G. W. BAKER.

Sewing Machine.

No. 70,152. Patented Oct. 29, 1867.

Fig. 1

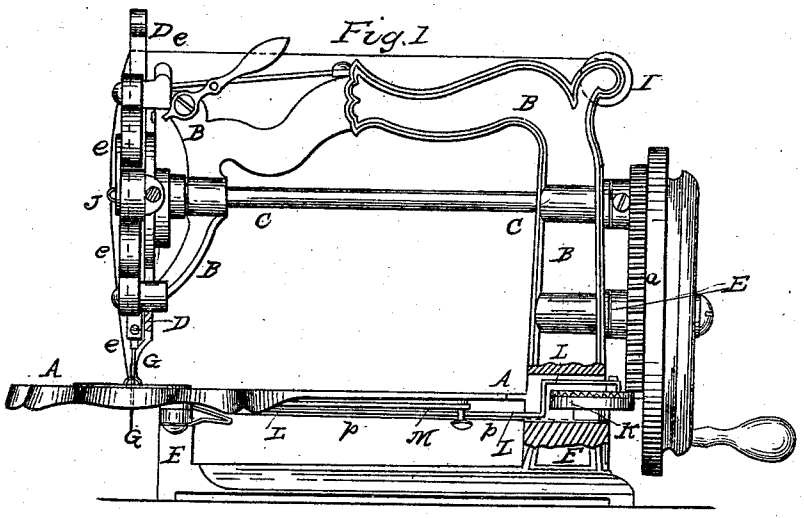


Fig. 2

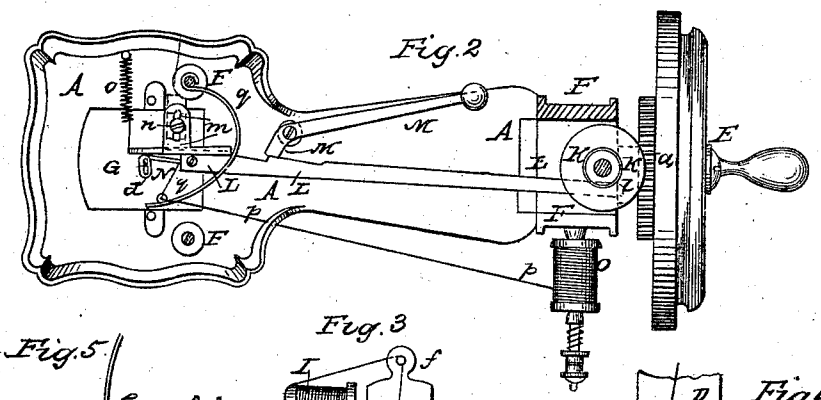


Fig. 3

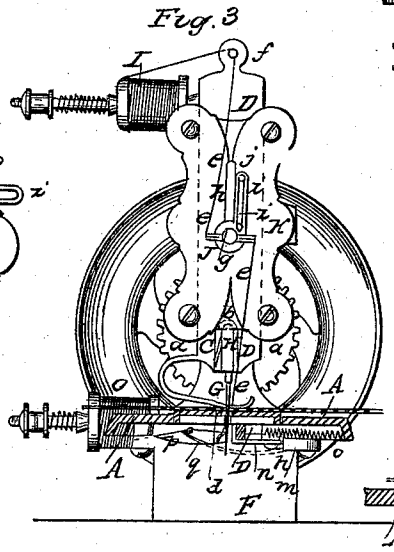


Fig. 5

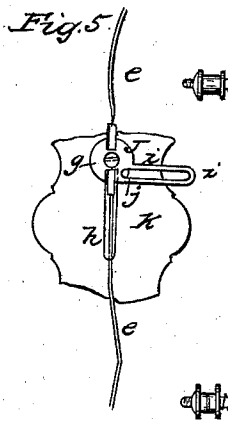
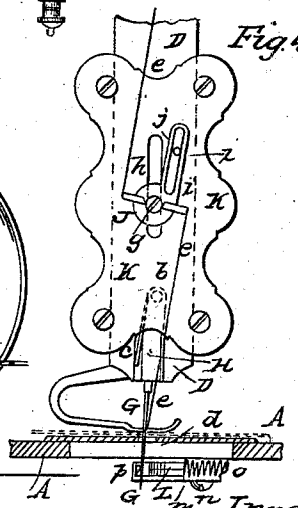


Fig. 4



Witnesses
Alex. F. Roberts
Saml. C. Jones

Inventor
G. W. Baker
per Munn & Co.
Attorneys

N. PETERS. Photo-Lithographer, Washington, D. C.

United States Patent Office.

