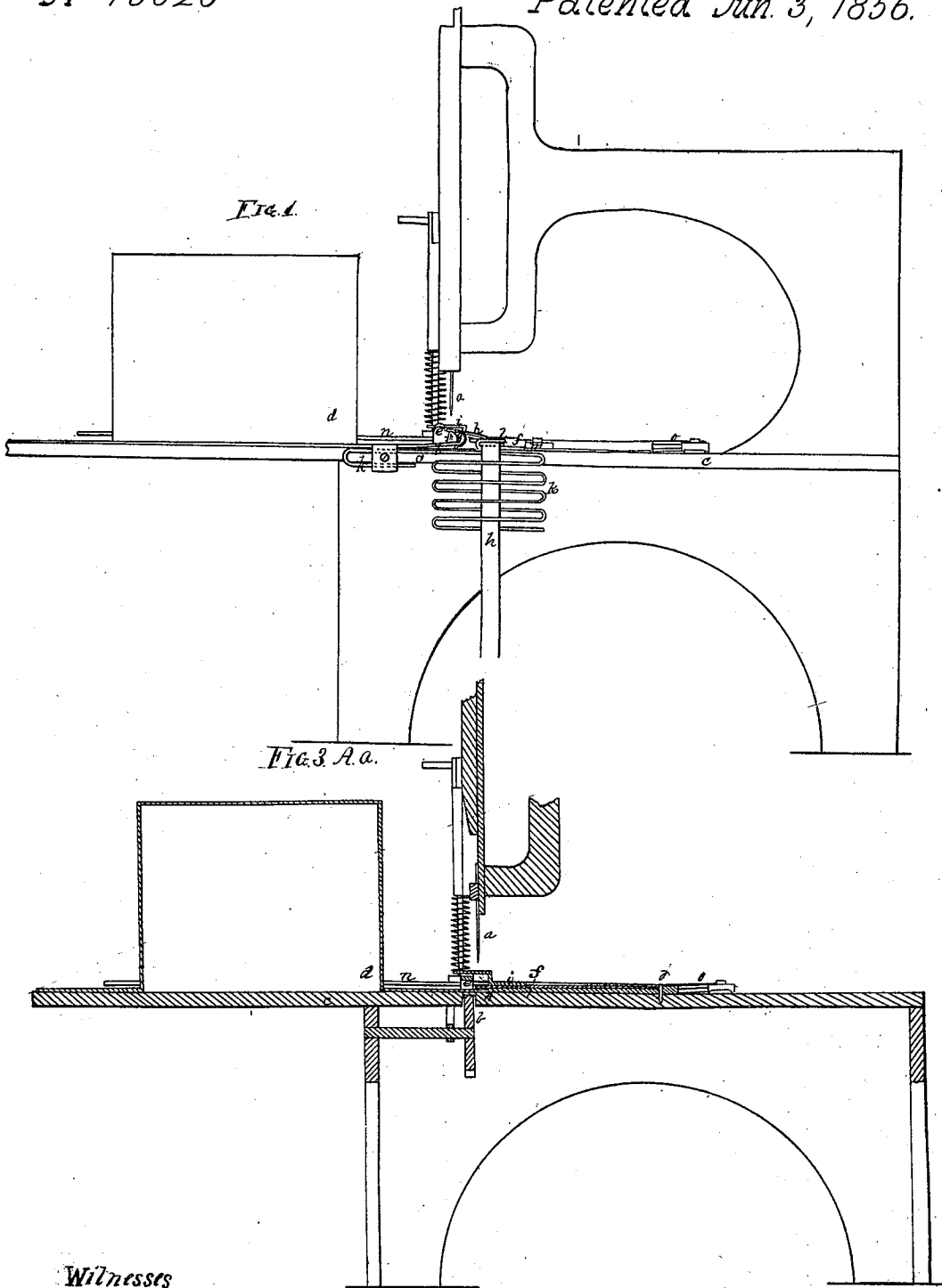


I. M. Singer.

Sewing Machine Guide.

N<sup>o</sup> 15020

Patented Jun. 3, 1856.



