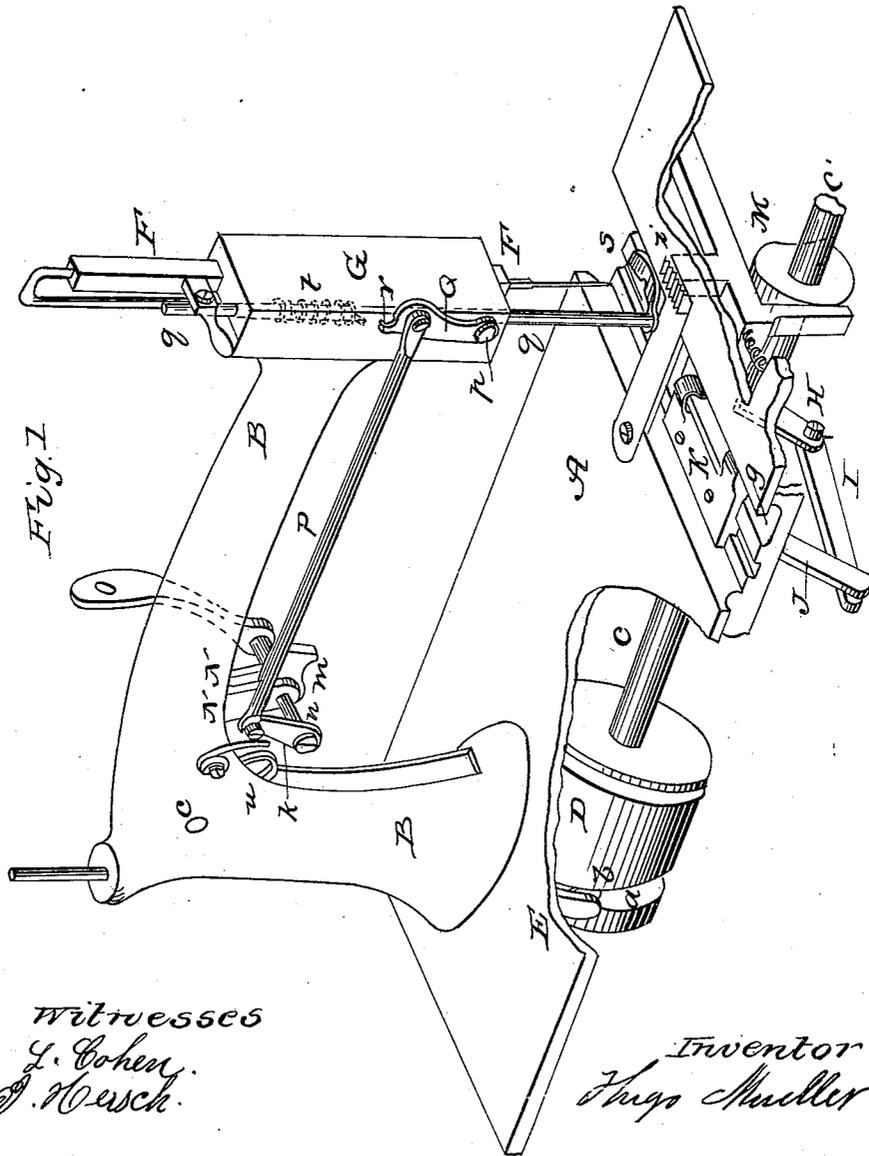


H. MUELLER.
Sewing Machine.

No. 28,996.

