

A. Whittemore,

Motor.

No. 109478.

Patented Nov. 22. 1870.

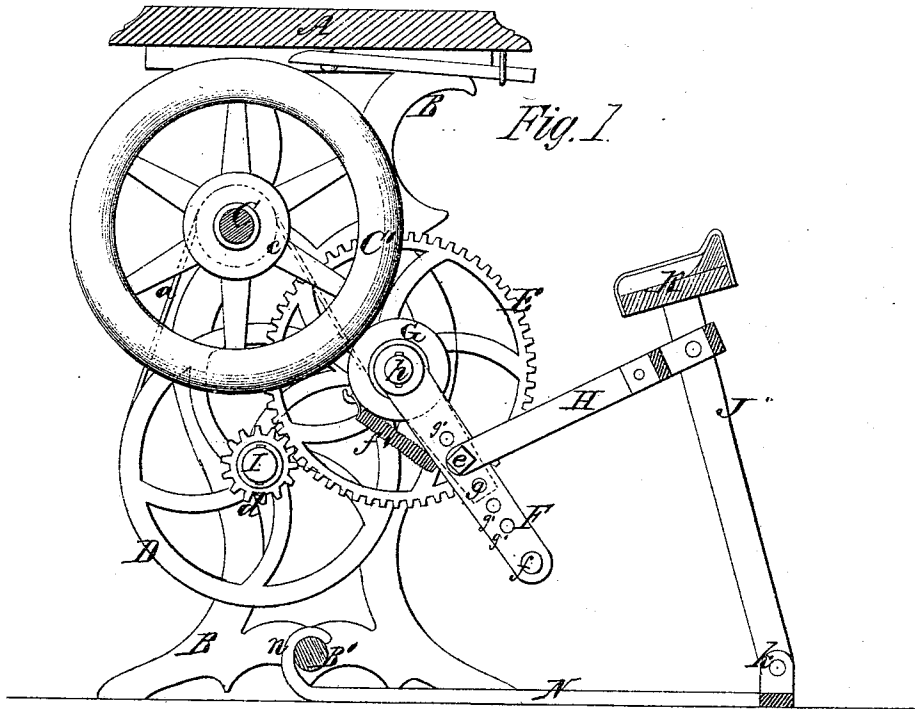
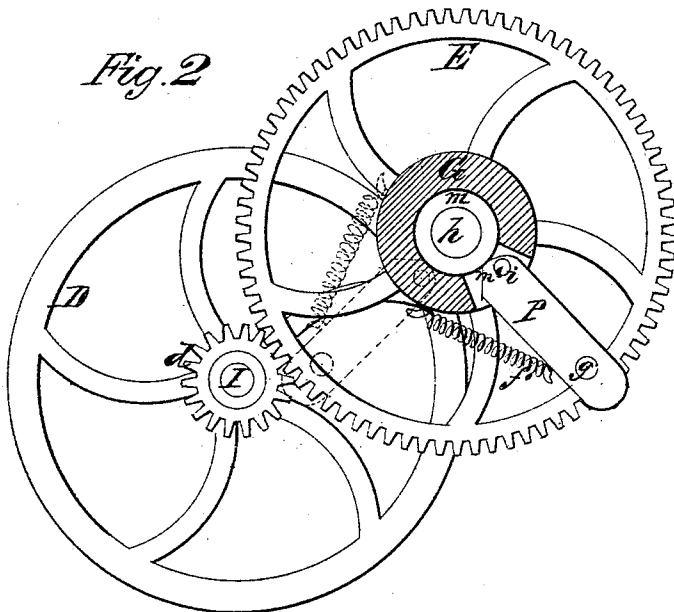


Fig. 2



Witnesses:
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AMOS WHITTEMORE, OF CAMBRIDGEPORT, MASSACHUSETTS.

Letters Patent No. 109,478, dated November 22, 1870; antedated November 14, 1870.

IMPROVEMENT IN THE MOTIVE MECHANISMS OF 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, AMOS WHITTEMORE, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented a new and improved Sewing-Machine Mechanism: and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a section taken transversely and vertically through a sewing-machine table, showing my improvement applied to it.

Figure 2 is a view in detail, showing the manner of applying the clutch-arm to the hub of the main spur-wheel.

Similar letters of reference indicate corresponding parts in the two figures.

The object of this invention is to relieve persons who sit at sewing-machines from the tiresome and injurious labor required to work the rocking foot-stands, and to employ in lieu thereof a vibrating pendulous pedal which is connected by a clutch to the shaft of the main driving-wheel, so as to allow the operator to transmit a continuous rotary motion to the said wheel by an easy forward-and-backward movement of the foot and leg, which movement may be either intermittent or regular, shorter or longer, as may be desired.

I also provide a vibrating seat or support for the operator, and when desired connect this support to the vibrating clutch, so that the operator, by a slight forward-and-backward movement of the body, can communicate rotary motion to the main driving-wheel.

And I also apply the vibrating seat to a movable base support, which will admit the removal of this seat from the machine when desired.