Witnesses  
Wm W Bishop  
Andrew D. DeLong

Inventor  
Isaac M. Singer

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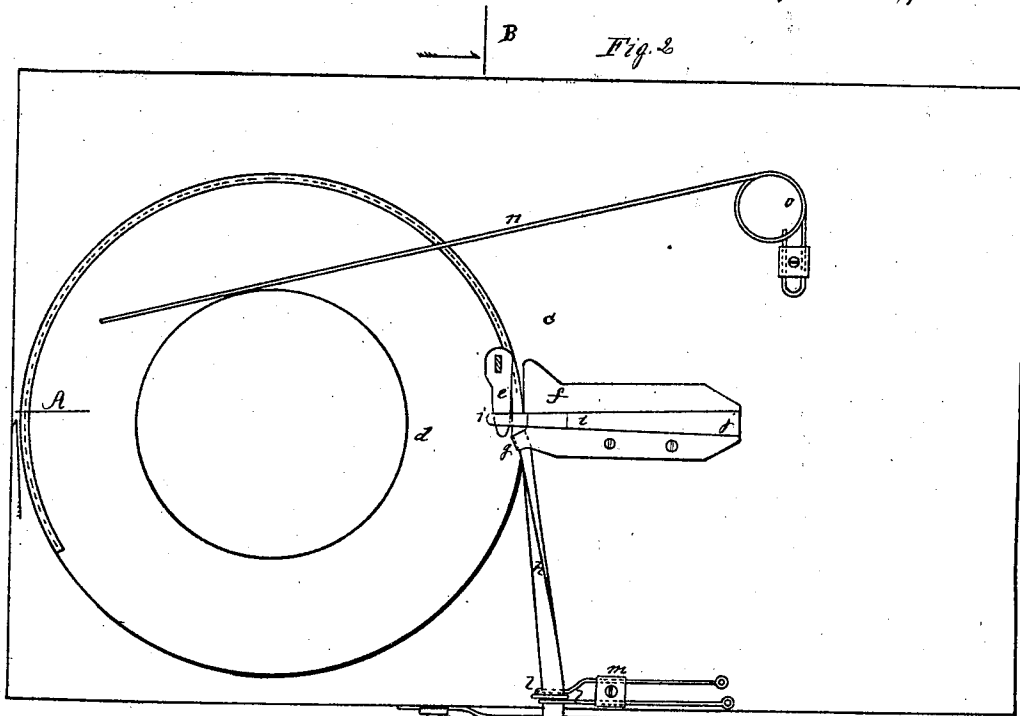


Fig. 2

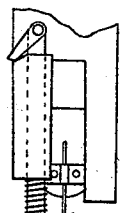
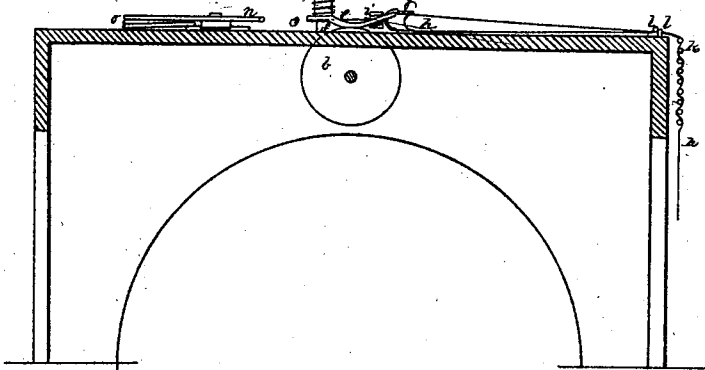


FIG. 4, B. 1.



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# UNITED STATES PATENT OFFICE.

ISAAC M. SINGER, OF NEW YORK, N. Y.

## IMPROVEMENT IN SEWING-MACHINES FOR BINDING HATS.

Specification forming part of Letters Patent No. 15,020, dated June 3, 1856.

*To all whom it may concern:*

Be it known that I, ISAAC M. SINGER, of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines for Binding Hats, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the machine; Fig. 2, a plan of the bench or table, with the parts attached thereto; Fig. 3, a longitudinal vertical section taken at the line A *a* of Fig. 2; and Fig. 4, a cross vertical section taken at the line B *b* of Fig. 2, with the hat removed.

The same letters indicate like parts in all the figures.

Sewing-machines for binding hats have heretofore been made and used in which the binding is folded around the edge of the rim of the hat and there held during the operation of sewing it on; but in all such machines the hat must be turned and guided by hand as it is moved by the feed-motion of the machine to determine the spacing of the stitches, and this is not only laborious, but requires great attention and skill to prevent inaccuracies.

