

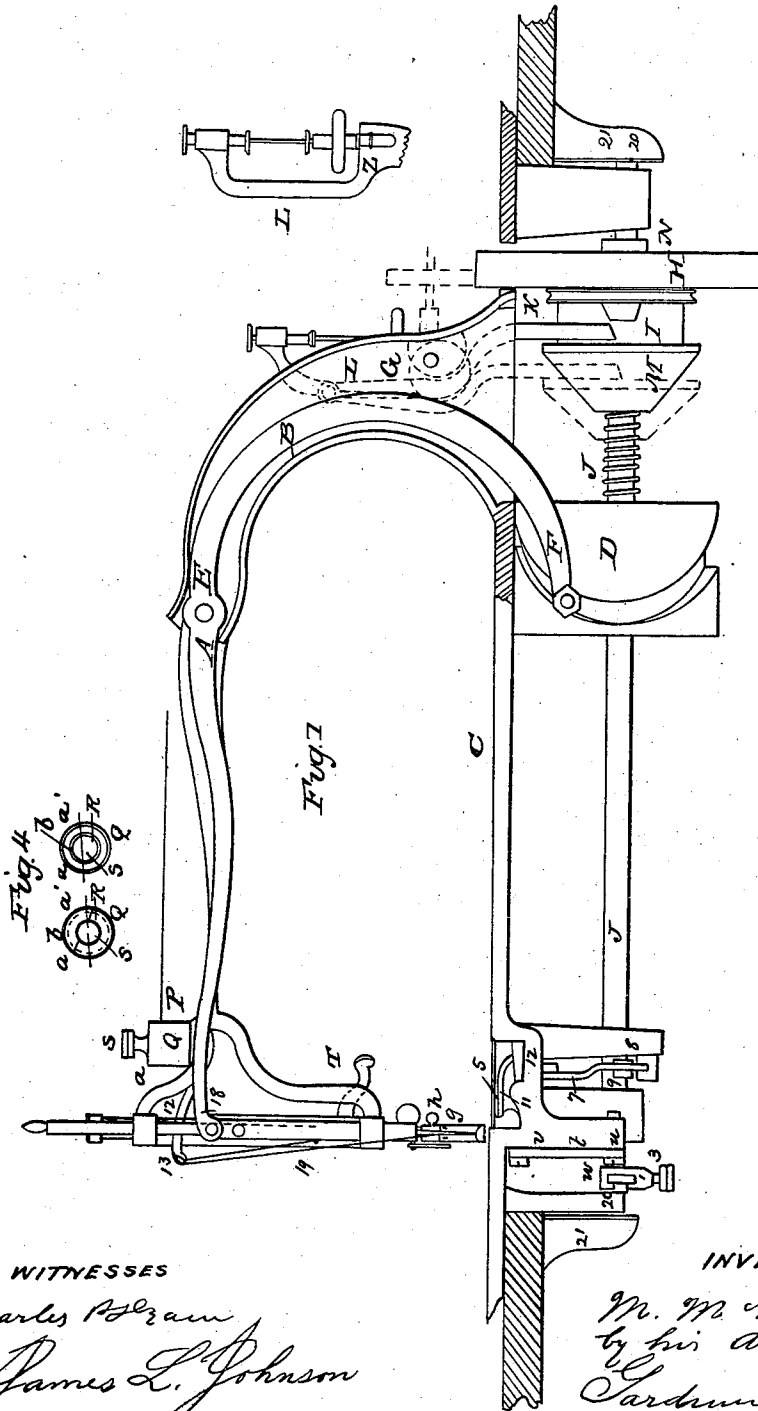
M. M. BARNES.

Sewing Machine.

3 Sheets—Sheet 1.

No. 85,633.

Patented Jan'y 5, 1869.

