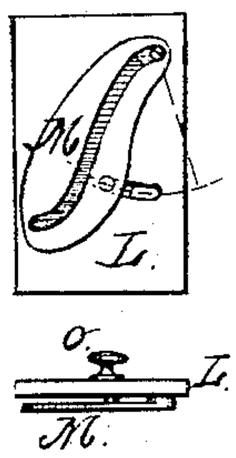
G. GOWING.

Machine for Filling Sewing-Machine Bobbins.

No. 168,634. Patented Oct. 11, 1875.

Fig. 3.



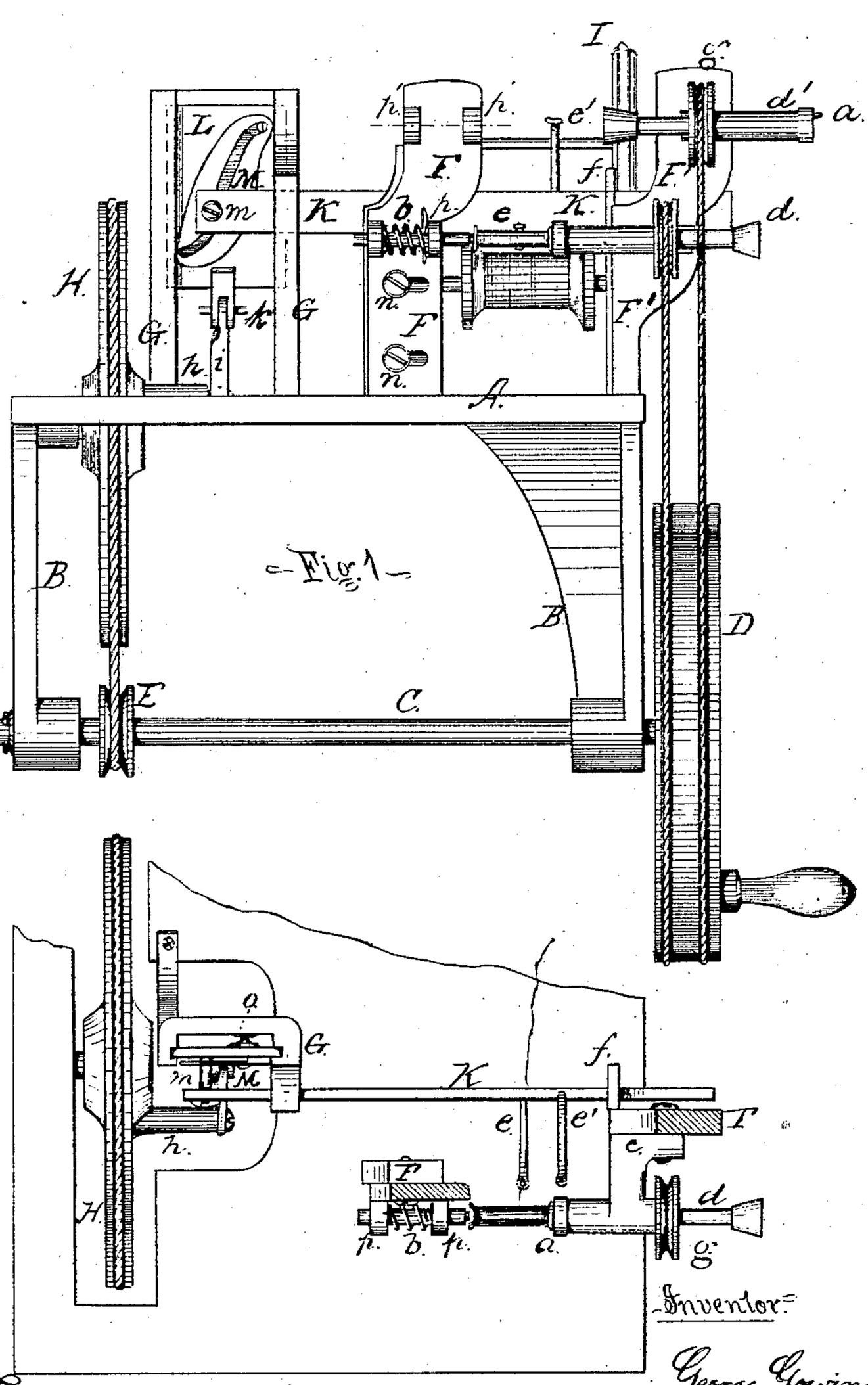


Fig. 1.

Witnesses:
Edward Webborn
S. B. Krater

Fig. 2.

Inventor:
George Gowing
by M. M. Smith Atty

UNITED STATES PATENT OFFICE.

GEORGE GOWING, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MACHINES FOR FILLING SEWING-MACHINE BOBBINS.

Specification forming part of Letters Patent No. **168,634**, dated October 11, 1875; application filed June 22, 1875.

To all whom it may concern:

Be it known that I, GEORGE GOWING, of San Francisco, State of California, have invented a new and useful Machine for Filling Sewing-Machine Bobbins, of which the following is a specification:

The object of my invention is the production of an automatic machine for filling two or more sewing-machine bobbins at the same time; and it consists, first, in the combination of the device for operating the guide-bar; second, in the combination of the peculiar standards which carry the driving-spindles and holding-pins; and, third, in the combination of the various operative parts, all as more fully hereinafter explained.

In order to describe more clearly the construction and operation of my machine, reference is had to the accompanying drawing, in which—

Figure 1 is a front elevation of the machine; Fig. 2, a top view, with the back part of the table broken off; and Fig. 3, a view of the cam-plate and slide in detail.

