

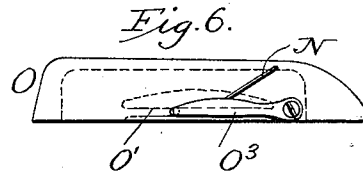
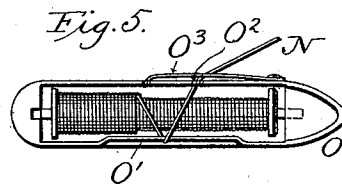
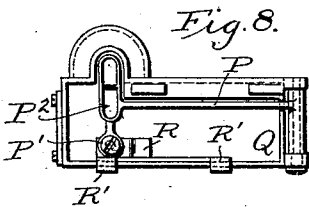
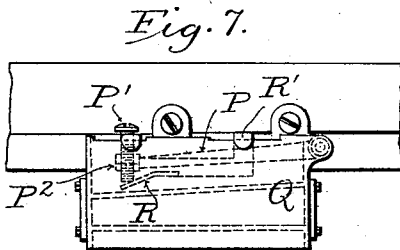
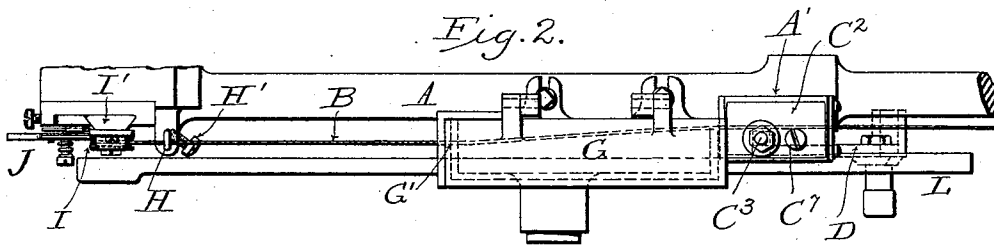
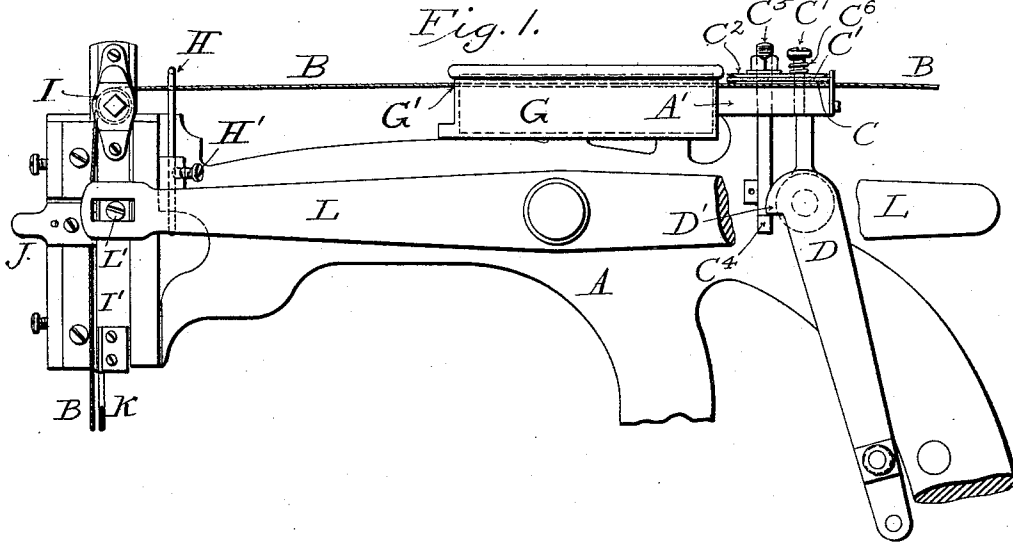
(No Model.)

2 Sheets—Sheet 1.

M. H. PEARSON.
SEWING MACHINE.

No. 536,891.

