March 18, 1924. 1,487,419

F. F. WITKUS

PRESSER FOOT CONTROLLING DEVICE

Filed Aug. 11, 1922

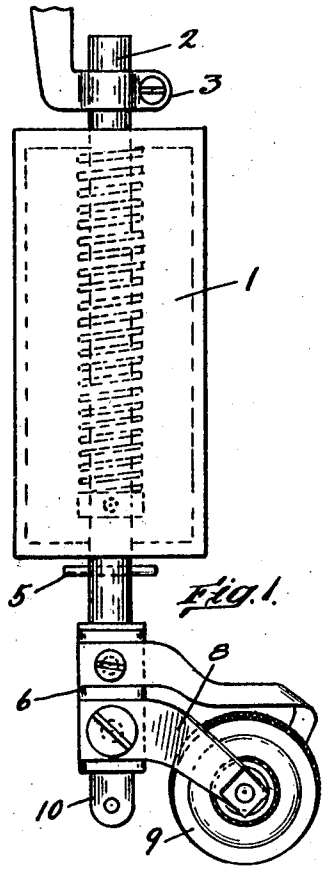


Fig. 1.

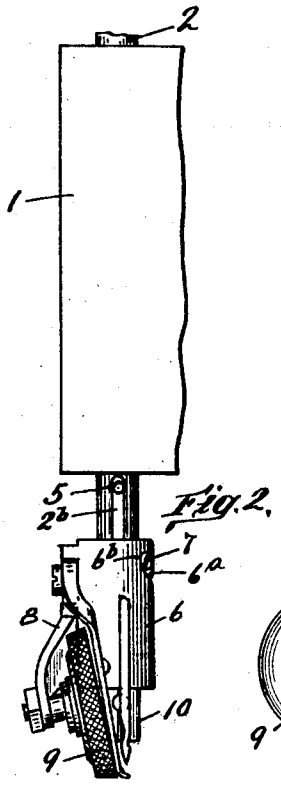


Fig. 2.

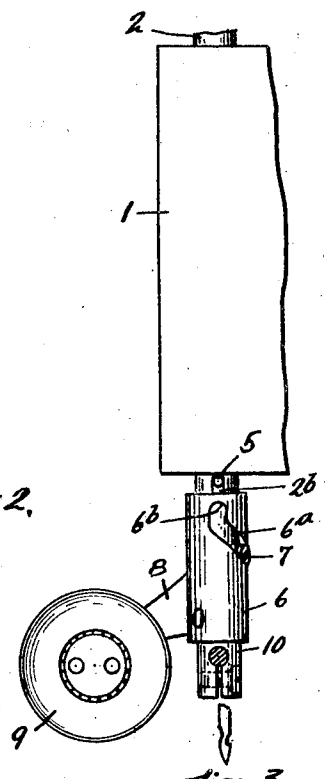


Fig. 3.

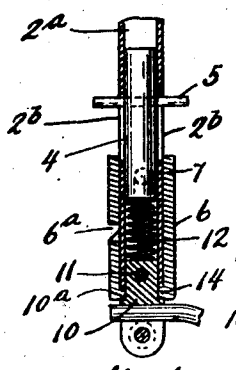


Fig. 4.

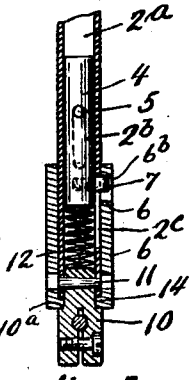


Fig. 5.

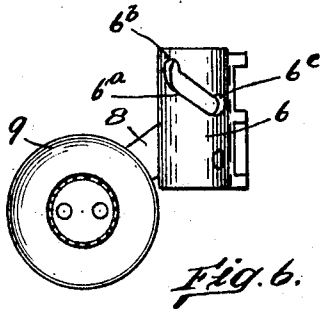


Fig. 6.

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UNITED STATES PATENT OFFICE.

FRANK F. WITKUS, OF NEWPORT, NEW HAMPSHIRE.

PRESSER-FOOT-CONTROLLING DEVICE.

Application filed August 11, 1922. Serial No. 581,120.

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 reciprocating 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 would otherwise be interfered with by the foot.

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 specifically 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, in a machine of the above described character, means whereby the presser wheel will be rigidly locked against lateral movement when in lowered position, and will be automatically swung away from the needle to an inoperative position during the latter portion of the lifting movement of the presser bar, and which, when the presser bar is released by its lifting means, may either be returned to the normal position again automatically, or may be retained in the inoperative position, according to the extent to which the operator raises the presser bar.

I accomplish this object by providing a sleeve which is swiveled on the presser bar, which supports the presser wheel, and is adapted and arranged to be rotated by a cam action thereon when the bar is lifted.

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

Figs. 1 and 2 are side and front elevations of a sewing machine presser mechanism embodying my invention.

Fig. 3 is a front elevation showing the presser in raised position.

Figs. 4 and 5 are central longitudinal sectional views of the lower end portion of the presser bar, showing the parts in different positions.

Fig. 6 is a detail view of the presser-wheel-supporting cam sleeve which I employ.

