(No Model.)

2 Sheets—Sheet 1.

T. C. ROBINSON.

TRIMMING MECHANISM FOR SEWING MACHINES.

No. 286,164. Patented Oct. 2, 1883.

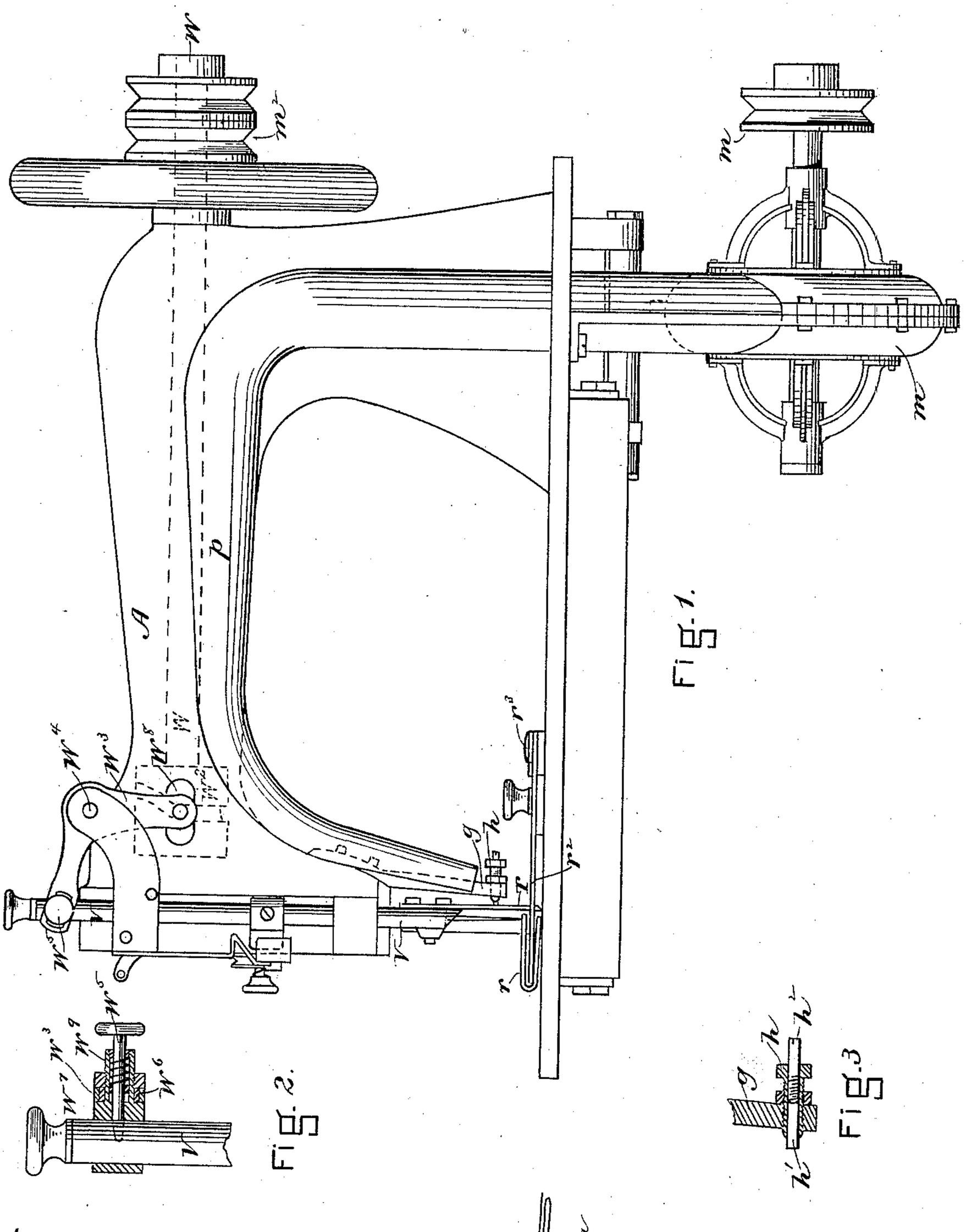

Fig. 1.

