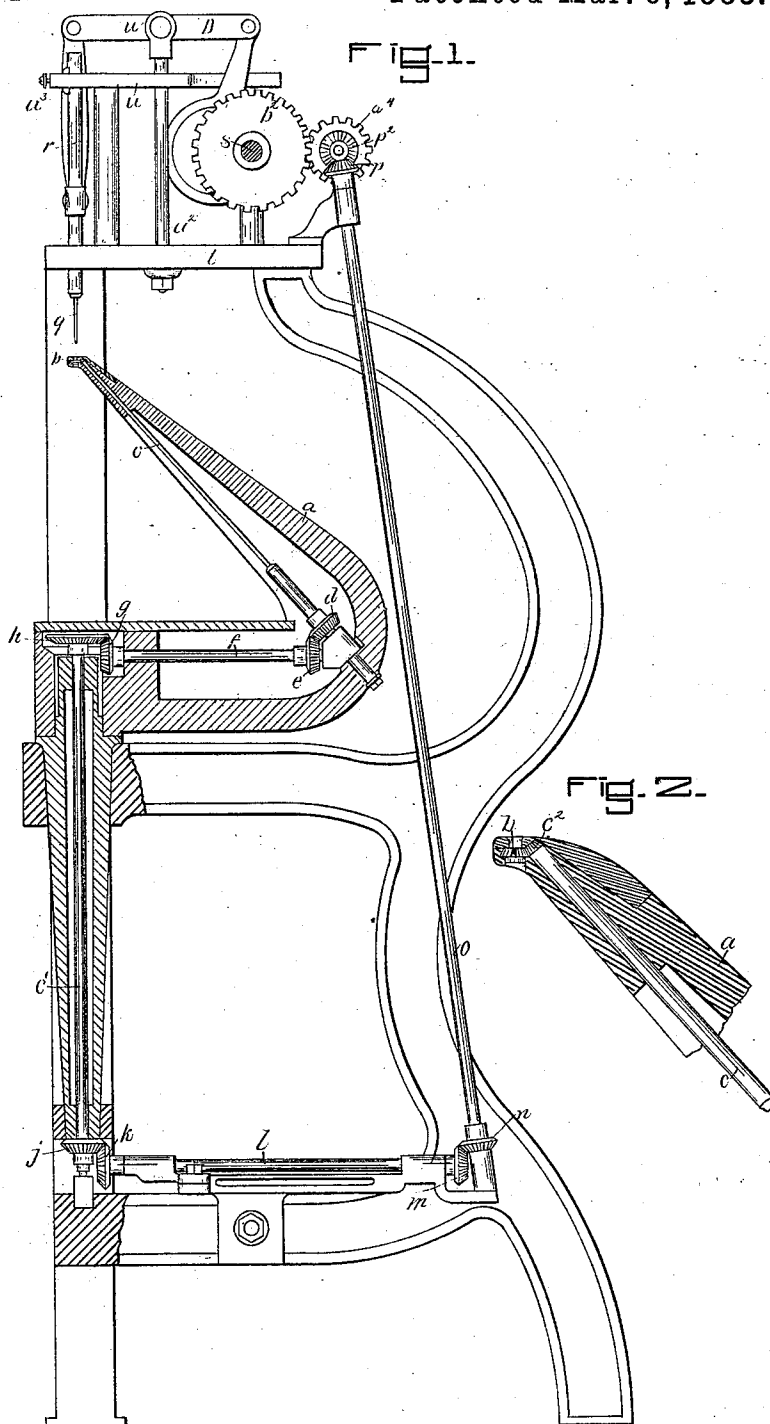


(No Model.)

J. C. HOADLEY.
SHOE SEWING MACHINE.

No. 273,531.

Patented Mar. 6, 1883.



WITNESSES
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UNITED STATES PATENT OFFICE.

JOHN C. HOADLEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO GORDON
McKAY, OF NEWPORT, RHODE ISLAND.

SHOE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,531, dated March 6, 1883.

Application filed August 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. HOADLEY, of Boston, Suffolk county, State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention in sole-sewing machines employing a hooked needle, a horn to support the work, and a thread-carrying whirl has for its object to increase the working speed and capacity of the machine, and make it run more steadily and with less breakage of parts.