In the drawing, the needle bar casing 1 is shown as provided with the usual vertically movable, downwardly spring-actuated presser bar 2, which is adapted to be lifted by a hand lever, or by a foot, or knee operated lever, located beneath the machine table, both means being usually employed and the lever beneath the table being connected to the bar through a chain and a collar, as 3, which is clamped on the bar.

According to my present invention, the lower end portion of the bar 2 is formed with a bore 2^a which extends for a substantial portion of its length and a rod 4 is reciprocally mounted in said bore and has a cross pin 5 therein, which extends through slots 2^b in the bar, and holds said rod from rotation therein, but permits limited reciprocatory movement thereof.

A sleeve 6 is mounted on the bar 2 and is provided with a cam-slot 6^a therein, the intermediate portion of which extends helically thereof, and is provided with a longitudinally extending recess 6^b at its upper end and a similar recess 6^c at its lower end, both of which extend upward from the slot. A screw 7 is fixed in the rod 4, said screw extending through slot 2^c in the bar, which extends longitudinally thereof and has its head located in the cam-slot 6^a. An arm 8, bearing the presser wheel 9, is attached to the sleeve, and is adapted to be held thereby in proximity to the needle when in normal position. A plug 10 is located in the lower end of the bore of the bar 2 and is fixed therein by means of a pin 11, which does not extend beyond the surface of the bar, and a spring 12 is located in the bore between the adjacent ends of the rod 4 and plug 10.

The sleeve 6 is provided with an internal flange 14 at its lower end which is adapted to engage the lower end of the bar 2 and to receive the plug 10, and said plug is pro-

vided with a shoulder 10^a, which engages the outer side of the flange 14, so that the sleeve is locked against longitudinal movement on the bar 2, but is free to rotate thereon, a swivel connection between the sleeve and bar thus being provided.

In the normal position of the parts, and when the presser bar is lowered, so that the wheel may engage the work, the action of the spring 12 on the rod 4 will force the same upward, so that the head of the screw 7 therein will be carried into the upper recess 6^b, of the cam slot 6^a, in which position the sleeve will be rigidly locked on the bar 2 against rotary movement in either direction, and as the sleeve is rigidly held against longitudinal movement, the presser wheel will be firmly locked on the bar when the parts are in this position. When the bar is raised, to lift the wheel from the work, there will be no lateral movement of the wheel during the first portion of the movement, but when it is raised sufficiently to cause the cross bar 5 to engage the under side of the casing, the inner rod 4 will be held stationary, and, as the bar and sleeve are lifted still further, the screw 7 will be engaged with the helical portion of the cam slot 6^a, causing the sleeve 6 to be rotated to the left and swinging the presser wheel away from the needle, as shown in Figure 3. If the bar 2 is not raised to the highest point possible and the bar is then lowered, the spring 12, which will have been compressed on the lifting movement, will cause the reverse operation to take place, so that the presser wheel will be automatically returned to the normal position. If, however, the bar is raised to its fullest extent, the screw 7 will engage sleeve 6 in the recess 6^c, so that, when the bar is lowered, the wheel will be retained in its inoperative position, and, when it is desired to return it to operative position it will be necessary to start the return movement by hand, and then the spring 12 will finish the return movement.

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, means for locking said arm against movement relatively to said bar when the arm is in normal position and the bar is lowered, means for automatically unlocking said arm, and swinging the same away from its said normal position when the bar is raised to a predetermined extent and means for automatically returning the arm to normal position when the bar is lowered.

2. In a sewing machine having a vertically movable presser bar, a presser-foot-carrying arm at the lower end of said bar, means for locking said arm against movement relatively to said bar when the arm is in normal position and the bar is lowered, means for automatically unlocking said arm, and swinging the same away from its said normal position to an inoperative position when the bar is partly raised, means arranged to retain the arm in said inoperative position when the bar is raised to the upper limits of its movement and means tending to return the arm to normal position.

3. In a sewing machine having a vertically movable presser bar, a presser-foot-carrying arm mounted on the lower end portion of said bar to swing about the same, and means carried by said bar and arranged for reciprocal movement relatively thereto, when the bar is raised and lowered to engage said arm and swing the same from normal position during the upward movement of the bar and to return the arm to normal position during its downward movement.

4. In a sewing machine having a vertically movable presser bar, a sleeve rotatably mounted on said bar and having a presser foot carrying arm extending therefrom, and an operating device, carried by said bar and arranged for reciprocal movement relative thereto, said device having engaging means for holding the same stationary as the bar is lifted and a cam member for engaging said sleeve and moving the same rotatably to swing said arm out of normal position during the upward movement of the bar.

5. In a sewing machine having a vertically movable presser bar, a presser-foot-carrying arm mounted thereon to swing rotatably about the same, an operating device carried by said bar and arranged for reciprocal movement relative thereto, a spring arranged to move said device from its lowermost to its uppermost position relative to the bar, means on said operating device arranged to hold the same stationary as the bar is lifted, and a cam member thereon arranged to swing said arm out of normal position during the upward movement of the bar.

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

FRANK F. WITKUS.