Fig. 2.

Fig. 3

Fig. 1ª

WITNESSES

John. M. Tuohey

A. L. White

INVENTOR

T. C. Robinson

by Wright + Brown

Attys.

(No Model.) 2 Sheets—Sheet 2.

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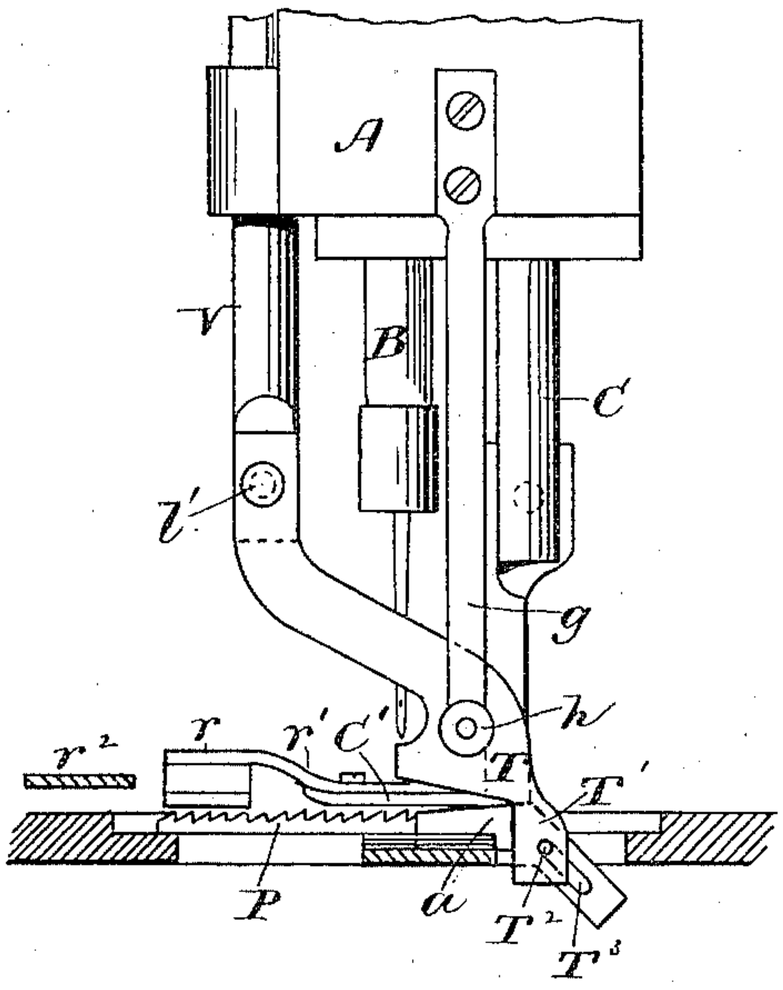

Fig. 4.

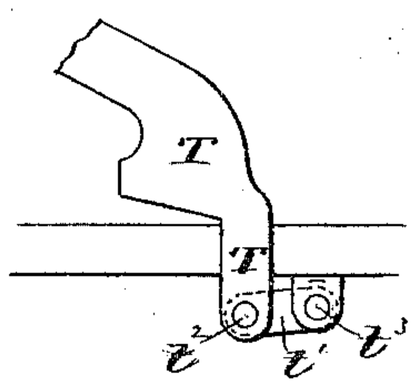

Fig. 4ª

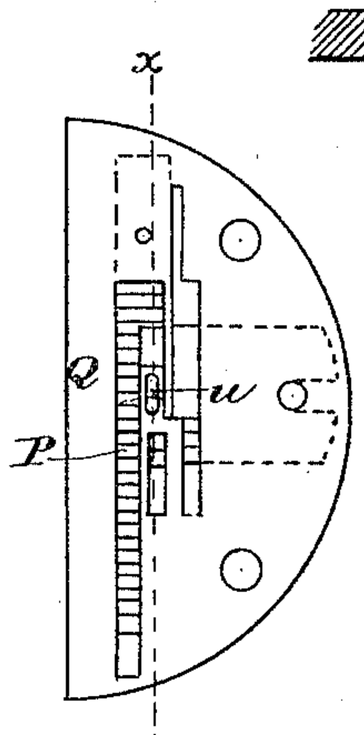

Fig. 6.