Prior to my invention the whirl of the well-known McKay machine has had a rotary reciprocating movement imparted to it by mechanism which was frequently broken because of its sudden starts and stops and reversals of movement, and by reason of such mechanism the speed of the machine has been limited. It has been attempted to move the whirl continuously forward at a variable speed, necessitating irregular gears with irregular strains; and it has been attempted to employ a continuously-rotating whirl in connection with a hooked needle actuated by a crank, and with such needle, without a period of rest at the end of its downstroke, it has been proposed to employ a whirl having from four to five rotations to each stroke of the needle, and to actuate the said whirl by a complicated and very rapidly moving gearing. When the needle does not dwell at its downstroke to afford time for the whirl to lay its thread in the hook of the needle, it is obvious, to insure the placing of the thread into the hook of the needle, that the whirl must have one or more complete rotations while the hooked needle is passing through that very short space of its movement represented by the time that the needle is below the supporting-surface of the horn, and to do so, as the needle does not rest, a very high speed must be given to the whirl, and as there is a practical limit to the speed at which the whirl can be run it follows that excessive speed of the whirl necessitates a slower motion of the needle for its whole stroke.

In this my invention I do away with all complicated and expensive mechanism for operating the whirl, and impart to the latter by simple gears a uniform, steady, continu-

ously forward movement, preferably at a speed which gives two rotations of the whirl to one descent and rise of the needle and needle-bar, and the hooked needle, after penetrating the stock and passing below the supporting-surface of the horn, dwells to permit the whirl to deliver its thread to the hook with certainty.

Figure 1 represents in side elevation a sufficient portion of a well-known McKay sole-sewing machine, I having selected that form of machine to illustrate my invention; and Fig. 2, a detail of the horn to be referred to.

Referring to the drawings, the rotating horn *a*, whirl *b*, shaft *c*, bevel-gears *d e*, shaft *f*, gears *g h*, shaft *i*, gears *j k*, shaft *l*, gears *m n*, shaft *o*, gears *p p*², hooked needle *q*, needle-bar *r*, its actuating-lever *D*, movable fulcrum-rod *a*² therefor, friction device *a*³ to bear upon and hold the needle-bar at rest while the variable fulcrum-bar *a*² is being moved longitudinally in its bearings, and cam-shaft *s* and frame-plates *t u* are and may be all as common to sole-sewing machines, and substantially shown in Patent No. 201,987.

At the rear of the bevel-gear *p*², and on the shaft which carries the said bevel-gear, I have placed a pinion, *a*⁴, and on the cam-shaft *s*, which acts, as does the cam-shaft *a* in the said patent, to operate the needle-bar lever and reciprocate it and the hooked needle so that it dwells at its lowest point, I have placed a toothed gear, *b*², twice the size of the pinion *a*², which, through bevel-gear *p*, shaft *o*, and the parts before described between it and the whirl, revolves the said whirl twice during each rotation of the cam-shaft and each down and up movement of the needle-bar and hooked needle, the movement of the said whirl being in but one direction and at a constant uniform speed, without shock or jar. The speed of the whirl and its position with relation to the descent of the needle are such that the whirl carries its thread about and into the hook of the needle *q* as soon as the needle passes sufficiently below the stock to receive thread into its hook. The needle then, having a period of rest for its upward movement, is temporarily checked, although the eccentric for moving it continues to rotate. The whirl delivers its thread to the needle only at each alternate revolution of the whirl and while the needle is below the stock.

Making the movements of the whirl constant and uniform enables the machine to be run at higher speed with less liability of injury, imperfect stitching, or breakage of parts.

5 I wish it to be understood that I do not limit my invention to revolving the whirl but twice during each rotation of the cam-shaft, as I may, if desired, rotate it three times.

10 In Fig. 2, on an enlarged scale, I have shown the whirl *b* and the shaft *c*, with its beveled gear *c*² to move the whirl, the train of gearing actuating the whirl being such as to rotate the latter twice to each complete movement of the needle-bar and hooked needle.

15 I claim—

In a sole-sewing machine, a horn to support the material being sewed, a hooked needle,

and mechanism to reciprocate it and cause it to dwell at the end of its downstroke with its hook below the material, combined with a 20 whirl having imparted to it at least two complete revolutions to each up and down movement or complete reciprocation of the hooked needle, the said whirl being moved continuously in one direction at substantially uniform speed 25 to operate in connection with the hooked needle, as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN C. HOADLEY.

Witnesses:

G. W. GREGORY,
L. F. CONNOR.