(No Model.) 2 Sheets—Sheet 1.

T. C. ROBINSON.

SEWING MACHINE.

No. 418,068. Patented Dec. 24, 1889.

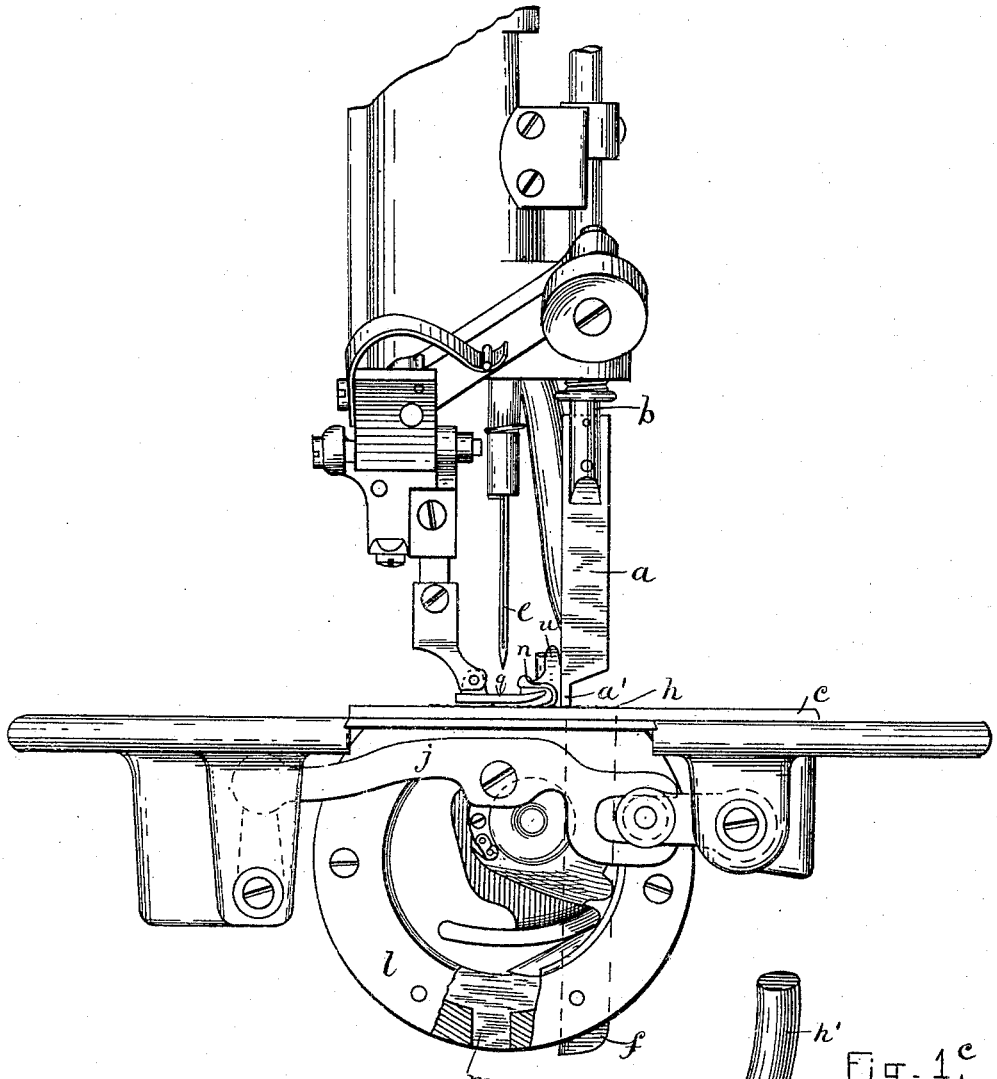

Fig. 1.

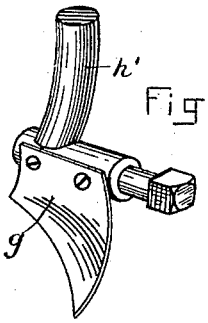

Fig. 1c.

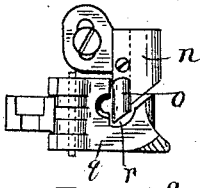

Fig. 1a.