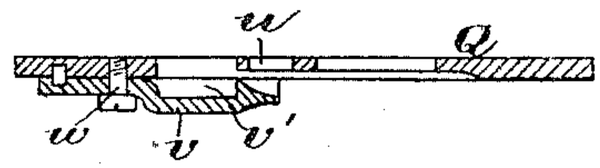

Fig. 7.

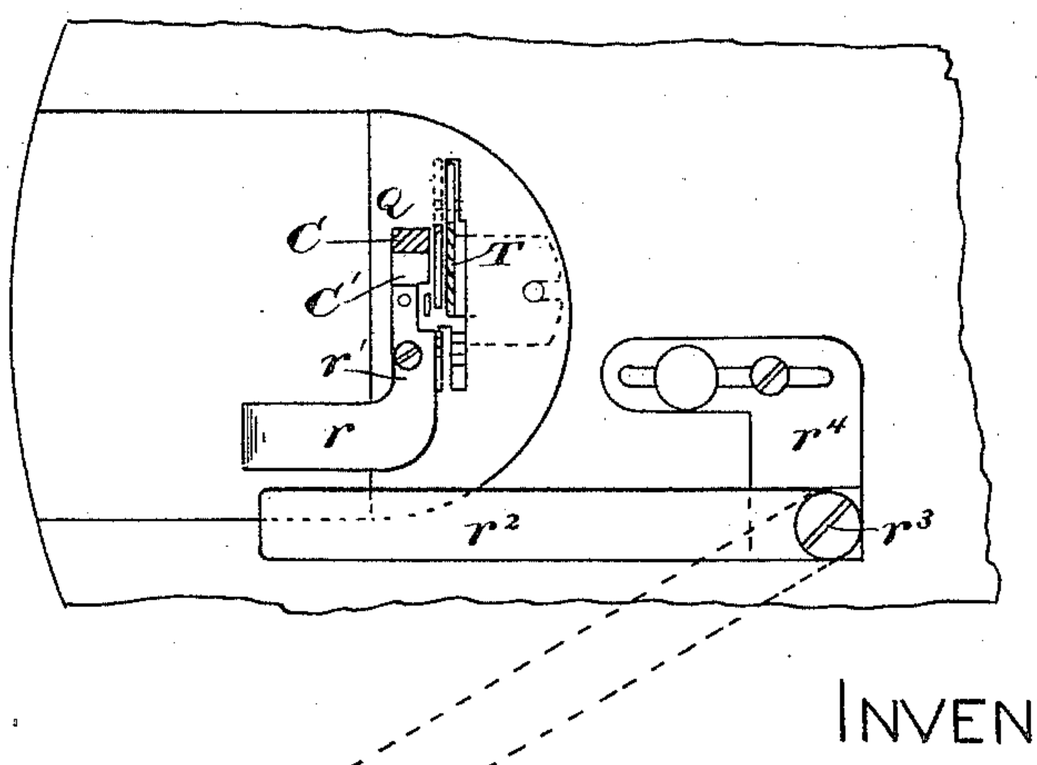

Fig. 5.

WITNESSES.

John ell Thorhay
A. L. White

INVENTOR.

T. C. Robinson
by Wright & Brown
Attys.

UNITED STATES PATENT OFFICE.

THOMAS C. ROBINSON, OF BOSTON, ASSIGNOR TO HIMSELF, AND EBENEZER B. WELCH, OF CAMBRIDGE, MASSACHUSETTS.

TRIMMING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 286,164, dated October 2, 1883.

Application filed May 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. ROBINSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Trimming Mechanism for Sewing-Machines, of which the following is a specification.