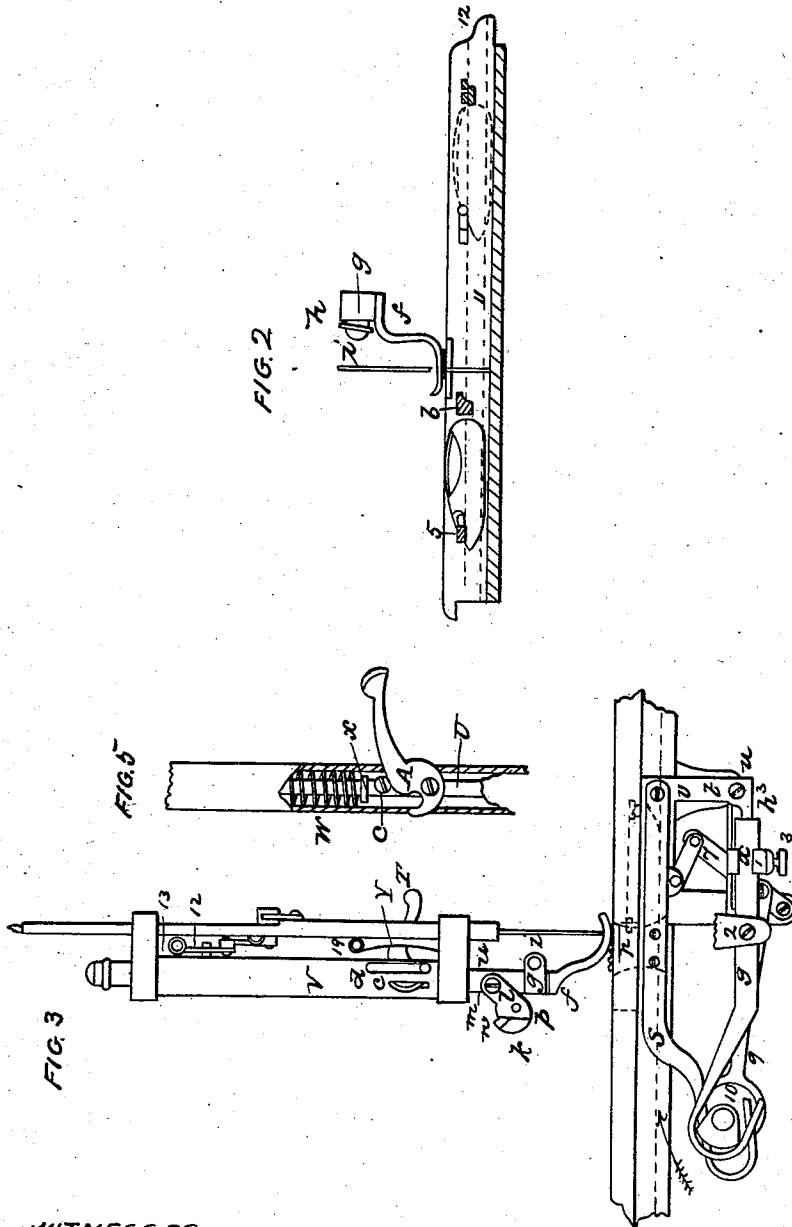


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WITNESSES
Charles P. Drann
James L. Johnson

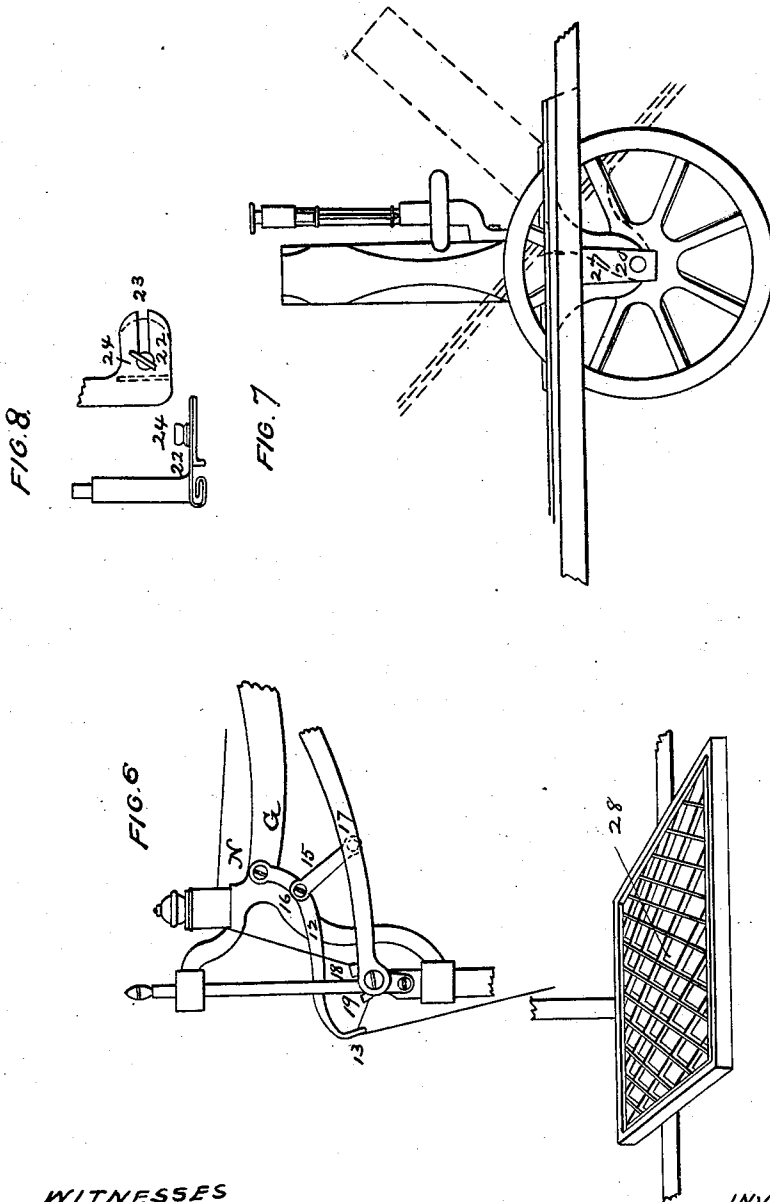
INVENTOR
M. M. Barnes
by his attorneys
Sardness & Co.

