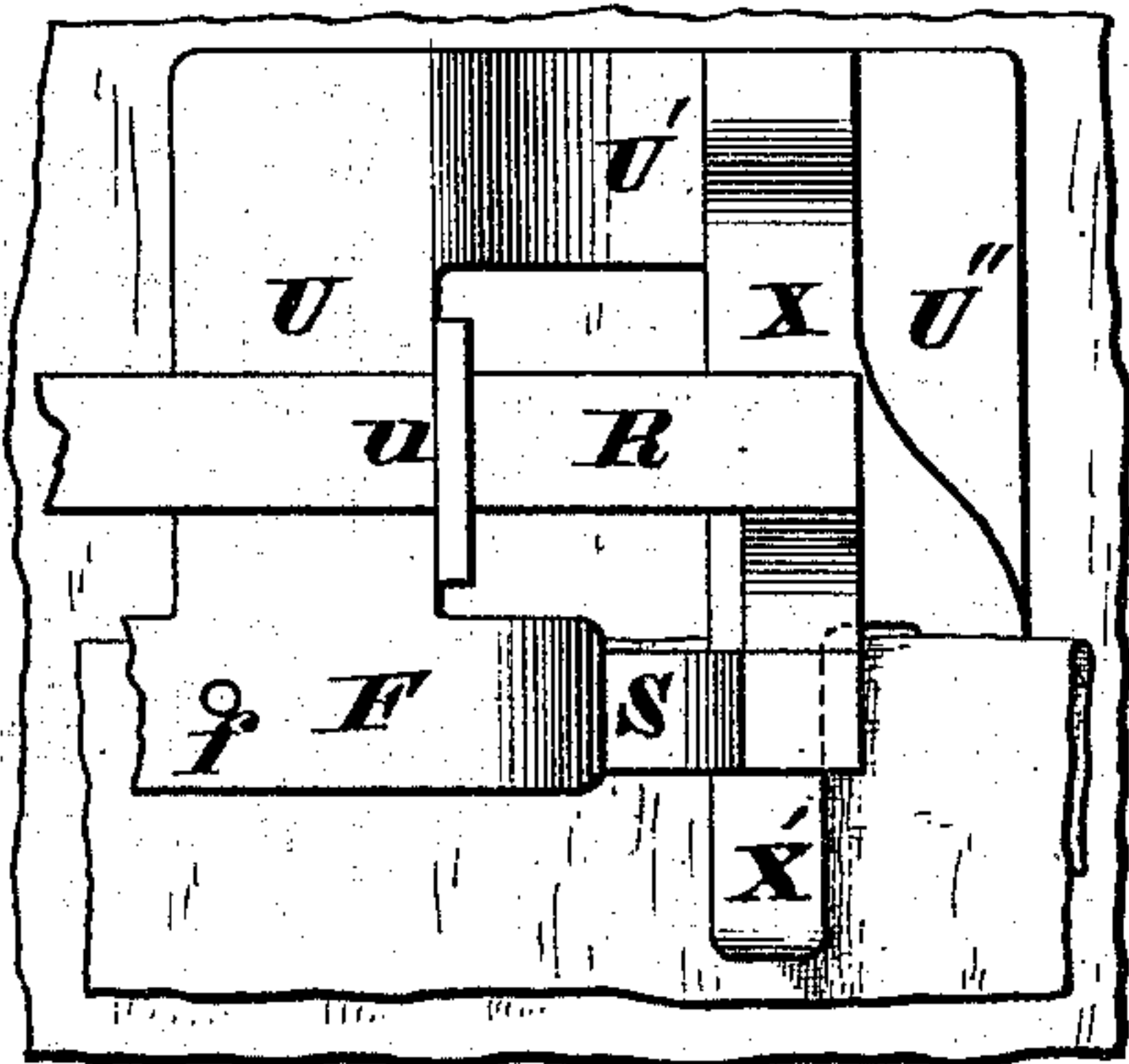


FIG. 12.

FIG. 13.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN RUFFLERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 158,831, dated January 19, 1875; application filed July 27, 1874.

*To all whom it may concern:*

Be it known that I, GEORGE W. DARBY, of Hamilton, Butler county, Ohio, have invented a Ruffling Attachment for Sewing-Machines, of which the following is a specification:

My invention relates to the novel construction of a single ruffler-frame, the mechanism for feeding and regulating the fullness of the gathers of the ruffle which is being formed, and in the arrangement of the cloth holding and guiding devices, as hereinafter more fully set forth.

Figure 1 is a perspective view of my ruffler in position, having the upper fabric or piece of goods inserted for "head" ruffling. Fig. 2 is a reversed perspective view of the ruffler detached. Fig. 3 represents a portion of the holder-blade arm, with its edge guide and turner. Fig. 4 shows a holder-blade arm, from which the edge guide and turner have been removed, so as to expose the lower cloth-guide. Fig. 5 shows my ruffling-blade with a portion of its arm. Fig. 6 shows a portion of ruffling-blade bar and the lower member of my compound lever in their most retracted position. Fig. 7 is an enlarged elevation in the vertical plane of the feed, showing the action of the serrated presser-foot. Fig. 8 is a similar elevation, showing the disposition of the cloth for heading. Fig. 9 is a plan of the operative parts as used for edge-ruffling. Fig. 10 is a plan, showing the position of the lower cloth in edge-ruffling. Fig. 12 is a plan of the operative parts for turned-under edge-ruffling. Fig. 13 is a perspective view, showing the method of turning under the cloth for the upper-edge ruffling.