GEORGE W. BAKER, OF HINSDALE, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND WARREN E. EASON, OF THE SAME PLACE.

Letters Patent No. 70,152, *dated October* 29, 1867.

IMPROVEMENT IN SEWING MACHINES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE W. BAKER, of Hinsdale, in the county of Cheshire, and State of New Hampshire, have invented a new and improved Sewing Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation, partly in section, of my improved sewing machine.

Figure 2 is an inverted plan view of the same.

Figure 3 is a front elevation, partly in section, of the same.

Figure 4 is a similar view on an enlarged scale, showing the parts in a different position.

Figure 5 is a detail front view of the take-up device.

Similar letters of reference indicate corresponding parts.

This invention relates to a new sewing machine, of that class in which the cloth is fed by a lateral oscillating motion of the needle, and in which the lower thread is carried by a looper-bar or under needle-bar through the loop formed by the needle.

The invention consists in arranging a bar under the platform of the sewing machine, which is pivoted at its rear end eccentrically to a horizontal gear-wheel, driven by the main gear-wheel of the machine, so that a kind of oscillating motion is imparted to this bar. Its front portion, which is below the front part of the machine, is, by a spiral or other spring, drawn off the needle against an adjustable stop, and thus, when the aforesaid horizontal gear-wheel is turned, the bar will be moved forward and backward, and will have its fulcrum on the aforesaid stop, whereby, as the stop is close to its front end, and as the diameter of the gear-wheel is not large, the side motion of the said bar will be very little. Still it will be large enough to make the front end of the bar strike against the needle, when the same is down with thread for a new loop, thereby feeding the cloth before a new loop is formed. The lateral motion of this bar can be considerably increased, and with it the length of stitch, by means of a cam or lever, which is arranged below the platform, and which can be set so that the bar is moved by it against the needle, whilst its pivot is on that side of the axis of the gear-wheel (by which the bar is moved) on which the cam is, and the bar is, during that time, not in contact with the aforesaid adjustable stop. As soon as its pivot arrives at the other side of the axis of the gear-wheel, the front end of the bar will, by the aforesaid spring, be drawn against the stop. The looper is secured to the front of this bar on the needle side of the same, and is, while the needle is moving upward, and while the upper thread is slackened, moved through the loop formed on the needle, carrying the lower thread through the same. The aforesaid stop is adjustable for the purpose of allowing it to be set to needles of different thickness, so that the looper may always pass close to the needle through the loop.

The take-up device, by which the tension of the upper thread is regulated, is a tube formed on a disk, pivoted by a pin or screw to the needle-bar, and sliding up and down with the same, a vertical slot being arranged in the casing of the needle-bar for the said pin to move in. The disk has a slotted arm or extension, which fits over a stationary pin projecting from the casing. As the needle-bar moves up, the arm slides on the pin, and the loop through which the thread passes is brought into an alternate horizontal and vertical position, slackening the thread in the latter and tightening it in the former position. The needle is secured in a bar, which is pivoted in the reciprocating needle-bar, in which a groove for the reception of the said bar is arranged. As the needle is thrown to the left-hand side by the looper-bar, it swings on the pivot in the needle-bar, and when the needle is raised out of the cloth, it is thrown back to the right-hand side by a spring provided in the needle-bar for that purpose, and is held in that position by the said spring, during its downward stroke, until it is again moved by the looper-bar. The platform of the machine rests upon supports or standards, which, when extending across from one side to the other, should be perforated or cored to let the looper-bar pass through.

