2 Sheets—Sheet 1.

H. D. BAKER.

STOP-MECHANISM FOR SEWING-MACHINES.

No. 190,948. Patented May 22, 1877.

Fig. 1.

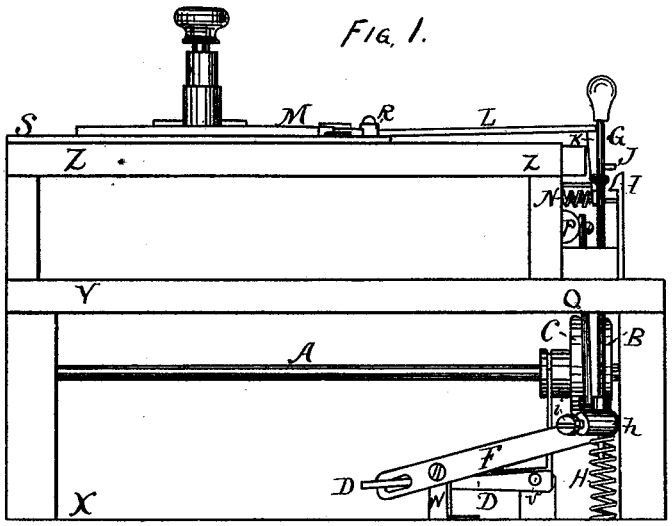
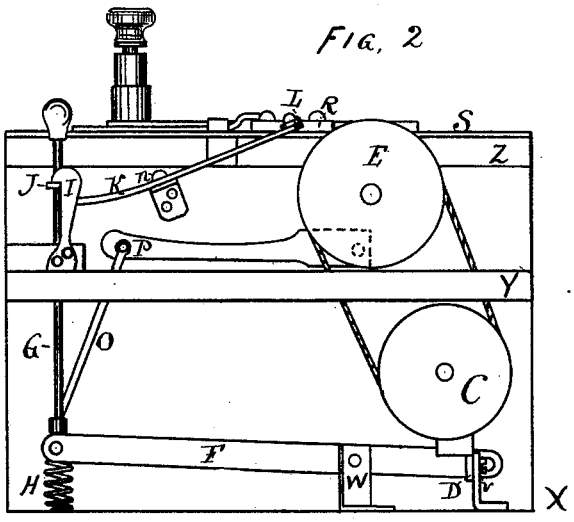


Fig. 2.



WITNESSES

Eugene Humphrey

J. W. Porter

INVENTOR.

Henry D Baker

2 Sheets—Sheet 2.

H. D. BAKER.

STOP-MECHANISM FOR SEWING-MACHINES.

No. 190,948. Patented May 22, 1877.

FIG. 3.

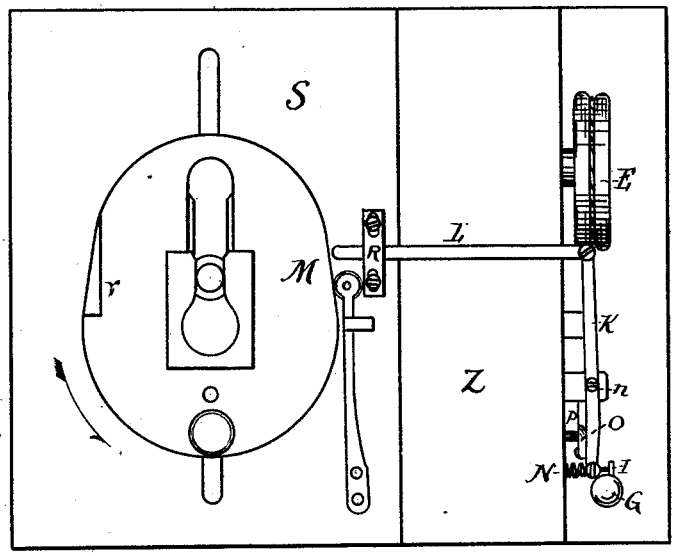
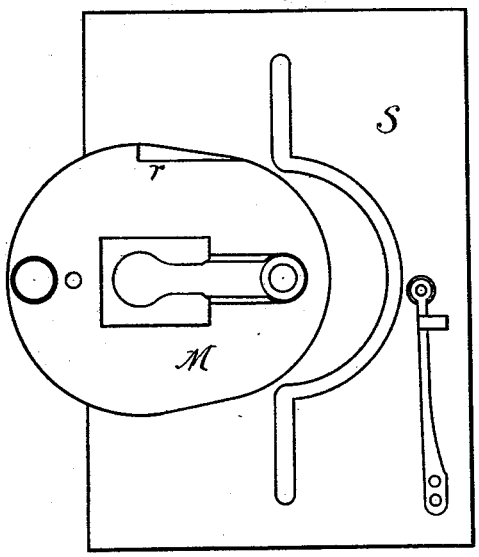


FIG. 4.



