(No Model.)

J. F. J. GUNNING.

SEWING MACHINE BINDER.

No. 316,359. Patented Apr. 21, 1885.

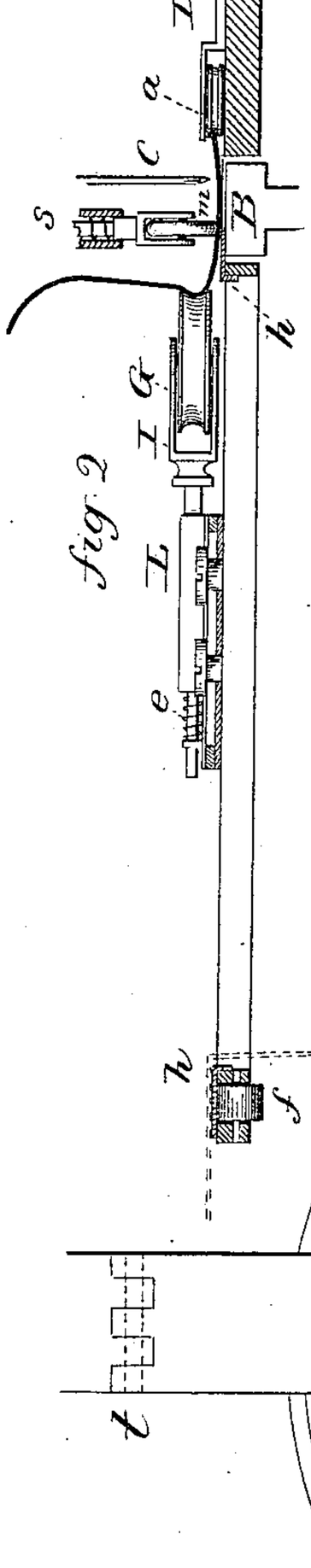

Fig. 2.

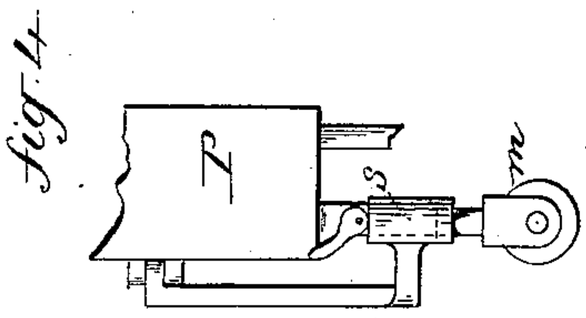

Fig. 4.

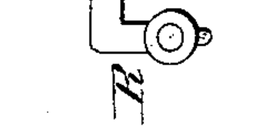

Fig. 3.

Fig. 1.

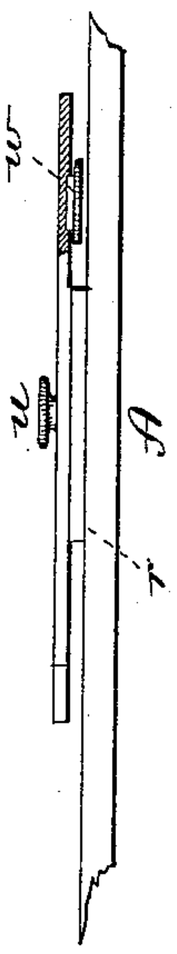

Fig. 5.

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SEWING-MACHINE BINDER.

SPECIFICATION forming part of Letters Patent No. 316,359, dated April 21, 1885.

Application filed August 28, 1882. Renewed September 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. J. GUNNING, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Binding Attachments for Sewing-Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top or plan view; Fig. 2, a vertical central section; Figs. 3, 4, and 5, detached views.

This invention relates to an improvement in sewing-machines, or appliances to be attached thereto for the purpose of binding the rims of hats, the object being to make the machine substantially automatic as to the guiding of the hat during the operation of binding; and it consists in the combination of devices, as more fully hereinafter described, and particularly recited in the claims.

A represents the work-plate of the machine; B, the feed; C, the needle, all of which are arranged relatively to each other, and so as to operate in the usual and well-known manner, and require no description in this specification.

D is the guide for the edge of the rim of the hat, which is secured to the table A by a set-screw, E. The opening through the guide-plate is larger than the body of the screw, so as to permit a considerable movement of the guide. On the working-edge of the guide are several anti-friction rolls, *a a*, against which the edge of the hat runs, and so that the several rolls together will operate upon a considerable extent of the edge of the rim. The first roll is about in line with the needle, as seen in Fig. 1, the others farther back, or so as to bear upon the edge beyond the needle. The plate may be adjusted to a greater or less distance from the needle, and so as to change the relation of the rolls to the needle by means of the adjusting-screw.

In different sizes of hats it will be necessary to change the position of the several rolls to some extent, because of the varying curves of such hats—that is to say, suppose, as shown in Fig. 1, the rolls are set for a certain size of hat-rim, and suppose that a larger rim is to be bound. The first roll of the series is in the proper relative position to the needle. The guide will then be turned, leaving that roll in the same position, but carrying the other rolls outward—that is, to the right—until they will correspond in position to the rim of the hat to be bound.

In making the adjustment of the plate to adapt it to the various curves and positions required, I arrange the set-screw at one side, as seen in Fig. 1, and make a slot, F, in the guide-plate, and on the work-plate arrange a stationary stud, *b*, which extends up through that slot. This stud I make so as to present a V-shaped edge, and then on the plate I hinge a bar, *d*, its edge opposite the hinges serrated, as seen in Fig. 1, and so that one of the serrations or notches will engage with the edge of the stud *b* when the bar is turned toward the stud; but when turned away the plate is free from engagement with the stud. This stud then, when engaged with the bar *d*, forms a center upon which the plate may be rocked, so as to change the relation of the rolls to adapt it to a greater or less diameter of rim, the large opening through the plate for the set-screw permitting such rocking movement.

