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FEEDING MECHANISM FOR SEWING MACHINES.

Patented Dec. 1, 1891.



James F. Duhamel
Horace A. Dodge

Inventor,
By *Dodged Sons*
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(No Model.)

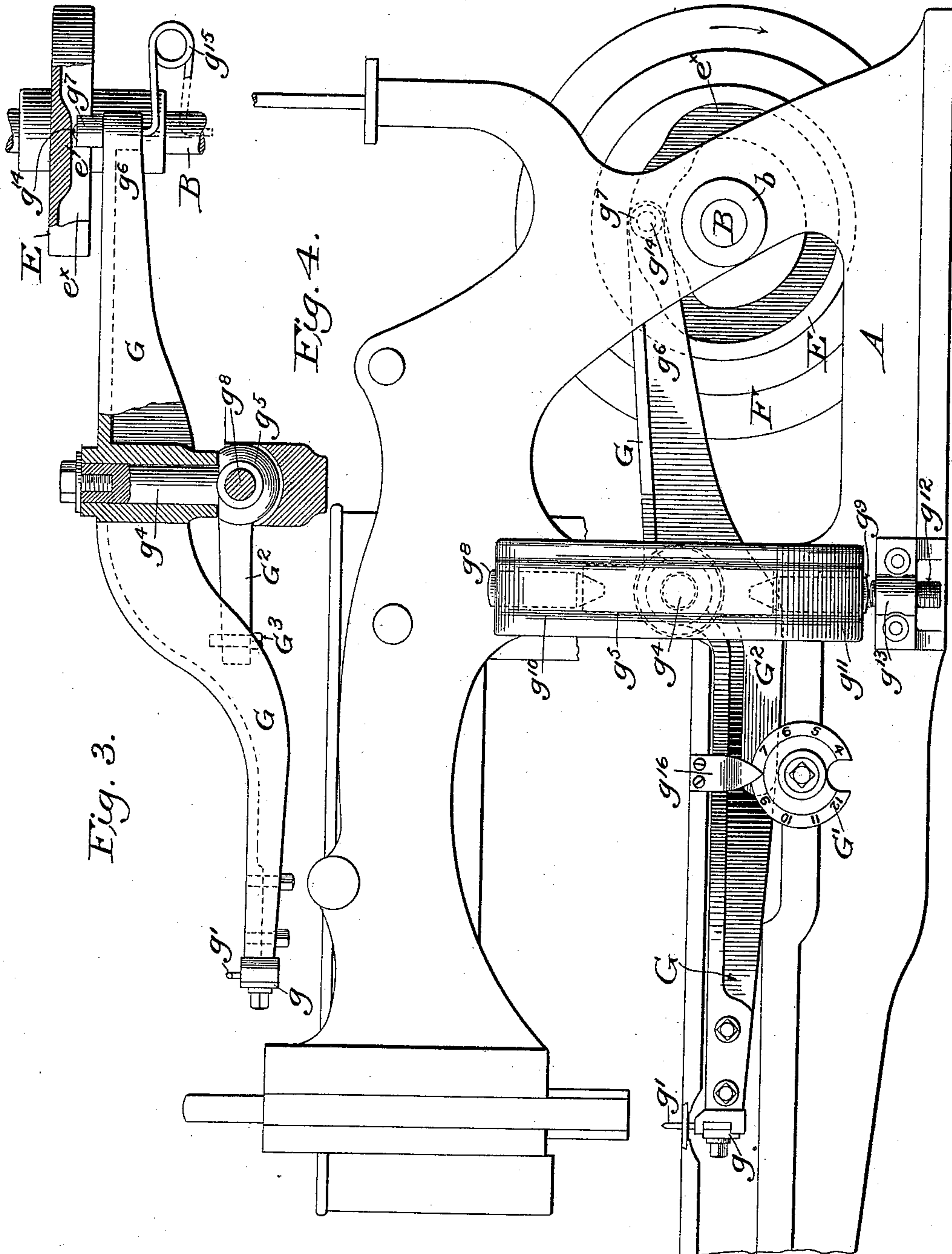
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M. H. PEARSON.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 464,480.

Patented Dec. 1, 1891.



Witnesses:

James F. Duhamel.
Horace A. Dodge.

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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 464,480, dated December 1, 1891.

Original application filed January 13, 1891, Serial No. 377,595. Divided and this application filed August 28, 1891. Serial No. 403,979. (No model.) Patented in England June 28, 1889, No. 10,481.


To all whom it may concern:

Be it known that I, MARSHALL HENRY PEARSON, mechanical engineer, a citizen of England, residing at Leicester, in the county of Leicester and Kingdom of England, have
5 invented certain new and useful Improvements in Sewing-Machines, (for which I have received British Letters Patent No. 10,481, dated June 28, 1889,) of which the following
10 is a specification.

This invention relates to a novel arrangement of wax-thread sewing-machines for making what is known as the "lock-stitch;" but parts thereof are applicable to machines
15 using a plain or unwaxed thread. In this machine the awl or piercing-tool is used as a feeder, and it is mounted on the end of a lever capable of receiving a compound motion, the awl being arranged below the work
20 while the needle is over the work. The work to be sewed is held down by the presser-foot, and as the awl rises it pierces a hole, and when it has reached its highest point it is moved backward for feeding purposes. The shuttle,
25 which has a reciprocating motion imparted to it through a pendulum-lever and connecting-rod through one of the grooves in the cam-plate, is also arranged below the work, and is so threaded that it will draw its thread
30 prior to entering the loop instead of afterward, as is usual. The presser-foot is secured to the lower end of a round bar sliding in suitable guides in the bracket-arm, and is pressed down by a curved spring also attached to the arm of the machine. To the
35 arm of the machine is also fixed the wax-pot (and water-reservoir) through which the needle-thread in passing through it is supplied with liquid wax. The thread-lever over which
40 the thread passes from the bobbin to the needle is pivoted to the arm of the machine and depressed by a cam-piece fixed to the upper end of the needle-bar and returned to its normal position by means of a spiral or other
45 spring. The thread-lever is also arranged to draw off the requisite amount of thread from the bobbin according to the thickness of the material operated upon. The thread led from a bobbin on the bracket-arm passes into the
50 wax-pot without any tension, so as to be capa-

ble of receiving the greatest amount of wax before it passes between the tension-plates arranged within the pot and on leaving the wax-pot passes through an india-rubber packing in a stuffing-box.