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WITNESSES
Charles B. Rame
James L. Johnson

INVENTOR
M. M. Barnes
By his Attorneys
Sardner & Hyatt

United States Patent Office.

M. M. BARNES, OF NORTH ADAMS, MASSACHUSETTS.

Letters Patent No. 85,633, dated January 5, 1869.

IMPROVEMENT IN SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all of whom it may concern:

Be it known that I, M. M. BARNES, of North Adams, Berkshire county, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the drawings—

Figure 1 is a side and partial sectional view,

Figure 2 is a cross sectional view,

Figure 3 is an end view; and

Figures 4, 5, 6, 7, and 8 are detail views of parts pertaining to my machine.

In describing this machine I will enumerate and describe in order the points which I regard as novel and improved.

The Bobbin-Winder.

This is arranged so that by merely bringing it down in contact with the pulley H, in order to give it motion, the rest of the machine is disconnected from the power, and remains still.

This is accomplished by means of the clutch I, (on the main shaft J,) which is operated by means of the lever K, connected with the frame L of the bobbin-winder, and throws the traveller M of the clutch back, when the bobbin-winder is brought down, as shown in red lines, fig. 1, allowing the shaft J to remain stationary, while the sleeve N, of the pulley H, revolves on it, at one end, as a bearing.

A spring, O, keeps the traveller M in clutch whenever the frame L is up, and the lever K inoperative.

The advantages of this arrangement are, that the bobbin-winder can be revolved much faster than is proper for the machine to be run, and yet no extra motion is required in order to accomplish the act of disconnection, the same motion that is always required to set the bobbin-winder in gear accomplishing it.

The Tension-Device for the Thread.

This is situated upon the frame of the needle-bar at P, and its peculiar construction is shown in fig. 4, and consists of a cup, Q, having an inside cylinder, R, fitting into it, and arranged so that it can be turned by a knob, S, on the top.

This cylinder R fits closely at the top edge of the outer cup Q, but below that there is sufficient room for a large thread between them.

Slots, *a* and *a'*, are cut into the sides of this cup, and are open at the top.

A slot, *b*, is cut through the top and sides of the cylinder R, and when the two parts are in the position shown in fig. 4, the slots come opposite to each other, and leave a straight passage through both shells. In this position the thread is passed through, by being slipped down from the top, but when in place, the cylinder R is turned, as shown in 1 of fig. 4, and a friction is produced, which may be increased or diminished by turning the knob of the cylinder R, so as to

increase or diminish the relative distances of the slots *a* and *b* in the two parts of the tension-device. This forms a very compact and easily-adjusted tension, and one peculiarly adapted to the sewing-machine, from its shape and construction.

The Foot-Bar.

This is shown in detail in fig. 5, and has two important points, the arrangement of the lever T, for raising and depressing it, and the lock thereon, and the arrangement of the socket at the lower end of the foot-bar, for the foot to be clamped in.

The foot-bar U is placed in a hollow cylinder, V, supported in the forward end of the frame G.

The upper portion of the foot-bar U has a spiral spring, W, around it, which is confined between the upper closed end of the cylindrical case V and a shoulder, X, on the bar, and tends always to press the latter down.

A guide-pin, *c*, in the bar, working in a slot, *d*, cut into the side of the cylinder V at this point, prevents the bar from turning, and also acts as a shoulder, against which the lever T acts. to raise it, which it does by means of a cam-shoulder, Y, which comes under the pin *c* when the outer end of the lever is raised. When the lever is down, as shown in the figure, the pin *c* rests in a notch, *d'*, in the short end of the lever.