A represents the platform of a sewing machine. B is the standard, which acts as support for the needle-bar, and as bearing for the upper shaft C, by which the needle-bar D is moved, and for the main driving-shaft E, upon which the main gear-wheel *a* is mounted. F F are the standards, arranged under the platform to support the machine and to protect those devices for operating the machine which may be arranged on the

ander side of the platform. All these parts, A, B, and F, can be cast in one, of iron, or be made of other suitable material, and of any suitable form or shape. G is the needle, which is fitted in a bar, H, which is pivoted by a pin, *b*, to the needle-bar D, the latter being grooved, so as to allow the bar H to swing to the left-hand side, as shown partly by dotted lines in fig. 4. A small spring, *c*, arranged in the groove, tends to press the needle to the right. In the platform A is, below the needle, the ordinary slot *d*, through which the needle passes during its up and down movement. The upper thread *e* is taken from a spool, I, which fits upon a spindle projecting from the standard B through a hole, *f*, in the upper part of the needle-bar D, through a take-up device, J, to the lower end of the needle G, through which it is fitted, as usual. The take-up device is a straight loop or slot, fitted upon or formed in a disk, which is, by a pin, *g*, pivoted to the needle-bar, a slot, *h*, being provided in the casing K of the needle-bar, to allow the pin *g* to be carried up and down by the needle-bar. From the disk J projects a slotted arm, *i*, which slides upon a pin, *j*, fitted to the casing K. Thus, as the needle-bar moves up, the arm *i*, which is at right angles to the loop J, figs. 3, 4, 5, is vertical, or nearly so, and the loop J horizontal; but the higher it moves the more will the pins *g* and *j* come to the same level, and when quite up the arm *i* will be quite horizontal, as in fig. 5, while the loop J will be vertical. By this arrangement the thread is tightened, as long as the loop J is in a horizontal position, and slackened when it is in a vertical position, the latter position being when the needle is quite raised. In fig. 3 the needle is represented as quite down; in fig. 4 it is partly, and in fig. 5 quite raised. The gear-wheel *a* meshes into the teeth of a horizontal crown-pinion, *k*, which is fitted upon a vertical arbor, as shown in fig. 1. The looper-bar L is pivoted at its rear end by a pin, *l*, to the surface of the pinion *k*. Its front end is held up by and rests upon a plate, *m*, which is, by a screw, *n*, fixed to the under side of the platform, as shown in fig. 2. The front end of the bar L is on the right-hand side of the needle, and is drawn away from the needle by a spring, *o*, fig. 2. A pin, *p'*, fitted on the bar L, strikes against the inner edge of the plate *m*, and unless a lever or cam, M, which is pivoted to the under side of the platform A, is set so as to throw the bar L, during part of its motion, off the plate *m* towards the needle G, the lever will always be guided on *m*. The extreme front arm of the bar L strikes the needle once during each stroke, and moves it to the left in the slot *d*, as shown in fig. 4, thereby feeding the cloth. From the shape of the lever M, as shown in fig. 2, it will be seen that the bar L can be moved more or less sideways by the same, and that therefore the length of stitch and feed can be regulated at will. The looper N is fitted to a shoulder formed on the bar L, so as to be on the left-hand side of the extreme front end of the bar, and so as not to reach quite as far to the front as the same, (see fig. 2.) This looper carries the lower thread *p*, which is taken from a spool, O, which is fitted upon a spindle projecting from the standard B or platform A. The thread *p* is kept always tight by an elastic spring, *q*. The plate *m* is slotted, as shown, to allow its being adjusted to needles of different thickness, so that the looper may always be brought through the loop *e* close to the needle G.

The operation is the same as on all sewing machines as regards the formation of the loop by the needle-looper. The standards F F must be cored or perforated, to allow the arrangement of the looper-bar L.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the gear-wheel *a* and crown-gear K, needle-feeding bar L, carrying the looper N and pin *p'*, as herein described for the purpose specified.

2. Regulating the lateral or feeding action of the needle-feeding bar L, carrying the looper, by means of a cam or lever M, made substantially as herein shown and described.

3. Combining the looper-bar L and looper N with the slotted or adjustable plate *m*, spring *o*, and lever M, or its equivalent, all made and operating substantially as and for the purpose herein shown and described.

4. The take-up device J, constructed as described, when arranged, as set forth, on the needle-bar D, and when operated by the motions of the same, and by the stationary pin *j*, in combination with the hinged bar H, needle G, and looper-bar L, all made and operating substantially as and for the purpose herein shown and described.

GEO. W. BAKER.

Witnesses:

WM. F. MCNAMARA,

ALEX. F. ROBERTS.