

(No Model.)

3 Sheets—Sheet 1.

V. LECONTE, PÈRE.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 509,744.

Patented Nov. 28, 1893.

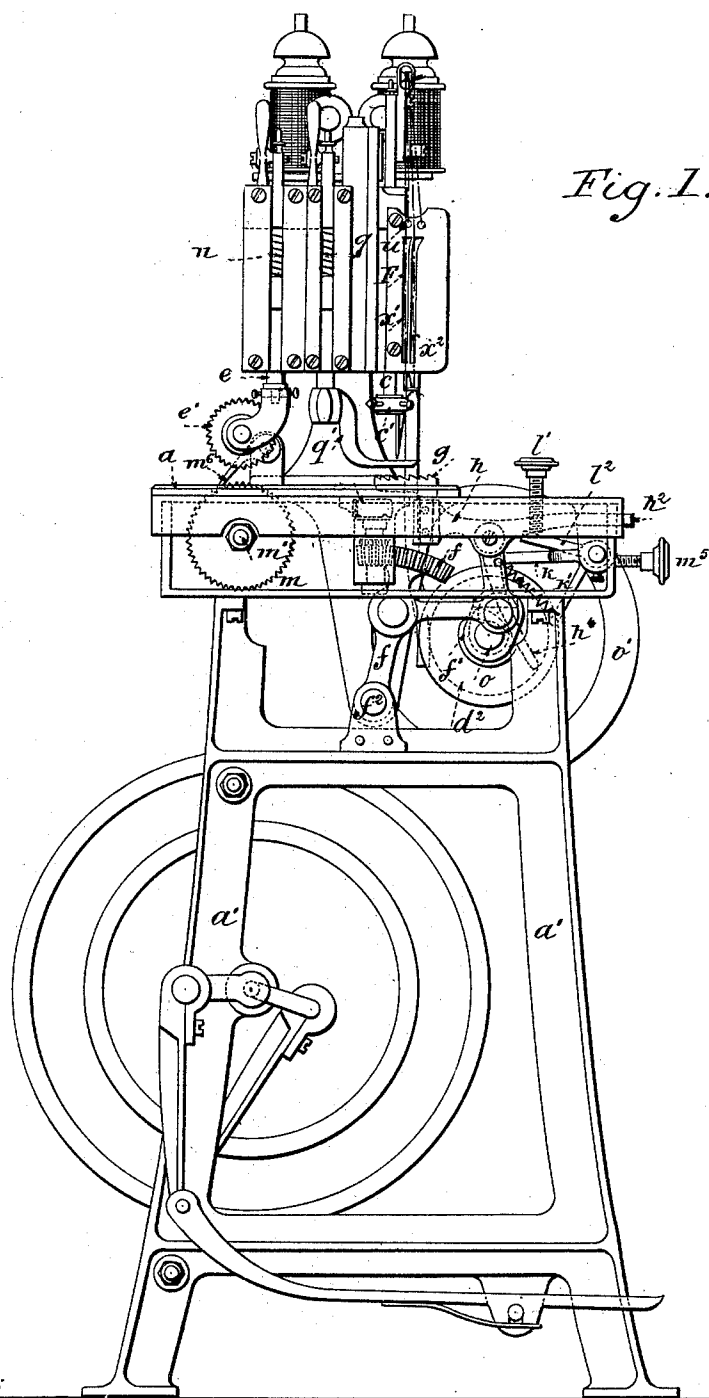


Fig. 1.

Witnesses:

Paul Ruby

Alexandre Hubaut

Victor Leconte père

Inventor.

(No Model.)

