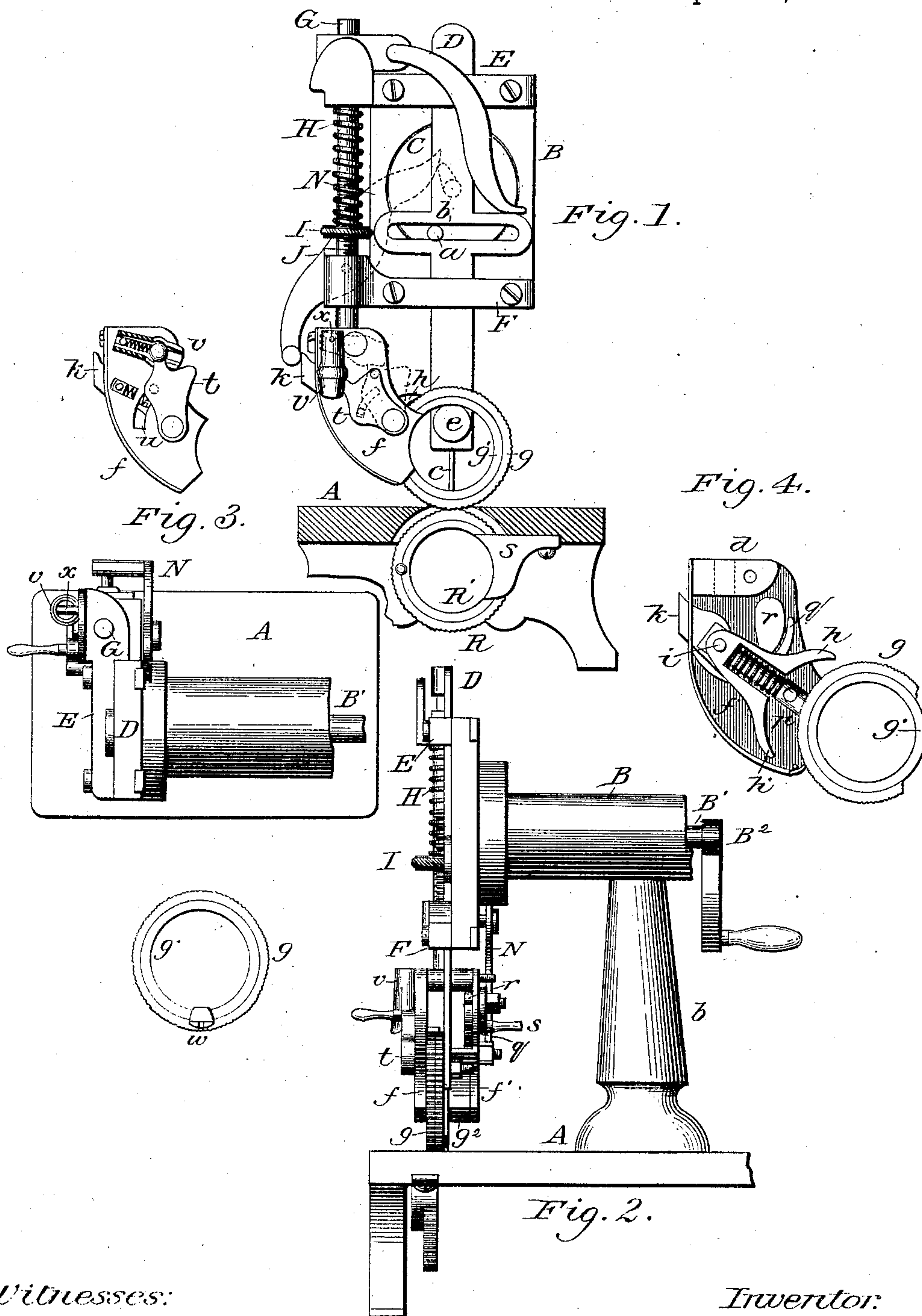


W. W. ALLEN & J. MOLYNEUX.

SEWING MACHINE.

No. 27,944.

Patented Apr. 17, 1860.



Witnesses:

Inventor:

UNITED STATES PATENT OFFICE.

WM. W. ALLEN AND JAMES MOLYNEUX, OF BORDENTOWN, NEW JERSEY,
ASSIGNORS TO THEMSELVES AND JOHN L. McKNIGHT, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 27,944, dated April 17, 1860.