And, finally, I adapt the pitman or the arm, which is used to connect the vibrating seat to the clutch, to serve, when disconnected from said clutch, as a leg to the seat to hold it stationary, all as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawing—

A represents the top of a sewing-machine table, and

B the legs or standards thereof;

C is a horizontal shaft carrying a balance-wheel, C', and grooved belt-drums;

a is a belt which transmits rotary motion from a belt-wheel, D, on a short shaft, I, to a grooved belt-drum on the shaft C;

d is a spurred pinion which is keyed on the hub of wheel D; and

E is a large spur-wheel which engages with the teeth of and communicates rotary motion to the pinion d.

The spur-wheel E is applied on a fixed short shaft,

h, and on the cylindrical hub m of this wheel a clutch-collar or ring, G, is loosely applied, as shown in fig. 2.

An opening is made through the collar G into which is pivoted, at i, a clutch-lever, p, so that the reduced end m' of this lever will bear against the hub m of wheel E.

The longer arm of lever P has a stud, g, applied to it, which stud is received loosely into a hole which is made through a vibrating lever, F, as shown in fig. 1.

This lever F is applied on the shaft h, and at or near its free end is a foot-rest, f, on which the operator places his foot to work the machine when he sits on a stationary seat.

Several holes, g' g', which may be screw-tapped, are made through the lever F at different distances from the center of shaft h, into either one of which holes a pivot, e, is applied, which connects a rod, H, to lever F, as shown in fig. 1.

This rod H is pivoted to the vibrating standards J of a seat, K, and used in this manner when it is desired to work the machine by vibrating the seat K. To render the seat K stationary, in case it is desired to work the machine by the motion of the foot on the foot-stand f of lever F, the rod H is detached from said lever, and its end rested upon the floor, so as to form, in conjunction with the legs or standards J, a fixed support for the seat.

The standards J are in the present instance pivoted at k to a base, N, which rests upon the floor, and is connected to the bar B' of the table-standards B by means of hooks n. The base-frame N being thus applied to the machine, it will be seen that this frame, with the standards and seat, can be removed from the machine at pleasure.

Motion may be communicated to the driving-shaft of a sewing-machine applied on top of the table A, from a drum, c, on the shaft C, by means of a belt in the usual well-known manner.

In practice I prefer to apply a light spring, f', between the hub G and arm P, so that this arm will not fail to engage itself with the hub of wheel E at every working stroke. I do not, however, confine myself to the use of the spring, as by keeping the parts well oiled the clutch will work successfully. I also prefer to make the foot-stand f adjustable nearer to or further from the axis of motion of the lever F, thereby adapting it to the convenience of different persons.

It will be seen from the above description that, by giving a forward-and-backward motion to the lever F, by means of the foot on the foot-rest g, or by connecting-rod H, to said lever F, and vibrating the seat K, a continuous rotary motion in one direction will be imparted to the wheel E. This motion is produced by the clutch-lever P engaging with the hub of wheel E at each forward stroke, and being released from said hub during every backward stroke.

One great advantage in the use of the clutch, as above described, over the rocking pedals hitherto used is, that with the clutch a free forward-and-backward swinging motion of the foot and leg will communicate a rotary motion to the main driving-wheel, which swinging motion will not be as tiresome nor as injurious to the operator as the constant strain of the muscles required to rock the pedals hitherto used.

Another advantage attending the use of the swinging clutch as applied by me is, that the movements of the foot and leg may be shorter or longer, faster or slower, and regular or irregular, and still a regular motion may be imparted to the machine on the table.

I do not confine my invention to the use of a vibrating seat, as it has been shown that, with a stationary seat and the foot on the foot-rest *f*, the machine can be operated with very little physical labor. It will be seen that, by employing the vibrating arm *F* when the foot is used without the vibrating seat, and applying this arm directly on the shaft of wheel *E*, the weight and pressure of the foot and leg will not operate to retard or produce friction on the hub of the said wheel *E*. When the vibrating seat is used to communicate motion to the machine, the arm *F* may be removed, and the rod *H* connected directly to the clutch-arm *P*; or if it is not desired to remove the arm *F*, then the rod *H* may be attached to it, as above stated and shown in fig. 1.

Nor do I claim, under this application, the broad principle of a movable power-communicating seat for

utilizing the weight of a person sitting at a sewing-machine to drive such machine.

Having described my invention,

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

1. The clutch-arm *P*, constructed as shown, and applied to a sewing-machine or other analogous mechanism, substantially as set forth.

2. As elements of a sewing-machine or other analogous mechanism, the combination of the clutch-arm, constructed and arranged as described, collar *G*, and wheel *E*, substantially as set forth.

3. As elements of a sewing-machine or other analogous mechanism, the combination of the clutch-arm *P*, constructed as described, loose collar *G* on hub *m* of shaft *h*, wheel *E*, and pendulous arm *F*, substantially as described.

4. As elements of a sewing-machine or other analogous mechanism, the combination of the clutch-arm *P*, constructed as described, loose collar *G*, wheel *E*, arm *F*, pitman *H*, and detachable swinging seat and frame, substantially as set forth.

5. The seat and its frame, connected to the machine by means of hooks, so as to be detached, substantially as set forth.

AMOS WHITTEMORE.

Witnesses:

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