

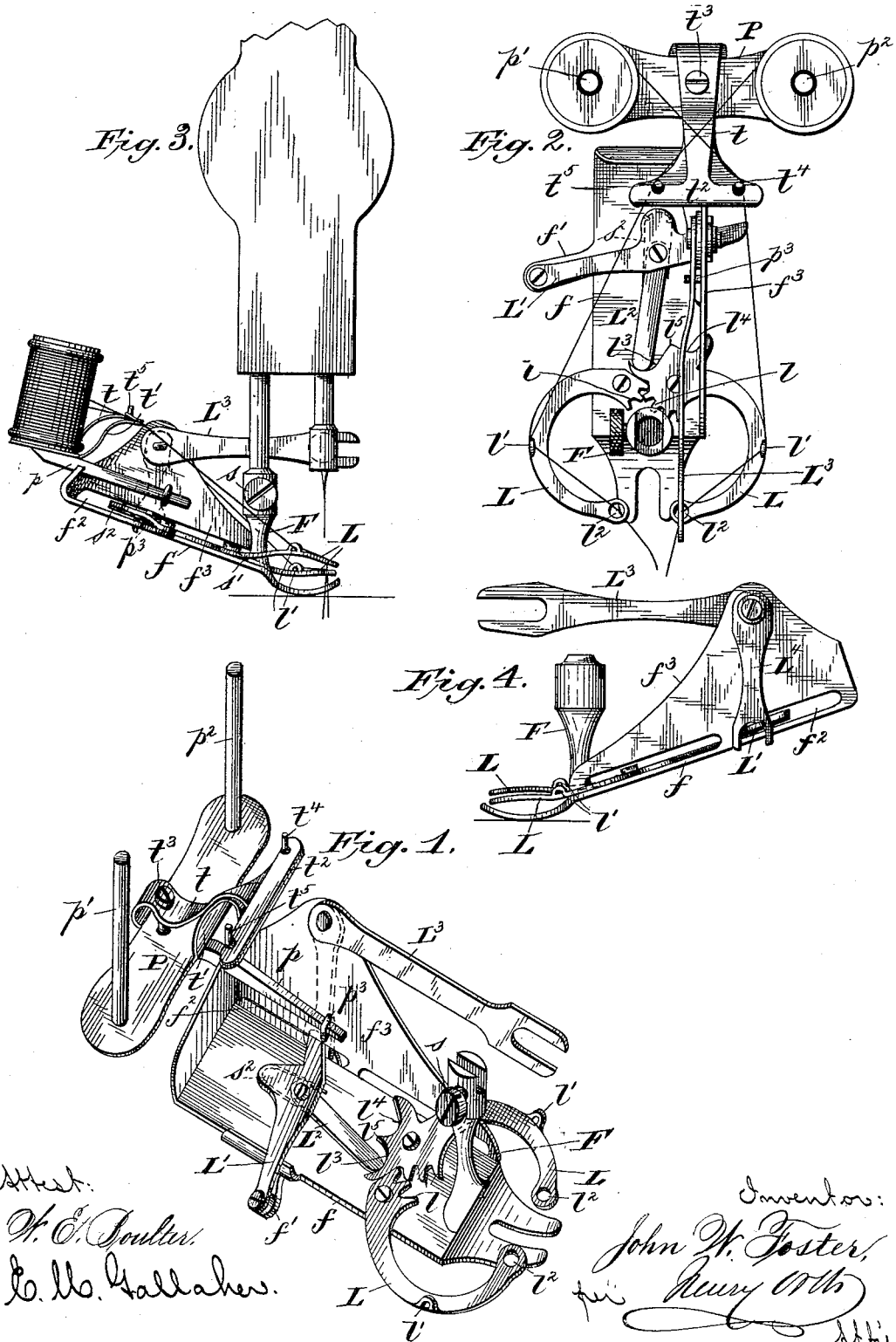
(Model.)

J. W. FOSTER.

EMBROIDERING ATTACHMENT FOR SEWING MACHINES.