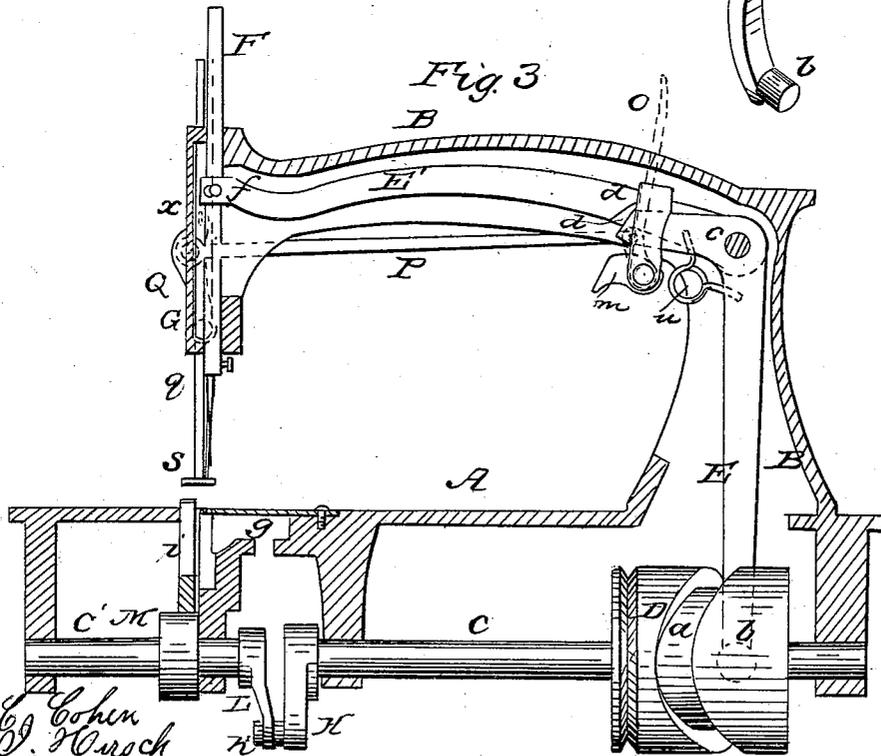
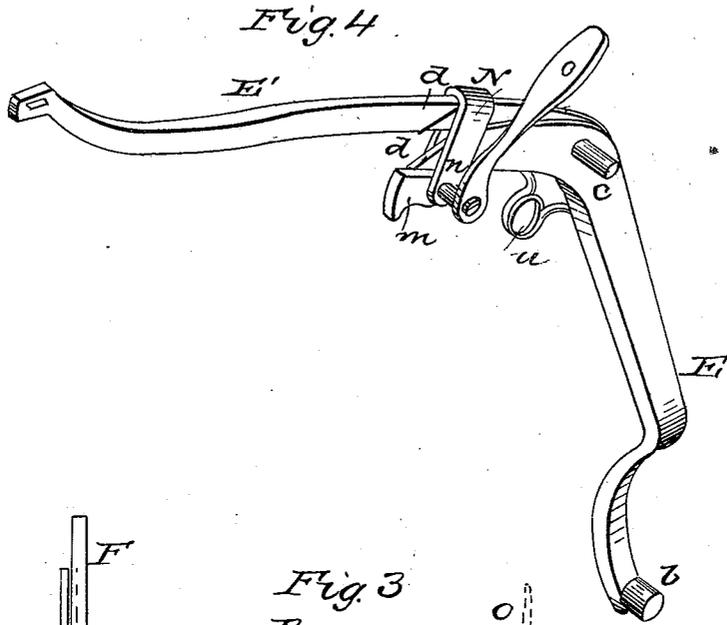
Patented July 3, 1860.



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*C. Cohen
D. Hirsch
Attest*

*Inventor
Hugo Mueller*

UNITED STATES PATENT OFFICE.

HUGO MUELLER, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 28,996, dated July 3, 1860.

To all whom it may concern:

Be it known that I, HUGO MUELLER, of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents in perspective so much of a sewing-machine as will illustrate my invention. Figs. 2 and 3 represent longitudinal vertical sections, showing the moving parts in different positions. Fig. 4 represents in perspective the needle-arm detached from the machine; and Fig. 5 represents the needle-arm as separated into its two elementary parts, to better illustrate its action and operation.

Similar letters of reference, where they occur in the separate figures, denote like parts of the machine in all the drawings.

Sewing-machines are run at a very high speed, and when it becomes necessary to turn the cloth or shift the seam the machine has to be entirely stopped; and to do this, first, the belt must be unshipped; second, the operator must apply his hand to the fly-wheel to check that; and, third, if the needle stops in the cloth, which it is most apt to do on account of the gravity of the needle-arm, he must turn the fly-wheel or crank-shaft until the needle rises out of the cloth before the cloth can be removed. This not only consumes time, but the speed is all lost, and is to be regained again before the sewing commences, which is an additional consumption of time.

The object of my invention is to obviate this loss of time and to preserve the high speed of the machine constantly, and yet release the cloth from the needle instantly, so that it may be turned or shifted and start the needle-bar as instantly at full speed again. This I accomplish by very simple and effectual means.

The nature of my invention consists in so connecting the needle-arm and the shuttle, second needle, or looper (that ordinarily works with the reciprocating eye-pointed needle to form a stitch) to the driving mechanism as that the needle may be stopped instantly, and out of the cloth, while the shuttle or other loop or lock forming mechanism runs on at full speed with the driving mechanism.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a table having upon it an arm, B, which may be hollow to receive the needle-arm within it. Underneath the table A there is hung in suitable supports or bearings a shaft, C, which gives motion to the several parts of the machine, this shaft being driven by any first-moving power, and in any of the ordinary well-known ways.

On the shaft C there is a cam, D, in the groove *a* of which the friction-roller *b* on the end of the needle-arm E runs, and which vibrates said arm on its pivoted point *c*. On this same pivot, *c*, is hung (what may be termed) a "secondary arm," E', or a continuation of the first-named one, E, the two parts of said arm overlapping or half-lapping each other, with a mitered joint, as at *d*, (more distinctly seen in Fig. 5,) and a shoulder, as at *e*. The end of this prolonged part of the needle-arm is connected by a slot and pin, *f*, to the needle-bar F, and vibrates it in its support G in the usual way when the two parts of the arm E E' are locked or connected together; but when said two parts of the arm are detached from each other, as will be hereinafter explained, then the part E continues to vibrate, while the part E' remains at rest.

