

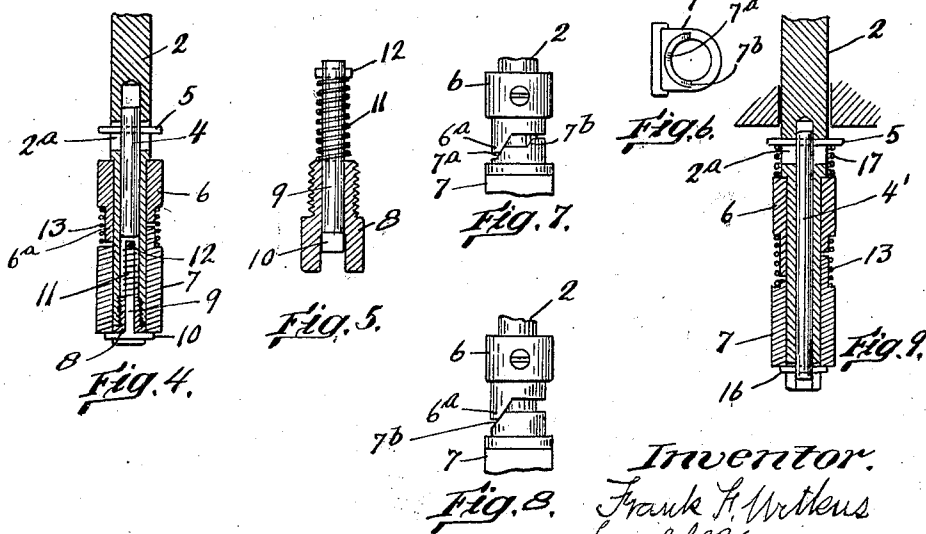
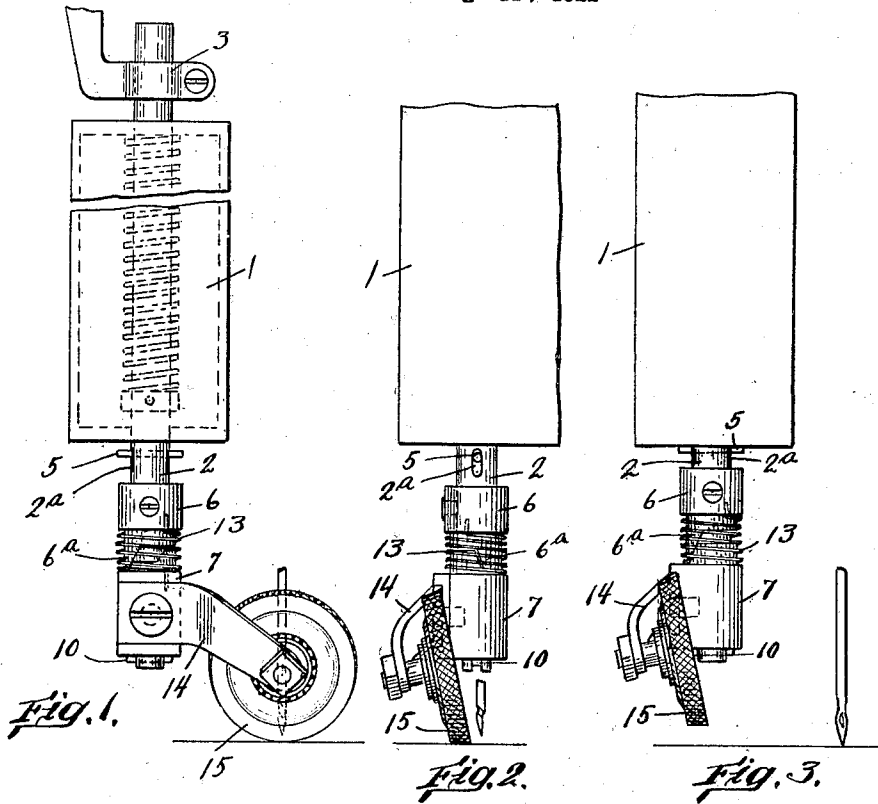
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F. F. WITKUS

PRESSER FOOT CONTROLLING DEVICE

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UNITED STATES PATENT OFFICE.