No. 386,193.

Patented July 17, 1888.



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UNITED STATES PATENT OFFICE.

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EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 386,193, dated July 17, 1888.

Application filed May 27, 1887. Serial No. 239,552. (Model.)

To all whom it may concern:

Be it known that I, JOHN W. FOSTER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Embroidering Attachments for Sewing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figure 1 is an isometric view of my embroidering attachment for sewing-machines. Fig. 2 is a top plan view thereof. Figs. 3 and 4 are opposite side elevations, the former figure showing the attachment applied to a sewing-machine.

My invention relates to improvements in embroidering attachments for sewing-machines; and it has for its object to produce an attachment of this kind which shall be extremely simple in construction and not so liable to get out of order as the embroidering attachments at present in use; and to these ends the invention consists in the construction and combinations of parts hereinafter described, and pointed out in the claims.

As the attachment is to be applied to the presser-bar of a sewing-machine in lieu of the ordinary presser-foot, I construct a foot, F, which is similar in construction to the ordinary presser-foot, with the exception that it is provided with an extended base or base-plate, f , from which the various devices constituting the attachment are supported and operate. The foot F at its upper end is socketed for the reception of the lower end of the presser-bar, to which it is applied, and said foot is secured in place by a set-screw, s , as shown in Fig. 3. The foot F stands at an angle to the base f , so that when attached to the presser-bar of the machine said base will be at an inclination to the work, as seen in Figs. 3 and 4, and offer no impediment to the proper feeding and manipulation of the same. Upon the base f , in rear of the standard or foot proper, are pivoted the usual vibrating thread-carrying arms or levers L, provided on their

rear ends with teeth l , which intermesh, so that when one of said arms is vibrated the other arm will be caused to vibrate in unison therewith.

Since the vibrating arms or levers are pivoted upon the base f in the same horizontal plane, it is evident that were said arms or levers to be vibrated sufficiently the forward ends thereof would abut against each other and thus prevent the proper operation of the attachment. To avoid this, I bend one of the levers slightly, as seen at s' , Fig. 3, which will thus elevate the forward end of said lever above the other lever, so that when vibrated they will overlap each other, as shown in Figs. 3 and 4.

Each of the vibrating levers is provided at a point intermediate of its ends with a guide eye or loop, l' , and at their extreme forward ends with an eye, l'' , for the passage of the embroidery-threads, as usual, and one of said levers is provided at its rear ends with bearing-surfaces l^3 l^4 . (Seen in Figs. 1 and 2.) These bearing-surfaces are formed by cutting away or recessing the lever upon either side of its pivotal axis, and with which engages the end of an actuating lever or pawl, L^2 , presently to be described.

The arms or levers L are vibrated in the following manner and by the following described devices.

To the base f , or to an arm or extension, f' , projecting from one side thereof, is pivoted one end of a lever, L^1 , which lies across the base f , and its other end projects through and plays within a slot or opening, f^2 , formed in the vertical side wall of the base f . About midway of the length of the lever L^1 is pivoted one end of an actuating lever or pawl, L^2 , the rear end of which lies between the legs of a U-shaped spring, s^2 , secured to the under side of lever L^1 , the function of which spring is to hold the lever or pawl L^2 in a position with its forward end lying to one side of the nose or point l^5 intermediate of the recesses or bearing-surfaces l^3 l^4 , and to return the lever into that position when moved out of it to either side. Upon the vertical side wall, f^3 , of the base-plate is pivoted a lever, L^3 , the forward end of which is forked or slotted to embrace the head of the screw which secures

the needle in the needle-bar, whereby said lever will be rocked or vibrated on its pivot during the reciprocating movements of the needle-bar. On the opposite side of the side wall, f^3 , and rigidly connected with the pivot of lever L^2 , is a lever, L^4 , the lower end of which is forked to embrace the end of the lever L^1 , which projects through the slot in the side wall, as before described.