WITNESSES.

Eugene F. Humphrey

by T. W. Porter

INVENTOR.

Henry D. Baker

UNITED STATES PATENT OFFICE.

HENRY D. BAKER, OF LYNN, MASSACHUSETTS, ASSIGNOR TO WILLIAM D. POOL, OF SAME PLACE, TRUSTEE OF THE MACHINE TENDER ASSOCIATION.

IMPROVEMENT IN STOP MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **190,948**, dated May 22, 1877; application filed August 11, 1876.

To all whom it may concern:

Be it known that I, HENRY D. BAKER, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful or Improved Stop-Motion for Sewing-Machines, of which the following is a specification:

Said invention is particularly applicable and adapted to the button-hole-stitching machines patented by D. W. G. Humphrey, October 7, 1862, and February 6, 1872, wherein an automatic clamp or cloth-holder is employed to hold and carry the work during the process of stitching.

The object of my invention is to provide a means whereby such machines, whether run by steam-power or otherwise, may be automatically stopped at the moment the stitching is completed around the edge of a button-hole of any required length, and thus to enable the operator to attend to more than one machine, or to any other duty, free from the care of watching and stopping the machine at the completion of the stitching of the button-hole.

The accompanying drawings illustrate my invention, in which Figure 1 is a front elevation, showing the position of the driving-shaft, bench, machine, and my attachment applied thereto. Fig. 2 is an end elevation of the same. Fig. 3 is a top view or plan of a portion of one of said button-hole-stitching machines with my attachment applied. Fig. 4 is a plan of the bed-plate of said machine and the base of said cloth-holding clamp.

The floor, bench-top, and table or bed of the sewing-machine are respectively represented in Figs. 1 and 2 by letters X Y Z.

On the driving-shaft A, located under the bench, and from which power is transmitted to the button-hole machine mounted above the bench, are tight and loose pulleys B and C. Said loose pulley C is driven by the friction created by pressing its surface against the surface of the tight pulley B, which pressure is produced and relieved through the rocking of lever D, pivoted at *v*, and having an arm extending into a groove in the hub of pulley C, as shown.

From pulley C power is transmitted to the balance-wheel E of the stitching-machine through a suitable belt. Connected with lever D, as shown, is another lever, F, pivoted at *w*, which has attached to its opposite end a vertical shipper-rod, G, extending up through the bench and by the end of the machine. Said shipper-rod passes through the hub *h*, which is loosely jointed to and oscillates in lever F, and passes down into the spring H, as shown, being adjustably secured in said hub. This shipper-rod, when free, is forced up by spring H (upon which its lower end, at its junction with lever F, rests) into the position shown in Fig. 1. This action of said spring also raises the end of lever F attached to the shipper-rod, and, through it, depresses the end of lever D, upon which it acts, and thereby separates the pulleys B and C, and thus stops the stitching-machine.

To start the machine again and keep it running, the rod G is pressed down from the position shown in Fig. 1, by the hand of the operator, with sufficient force to overcome the resistance of spring H, and is held in this depressed position by the spring-catch I, which yields to the downward passage of the rod, and then interlocks with its projection J, securing it, as shown in Fig. 2.