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PRESSER-FOOT-CONTROLLING DEVICE.

Application filed August 11, 1922. Serial No. 581,121.

To all whom it may concern:

Be it known that I, FRANK F. WITKUS, a citizen of the United States, a resident of Newport, in the county of Sullivan and the State of New Hampshire, have invented an Improvement in Presser-Foot-Controlling Devices, of which the following is a specification.

This invention relates to that class of sewing machines having a presser foot of the wheel type, which is held against the work in close proximity to the needle and is so supported that it may not only be lifted vertically from the work, in the usual manner, but may also be moved laterally from its normal position adjacent the needle, after it has been lifted, to a position at one side thereof, so that it will not be in the way of the operator, when it becomes necessary to thread the needle or make adjustments which the wheel would interfere with if in normal position.

Prior to my invention the movement of the presser foot to and from normal position has usually been performed by hand after the foot has been raised to its fullest extent.

The present invention relates to a modified form of an invention generically claimed by me in a concurrently filed application, Serial No. 581,118.

The object of the present invention is to provide means whereby the presser foot will be automatically moved laterally out of normal position at the end of the vertical lifting movement, in which position it will be held until returned to its normal position by hand, said means to be applicable to similar prior constructions in which the presser-foot-carrying arm is arranged to swing about the presser bar.

I accomplish this object by providing a spring which is constantly actuated to swing the presser-foot-carrying arm from normal position together with a locking means which normally acts to hold the foot in normal position, but which will be automatically moved to release the same, and permit the spring to act, when the presser bar is raised to its highest point.

For a more complete disclosure of my invention, reference is made to the accompanying drawing in which:

Figs. 1 and 2 are, respectively, side and front elevations of the presser mechanism

of a sewing machine containing an embodiment of my invention.

Fig. 3 is a side elevation showing the foot in raised position.

Figs. 4 to 8 are detail views of different parts of the presser foot controlling means.

Fig. 9 is a sectional view of a modified form of presser foot controlling means.

In the drawing the needle bar casing 1 is shown as provided with the usual vertically movable presser bar 2, which is spring pressed downwardly and adapted to be lifted either by a hand lever, or by a lever beneath the machine table, which is adapted to be operated by the foot or knee of the operator, both means usually being provided, and the foot or knee operated lever being usually connected to the presser bar through a chain, or the like, by means of a collar, as 3, attached to the bar.

According to the present invention, the lower end portion of the bar 2 is provided with a longitudinal bore in the upper portion of which a rod 4 is slidably mounted, said rod having a cross pin 5 therein, which extends through longitudinal slots 2^a in the bar and permit limited longitudinal movement of said rod. A sleeve 6 is fixed on the bar 2 beneath said slots and is provided with an inclined abutment 6^a, and a sleeve 7 is rotatably mounted on the lower end portion of the bar and is provided with two inclined faces 7^a, 7^b, each of which are adapted to be engaged with the abutment 6^a. A screw plug 8 is threaded in the lower end portion of the bore of bar 2 and a pin 9 having a head 10, at its lower end, in the form of a cross-bar, is reciprocally arranged therein. The lower end of plug 8 is transversely slotted to receive the bar forming the head 10, which is of greater length than the internal diameter of the sleeve 7, so that it engages both the end of said sleeve and the end of the screw-plug, said head being held in engagement therewith by a spring 11 on the pin 9 between the inner end of the screw plug 8 and a cross pin 12 in the pin 9. A spring 13 is coiled about the bar 2 between the sleeves 6 and 7 and one end thereof is attached to the sleeve 6, and the opposite end to the sleeve 7, said spring being placed under tension so that it tends to rotate the sleeve 7 to the left. An arm 14 is secured to the sleeve 7 and the presser wheel 15 is rotatably mounted on the end thereof. Under normal

conditions the face 7^a of the sleeve 7 will be engaged with the abutment 6^a, as shown in Figs. 1, 2 and 7 in which position the sleeve will hold the presser wheel in normal position adjacent the needle. In this position also the adjacent ends of the sleeves will be slightly separated by the spring 13, when the presser wheel is raised from the work, the action of the springs 11 and 13 being balanced, but when the wheel is forced against the work, the upper end of the sleeve will engage the lower end of sleeve 6, so that the wheel will be held against movement relative to the bar 2 when it is in normal, or operative position.