The position of the lever T is such that, when the needle-bar descends, the lever A strikes against the end of the lever, (should it be raised,) and presses it down, letting the foot-bar fall, so that, in operating the machine, it prepares itself for work, by setting the foot down to its proper position, by the first movement of the treadle.

At the lower end of the foot-bar is attached a device for cutting the thread, when it is desired to do so, after a piece of work is done and to be taken from the machine. This consists of two plates, *k* and *l*, pinned together and to the foot-bar, by means of a screw, *m*, passing through both of them and into the bar.

The inside plate, *k*, is made with a hook, and the outer prong, *n*, of this has its inner edge, *o*, sharp.

The edge *p* of the other plate, *l*, crosses the knife-edge of the plate *k*, and forms a notch for the thread to be caught on.

When the edge becomes dull, the plates may be adjusted so that a new portion of the edge is presented to the thread. This is done by means of the screw-holes of the screw *m*, through both plates being elongated, and as the plates are hinged together at their lower ends by a pin, *p*, by loosening the screw they may be set differently.

The Feed.

This is arranged so that a positive reciprocating motion is obtained, by means of an eccentric-lever, *q*, connected with the main shaft. This is shown in fig. 3, and it is seen that the motion desired, viz, a back motion, with the corrugated face of the feed-bar pressed up against the under side of the cloth, just after the

needle has risen from taking a stitch, is obtained by means of the lever *g*, aforesaid, while the up-and-down motion required to clear the feed from the cloth in returning, and to throw it up into bite again before feeding, is obtained by another cam-lever, *s*, which has the feed-bar *r* attached to it about the centre, and extending upward.

The two levers *s* and *g* are arranged together as follows: An elbow, *t*, is pivoted at the apex to the bed of the machine at *u*. This elbow has a vertical arm, *v*, and a horizontal one, *w*. To the end of the vertical arm *v* is attached the end of the lever *s*, by a pin, and to the other arm, *w*, is connected the lever *g*, by means of an adjustable pivot, *x*, in the following manner: A slot, *y*, is made lengthwise in the arm *w*, through which passes a pin projecting from the back of a slide, *1*. The pin is provided on the end with a head, that rests against the opposite side of *W*.

The slide *1* slides upon the arm of the lever *g*, which is pivoted near the centre to a projection on the bed of the machine at *2*. The slide *1* has a set-screw, *3*, in its lower end, by which it can be clamped in position to the arm of the lever *g*, thus adjusting the stroke of the feed, and consequently the length of the stitch taken in the cloth.

The strap of the lever *s* is open at the inside, so that it can move laterally in order to accommodate itself to the motion of the lever.

The operation of this arrangement is as follows:

We will suppose the parts in the position shown in fig. 3; that is, the feed-bar is pressed up against the under side of the cloth, and ready to move forward and shift the cloth with it. The shaft, turning, now raises the shaft-end of the lever *g*, depressing the other, and with it the arm *w* of the elbow, which throws the

upper end of the elbow from right to left, and with it the lever *s*, with the feed-bar, the strap *4* of the lever *s* sliding upon its cam. By this time the lever *s* is depressed at the shaft-end, and the next motion of the lever *g* moves it back to its former lateral position, the succeeding motion of the lever *s* in turn elevating it to its position, as shown in the figure. This is continually repeated, the length of the movement of the lever *s* being, as before stated, regulated by the adjustment of the slide-post *1*.

Now, having described my invention,

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

1. The arrangement of the bobbin-winder, in combination with the clutch *I*, on the main shaft, and the lever *K*, operating it, substantially as shown and described.
2. The tension-device, consisting of a cup, *Q*, and cylinder *R*, provided with slots *a* and *a'*, all constructed and arranged in the manner shown and described.
3. The arrangement of the lever *T*, (of the foot-bar,) in combination with the foot-bar, so that the lever *A*, in descending, shuts down the lever, and allows the foot-bar to be pressed down, substantially as shown.
4. The thread-cutter, consisting of the adjustable plates *k* and *l*, pinned together and attached to the foot-bar by means of the screw *m*, substantially as shown.
5. The combination of the eccentric-lever *g*, lever *s*, elbow *t*, adjustable slide *1*, and feed-bar *r*, arranged together and constructed substantially as herein described.

M. M. BARNES.

Witnesses:

E. F. BARNES,
G. H. LIDFORD.