

(No Model.)

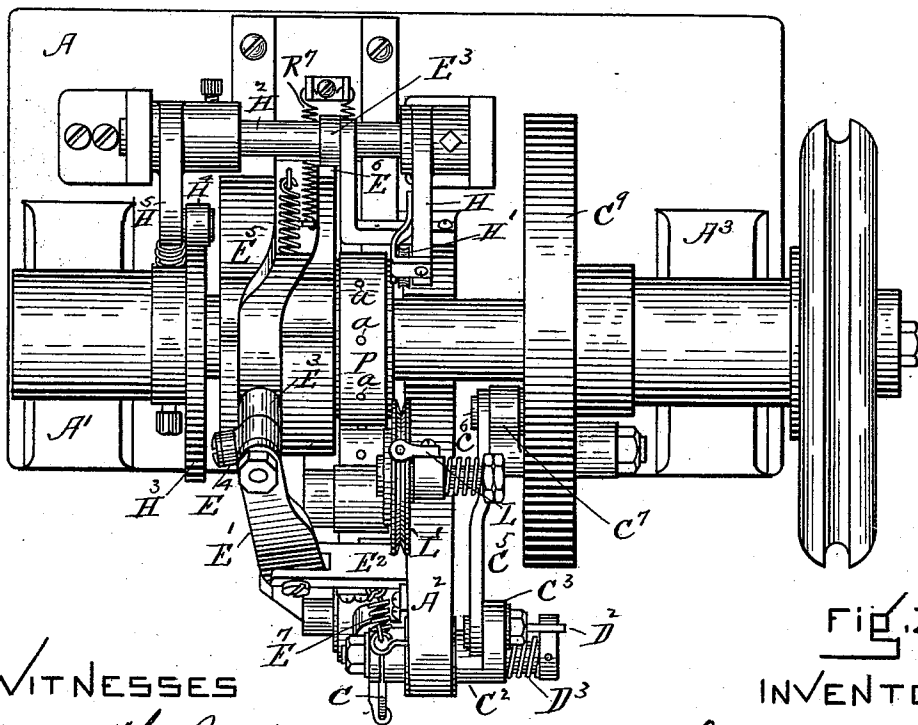
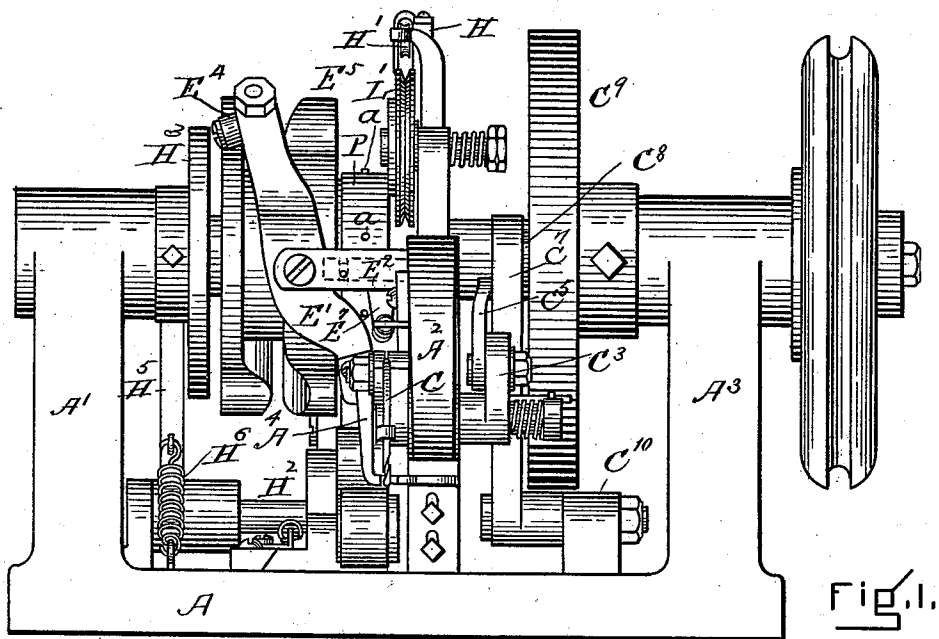
2 Sheets—Sheet 1.

T. K. KEITH.

SEWING MACHINE FOR LASTING BOOTS OR SHOES.

No. 540,836.

Patented June 11, 1895.



WITNESSES

Frank M. Parker,
Edward S. Day

INVENTOR

Thomas K. Keith

(No Model.)