This invention has for its object, mainly, to provide certain improvements on the inventions shown in my applications for Letters Patent of the United States filed, respectively, November 23, 1882, Serial No. 77,490, and March 15, 1883, Serial No. 88,309. In the first of said applications I have shown two presser-feet arranged to bear on the work, one in advance of the other, and an elongated feed-dog formed to co-operate with both presser-feet. In the second application I have shown an improved device for regulating the pressure of a reciprocating trimming-knife operated by the power of a sewing-machine against a blade supported by the bed of the machine.

My present improvements consist, first, in an improved throat-plate adapted for use with the elongated feed-dog accompanying the two presser-feet; secondly, in certain improved devices for operating the vertical bar carrying the reciprocating trimming-knife; thirdly, in the provision of a tip of rawhide or other comparatively frictionless material on the device whereby pressure is exerted on the reciprocating blade; fourthly, in the provision of means for giving a draw cut to a reciprocating trimming-blade, all of which I will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a sewing-machine provided with my improvements. Fig. 1ª represents a piece of cloth as folded by my improved folding devices. Fig. 2 represents a side view of the upper portion of the needle-bar, showing in section the means for connecting it with the device whereby it is operated. Fig. 3 represents a sectional view of the pressure-regulating device. Fig. 4 represents a transverse section of the bed of the machine and a side elevation of the reciprocating knife, the pressure-regulating device, and the needle and presser-bars. Fig. 4ª represents a modification. Fig. 5 represents a top view of a part of the bed. Fig. 6 represents an enlarged top view of the throat-plate. Fig. 7 represents a section on line *x x*, Fig. 6.

The same letters of reference indicate the same parts in all the figures.

In the drawings, A represents the arm of a sewing-machine, B the needle-bar, and C the presser-bar, having the presser-foot C′ located in the usual relation to the needle-bar B.

P represents the feed-dog, which is elongated, as shown in my first above-named application.

T represents the reciprocating trimming-knife, secured to a knife-bar, V. Said bar is reciprocated vertically by a suitable connection with the sewing-machine—viz., a positively-operating grooved cam, W^2, on the shaft W, and a bell-crank lever, W^3, pivoted at W^4 to a bracket on the arm of the machine. The lever W^3 is engaged at one end with the cam W^2 by a pin passing through a slot, W^8, in the arm of the machine, and is connected at the other end by a spring-pin, W^5, with the knife-bar V. Said pin passes through a quill or tube, W^9, projecting from a block, W^7, having a socket through which the knife-bar passes, and has a spring which forces the pin into a recess in the knife-bar. The quill W^9 passes through a block, W^6, fitted to slide in a slot in the lever W^3. By withdrawing said pin the knife-bar is released from the block W^7 and arm W^3.

r represents a folder attached to the presser-foot C in position to act as a substitute for the auxiliary presser-foot shown in my first application above named. Said folder consists of a U-shaped plate, one arm of which has an offset, *r′*, attached to the presser-foot C, while the other arm extends over the bed of the machine, the bend of the plate being at the left hand of the operator.

r^2 represents a folding-blade, which is pivoted at r^3 to a bracket or plate, r^4, secured to the bed of the machine and located slightly in advance of the folder *r*, as shown in Fig. 5. The blade r^2 is at such a height above the bed of the machine that when the presser-foot C is depressed to bear on the work, as shown in

Fig. 1, the blade r^2 is opposite the center of the space between the arms of the folder, the folder and guide together constituting an overseaming attachment adapted to fold the work in the manner shown in Fig. 1ª. By reference to Fig. 4 it will be seen that the lower arm of the folder is over the forward end of the elongated feed-dog, and therefore acts to press the material down upon said dog, and is an auxiliary presser. The pivoted blade r^2 can be turned on its pivot out of the way when it is not required.

I do not claim the folder secured to the presser-foot, nor the pivoted folding-blade, in the present application, but reserve the same for a future application.