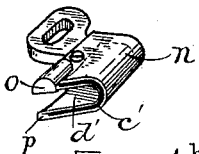

Fig. 1b.

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(No Model.) 2 Sheets—Sheet 2.

T. C. ROBINSON.

SEWING MACHINE.

No. 418,068. Patented Dec. 24, 1889.

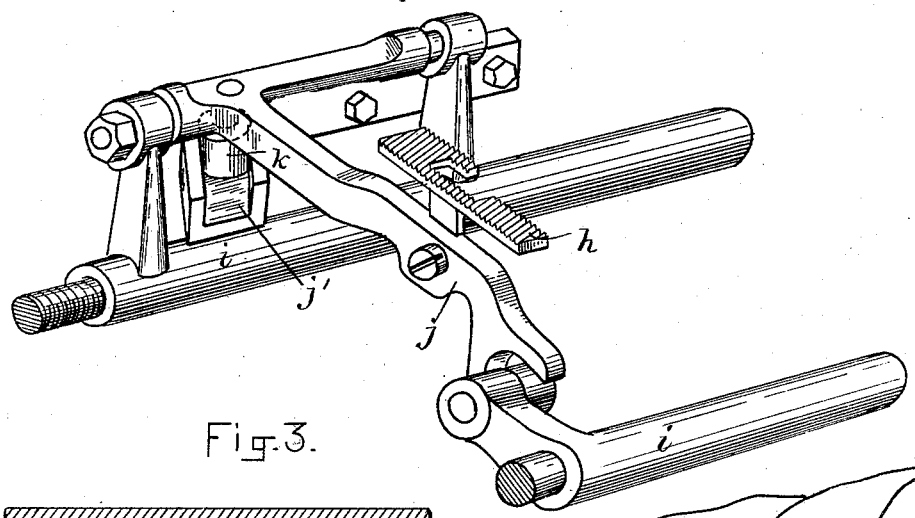

Fig. 3.

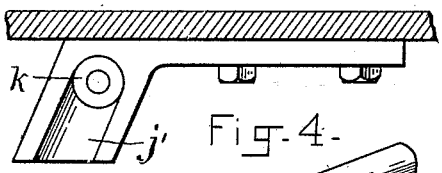

Fig. 4.

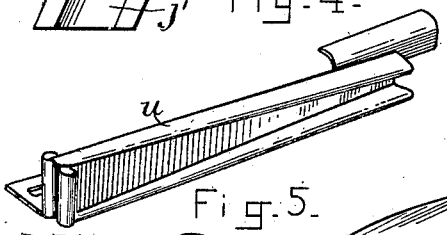

Fig. 5.

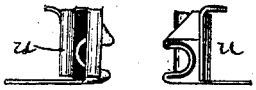

Fig. 6. Fig. 7.

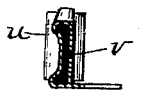

Fig. 8.