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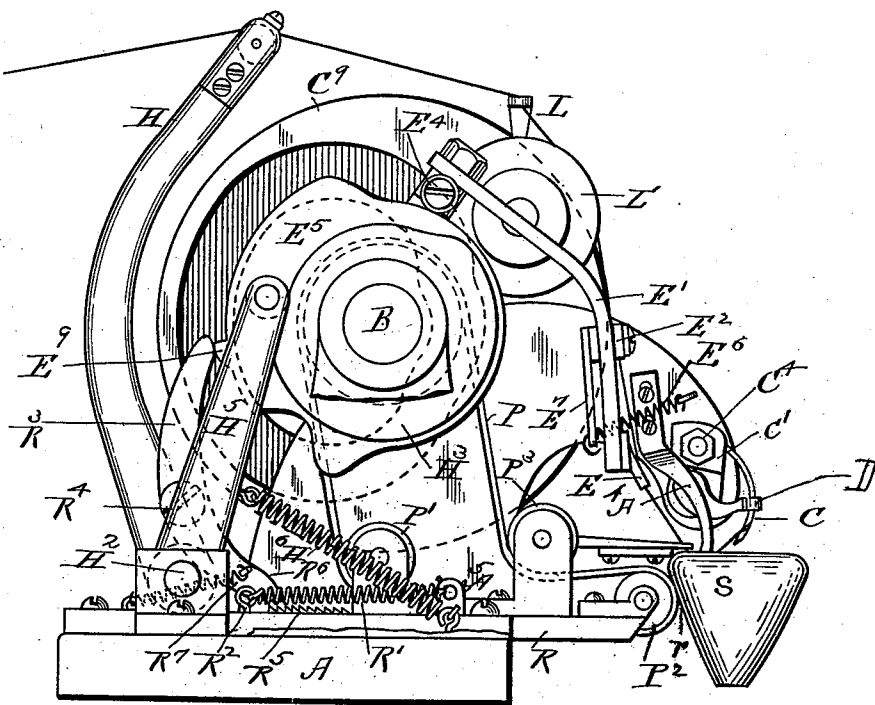


Fig. 3.

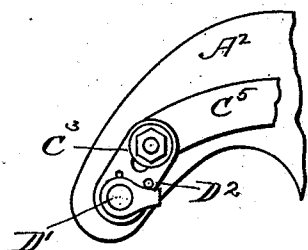


Fig. 4.

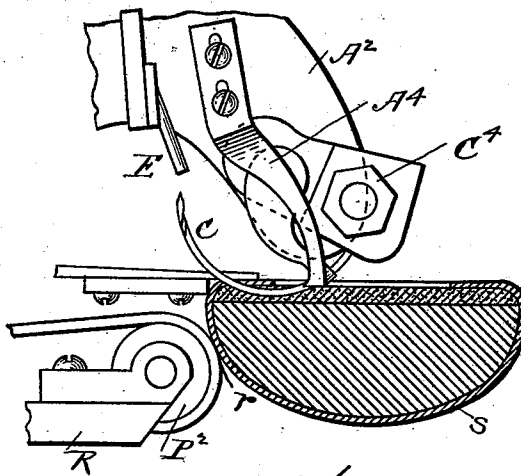


fig. 5

WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS K. KEITH, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE FOR LASTING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 540,836, dated June 11, 1895.

Application filed January 5, 1895. Serial No. 533,969. (No model.)

To all whom it may concern:

Be it known that I, THOMAS K. KEITH, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Sewing-Machines for Lasting Boots or Shoes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of lasting machines in which the upper is connected to the inner sole by stitches, the object being to so make a machine that it will automatically stretch the upper and hold it in place until the holding stitch is made. This object I attain by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a front elevation of my machine. Fig. 2 is a plan of the same. Fig. 3 is a side elevation, except that a part of the frame of the machine is represented as broken out. Fig. 4 is a detail in elevation. Fig. 5 shows in elevation the more important parts in the working position relatively to the shoe. All of the parts shown in this figure are full size.

In the drawings, A represents the base of the frame of the machine, and A' A² A³ the three uprights. The two end uprights A' and A³ serve to support the main shaft B of the machine. The center upright A² serves to support the parts that are immediately connected to the stitch forming mechanism. It also gives a rigid support for the adjustable rest or holder A⁴.

The needle C is curved as shown and serves also for piercing the upper and sole for the thread to pass through. (See Fig. 5.) The needle C is clamped to the needle carrier C' by a clamp screw C⁴. The needle carrier C' is attached to a hollow rocking shaft C². The rocking shaft C² has an arm C³ which is connected by a link C⁵ and pin C⁶ to a lever C⁷, the lever C⁷ being pivotally attached to the base A at C¹⁰ and having a roller C⁸ running in a cam groove made in the face of the cam C⁹.

The needle support D is attached to a rocker shaft D' running through the hollow rocking shaft C² and is controlled in its motion by the pin D² on the arm C³ (see Fig. 4) and the spring D³. The needle support D moves with the needle from the position represented in Fig. 3 until it comes in contact with the rest A⁴ as shown in Fig. 5, when it stops and the

needle advances until its point has passed entirely through the stock to the position shown in Fig. 5, where it receives the thread from the thread carrier E.