In the drawings, Figure 1 is a front end view, partly in section; Fig. 2, a rear end view; Fig. 3, a plan view, partly in section, of the awl-lever and its support and actuating-cam; and Fig. 4 a face view of my improved ma-
55 chine with the main actuating-cam removed.

A A is the main framing of the machine, cast, preferably, in one piece, and of a  form, one limb forming the base of the machine and the other limb the horizontal bracket-
60 arm.

B is the cam-shaft turning in bearings *b b'* of the main framing. On the cam-shaft is keyed the awl-cam E and the band-pulley F.

G is the oscillating awl-lever pivoted to the vertical rocking fulcrum-post *g⁵*, and fitted with clamps *g*, in which the awl *g'* is adjust-
70 ably mounted for piercing and for feeding forward the work.

G' is the stitch regulator or cam, of circular
75 form, so mounted upon the base of the main framing that an arm G² (projecting from the fulcrum-post *g⁵*, to which the oscillating lever G is connected) is made to strike it. The oscillating lever G, which carries the awl *g'*, is
80 pivoted at *g⁴* out of center to a vertical support *g⁵*, (hereinafter termed the "fulcrum-post,") and is armed at its rear end with a runner *g⁷*, which works in a groove *e^x* in the cam E, as shown in Fig. 3. The runner is fixed
85 to a pin *g¹⁴*, projecting from the end *g⁶* of the lever, and when the end of the lever is depressed and raised serves to impart a practically (though not strictly so) vertical reciprocating motion to the awl. When the awl
90 is raised, it will pass through the work—say a piece of leather—and when it has passed through it will feed forward—i. e., from the operator—the work, so as to bring the awl in a line with the needle. The feed movement
95 of the awl is effected by pivoting the lever G to the vertical rocking fulcrum-post *g⁵*, (which is supported by studs *g⁸ g⁹*, mounted in the bearings *g¹⁰ g¹¹*, the lower stud *g⁹* being capable of adjustment by means of a set-screw *g¹²*,
100

mounted in the end of a lower lug g^{13}) and causing the end of pin g^{14} to be pressed by means of a spring g^{15} against the face of a cam e , formed in the groove of the cam E, as shown at Figs. 3 and 4. The amount of feed and also the length of the stitch is regulated by means of the regulator or stop-piece G' , mounted on a pin fixed to the main framing of the machine, so as to be capable of being rotated by hand, as required. On the face of the circular piece G' are numbers corresponding, in the course of a single revolution, with the distances between the smallest or largest number of stitches per inch to be formed—that is to say, if the number of stitches vary from four to twelve or eight to sixteen stitches per inch then the numbers 4 to 12 or 8 to 16 will be marked on its face, as shown. If, say, ten stitches per inch were required to be sewed, then the center screw would be loosened and the index turned round till the 10 is opposite a pointer or marker g^{16} , fixed to the framing of the machine, as shown in Figs. 1 and 4. On the back of the circular piece G' is arranged one or more cam or cams g^{17} , decreasing about one-sixteenth of an inch in thickness for the largest to the smallest number of stitches per inch to be sewed. When the required number on the dial is reached, the circular piece is fixed in position by tightening the center screw. Against the face of the cam or cams g^{17} the end of a lever or arm G^2 (which may or may not be armed with an adjusting or correcting screw G^3) projects from the fulcrum-post g^5 , to which the awl-lever is pivoted, as shown in Fig. 3. By this means the traverse of the awl and the length of the stitches may be varied as required. The needle is timed to follow the awl point to point until the latter is below the work, when the awl is returned by the means described to its normal position, the

needle meanwhile continuing its descent to its lowest point and then rising to form the loop in the usual manner, through which the shuttle passes.

This application is a division of an application filed by me January 13, 1891, Serial No. 377,595, and all features not specifically claimed herein are reserved for said original application.

Having thus described my invention, what I claim is—

1. In a sewing-machine, the combination, with a shaft B and a compound cam E, of an awl-lever G, provided at one end with an awl and at the other end with a stud to engage the cam and adapted to rock laterally and vertically, an arm G^2 , and a cam g^{17} , to act upon the arm and thereby regulate the horizontal movement or "feed" of the awl-lever.

2. In a sewing-machine, the combination, with the awl-lever G and means for giving it the compound movement described, of a pointer secured to the frame of the machine and a graduated cam also secured to the frame of the machine and adapted to regulate the lateral movement of the awl-lever.

3. In combination with shaft B and cam E, awl-lever G, provided at one end with an awl and at the other end with a stud to engage the cam, a rocking support g^5 , carrying an arm G^2 , and a stud g^4 , upon which latter the lever rocks vertically, and a cam g^{17} to act upon the arm G^2 .

In witness whereof I hereunto set my hand in the presence of two witnesses.

MARSHALL HENRY PEARSON.

Witnesses:

JOSEPH HARVEY,

Notary, Leicester.

STEPHEN PEAKE,

16 Ann Street, Leicester, Solicitor's Clerk.