The part of the feed-dog back of the needle is made wider than the forward portion, and to accommodate this peculiarly-formed elongated feed-dog the throat-plate has to be correspondingly slotted, as shown in Figs. 6 and 7, so that the throat-plate is almost entirely cut away back of the needle-hole *u*, a narrow tongue being thus formed, which contains the needle-hole and is connected with the throat-plate only at one end. To support the other end of said tongue I provide a bridge, *v*, attached at *w* to the under side of the throat-plate and projecting under the end of said tongue, so as to form a bearing therefor, as shown in Fig. 7. The upper side of the bridge *v* is recessed at *v'* to afford room for the feed-dog.

g represents the downwardly-projecting arm attached rigidly to the head A of the machine, and having in its lower end the screw *h*, as shown in my second above-named application for Letters Patent, the screw *h* being adapted to press the reciprocating blade T against the co-operating fixed blade, which may be one edge of a slot in the throat-plate through which the blade T passes, or, as I prefer, a separate blade, *a*, suitably affixed to the bed of the machine. My present improvement in this pressure-regulating device consists in providing the screw *h* with a core, *h'*, of rawhide, and a screw-follower, h^2, adapted to press said core outwardly from the screw. (See Fig. 3.) The rawhide core bears directly against the reciprocating blade T and constitutes a comparatively frictionless bearing, which does not require lubricating and does not cause so much wear as the metal end of the screw *h* heretofore employed.

m represents a blower-casing attached to the under side of the bed of the machine, and provided with a rotary fan-blower of ordinary construction. The arbor of said blower has a pulley, *m'*, which is belted to a pulley, *m'*, on the shaft W of the machine. From the casing *m* extends a pipe, *p*, to a point over the throat-plate in close proximity to the trimmer T. A continuous blast of air is thus supplied, which blows away the shreds and cuttings formed by the trimmer. The reciprocating blade T is in the present instance pivoted to the knife-bar at *l'*, as shown in Fig. 4, so as to be capable of oscillating. The portion T' of the blade, which projects through the slot in the throat-plate, has a pin, T^2, which enters a diagonal slot, T^3, in an arm or extension on the fixed blade *a*. It will be seen that when the machine is in operation the diagonal slot will give the knife a drawing movement, when it is cutting, the knife being thus caused to make a draw cut, which is particularly effective on silk goods. I prefer to provide the pin T^2 with a friction-roller to diminish its friction on the slot. I do not limit myself, however, to the diagonal slot as a means of giving the knife a draw cut. The same result may be produced by a link, *t'*, pivoted at t^2 to the lower end of the knife T, and at t^3 to a fixed support, as shown in Fig. 4ª.

I reserve for a future application all patentable matter shown but not claimed herein.

I claim—

1. The combination, with the feed-dog widened back of the needle, the throat-plate cut away or slotted to leave a tongue containing the needle-hole *u*, said tongue being connected with the plate only at one end, as shown, and the bridge *v*, secured to the under side of the throat-plate, so as to support the outer end of said tongue, and provided with a recess, *v'*, adapted to receive the feed-dog, as set forth.

2. The combination of the knife-bar V, the needle-bar-operating shaft W, having the positive cam W^2, and the bell-crank lever W^3, pivoted to a fixed support on the arm of the machine, and engaged at one end with said cam, and having a pivotal connection at its other end with the knife-bar, as set forth.

3. The combination, with the reciprocating blade T, of the pressure-adjusting device *h*, having the rawhide core *h'*, bearing directly against said blade and in rubbing contact therewith, whereby friction between the device *h* and blade T is reduced, as set forth.

4. The pressure-regulating screw *h*, having the rawhide core *h'* and screw-follower h^2, combined with the arm *g* and reciprocating blade T, as set forth.

5. The combination of the knife-bar V, the reciprocating blade T, pivoted to the knife-bar and provided with a pin, T^2, in its lower portion and the fixed cutting-blade having a diagonally-slotted arm receiving said pin, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 24th day of April, 1883.

THOMAS C. ROBINSON.

Witnesses:
C. F. BROWN,
A. L. WHITE.