Patented Apr. 2, 1895.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

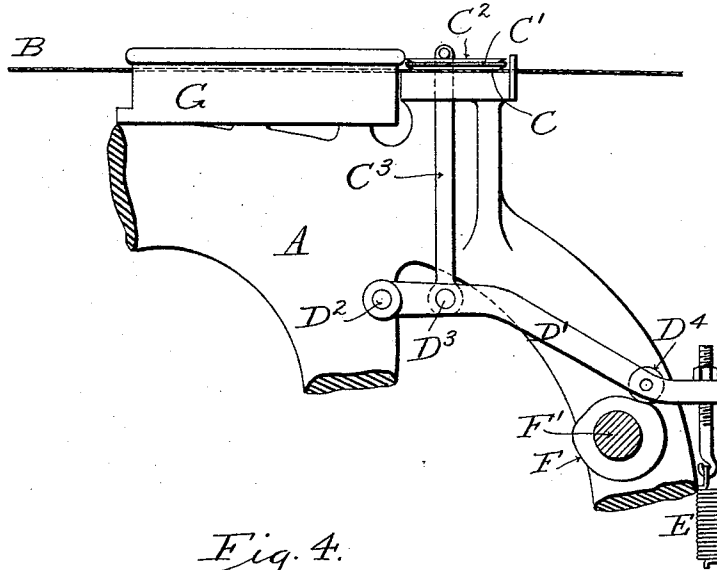
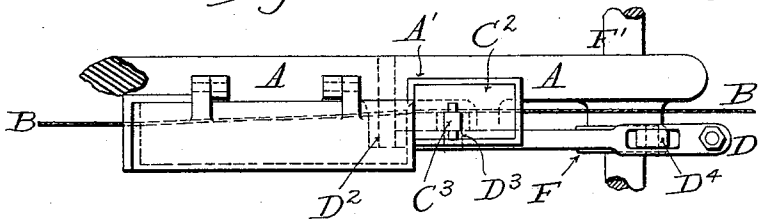


Fig. 4.



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UNITED STATES PATENT OFFICE.

MARSHALL HENRY PEARSON, OF LEICESTER, ENGLAND, ASSIGNOR TO THE
JOHN O'FLAHERTY COMPANY, OF MONTREAL, CANADA.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 536,891, dated April 2, 1895.

Application filed August 17, 1894. Serial No. 520,593. (No model.) Patented in England March 29, 1893, No. 6,656.

To all whom it may concern:

Be it known that I, MARSHALL HENRY PEARSON, a citizen of England, residing at Leicester, in the county of Leicester, England, have
5 invented certain new and useful Improvements in Sewing-Machines, (for which I have received Letters Patent of Great Britain, No. 6,656, dated March 29, 1893,) of which the following is a specification.

10 This invention is applicable to most kinds of sewing machines, but being especially useful with machines employing a waxed thread, as in the stitching of leather or the like, I
15 will now describe it in that connection, it being understood that I do not restrict the application of my invention to that particular type of my machine.

20 The invention deals with the treatment of the thread as to the tension, the taking-up or tightening of the loop, the locating of the lock in or upon the material being stitched, and so far as waxed and similar threads are concerned, to the waxing of the thread.

25 The details of the invention will necessarily vary with the different types of machines to which the invention is applied, notwithstanding that the same features would be substantially present in all, and in the accompanying drawings I have merely shown as an example
30 my invention as applied to a machine of the Thomas type.

In the drawings,—Figures 1 and 2 are respectively an elevation and a plan of the upper portion of a sewing machine provided
35 with my improvements, showing the needle thread nipping device operated by the shuttle lever. Figs. 3 and 4, Sheet 2, are views respectively similar to Figs. 1 and 2, showing
40 alternative mechanism for operating the thread nipping device. Fig. 5 is a face view and Fig. 6, a plan of the shuttle; and Figs. 7 and 8 are respectively a front elevation and a plan of the needle-thread waxing device.