10 Suppose the needle-bar of the machine to be at its highest position, the lever L^2 lying within the recess b^2 of the lever L , and both said levers standing in the open position shown in Figs. 1 and 2. Now, as the needle-bar descends the lever L^1 will, through the intermediate devices described, be rocked on its pivot, that leg of the spring s^2 which has been flexed or bent aside by reason of the position of lever L^2 causing the end of said lever, as soon as it clears the nose b^2 , to spring to one side thereof, ready to engage the recess b^4 , the needle-bar being then in its lowest position. As the needle-bar rises, the end of lever L^2 will enter the recess b^4 , bearing upon the edge thereof and gradually rocking the lever L upon its pivot, and with it the other lever, through the intermeshing teeth, the forward ends of the levers approaching and crossing each other in the usual manner to enable the embroidery-threads to be caught by the loops of needle-thread in the ordinary manner of embroidering, the needle-bar by this time having reached its highest position. When the latter again descends, the end of lever L^2 will, under the action of the other leg of the spring, which has been bent aside, be forced clear of the nose b^2 to one side thereof into position to enter the recess b^2 , which it does when the needle-bar moves upward, whereby the forward ends of levers L are separated.

The described operations are repeated during the operation of embroidering, a complete reciprocation of the needle-bar acting to close the vibrating levers L and a complete reciprocation to open or spread the same.

The spools of embroidering-threads are placed upon posts p' p^2 , rising from a supporting-plate, P , which is provided with a forwardly-projecting finger, p , which passes through a loop, p^3 , projecting from the inner side of the side wall, f^3 , and resting at its rear upon the upper edge of the upturned end of the base-plate f . By this arrangement the spool-support may be readily detached from the body of the attachment.

The tension device for the embroidery-threads consists of a bent plate, t , which is attached to the rear of the spool-supporting plate P , or it may form a part of said plate, and a like plate, t' , rising from the front of said plate P , each of said plates t t' terminat-

ing at their outer ends in a broad bearing-surface, t^2 , between which the embroidery-threads are passed, the necessary tension upon the same being attained by the employment of an adjusting-screw, t^3 , passing through an opening in the plate t and working in a threaded opening in the plate P .

t^4 t^5 are pins projecting from the lower tension-plate, which serve to hold the threads apart while passing through the tension device.

In threading the attachment the thread from that spool carried by post p' is passed around the pin t^4 and between the tension-plates. Thence the thread is led directly forward and downward and passed through the guide eye or loop l' in the lever L , and then through the eye l^2 in the end thereof. The thread from the other spool is passed around pin t^5 between the plates t t' , the two threads crossing each other, as shown in Fig. 2. It is then carried forward and downward and passed through the eyes l' l^2 in the other lever L .

What I claim is—

1. In an embroidering attachment for sewing-machines, the combination, with two co-operating thread-carrying arms or levers, one of which is provided with the bearing-surfaces b^2 b^4 , of a lever operated from the needle-bar of the machine and alternately engaging said bearing-surfaces, the forward end of said lever in its normal position lying to one side of a line joining its fulcrum, and the fulcrum of the lever provided with said bearing-surfaces, and a spring for returning said actuating-lever into its normal position when moved out of it to either side, as and for the purpose specified.

2. In an embroidering attachment, the combination, with the base f of the attachment having the side wall, f^3 , the levers L , pivoted to the base and provided with intermeshing teeth, one of said levers being provided with bearing-surfaces, as described, of the lever L^1 , pivoted at one end to the base and projecting at its other end through a slot in the side wall, the lever L^2 , pivoted at one end to the lever L^1 and its forward end lying in position to engage one of the bearing-surfaces, the levers L^3 L^4 , pivoted to the side wall, one end of lever L^4 being forked or slotted and embracing the projecting end of lever L^1 , and the lever L^3 being also forked or slotted at one end, and the needle-bar and its screw, the latter being embraced by the slotted end of lever L^3 , as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. FOSTER.

Witnesses:

THOS. J. KING,

H. B. LITTLEPAGE.