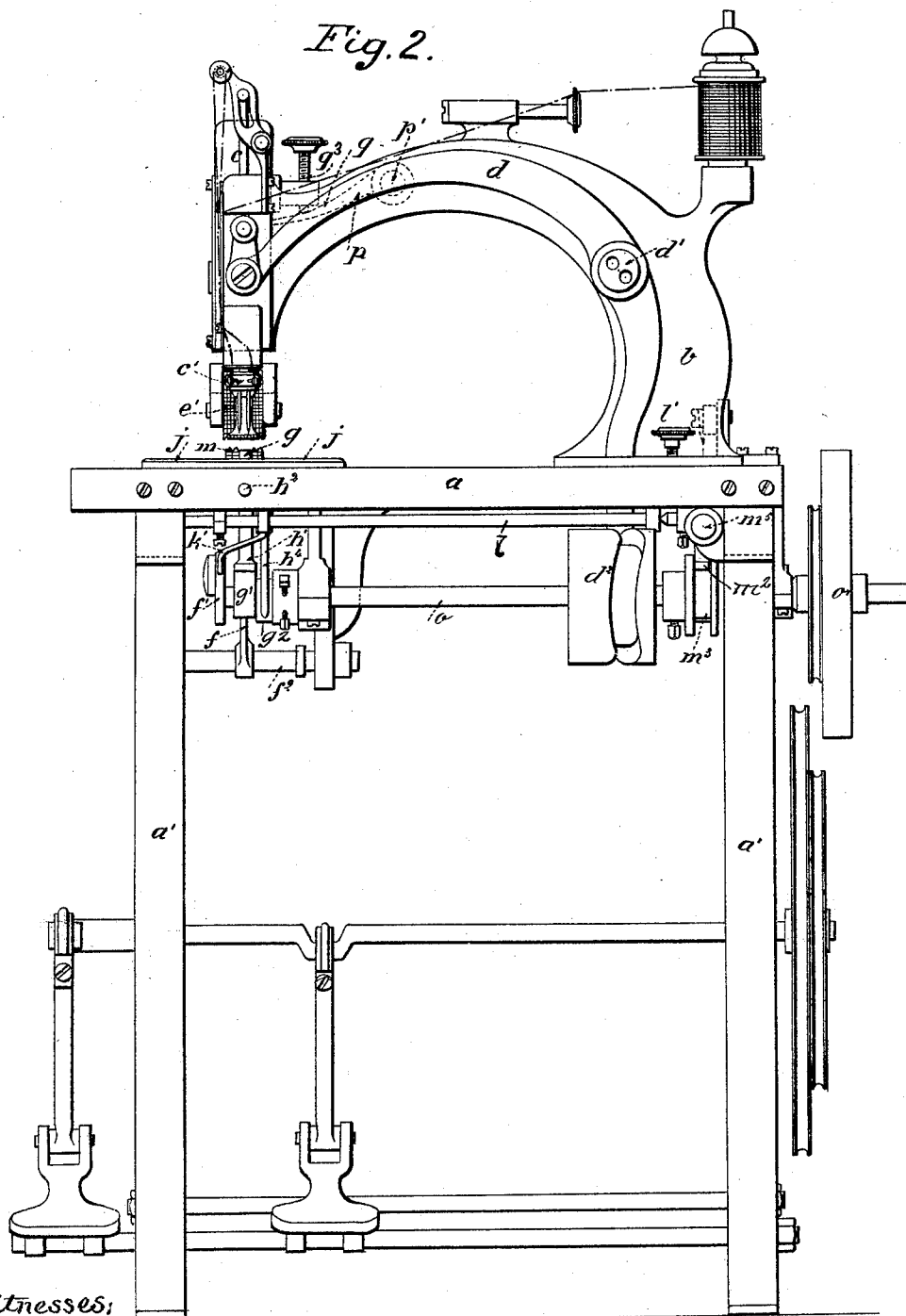
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Inventor

UNITED STATES PATENT OFFICE.

VICTOR LECONTE, PÈRE, OF PARIS, FRANCE.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 509,744, dated November 28, 1893.

Application filed January 8, 1892. Serial No. 417,857. (No model.) Patented in France May 9, 1891, No. 213,349, and in England December 9, 1891, No. 21,552.

To all whom it may concern:

Be it known that I, VICTOR LECONTE, Père, sewing-machine manufacturer, of 37 Rue Sedaine, Paris, in the Republic of France, have invented an improved sewing-machine having two needles and reels underneath, more particularly intended for the sewing of coated and turned tilts, blinds, and the like, (for which I have obtained Letters Patent of France for fifteen years, No. 213,349, dated May 9, 1891, and of Great Britain, No. 21,552, dated December 9, 1891;) and I do hereby declare that the following is a full and exact description thereof, reference being made to the accompanying drawings.