The object of my invention is to turn and guide the hat automatically as the feed-motion acts upon it, and as the binding is folded and stitched on the edge thereof; and my said invention consists in combining with the feed-motion, which acts on the rim to determine the spacing of the stitches, and with a guide against which the edge of the rim of the hat is made to bear, that the needle may act at a determined distance from the edge, the pressing of the hat in a direction the reverse of the feed-motion, whether such pressure be applied by means of a spring acting on the body of the hat, or, as the equivalent thereof, by a weight acting on the hat, or by inclining the table or bench of the machine on which the hat is placed, that the hat may be acted upon in the required direction by the force of gravity. From this combined action it results that the hat is turned and the edge of the rim is kept against the gage, that the stitching may be made at the required distance from the edge of the rim, notwithstanding the rim of the hat may vary materially from a circle, for as the rim is at all times held either by the pressure-pad or by the needle as the feed-motion acts upon the rim

to move it forward in a straight line, the pressure, whether by spring, weight, or gravity, acting on the body of the hat in the reverse direction, presses the edge of the rim against the gage, and hence the feed-motion must result in turning the hat in a line corresponding with the form of the rim, whether round or oval; and my said invention also consists in regulating the tension of the binding and smoothing out all the plaits and kinks, before it reaches the folder, by causing it to pass around any required number of folds of a wire spring attached to the bench or frame, and bent so as to run back and forth, the several parts between the bends being straight and all parallel.

The accompanying drawings represent only so much of a sewing-machine as is necessary to show the application of my said improvements.

The needle *a* is to be operated in any suitable manner known to those acquainted with sewing-machines, as also the shuttle or other instrument for effecting the concatenation of the thread or threads, and the feed-wheel *b*, for moving the rim of the hat to determine the spacing of the stitches, is to be operated in any suitable manner. This feed-wheel extends up through a mortise in the table *c* in the usual way, that the under surface of the rim of the hat *d* may be pressed onto it by a pressure-pad, *e*, in the usual manner, that the feed-wheel may impart the required feed motion. There is a gage, *f*, secured to the upper surface of the table, with its gage-face at such distance from the needle as to determine the distance of the range of stitches from the edge of the rim, and this distance should be adjustable to suit the different widths of binding required to be put on.

Forward of the gage is placed the folding-tube *g*, through which the binding *h* passes, and by which it is folded to embrace the edge of the rim. This instrument is well known as a means of folding binding, and therefore it is not necessary to describe its construction more minutely.

Between the folding-tube and the gage there is a spring, *i*, one end of which is secured to the table, as at *j*, and the other end is bifurcated, one branch to make pressure on the binding on the rim of the hat and the other to extend over the pressure-pad *e*, so that when

the pressure-pad is lifted the spring will be lifted also.

To the front edge of the table is secured one end of a steel wire, *k*, which runs for a short distance in a straight line, and then bent around in a parallel line, and so back and forth in parallel lines and in close proximity, to constitute a series of springs. The binding is carried alternately in opposite directions around the several folds of this wire, or any desired number of them, by which any desired friction can be made on the binding to keep it under a state of tension as it is drawn by the feed-motion; and this has the effect at the same time to smooth and work out all folds and kinks. From this the binding passes between two guides, *l l*, on the top of the table and near the front edge thereof. The stems of these two guides are fitted to slide in a block of metal, *m*, secured to the table, and by which they are held. The guides are made of wire and bent around at their outer ends to embrace the binding. One of them guides one edge and the other the other edge, so that by sliding them in opposite directions they can be adapted to any width of binding. By this means the binding is guided to the folding-tube.

Back of the needle-stand there is a long spring, *n*, one end of which bears against the body of the hat, so that its tension will tend to push the hat toward the front of the table, and therefore in a direction the reverse of the feed motion. This spring is attached to the table, and to give it greater length and elasticity it is coiled, as at *o*. The tension of this spring must be very slight, so as not to overcome the bite of the pressure-pad on the

rim when the needle is drawn out, and yet sufficient to prevent the body of the hat from being moved toward the back of the table by the feed-motion when it acts on the rim. In this way it will be seen that the effect of the feed-motion must be to turn the hat and at the same time to keep the edge of the rim against the face of the gage to insure the making of the range of stitches at a regular distance from the edge.

It will be obvious that instead of the spring to act on the body of the hat a lever acted upon by a spring or weight may be substituted, or a cord with a weight suspended to it; or the table may be inclined to such an extent that the force of gravity may have the same action on the hat to prevent the feed-motion from moving the whole hat bodily toward the back of the table; but a spring, as above described, I deem the best and the most convenient.

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

1. The method of turning the hat by the action of the spring or its equivalent, substantially as described, in combination with the feed-motion acting on the rim, and the gage against which the edge of the rim bears, as described.

2. The mode of regulating the tension of the binding and smoothing out the plaits and kinks by passing it around the several folds of a spring such as herein described.

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Witnesses:

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