The position of the guide is varied for different widths of binding by moving the plate toward or from the needle and engaging the bar *d* with the stud *b* when the proper position is attained.

Upon the opposite side of the needle a guide is constructed to run upon the inside of the crown against its lower edge—that is, at the junction of the crown with the rim. This guide consists of two rolls, G H, grooved upon their periphery, and each hung in a holder, I, which holder is arranged to slide longitudinally in a guide, L, and each in the same plane. A spring, *e*, is arranged upon the shank of the holders, the tendency of which is to force the rolls toward the needle.

The hat is introduced as seen in Fig. 2, the edge of the rim against the rolls *a* and the rolls G H upon the inside of the crown. The rolls G H serve to press the rim against the rolls *a*. The feed works upon the under side of the rim, and which, with the presser-foot

above, operates in the usual manner of feeding work in sewing-machines.

To support the hat around its rim, a ring-shaped track is arranged, as seen in Fig. 1. In this track are several anti-friction rolls, *f*, more or less in number, and upon these rolls a ring, *h*, is arranged to ride upon the rolls *f*, the rim of the hat lying upon the ring. The ring extends over the feed, as seen in Fig. 2, and so that the feed will strike the under surface of the ring at the same time it strikes the under surface of the rim of the hat, and therefore imparts to the ring the same movement which it imparts to the hat, and this will give a rotative movement to the hat throughout its entire circumference.

To facilitate the operation of the feed upon the ring, the under surface of the ring may be covered with some fabric or flexible material corresponding, substantially, to the surface of the hat. The plate, however, may be dispensed with, the rim riding directly upon the rolls, and a very good result be attained.

In case of considerable breadth of rim of the hat it is desirable to bear the rim down upon the feed outside the needle, or to a greater extent than can be done by the usual presser-foot. To this end I arrange an auxiliary presser-foot hinged to the head P of the machine, as seen in Fig. 3. This presser-foot holder R is L-shaped, one end hinged upon the rear of the head, as at *l*, and so as to swing to bring the other arm to the side of the needle and nearer the crown than the ordinary presser-foot would run. In the holder the presser-foot spindle S is arranged in the usual manner, and carries at its lower end an anti-friction roll, *m*, as seen in Fig. 4. This may be turned into the position seen in Figs. 2 and 3, so as to bear upon the rim over the ring beneath; or, when not required for use, it may be turned back out of the way, as indicated in broken lines, Fig. 3.

I have described thus far the invention as a rim being bound with the crown side up. In many cases it is desirable to bind the rim with the other side up. To this end I make the support for the rim ring-shaped, the opening in the ring being equal to the largest diameter of hat, so that the crown may drop therein, as indicated in broken lines, Fig. 2, the rim resting on the ring; and in order that the hat may be so introduced into the ring and attached, the guides for the holders I are attached to an arm, T, which extends outside the ring, and is hinged to the machine, as at *t*, so that the guides may be turned up away from their working position to permit the hat to be introduced through the ring beneath them, and then turned down to take their place on the inside of the crown, as before.

The binder-guide may be attached in the usual manner; but to facilitate the introduction of the binding and the adjustment of both the hat and binder, I attach the binder to a bar, *n*. On the work-plate, beneath the bar *n*, is a slotted plate, *r*, which is secured to the work-plate by screws *s*. The bar *n* is pivoted upon this plate *r*, as at *u*, so that the bar *n*, with the guide, which is attached to it, may be turned upon the pivot *u* toward or from the needle—that is, to the right or left—and may be adjusted by means of the slotted plate. It is locked in its position by means of a spring-latch, *w*, which is secured to the work-plate, and lies beneath the bar, and is constructed with a projection to enter a corresponding notch in the under side of the bar, as seen in broken lines, this latch holding it with sufficient strength to prevent its accidental displacement, but so that, by simply depressing the latch to disengage it from the bar, the bar, with its guide, may be turned away from the rim of the hat as occasion may require. The spring-latch is preferably made adjustable by means of a slot and set-screw, as seen in Fig. 1, to adapt itself to the various positions in which the binder-bar may be set.

I claim—

1. In combination with a stitching mechanism, a guide for the outer edge of the rim of the hat, consisting of several rolls, *a a*, arranged in a plate or holder, D, a stud, *b*, on the work-plate, extending up through a slot in the holder D, and a hinged serrated bar, *d*, arranged to engage and disengage the said stud, substantially as described.

2. The combination of a stitching mechanism, a guide for the outer edge of the rim, a self-adjusting guide inside the crown at the rim, and anti-friction rolls *f*, arranged to support the hat by its rim, substantially as described.

3. The combination of a stitching mechanism, a guide for the outer edge of the rim, a self-adjusting guide inside the crown at the rim, anti-friction rolls *f*, and the ring *h*, arranged to ride upon said rolls and over the feed beneath the rim, substantially as described.

4. The combination of a stitching mechanism, a guide for the outer edge of the rim, a ring to support the rim upon the under side, and a guide arranged to bear upon the inside of the hat at the rim, hinged so as to be turned upward to permit the introduction of the hat to the ring, substantially as described.

5. The combination of a stitching mechanism, the bar *n*, carrying the binder-guide, pivoted to the plate *r*, said plate *r* made adjustable on the work-plate, and a spring-latch, *w*, fixed to the work-plate, and adapted to engage the said bar and hold it in position on the work-plate, substantially as described.

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