The table or platform A of the machine has bearings B beneath it for the driving-shaft C, that gives motion to the bobbin-spindles, and to the cam-plate actuating the bar K. This shaft also carries the broad grooved pulley D and the small pulley E. The upper part of the table supports the vertical standards F, F′ and the guides G G for the cam-slide and its plate. It has also a post, I, to hold the spool-pins at the back of the machine. The grooved pulley H projects through an opening in the table, and is driven by a belt from the pulley E. This wheel gives a reciprocating movement, up and down, to the cam-slide L through the medium of the crank-pin *h* and the connecting-bar *i*, attached to the lower end of the slide L, at *k*, and this motion is transmitted to the guide-bar K, that moves horizontally back and forth in slots in the standard G and the post *f* by means of the cam-groove in the plate M, and the pin or roller *m*, projecting from the end of the guide-bar K, and working in the groove. This bar carries one or more thread-guides, *e*, arranged in line with the bobbins, to which they deliver the thread, one above the other, and its reciprocation by the action of the cam-plate L causes the guides to lay the thread upon each bobbin in an even and regular manner between the heads of the bobbin. But in order to have the guides deliver the thread uniformly over all portions of the bobbin, and more particularly at the ends, the motion of the bar K is changed and accelerated at each end of its movement, when the guides *e* approach the heads of the bobbins, and the motion of the guides *e* at these points over the bobbins is faster than in the center. This action of the guide-bar K causes a less amount of thread to be delivered by the guides at each end of the bobbin than at any other points between, as the guides move faster over them. The means for producing this difference in the motion of the bar K consist in the grooved cam-slide and its plate M, with an inclined groove curved in both directions, somewhat like an elongated letter **S**, but with its upper and lower ends more curved than the other parts, by which the motion of the pin *m* upon the end of the bar K is accelerated as it reaches the ends of the slot or groove. The spindles *d d′*, for holding and rotating the bobbins, are supported by the brackets *c c′*, secured to the side of the standard F′. They are provided at one end with a cup-center, and at the other end with a hole and driving-pin, *a*, to enable the machine to receive bobbins of different make, used in the several kinds of sewing-machines, and when it is desired to change the end to accommodate the shape of the bobbin to be filled, the set-screw holding the spindle-bracket to the standard F′ is loosened and the spindle reversed by turning the bracket around, to bring the required end into position in line with the bobbin and the holding-pin *b*.

These spindles are arranged one above the other, as many as may be required, according to the capacity of the machine, and they are driven from the large pulley D by the belts and the small pulley *g* upon each spindle, one spindle being placed vertically over, and a short distance to one side of the next one below it, in order to allow them to be rotated by one main pulley. By this arrangement the machine may be constructed to receive and fill more than two bobbins, by extending the height of the supporting-standards F F′, and adding the required number of spindles *d* and hold-

ing-pins *b*, the driving-pulley D being made wider to receive the belts of the spindle-pulleys.

The holding-pins *b* act to support the ends of the bobbins opposite to the spindles *d*, and to press and keep them against the spindles. They are provided with springs, to cause them to press properly against the bobbins, and their ends are made with holes and depressions of proper size to receive the ends or heads of different kinds of bobbins, after the same manner of the driving-spindles, they being drawn out from their bearings *p p* on the standard F, and reversed, when required, to accommodate different kinds of bobbins.

To enable the machine to receive and hold bobbins of different lengths, the standard F, that supports the pins *b*, is provided with slots, and held in position by the two set-screws *n n*, so that the standards may be set toward or away from each other, and the distance between the ends of the spindles *d* and the pins *b* made greater or less.

The extent of motion of the thread-guides *e e* is regulated by changing the inclination of the cam-groove of the plate M toward or from the perpendicular, and thus giving more or less movement to the bar K. This adjustment is effected by having the upper end of the plate M pivoted to the slide L, and using a thumb-screw, *o*, Fig. 3, working through a curved slot in the slide L, to hold the plate in position at the proper inclination.

As thus constructed and arranged, my machine operates to fill bobbins automatically, in the following manner: The spindles *d d'* and pins *b* are set to present the proper ends to the bobbins to be held by them, and the space between them is adjusted to the length of the bobbin by setting up the standard F and holding it by the set-screws *n n*. The bobbins to be filled are placed in the machine, and the spools from which the thread is taken are put on the spool-pins projecting from the post I, the thread is passed through the eyes in the ends of the thread-guides *e e*, and the end led by the operator to the bobbin to be filled, and when the extent of motion of the bar K is adjusted to the length of the bobbins, the machine is put in operation by giving motion to the driving-shaft C.

It thus operates to fill bobbins of all the different sewing-machines, with no other attention on the part of the operator than to lead the end of the thread around the bobbin in starting the machine, and to remove the filled ones and replace them by those to be filled.

Having thus fully described my invention, and the manner of operating it, what I claim therein as new, and desire to secure by Letters Patent, is—

1. In a bobbin-winding machine, the combination, with the reciprocating plate L, of the adjustable cam M and reciprocating bar K, substantially as described and shown.

2. In a bobbin-winding machine, the combination of the standard F', carrying the bobbin holding and driving spindles, with the adjustable standard F, carrying the spring holding-pins, substantially as described and shown.

3. In an automatic bobbin-winding machine having the capacity to receive and fill two or more bobbins at the same time, the combination, with the table A, of the standards F F', carrying the spindles *d* and pins *b*, arranged as described, the standard G, carrying the reciprocating cam-plate L, and the bar K, reciprocating behind the spindles with an increase of velocity at each end of its movement, all substantially as described and shown.

In witness whereof I have hereunto set my hand and seal this 28th day of May, 1875.

GEORGE GOWING. [L. S.]

Witnesses:
EDWARD E. OSBORN,
HENRY C. BLAKE.