On the shaft C there is a crank, H, to which a pitman, I, is connected, the other end of said pitman being connected through an arm, J, or otherwise to the shuttle-driver K, which runs in the raceway *g* and drives the shuttle to and fro in the usual well-known way. It is obvious, however, that instead of a shuttle for carrying a second thread, a needle or any other known device may be used; or, if a single-threaded machine, the looper or other device for catching, spreading, opening, and releasing the needle-thread may be used, instead of the shuttle or second needle, without varying the characteristics of my invention, a very slight modification of the mechanism admitting of the use of any or either of the devices used in connection with the perforating instrument.

The wrist-pin *h* of the crank H may pass through a second crank, L, on what may be termed a "continuation," C', of the shaft C, and on this part C' of said shaft may be placed a

cam, M, for operating the feeding-foot *i*, as shown in Fig. 1, for feeding the cloth along under the needle.

A clevis-strap, N, passes over the two parts of the needle-arm E E' at or near the mitered joint *d*, as seen more distinctly in Fig. 4, through the lower ends of which strap a shaft, *n*, passes, having upon one of its ends a lever, O, by which it can be turned; and on this shaft *n*, between the ends of the strap, is permanently fixed a cam-arm, *m*, that when raised up, as shown in Fig. 2, locks the two parts E E' together, making them, as it were, one piece, and when turned down, as shown in Fig. 3, disconnects them, so that the one, E, may continue to vibrate, while the other, E', remains stationary or immovable.

On the end of the shaft *n* opposite to where the lever O is placed there is an arm, *k*, fixed, to the end of which arm (or crank, for it serves the purpose of a crank) one end of a connecting-rod, P, is attached, the other end of said rod being attached to a trigger, Q, pivoted at *p* to the side of the guide piece or plate G, so that when the two parts of the needle-arm are disconnected by the movement of the lever O the same movement causes the trigger Q to press against a projection, *r*, on the stem *g* of the presser-foot *s* and raise up said foot and stem against the action of a coiled spring, *t*, which, the moment the trigger is removed, throws down the presser-foot upon the cloth to hold it to the feeding device or the table. Thus the stopping of the needle or its bar also raises up the presser-foot, and as the needle always stops, when out of the cloth, the instant the lever O is turned, as shown in red in Fig. 3, the cloth may at the same instant be moved or turned, it being free from the needle and the presser-foot. The shuttle, however, or the other device used in connection with the needle to form the stitch, continues to run with undiminished speed. By turning the lever O into the position shown in red in Fig. 2 the needle-arm is locked and the presser-foot let down, and the needle is at full speed and at equal pace with the shuttle or other instrument used in connection with the piercing-needle to form the stitch, and no time is lost in shifting a belt or in breaking the speed of the needle-bar, or drawing the needle out of the cloth or in again, getting up the speed to its highest point again, as is now the case in sewing-machines.

A spring, *u*, is placed under the part E' of the needle-arm, which will under most circumstances of itself raise up the point of said part E', and with it the needle-bar and needle, and

hold it up; but it may not do so when the strain of the needle-thread tends to hold down the needle; but when the miter on the part E strikes that on the part E' the latter is raised up, and then the spring holds it up, while the part E continues to run, without, however, carrying with it the part E' until locked or connected to it, as above described.

I have shown the disconnecting-point between the drive-shaft C and the needle-bar F at a definite place; but I put it where shown simply for the convenience of the operator, and do not confine my invention to any specific point between the drive-shaft or first mover and the needle-bar for making the connecting and disconnecting point. It is obvious that it may be anywhere between the shaft C and the needle-bar, but so made as that the connecting and disconnecting may be done when the machine is at full speed.

There are many of the details of the machine—such as the bobbin-holders, thread-guides, tension, &c.—which I do not propose to describe, as they do not enter into the subject-matter of the present claim, though material to the perfect action of a sewing-machine. They are, however, all shown, and the machine herein represented and described shows the whole principle and action in sewing, stopping, and starting at full speed.

I have said that when the needle is stopped it is stopped out of the cloth. This is not actually necessary, for sometimes it may be convenient to have it stop in the cloth, so that it may serve as a center or point around which the cloth may be turned. It is not therefore necessary that the needle should stop always out of the cloth; nor should its being made to stop either in or out of the cloth have anything to do with the leading element of my invention, which consists in stopping the needle instantly, without stopping the shuttle or its substitute, and starting the needle again at full speed, as mentioned above.

Having thus fully described the nature and object of my invention, what I claim is—

The so connecting of the needle-arm of a sewing-machine with the driving-shaft thereof as that the said arm or the needle-bar which it drives may be instantly stopped or started while the shaft runs continuously and at full speed, substantially in the manner and for the purpose herein described.

HUGO MUELLER.

Witnesses:

C. COHEN,
I. HIRSCH.