By this movement and secured position of the shipper-rod, the pulleys B and C are again forced into contact through the means above described, and the stitching-machine is thus started up and kept running until stopped by said shipper-rod being released from the catch I by the hand of the operator, or through the operation of the stopping mechanism. To secure its stopping automatically and at the proper time, whatever the length of the button-hole may be, I employ the lever K, pivoted at *n* to a bracket attached to the bed of the machine, as shown, and having jointed to one end the arm L, extending along the top of the table or bed of the machine until it reaches the edge of the clamp-base M. (Shown clearly in Fig. 3.) In the other end of lever K is a wire, upon which is strung and supported a spiral spring, N, which comprises, in conjunction with spring H, the operative

force that actuates the stopping mechanism. This spring N rests in one direction against the bed Z of the machine, and in the opposite direction acts, when free, against the end of said lever K, and forces said lever against the spring-catch I with sufficient power to dislodge said catch from the projection J on rod G, thereby releasing said rod and allowing its spring H to act and stop the machine, as before described. To prevent said spring N from thus acting, except at the proper and desired time, is the only duty imposed upon any operative part of the machine in connection with this attachment. And this is accomplished through the agency of the clamp-base M of the machine proper, the edge of which, during its usual and ordinary movement, presses against the end of arm L, which is of sufficient length to be thereby forced back far enough to operate through lever K upon spring N, compressing said spring sufficiently to keep that end of lever K from contact with catch I. This position of said lever and spring is maintained by the constant contact of the clamp-base M and arm L during the process of stitching around the button-hole, and until the clamp-base, moved by the usual means employed for that purpose in the patented button-hole machines referred to, has turned the eyelet part of the hole in the direction indicated by the arrow in Fig. 3, and has backed far enough to complete the stitching of the last side of the hole, and to bring, at that moment, the notch or recess *r* opposite the end of arm L, thus relieving the pressure thereon, when said arm is instantly thrust into said notch by the reaction of spring N, which also dislodges catch I, and thereby, as already described, stops the machine. The clamp, thus acting merely as a check upon spring N, is used without any cumbersome attachments thereto, or material alteration thereof; and the light duty thus imposed upon it does not materially affect it in any manner in the performance of its usual and proper work. The recess *r* is such as to allow the most sudden and prompt action of spring N, thus arresting the machine more promptly than if the action of the stopping-mechanism was dependent upon the graduated movement and positive force of the clamp, instead of upon its own elastic spring force. Upon rod G is a rod, O, adjustably connected therewith by a collar and set-screw, as shown, the upper end of which is jointed to a brake-lever, P, which brake is pivoted to the machine-table, as shown in dotted lines, Fig. 2, and is brought into contact with the balance-wheel E when thrown up by rod O, acted upon in conjunction with rod G by the spring H. Thus said brake assists in overcoming the momentum of the balance-wheel and promptly arresting the machine, thereby avoiding its taking extra and unnecessary stitches, and loss of time.

To adapt the descriped mechanism to button-holes of various lengths, the cap R, Fig. 3, which holds arm L in proper position on the bed-plate S, is made adjustable on said plate, its screw-holes being elongated so as to admit of its longitudinal movement on said plate, thus enabling its position to be changed, and with it the arm L, which rests against the clamp-base, thereby bringing said arm into positions permitting more or less backward movement of the clamp while stitching the last side of the hole, and according to the length of the button-hole stitched, before bringing its notch *r* opposite the end of said arm L, and thus releasing the stopping mechanism, as described.

The levers F and D, and spring H, operating relatively to each other, as shown, to separate the driving-pulleys, are not new; also, the several parts shown in Fig. 4 are parts of the stitching-machines referred to, and in and of themselves form no part of my invention.

I am aware that two stop-motions have heretofore been applied to said machines, one patented by said Humphrey, for suspending the operation of the feed and clamp only; the other patented recently—June 27, 1876—by John J. Sullivan, for stopping the machine entirely, both of which inventions employ the force and movement imparted to the clamp to positively actuate their stop-motions. I do not claim anything embodied in either of said inventions.

What I claim as my invention is—

1. In combination with the notched clamp-base M, and the treadle lever mechanism operated in one direction by a spring, H, the arm L, lever K, spring N, catch I, and rod G, constructed and arranged to operate together and relatively to each other, substantially as and for the purposes specified.

2. In combination with wheel E, brake P, rods G and O, and spring H, arranged to operate together, substantially as and for the purposes specified.

3. The combination of bed S, notched clamp-base M, hinged reciprocating arm L, and adjustable guide R, substantially as and for the purposes specified.

HENRY D. BAKER.

Witnesses:
EUGENE HUMPHREY,
FRANK FOSS.