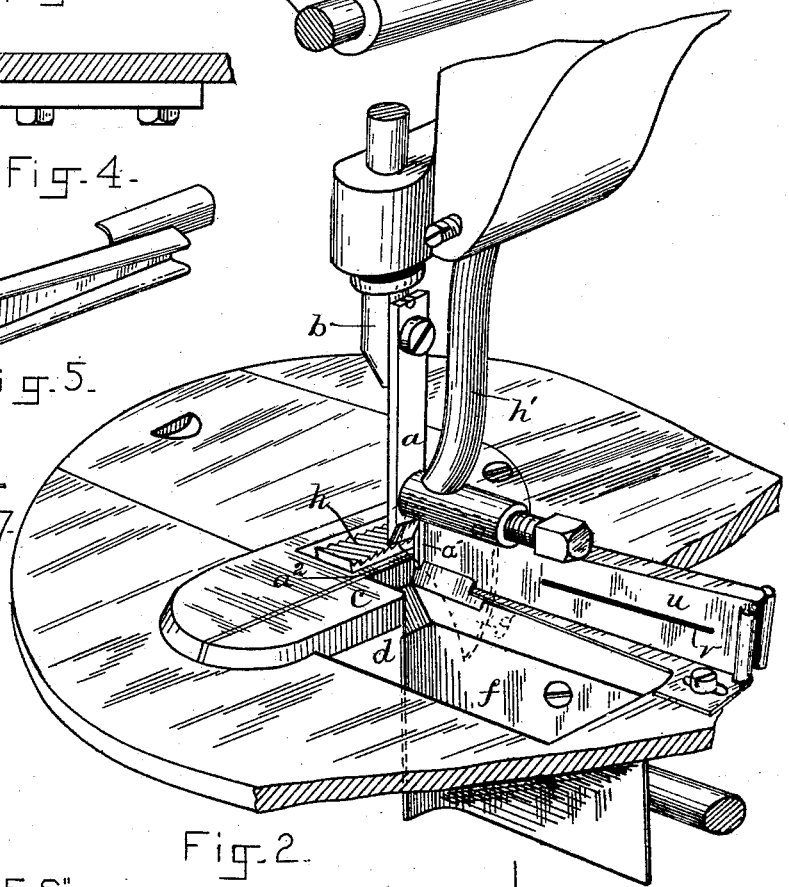

Fig. 2.

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UNITED STATES PATENT OFFICE.

THOMAS C. ROBINSON, OF BOSTON, ASSIGNOR TO E. B. WELCH, OF CAMBRIDGE, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 418,068, dated December 24, 1889.

Application filed February 24, 1885. Serial No. 156,773. (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 Sewing-Machines, of which the following is a specification.

This invention relates to sewing-machines; and it consists of means for the proper trimming of the edge previous to its presentation to the binder, in order that the binding may be evenly folded and stitched thereon, and of means whereby the cuttings and lint from the trimmer are discharged out of the way of the operating parts, so as to prevent interference with the same.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents an end elevation of a sewing-machine provided with my improvements. Fig. 1[a] represents a top view of the presser-foot and binder. Fig. 1[b] represents a perspective view of the binder. Fig. 1[c] represents a perspective view of the plate *g*. Fig. 2 represents a perspective view of a portion of the machine. Fig. 3 represents a perspective view of the feed-operating mechanism. Fig. 4 represents a top view of the device that moves the feed-dog laterally. Figs. 4, 5, 6, 7, and 8 represent views of the folding-guide.

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

In the drawings, *a* represents a trimming-knife attached to a bar *b*, which is vertically reciprocated in guides in the head or arm of the machine by any suitable mechanism. The knife has a guiding-finger *a'* projecting downwardly into an orifice formed for it in the throat-plate *c* of the machine, said orifice guiding the finger, which always remains in it, so that the knife cannot be laterally displaced. The throat-plate has a fixed edge or blade a^2, which co-operates with the knife in trimming, said edge being preferably a strip inserted in a slot in the throat-plate and adjustable lengthwise to present fresh cutting-edges.

d represents an opening in the bed-plate of the machine at the right of the throat-plate and in advance of the needle *e*. The chips and fragments detached by the trimming devices fall through said opening and are mainly prevented from obtaining access to the stitch-forming mechanism below the throat-plate by a downwardly-projecting guard plate or flange *f*, which forms a chute or wall along the sides of the opening adjacent to said mechanism.

To prevent the chips from getting upon the bed of the machine behind the opening, I provide a plate *g*, which is attached to any suitable support (here shown as the arm *h*) that supports the screw, whereby pressure is exerted on the knife, as shown in one of my former patents. Said plate has the general form of a plow mold-board, and extends from a point close to the knife *a* along over the opening *d*, and deflects all chips that may be thrown against it into said opening. The side of the throat-plate adjacent to the opening *d* is cut away to form a recess constituting a part of said opening, the orifice that guides the knife-finger being in the edge of the recess.

h represents the feed-dog, which is given the usual four motions by means of the two rock-shafts *i i*, supporting the bar *j*, to which the dog *h* is attached, these devices being common. The teeth of the feed-dog are arranged diagonally, the inclination being as shown in Fig. 1—that is to say, the right-hand end of each tooth is farther from the front end of the dog than the left-hand end. This arrangement of the teeth enables the operator to keep the material being stitched in its proper relation to the needle and the binder, hereinafter described, the described angle of the teeth enabling the material to be pushed to the right by the operator while it is being fed forward by the feed-dog. When the teeth extend at right angles to the length of the feed-dog, as usual, such movement cannot be effected, and the work has a tendency to move away from the needle, especially if it has a curved edge like that formed on corsets.