In the manufacture of heavy goods such as water tight vessels, traveling equipments, tents and other articles made of canvas or other woven material, whether coated with water-proofing material or not, the two needle sewing machines heretofore employed, having the spools below the table or work plate cannot feed the material forward at the first stroke of the needles, and in order to effect this feeding forward it is necessary to commence the sewing on an additional piece of material of any kind in which the needles make one or more stitches before commencing on the pieces of material intended to be connected together, and when this additional piece is removed in order to finish off the hem or other sewing, the first stitches of such sewing have to be destroyed, which causes a speedy deterioration of this part of the article by reason of the entrance of water, rain, &c., through the imperfectly connected parts. In order to obviate this inconvenience, which is not only prejudicial to the manufacture but also to the preservation of the goods when made, I employ a feed claw, which obviates the necessity for the use of the additional or starting piece above mentioned and avoids the false stitches necessitated thereby and consequently the destruction of the first stitches of the work done. Along with this important application of the feed claw to this special kind of sewing machine for heavy work, the invention comprises an improvement in the feed pressure, which in combination with the feed claw prevents slack sewing which frequently occurs in sewing done

by the ordinary machines. A brake arrangement is also employed which prevents the too free movement of the feed wheel and enables the machine to be driven by hand without fear of any derangement whatever in the feeding forward of the material.

Figure 1 is a front elevation of a sewing machine constructed in accordance with my invention. Fig. 2 is a side view, and Fig. 3 a plan of the same. Fig. 4 is a detail view of the arrangement employed for regulating the tension of the springs of the feeder and presser foot. Figs. 5 and 6 are detail views (elevation and plan respectively) of the feed claw carrier and of the parts for giving motion thereto, and Fig. 7 is a detail view of the ratchet and pawl arrangement which actuates the feed.

The table or bed plate *a* of the machine is carried on two side frames *a'* stayed together in any suitable way, and adapted to carry a crank shaft and the pedals for working the machine by the foot. On the table *a* is placed the support or arm *b* terminated in front by the ordinary head, which contains and guides the spindle or needle carrier *c*, the spindle or stem *D* of the presser foot *q'* and the spindle or stem *e* of the presser *e'* of the feeder. The spindle or needle carrier *c* carries at its lower end the needle holder *c'* which is easily removed to allow of the substitution, when necessary, of another needle holder of different pitch said holder carrying two needles as shown in Fig. 2.

The shaft *o* is the cam shaft of the machine. It carries at the end opposite the driving pulley *o'* a crank *f'*, which gives motion to the double rack lever *f* which imparts the requisite alternating rotary motions to the spool hooks. The lever *f* oscillates on an axis *f*² fixed to the frame. The shaft *o* also communicates to the feed claw *g* by means of the cams *g'* *g*² its complex upward and downward and horizontal to and fro movements by which the said claw effects the feeding forward of the material in the manner hereinafter described.

The feed claw *g* is mounted in a socket of the claw carrier or shoe *h*, which latter is in the form of a T which bears by the part *h'* on the cam *g'*, being pressed thereto by the spring

i. The feed claw carrier is guided at one end h^2 in a hole of the side rib of the table *a*. On the other hand the feed claw *g* being fitted between the guard plates *J* is secure from lateral derangement. The spring *i* is stretched between the point of attachment h^3 on the claw carrier or shoe and the arm k' of a bell crank lever $k k'$ fixed to the shaft *l*, which regulates the length of the stitch. The side k forms an abutment for a finger h^4 belonging to the shoe. As usual the shaft *l* is turned on its center by means of a screw l' with a milled head. The point of this screw comes against a lever arm l^2 fixed on the said shaft *l*. By turning the screw l' in one direction or the other, the horizontal backward movement of the feed claw *g*, and consequently the length of the stitches, can be varied as may be required. See Figs. 5 and 6.

The cam g' acts on the part h' of the shoe *h*, to effect the upward motion of the said shoe the downward motion thereof being effected by its weight. The cam g^2 presses the lower end of finger h^4 to the right in Fig. 5, but as the end of arm k forms an abutment or fulcrum for the said finger h^4 , the upper end of the latter, which is pivoted to the shoe *h* causes the same to move to the left a distance dependent upon the distance of the end of arm k from the said pivot, which distance is regulated by the screw l' as before described, the backward movement of the shoe *h*, that is from left to right in Fig. 5 is effected by the spring *i*.

The feed claw *g* effects the feed forward of the material and as it comes into action at the first stroke of the needles it obviously dispenses with the employment of the usual additional starting piece of material. The action of this feed claw is rendered certain by the feed wheel *m* placed in front of it on a shaft m' parallel to the cam shaft *o*. This feed wheel *m* is actuated by means of a ratchet wheel m^4 secured on the other end of the shaft m' and operated by a pawl m^2 receiving forward motion from a cam m^3 on the shaft *o* (see Fig. 7) the backward and downward motions of the pawl m^2 being effected by the springs $m^x m^{xx}$ (Fig. 7). The stroke of the pawl m^2 may be adjusted by the stay screw m^5 so as to impart such a motion to the feed wheel *m* as corresponds to the stroke of the feed claw *g* so that the feed wheel *m* and the feed claw *g* co-operate together to move the material forward. It will be understood that the presser wheel e' presses the material against the feed wheel *m* to enable the teeth of the latter to exert a pulling effect upon the material. A retaining pawl m^6 prevents the ratchet wheel m^4 from turning backward and serves as a brake to prevent the too free movement of the feed wheel *m* when the machine is operated by hand, by passing over and rubbing on the teeth of the ratchet wheel m^4 .