To all whom it may concern:

Be it known that we, WM. W. ALLEN and JAMES MOLYNEUX, of Bordentown, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines and Feed-Motions for them; and we do hereby declare that the same are described and represented in the following specification and drawings.

To enable others skilled in the art to make and use our improvements, we will proceed to describe their construction and operation, referring to the drawings, in which the same letters indicate like parts in each of the figures.

Figure 1 is a front elevation of our improvements, with such other parts as are necessary to understand them. Fig. 2 is an elevation of one side. Fig. 3 is a plan or top view, and Fig. 4 the feeding apparatus with one side of the box removed.

The nature of our invention and improvements in sewing-machines consist in making the pivot of the feeding-wheel with an opening through it, through which the needle may be threaded whether the same is arranged above or below the cloth; also, in a feeding circle or wheel with teeth in each direction, operated by a two-armed pawl and toggle with a spring-link.

In the accompanying drawings of our improvements in sewing-machines, and in the feed-motion for them, A is the base or plate upon which the material to be sewed is laid. B is a stand, which may be made in the form shown, or in such other form as will answer the purpose, and is firmly fastened to the base A. The upper portion of the stand B is perforated for the shaft B', which turns freely in it, and may be turned by the crank B², or by a pulley and band. The face of the stand B has a circular recess in it for the plate C, which turns in it, being fastened to the shaft B', to carry the crank-pin *a*, which is fastened in the plate *c*, to traverse the needle-bar E by working in the slot *b* across the needle-bar. The needle-bar D is made in the form shown in the drawings, and carries the needle *c*, which is clamped against its lower end by the bolt *e*. The needle-bar D traverses in scores in the bars E and F, fastened to the face of the stand B, as shown in the drawings; and the rod C,

which has the feeding apparatus fixed at its lower end, is arranged to turn and traverse in the ends of the bars E and F. The feeding apparatus is pressed against the cloth, being sewed by the coiled spring H, under the bar E, and around the rod G, acting against the nut I on the rod, which nut may be turned to lessen or increase the pressure on the cloth. The feather J in the rod G is fitted to a score in the end of the bar F, to prevent the rod from turning, unless the rod is raised so as to bring the feather above the top of the bar. The lever K vibrates on the yoke L, which fits a score in the rod G, to lift it with the feeding apparatus, so that it can be turned away from the needle. As the lever K is raised the end of it works on the top of the bar E, and the plate M, fastened to the bar, holds the lever and yoke to the rod G. The rod G has a square foot at its lower end, shown at *d*, Fig. 4, to which the sides *f f'* are fastened, between which some parts of the feed-motion work.

The feed-motion, which I will now describe, consists of the metal circle *g*, with teeth on its periphery. The teeth on one half of its width may point in one direction and on the other half in the other direction, so as to adapt them to the pawls *h h'*, one of which turns it one way and the other the other way, as required by the operator. This circle *g* turns freely on the circle *g'*, which is fastened to the side *f* and to the block *g²*, which connects it to the side *f'*. (See Fig. 2.) The pawls *h h'*, Fig. 4, vibrate on the pin *i*, fastened in the slide *k*, which slide traverses on the pin *p* in the block *g²*, and is pressed back by the spiral spring on the pin. The lever N vibrates on a screw in the bar F, and has the pin P in its lower end, which pushes the slide *k* and pawls to turn the feed-circle *g* when the upper end of said lever N is raised by the tappet Q on the shaft B'. (Shown by dotted lines in Figs. 1 and 2.) The tappet Q is so placed as to move the feed and traverse the cloth when the needle is drawn out of it. The slide *k* has a crooked arm on it lying against the side *f'*, as shown at *q*, Fig. 4, and the cam *r*, which is turned by the crank *s* on the back side of the box, acts against the crooked arm *q*, so as to adjust the distance the slide is pushed back by the spring and vary the feed-motion to make the stitches longer or shorter, as required. The pawls *h* and *h'* are