A is the guide-head; B, presser-foot bar; C, needle-bar; D, cloth-plate—all of customary form. The ordinary presser-foot having been removed, I attach to the bar B, by means of the customary screw E, the ruffling presser-foot F, which, for that purpose, has a notched lug, G, that extends upward from it. From its point of attachment to the presser-foot bar the foot has a rear extension, H, from which rises a post, I, which has pivoted to its upper part a lever, K, which, extending forward on the right of the needle-bar C, has a slotted extremity, L, which receives the cus-

tomary screw-head M of the needle. A slot, N, in the lever L receives a wrist, O, from a second lever, P, which is pivoted at Q to the post I. The lever P extends over the ruffler-bar R and downward into a slot, r, in said bar, so as to enable the needle-bar, during its upward movement, to act, through the medium of said compound reverse lever K P, with a pulling or drawing action on said bar R, and with a pushing action on the ruffling-blade S, instead of by the customary exclusively pushing action on both bar and blade. By this means a steady stroke is obtained, even with a comparatively light bar. The foot proper, F, (which occupies a lower plane than its rear extension H,) has the customary needle-hole f, and that part of its sole in front of said hole has a series of serrations, T, having their points directed rearward or in direction of the feed, and their ridges at right angles to the feed. The said foot proper terminates in front in an upturned lip, f'. Extending horizontally from the right edge of the presser-foot proper is a wing, U, whose forward edge u, being bent upward and slotted, forms, in conjunction with a similar lug, u', which projects from post I, the guides for the ruffler bar or slide R, which bar is by said guides restricted to a horizontal reciprocation in a path parallel with the feed. From the part U the wing extends forward and slightly downward as at U', and thence horizontally as at U'', so as to cross the path of the feed beneath the heel of the ruffler-blade S. The wing U is, by a slot, v, separated into two elastic tongues, V V', which extend across the path of the feed. From the rear edge of tongue V, underneath the ruffler-blade, extends the slightly-upturned holder-blade W. Both blades S and W are of spring-steel, and have, respectively, the usual downward and upward curves to nip the cloth and the customary notches in their ends for the passage of the needle. The downturned extremity of the blade S is armed with sharp angular teeth s to enable it to take a more secure hold of the upper cloth for the act of ruffling.

Firmly brazed or otherwise secured to the wing U'', and overlapping it, is a spring or yielding tongue, X, that part of which overlapping the tongue V has an upturned extrem-



ity, X', and has projecting forward from it a reverted lip, Y Y', which overlies the tongue V'.

In order to enable the seamstress to vary the grade of the ruffle at will, the orifice N, which receives the wrist O, takes the form of a slotted arc, capable of being shortened by bell-crank Z, pivoted, at z, to the lever K, and having a pawl, l, which can be engaged in either notch of a rack, k, that projects from the lever K. In order to insure the retention of pawl l in rack k, the bell-crank Z is of elastic material and is slightly sprung toward said rack.

The slide-bar R has the elastic ruffling-blade rigidly attached thereto by a transverse connecting-bar, so that the bar R and blade S occupy a parallel position, the latter being returned toward the central lug G, and thereby these parts are centrally supported with the intermediate frame.

For head-ruffling of a strip or band the pieces are inserted, as in Fig. 1, the lower cloth lying entirely under the attachment, and the upper cloth lying under the posts S X Y Y'. The machine being set in motion, the reciprocations of the blade S operate to crowd the upper cloth onward farther at each stroke than the lower cloth is advanced by the feed, and thus, in conjunction with the holder W below and the serrated foot above, to gather the said upper cloth in plaits, which are made permanent by the ordinary stitching action of the machine. Each descent of the needle-bar operates, through the instrumentalities above described, to retract, and each ascent of said bar to advance, the gathering-blade S, with a longer or shorter stroke, according to the adjustment of the parts N O Z z l k, which constitute the coupling of the two members of my compound reverse lever K P.

For ruffling one piece to the edge of another, both pieces are arranged as in Figs. 9, 10, and 11, and for turning, ruffling, and stitching the upper piece, as in Figs. 8, 12, and 13.

It will be seen that the location of the lever post in rear of the needle-bar guide possesses the great advantage of an unobstructed view of the work, and that the said location necessitates my provision of a compound reverse lever, K P, in order that the forward stroke of the ruffler-blade may be in the same time with the upward stroke of the needle, and vice versa.

I have selected, to illustrate my invention, the form given by me in practical use, which is in connection with a "Singer" sewing-machine; but it may by slight changes, not affecting the invention, be adapted to other forms of sewing-machines. Whatever form it may be applied to, my foot F H will take the place of the ordinary presser-foot, and the ruffler will be reciprocated by compound reverse-lever connection with the needle bar or arm, as the case may be, substantially as herein shown.

I claim as my invention, when used for the purpose herein claimed—

1. The frame consisting of the parts F H U u', post I, and central supporting-lug G, when constructed and arranged substantially as described, for the purpose specified.

2. The slotted lever K, having the rack k and lever P, provided with its stud, in combination with bent lever Z, arranged and operating conjointly, in the manner and for the purpose described.

3. The slotted holder-arm U, in combination with the holder W and spring Y, substantially as set forth.

In testimony of which invention I hereunto set my hand.

GEORGE W. DARBY.

Witnesses:

GEO. H. KNIGHT,  
JAMES H. LAYMAN.