The thread carrier E is attached to the lever E' which is pivotally connected to the rocking post E². The upper end of the lever E' is provided with two rollers, one of which E³ is intended to run in a cam groove made in the periphery of the cam E⁵, and the other E⁴ runs on the periphery of the cam E⁵ so that the lever E' has a compound motion. Its lower end in its movements will take the thread carrier E entirely around the point of the needle. This action of the thread carrier takes place when the needle has passed through the stock, and gives the thread a turn around the point of the needle and causes it to engage with the hook of the needle so that when the needle is drawn back through the stock, it takes the thread with it and as the shoe is moved along, stitches are formed in the usual manner.

The rocking post E² is held by a spring E⁶ which acts on an arm E⁷ extending from the post. The tendency of the spring E⁶ is to so turn the post E² that it will hold the upper end of the lever E against the periphery of the cam E⁵.

The thread take-up mechanism consists of a long arm H having a small roller H' at the upper end for the thread to pass around. The lower end of this arm H is attached to a rocker shaft H² which is operated by the cam H³ acting through the roller H⁴ and arm H⁵. H⁶ is a spiral spring attached to the arm H⁵ to keep it against the cam. After the thread T leaves the take-up roller H' it passes to the guide L and around the tension wheel L' and thence to the needle as shown in Fig. 3.

I will now describe the device that I use for the double purpose of a lateral rest or gage for the operator to hold the shoe against while the upper is being sewed to the sole, and as a device for drawing the upper taut on the last and to assist in holding it while the stitch is being formed that unites it to the sole.

A belt P passes around a driving pulley on the main shaft B (indicated by dotted lines in Fig. 3), thence under the back guiding pulley P' to the rest pulley P², thence under the

front guiding pulley P^3 and back to the driving pulley on the main shaft. The belt P should be of some firm material that will exert friction on the upper but will not abrade
 5 or otherwise injure it. To prevent the belt P from slipping on its driving pulley, I affix in the periphery of the driving pulley a series of pins a (see Figs. 1 and 2) which are adapted to engage with holes made in the
 10 belt P and thus prevent any slip.

The two guiding pulleys P' P^3 and the rest pulley P^2 are attached to a sliding frame R as shown in Fig. 3. This frame R slides freely in ways made on the base A . The
 15 spring R' connects at R^2 to the sliding frame R and at A^3 to the base A , the tendency of the spring being to cause the sliding frame R to press forward toward the shoe so as to cause that part of the belt P that is on the outer
 20 part of the rest pulley P^2 to press against the upper of the shoe S as shown in Figs. 3 and 5.

The sliding frame R is provided with a series of teeth R^5 (Fig. 3) which engage with the pawl R^6 when the end of the said pawl
 25 is drawn down by the spring R^7 . The pawl R^6 is pivoted at R^4 (Fig. 3) and has an extension R^3 the upper end of which is acted upon by a projection E^9 on the cam E^5 . The arrangement of the cam-projection E^9 is such
 30 that it only lifts the pawl R^3 out of contact with the teeth R^5 when the working parts of the machine are withdrawn out of the way of the stock and all parts are in position for placing and adjusting the shoe ready for making
 35 a stitch. When the pawl is out of contact as above set forth and as shown in Fig. 3, the operator can place the shoe against the belt P at the rest or holding point r (Figs. 3 and 5) and push it back until the shoe is in position for the formation of a stitch. Now as

the cam E^5 turns, the projection E^9 leaves the end of the pawl extension R^3 and allows the pawl R^3 to engage with the teeth R^5 on the sliding frame R and thus lock it and the rest pulley R^2 in position, in which position it is
 45 held until a complete stitch is formed, that is, until the cam has made a full rotation, when the projection E^9 will again come in contact with the extension R^3 and raise the pawl, thus freeing the sliding frame R and leaving rest
 50 pulley P^2 free to be adapted to its correct position for holding the shoe for the next stitch.

It is obvious that in some cases, the belt P may be omitted and a rotating pulley like P^2 be used, the periphery of the same being covered with some material like rubber or its compounds, that has a surface capable of exerting great frictional tension on the upper of the shoe being lasted so as to draw it firmly to the last.

I claim—

In a sewing machine for lasting boots or shoes, the combination, with stitch forming mechanism, of a gage for the face of the inner sole to rest against, and a second gage for
 65 determining the lateral position of the shoe, said second gage having a moving frictional bearing surface to act upon that part of the upper that is near, but not in contact with the sole, whereby the upper is properly stretched
 70 over the last, and secured to the sole, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 31st day of
 75 December, A. D. 1894.

THOMAS K. KEITH.

Witnesses:

FRANK G. PARKER,
 EDWARD S. DAY.