not both in gear at the same time; but either may be thrown out or into action at pleasure without stopping the machine, so as to reverse the feed-motion while the machine is running. To effect this there are two toggle-links on the front of the side *f*, which vibrate freely. The lower link, *t*, has a pin in it, which works in the slot *u* and between the shanks of the pawls, so when the toggle is in the position shown in Fig. 1 the pin presses against the under side of the pawl *h* and holds it from the circle *g*, and at the same time holds the pawl *h'* against the circle *g*, the link *t* being held up by a spiral spring in the link *v*, which vibrates on the pin *x*. When the operator desires to reverse the feed, he moves the link *t* to the position shown by dotted lines in Fig. 1, which carries the pin in the link from the pawl *h* to the pawl *h'*, pressing it from the circle and carrying the pawl *h* to the circle, so as to turn it in the opposite direction and reverse the feed. There is a small piece, *w*, fastened to the circle *g'*, which projects down by the side of the circle *g*, to hold the cloth down and to prevent it from being drawn up by the needle.

The circle *R* is arranged to turn freely on the stationary circle *R'*, which is fastened to the stand *S* on the under side of the base *A*, so as to hold the circle *R* right under the circle *g*, which will press the material sewed against it so that the friction of the material will turn the circle *R*. If, however, it should be desirable to operate the circle *R* with a positive motion, a cam, *T*, may be arranged to operate a lever, as shown in Fig. 5, and traverse the pawls *V*, so as to turn the circle *R* in either direction, as may be required, the toggle *Y* being arranged to change the pawls in a manner similar to that in the feed-motion heretofore described, and the end of the lever *W* is cam-shaped, so that by turning it the traverse of the pawls is varied so as to make long or short stitches. The circle *R* may be raised or lowered by turning the screw that holds the stand *S*. We are aware that, instead of the circle *g*, a wheel may be used turning on a pivot in an arm; but we prefer the circles *g* and *g'* with an opening through them, through which the needle may be threaded without turning the feed-motion away from the needle; but whenever it is desirable for any cause to turn the feeding-circle away from the needle it may be done by raising the feather *J* out of the score, when the feed-motion may be swung around out of the way, so as to allow free access to the needle, and swung back again when desired.

Although we think we have constructed our improvements in the best form that we have devised, we contemplate that skillful artizans may vary them to suit the circumstances under which they may wish to use them without detracting from the principles or merits of the improvements which we have invented, and that the needle-bar may be made with two

prongs to carry two needles—that is, one needle on each side of the feeding-circles, so as to sew two rows of stitches at the same time; also, that an arm may extend from the needle-bar to operate the feed-motion, instead of the tappet described; and if two needles are used—that is, one on each side of the feeding-circles—it will be desirable to have another piece like *w* on the opposite side of the circle to prevent the needle from drawing up the cloth being sewed; also, that the needle-bar may be traversed by a cam, either grooved or otherwise, instead of the crank-pin described. And we further contemplate that feed-motions different from ours may be fixed at the lower end of a rod, which may be raised and swung around away from the needle.

Although we have not shown a looping device, or any device to carry another thread, yet we expect a shuttle or needle carrying a thread may be used below the cloth sewed, so as to form stitches by the interlocking of two threads, or that a hook or some other apparatus may be used below the cloth sewed, so as to form a link-stitch with a single thread; and, further, we contemplate that when two needles are used on the top of the cloth a shuttle or needle may be used under the cloth in connection with one of them and a hook or some looping apparatus in connection with the other needle, so as to sew two rows of stitches at the same time, one row by the interlocking of two threads and the other row by linking a single thread.

We find our improved rolling feed to be a great advantage in sewing soft, thick, spongy materials, as it rolls them under smoothly without crimping or ruffling them up, and does the work much better than the feed-motions heretofore used. Besides, our improvements for reversing the feed without stopping the machine enables us to save one-third of the time or work one-third faster in quilting and stitching.

We believe we have described and represented our improvements in sewing-machines so as to enable any person skilled in the art to make and use them.

We will now state what we desire to secure by Letters Patent, to wit:

We are aware that a pad to hold the cloth down on the feeding apparatus has been arranged to swing around away from the needle. Therefore we do not claim a swinging pad; but

We claim—

A circle with teeth on its periphery to feed the cloth or material being sewed, when said circle is arranged to turn on a stationary, ring through which the needle may be threaded, whether said feeding-circle is arranged above or below the cloth.

WILLIAM W. ALLEN.
JAMES MOLYNEUX.

Witnesses:

THOMAS BENNETT,
F. B. GORDON.