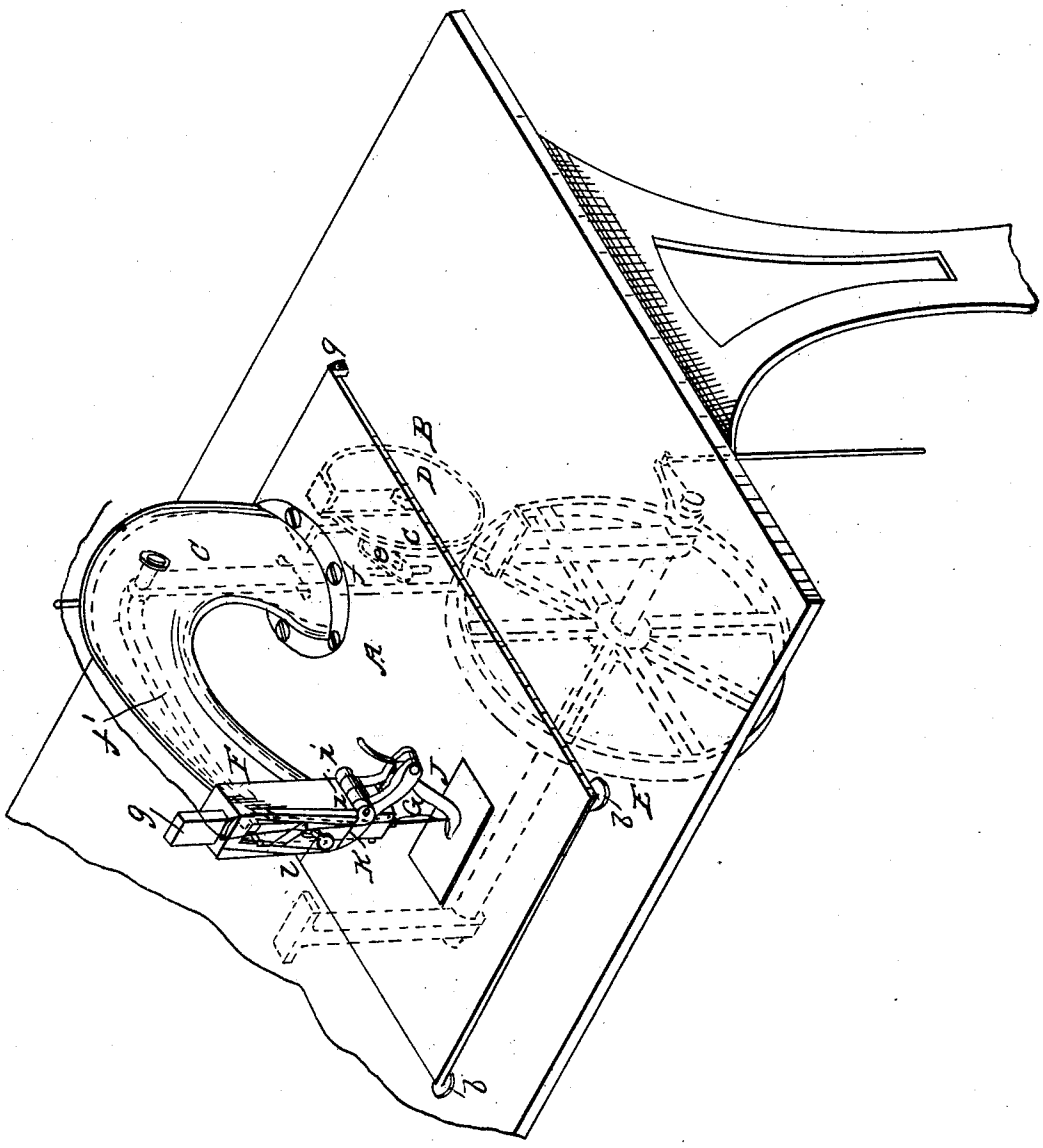
D. HARRIS.

Sewing Machine.

No. 21,672. Patented Oct. 5, 1858.



UNITED STATES PATENT OFFICE.

DANIEL HARRIS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **21,672**, dated October 5, 1858.

To all whom it may concern:

Be it known that I, DANIEL HARRIS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full, clear, and sufficient specification, reference being had to the accompanying drawing, which is a perspective view of the machine complete, and to the letters marked thereon.

As my present sewing-machine is in its most prominent characteristics substantially the same as those heretofore patented by me, I shall describe more specifically those parts of the same in which are involved my present invention—*i. e.*, the mode of transmitting the motive power from the fly-wheel to the operating parts of the machine, the peculiar construction of the goose-neck or body of the same, and the method by which I obtain and regulate the feed.