45 Like letters indicate like parts throughout the drawings.

In applying my invention to a machine of, say, the Thomas type, as illustrated in the accompanying drawings, I place upon a suitable part of the frame work A, conveniently
50 on top, a flat table A', conveniently a part of the frame casting, and of suitable dimensions

for the purpose, and over this table or plate the needle thread B, before it has been waxed, passes. Over this table A' is a plate C, conveniently of steel, and upon this again a piece
55 or plate of india rubber or other equivalent spring or yielding material or device C', and upon this again a second, preferably steel, plate C². Both plates C C² and the spring device C' between them, are penetrated by a
60 bolt C³, conveniently square, as indicated in dotted lines in Fig. 2, to prevent its turning and passing through the table A' and other desired portion of the casting or frame work A of the machine. The bolt C³ may be provided with a head or equivalent C⁴ adapted to
65 be engaged by any suitable moving part of the machine, by which the bolt C³ and its plates C C' C² can be drawn downward and thus grip the thread firmly between the plate C and the
70 table A'. In the Thomas machine this may be conveniently arranged by forming a lug or equivalent projection D' upon the shuttle lever D, so that at the proper time it engages with the head C⁴ or other suitable part of the
75 bolt C³, pulling it and the plates C C' C² down. Any suitable spring arrangement may be employed to adjust the pressure or take off unnecessary shock or jar in the operation. When the pressure is relaxed the plates C C' C² lie
80 upon the thread B and hold it between the lower plate C and the table A' by their own weight, supplemented if desired by a small spring C⁵, the pressure of which can be adjusted, and which may be conveniently in the
85 form of a helical spring, as shown placed around a small screw C⁷ passing through the plates C C' C² and screwing into the table A', the pressure of the spring C⁵ in this arrangement being adjusted by screwing C⁷ more or
90 less into A'.

The alternative mechanism for operating the needle thread nipping device, shown in Figs. 3 and 4, consists of a lever D' pivoted at D² to the frame work A, and at D³ to the
95 bolt C³, and near its opposite or free end, provided with an antifriction roller D⁴ drawn by a spring E against a cam F on the shaft F', said cam effecting the raising of the lever D', bolt C³, plates C C' C², and spring E, drawing
100 these parts downward whenever the cam F is turned into the position allowing their de-

scent. It will be understood that the position of all the before described mechanism may be altered but the same effect obtained.

After passing the above described tension
5 and nipping device, the thread B may be passed through a solution box G, if liquid wax be used, and from there through a guide H, preferably in the form of a staple as shown, and then round a pulley or equivalent I upon
10 the needle bar I', and from there through a suitable tension or guide device J to the needle K. The guide H may be formed in any desired manner, whether of stamped metal, wire, or other material, so long as it is provided with
15 an opening in which the thread can traverse when carried backward and forward by the needle bar, this feature being provided for by what is herein designated an "elongated" thread guide. The operation of these parts
20 is as follows:—The needle K having under the influence of the needle bar I' and needle bar lever L pivoted at L' to I', made its downward stroke and drawn the thread B with it so far as necessary, returns, leaving the necessary
25 loop through which the shuttle passes and then continues its upward journey. In ordinary machines during its upward movement, the eye of the needle K slides over the thread B, scraping the wax off it and more or less
30 damaging the thread. In the present instance the thread B travels up with the needle K while it passes through the work this being accomplished in the following manner: When the shuttle has entered the needle thread loop
35 at the proper moment the previously described nipping device A', C, C' C² C³ comes into play and holds the thread B so that no more can be drawn, and the needle bar I' as it rises, has thus to take the thread B up with it and consequently it rises at the same speed as the
40 needle K, and there is no movement of the thread through the eye of the needle. To effect this, it is desirable that the point at which the thread is held against upward movement
45 should be as far as may conveniently be practicable from the needle bar I', or the pulley I over which it passes. In the present instance this point would be the eye or opening G' through which the thread B escapes from
50 the solution box G. When the needle has risen so high that it is clear of the work, and there is only a small portion of the thread left to be pulled in, it is desirable to pull up the thread more quickly through the work,
55 and since the eye of the needle K is clear of the work, no damage will result to the thread if it now slips through the eye. This may be effected by the before mentioned staple guide H. The point at which the thread passes over
60 the pulley I on the needle bar I' having now risen to or above the top of the staple H the thread instead of having the long radius from the solution box G or other fixed point G' as previously mentioned has now an extremely
65 short one with the result that as the thread B cannot now accommodate itself to the movement of the needle bar I' it slips past the pul-

ley I and draws back through the eye of the needle K tightening the loop in the work in a direct pull from the pulley I to the work, thus pulling in and locking the shuttle thread.