When the bar 2 is raised sufficiently to engage the cross pin 5, further upward movement of the rod 4 and pin 9 with the bar will be prevented, so that the spring 11 will be compressed, permitting the spring 13 to hold the sleeve 7 against upward movement with the bar until the abutment 6^a is raised sufficiently to become disengaged from the face 7^a. When this occurs the spring 13 will rotate the sleeve 7 to the left and carry the arm 14 from the position of Fig. 2 to its inoperative position of Fig. 3, in which latter position the abutment 6^a will be engaged by face 7^b, preventing further lateral movement of the sleeve 7 and parts carried thereby. The parts will be held in this position so long as the presser bar is held in raised position, and, when the presser wheel is to be returned to normal position, the presser bar will be lowered and the arm which carries the wheel will be swung back to normal position by hand.

In Fig. 9 a somewhat modified form of the invention is shown, in which the construction is simplified. In this form the rod 4' is extended to the lower end of the presser bar and a cross pin 16 is provided in the slotted lower end thereof which is arranged to sustain the sleeve 7. A spring 17, which performs the same function as spring 11, is arranged between the upper end of the fixed sleeve 6 and the cross pin 5, in the upper end of the rod 4'. As the sleeve 7 is sustained by the spring 17 in precisely the same way as that in which it is sustained by the spring 11, it will be apparent that the operation of this form of the invention is identical with that of the form previously described.

I claim—

1. In a sewing machine having a vertically movable presser bar, a presser-foot-carrying arm at the lower end of said bar arranged to swing horizontally about the same, a spring normally tending to swing said arm from an operative to an inopera-

tive position, locking means for holding said arm in its operative position, an operating device carried by said bar and arranged for movement longitudinally thereof, to release said locking means, a spring for normally sustaining said device in its uppermost position, and means on said device to hold the same stationary as the bar is lifted whereby said locking means may be released.

2. In a sewing machine having a vertically movable presser bar, an abutment on said bar, a sleeve having a presser-foot-carrying arm thereon and mounted on said bar to move rotatably thereof to swing said arm between operative and inoperative positions, said sleeve having a face arranged for engagement with said abutment, to lock the arm in its operative position, and being longitudinally movable on the bar to be engaged with, and disengaged from the same, a spring for holding the sleeve in engaging position, means for causing disengagement of said sleeve and abutment when the bar is raised and a spring constantly tending to rotate said sleeve in a direction to move the arm to its inoperative position.

3. In a sewing machine having a vertically movable presser bar, a sleeve arranged for sliding and rotary movement on said bar and having a presser-foot-carrying arm thereon, a stop on the bar for limiting the upward movement of the sleeve, a spring arranged to press said sleeve towards the stop, an abutment arranged to hold said sleeve in position to hold said arm in normal position, a spring constantly tending to rotate said sleeve to carry said arm away from said position and means carried by the bar arranged to be engaged when the bar is lifted to limit the upward movement of the sleeve with the bar and permit the abutment to be disengaged therefrom.

4. In a sewing machine having a vertically movable presser bar, a presser-foot-carrying arm mounted on said bar and movable between an operative and an inoperative position, means normally tending to move said arm from its operative to its inoperative position, retaining means normally arranged to hold said arm in its operative position, an operating device carried by said bar and movable longitudinally thereof to move said retaining means to its inoperative position, and means for normally sustaining said operating device in an operative position and for holding it in position to move said retaining device to its inoperative position when said bar is lifted to a predetermined extent.

In testimony whereof, I have signed my name to this specification.

FRANK F. WITKUS.