The bed-plate A is not permanently attached to the table B, but turns at the back corners on two pivots inserted in lugs rising from the table at *a*, and also rests at the front corners upon two disks of india-rubber at *b;* and since the goose-neck C, which supports the needle-bar and all the apparatus, both for operating it and for producing the feed, and also the pinion D, which transmits the motion from the fly-wheel E to that apparatus, are firmly attached to said bed-plate, the one to the upper and the other to the lower side, respectively, as shown, it is manifest that by lifting the bed-plate about the pivots *a* the pinion D will at once be disconnected from the fly-wheel E and the motion of the operating parts of the machine be promptly arrested, while the connections and mutual relations of all other parts of the machine are entirely undisturbed. In order that the efficient contact between the fly-wheel and pinion may be thus readily broken when the bed-plate and pinion are raised, and also perfectly and instantly restored when they are let down again, the connection between them is not made by cogs, (the teeth of which would be liable to be broken if subjected to this sudden gearing and ungearing, and could not be so readily thrown into working contact,) but by a ring, *c*, of india-rubber or gutta-percha, fitting into a groove on the periphery of one wheel, and equally fitting onto and either acting upon or being acted upon by, as the case may be, the periphery of the other.

It is obvious that a gutta-percha band on the periphery of either or of both wheels, being either flat or round, would be equivalent to the ring and groove. The centers, therefore, of the two wheels being so placed that the pinion can readily be lifted up from the fly-wheel, and that the gutta-percha ring or band will be closely pressed between their peripheries when the bed-plate rests upon the disks *b b*, the end is obviously attained. The motion thus received by the pinion or pulley D is transmitted through the crank *e* to the bent lever *f*, whose upper arm, *f'*, works the needle-bar *g*. This bent lever, as is shown, is contained and rocks upon a pin, *h*, as a fulcrum in the hollow of the goose-neck *b*, which has therefore been cast in two or more pieces, in order to admit the introduction of said bent lever; but by giving to this goose-neck the shape and proportions shown, I am enabled to introduce the lever into the completely-formed body, and consequently am left at liberty to cast the latter in one piece about a core, securing thereby a great gain in point both of economy and strength.

On one side of the case F, in which the needle-bar works and which is riveted to the end of the goose-neck C, as shown, is pivoted by lugs at *i* the feed-stock G, to the lower ends of whose arms is attached the band *j*, provided with a spring and finger-piece, as shown, through which it can at any moment be raised from the cloth. Projecting from this feed-stock, and in front of the case F, is a plate, *k*, of the same width with the case, from which is cut out a quadrangle whose vertical sides are parallel to those of the plate itself, but whose upper side is very oblique, as clearly shown in the drawing. Into the lower part of this quadrangle is fitted a slide, *l*, furnished with a set-screw, and whose upper side is parallel with the upper side of the open space itself. Into this space a pin, *m*, projects from the needle-bar, which, as the latter rises and descends, impinges alternately upon the oblique at the upper side of the slot or space and upon that of the slide *l*, which forms, as it were, the bottom of the plate *k*. This plate, thus presenting inclined planes to a force moving in a rectilinear path, is itself moved laterally alternately to the right and to the left about the pivot *i*, and moves with it, of course, the feed-stock G and band *j*, and thus feeds the cloth to the work. As by elevating the slide *l* is brought sooner

in the descending parts of the pin *m*, whose action upon the plate *k*, and consequently upon the feed-band *j*, thus commences sooner each time, and as the said action continues in all cases until the pin *m* has reached the end of its downward stroke, it is obvious that the continuance of this lateral motion, and consequently the extent of the feed and the length of the stitch, is then regulated by the position of the said slide.

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

1. Driving the needle-arm and the apparatus for effecting the feed and for forming the loops in sewing-machines by means of a pulley provided with an india-rubber ring or its equivalent, and hung in brackets cast onto the bed-plate, substantially as described, in combination with a fly-wheel, also hung in brackets, but which are attached to the table, said pulley and fly-wheel being arranged in relation to each other so that they may be readily thrown into or out of working contact, as set forth.

2. The peculiar construction of the hollow goose-neck, when so shaped as to admit of the insertion of a bent needle-arm and the vibration thereof upon a fulcrum within its goose-neck in the manner and for the purpose specified.

3. For feeding the cloth or other substance in sewing-machines, the feed-band connected by means of a yielding joint with the slotted plate containing the slide *l*, and forming therewith a parallelogram opening, in combination with a vibratory needle-stock having a pin projecting into said slot, so as to operate in the manner and for the purposes described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

DANL. HARRIS.

Witnesses:

A. POLLAK,

L. A. BIGELOW.