The height of the top of the staple or equivalent guide H may be varied after loosening a set screw or other device H', thereby causing more or less thread to be pulled backward
75 past pulley I, and by this means the precise point within the work at which the locking of the two threads takes place can be varied so that the operator can regulate the depth into the work at which the locking takes
80 place.

During the whole of the last described operations the thread B has been locked or nipped, but so soon as the needle K has reached the highest point of its travel, the
85 nip is relaxed and the thread can again be drawn whether by the needle K in its next downward stroke or to facilitate the removal of the work from the machine.

The tightness of the stitching is effected by
90 the tension upon the shuttle thread itself, and this I regulate in a manner which, for waxed threads, is of considerable importance. The thread N from the shuttle O, Figs. 5 and 6,
95 passes through a slot O' upon one side of the shuttle in the usual way and then through a single hole O² upon the opposite side of the shuttle. Over this hole is a spring O³, the pressure of which can be regulated and so
100 arranged to allow of the pull of the thread N at either end of the shuttle O with the same amount of tension upon the thread in all positions. The edge of the shuttle closing in
105 one side of the slot O' is deflected inward as shown in Fig. 5. By this means I avoid passing the thread N through a number of holes and thus scraping it, and am able to satisfactorily control the tightness of the work.

For the purpose of supplying the wax to the work without waxing more of the thread than
110 is necessary, a well known device is that set forth in Pearson's patent, No. 199,991, dated February 5, 1878, where the needle point dips into a cup kept supplied with melted wax, the cup being supported upon a lever or arm piv-
115 oted within a box and having an adjustment screw to regulate the depth to which the needle enters the wax and thus to regulate the amount of wax taken up at each stroke.

In the present arrangement I employ a simi-
120 lar device, but I pivot the cup lever or arm P outside the box Q and employ preferably in connection with the adjustment screw P' a sliding cam plate R, so arranged that when
125 moved in one direction to the left it elevates the lever P and the cup P² to the highest position, thus giving the needle K its full dip, and when moved in the opposite direction it allows the arm and cup to drop, so that the
130 needle does not dip into the wax in the cup. By this means the supply of wax to the needle can be immediately checked, while the regulation by the screw P' is just as perfect as before. If preferred, the screw P' may be

entirely dispensed with, the cam plate R being so shaped as to afford the necessary amount of elevation to the arm P and cup P² more or less according to the position at which the cam plate R is placed. Any convenient means may be employed to render the plate R movable and prevent it from moving from its appointed position by the vibration of the machine. For example, it may be connected by clips R' to the adjacent wall of the box Q, and be retained in position by a screw, spring tension device, rack and pawl or the like.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a sewing machine, the combination with the needle bar and the thread guide carried thereby; of a fixed guiding eye G' at a distance from the needle bar; a vertically elongated staple H between the needle bar and the fixed guiding eye; and a thread-locking device to act upon the thread prior to entering the fixed eye; whereby on the down-

ward movement of the needle bar the thread can move freely through the staple from the eye G' as a center; while on the upward movement of the needle bar the thread can move from the upper end of the staple as a center, substantially as shown and described.

2. In a sewing machine, the combination with a thread or needle-waxing device comprising a box such as Q and a cup arm such as P P², of an adjustable cam plate such as R, substantially as described and illustrated in the accompanying drawings.

3. In a sewing machine, the combination with a box Q, and its pivoted arm P provided with cup P² and screw P'; of the adjustable cam plate R.

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

MARSHALL HENRY PEARSON.

Witnesses:

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