Over the feed wheel *m* is placed the presser wheel e' which bears upon the material, which is being sewed, with the whole force of a spring

n surrounding its spindle and compressed between an adjustable collar n' and the end of a lever *p* (Fig. 4). This lever *p* turns on a fulcrum p' fixed in the support or arm *b* and is acted on by a screw p^2 screwed into a socket fixed behind the head of the machine. The object of this arrangement is to obviate the necessity of altering the position of the collar n' when it is required to increase or decrease the tension of the spring *n*, for in order to modify the action of the said spring, it is only necessary to turn the screw p^2 to the right or left. A similar arrangement is employed for varying the tension of the spring *q* of the presser foot q' . q^2 is the lever which presses on the spring *q* by the action of the screw q^3 .

The action of the above described improved parts of the machine is as follows: Supposing that it is required to sew together two breadths of material for a water tight vessel for example, the ends of the two breadths are placed one over the other immediately under the needles and the machine is set in motion. The first stroke of the needles makes a stitch in the breadths of material and the operation of the feed claw *g* effects the feeding forward for the next stitch. This feeding forward is afterward sustained and aided by the toothed, roughened or in some cases smooth wheels *m* and e' and as the pressure of wheel e' on the material can be easily regulated no slack stitching will be produced, the two breadths are fed forward quite equally and as additional or starting pieces of material are dispensed with, the first stitches are not unsewed and the hem or other sewing produced has not the defects of work, which is begun by sewing onto an additional or starting piece.

Although the improvements forming the subject of my invention have been described above in connection with a sewing machine having two needles, and intended for heavy work, I desire to have it understood that I do not limit myself to the application of my improvements to such machines, but that I claim the said improvements in connection with any kind of sewing machine to which they or either of them may be applicable.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a presser, a feed wheel, a shaft carrying the feed wheel at one end and a ratchet wheel at its opposite end, of a parallel cam shaft provided with three cams, a spring retracted pawl engaging said ratchet wheel, and operated by one of said cams, and a feed claw operated in unison with the feed wheel by the remaining cams, substantially as set forth.

2. The combination with a presser, a feed wheel, a shaft carrying the feed wheel at one end and a ratchet wheel at its opposite end, of a parallel cam shaft having a cam a transverse operating pawl engaging said ratchet at one end having a depending projection be-

tween its ends engaged by said cam, a set screw m^3 engaging the other end of the pawl to regulate its throw, the two springs $m^x m^{xx}$ driving the pawl backwardly and downwardly and a stop pawl m^6 also engaging the said ratchet, substantially as set forth.

3. The combination with the presser, a feed wheel, a shaft carrying the feed wheel at one end and a ratchet wheel at its opposite end, of a parallel cam shaft having a cam, a transverse operating pawl m^2 engaging said ratchet at one end and having a depending projection between its ends engaged by said cam, a set screw m^5 engaging the outer end of the pawl to regulate its throw, the two springs m^x, m^{xx} driving the pawl backwardly and downwardly, and a brake engaging the said ratchet, substantially as set forth.

4. The combination with a presser, a feed wheel arranged beneath said presser and a cam shaft provided with cams $m^3 g' g^2$, the

feed wheel being operated from cam m^3 of a feed claw and its carrier having a horizontal member h^2 guided in the frame, and a depending member h' and the pivoted arm h^4 , the cams $g' g^2$ engaging the member h' and arm h^4 respectively, the parallel rock shaft l provided with three arms, the middle arm k of which engages the pivoted arm h^4 , a set screw engaging the upper arm l^2 , and a spring i connecting the lower end of the lowest arm k' with member h' at h^3 , said spring serving to return the feed claw and also to hold the upper arm l^2 in contact with its set screw, substantially as set forth.

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

VICTOR LECONTE, PÈRE.

Witnesses:

SAUL RUBU,
ALEXANDRE FLUBAUT.