Another improvement in the feed mechanism consists in a diagonal guide *j'*, affixed to the bed of the machine and receiving a stud or roller *k* on the feed-dog bar *j*, so that as the latter is reciprocated to give the feed-dog its usual longitudinal movements it is also moved laterally to reciprocate the feed-dog laterally, the dog having therefore six move-

ments instead of four. The lateral movement of the dog toward the needle takes place while it is raised and moving longitudinally, so that the dog has a diagonal movement toward the needle, which keeps the work in its proper relation to the needle. I do not limit myself, however, to the employment of the last-described improvement, for the diagonal teeth on the feed-dog will accomplish the desired result without the lateral movement, suitable care being exercised by the operator.

l represents the circular race used in the Singer machine, in which the hook for the lower thread oscillates. As said race receives lint and fragments from the trimming devices, (the means above described not being able to entirely exclude such matter from the race,) I provide in its lower portion a slot or opening *m*, through which all foreign matter falls from the race. Said opening is so arranged that the hook at the end of each movement will push into it any loose matter that may have entered the race.

n represents a binder, which is composed of a block or body adapted to be secured to the bed of a sewing-machine and having a curved slot or guide *c'*, extending substantially at right angles to the direction in which the article to be bound is moved by the feed mechanism of the machine. In the end of the block is a U-shaped recess *d'*, extending substantially at a right angle with the slot *c'*, and therefore parallel with the direction of movement imparted by the feed. The recess *d'* is widest at the side containing the slot *c'*, and is gradually reduced in width to the opposite side. The binding *f'* is passed through the slot and receives therefrom a transverse curvature. Emerging from the slot the binding is bent at right angles into the recess *d'*, and receives therefrom a transverse curvature the reverse of that imparted by the slot *c'*. The edge of the article to which the binding is to be applied passes through the recess *d'*, the binding being pressed by the narrower end of said recess against the sides of said article. The binder is located so that the needle is close to the narrower end of the recess *d'*. The binder is provided with lips or projections *o p*, which guide the edges of the binding as it emerges in its bent condition from the binder and prevents it from being displaced laterally.

The presser-foot *q*, which I use with the binder, is provided with a recess *r*, which receives the delivering end of the binder *n*, one side of said recess forming a tongue, which is in close proximity to the beveled end of the binder and prevents the binding from issuing too freely or protruding therefrom. The binding is thus perfectly controlled by the lips *o p* and presser-foot *q*.

u represents a folding-guide, which receives the binding in a flat condition and guides it to the binder. The channel in said guide is formed at its outer end to receive the binding in a flat condition, and is gradually curved until it joins the curved slot of the binder, so that it gradually prepares the binding for the binder. The guide has a slot *v* in one side for the insertion of a pin or other device, whereby the binding may be pushed along to the binder when it is first inserted.

I claim—

1. The combination, with the knife having the guiding-finger, of the throat-plate having the guiding-orifice for said finger, and a pressure-support against which the side of the knife bears above the throat-plate, substantially as set forth.

2. The combination, with the knife having the guiding-finger, of the throat-plate having the guiding-orifice for said finger, a movable knife-edge plate a^2, forming one of the sides of said orifice, and a pressure-support against which the side of the knife bears above the throat-plate, substantially as set forth.

3. The bed-plate of a sewing-machine having an escape-opening *d*, and the downwardly-projecting angular guard or flange *f*, shielding the parts below the bed-plate, combined with the trimming-knife secured to the vertically-reciprocating bar, substantially as set forth.

4. The combination, with the knife, of the throat-plate having opening for the discharge of the trimmings, the pressure-support against which said knife bears, and a curved plate *g*, attached to said support and depending into said opening, substantially as set forth.

5. The combination, with the throat-plate having discharge-orifice and knife working relatively to the same, of the circular race having the discharge-orifice combined with the oscillating hook, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 18th day of February, 1885.

THOS. C. ROBINSON.

Witnesses:
C. F. BROWN,
H. BROWN.