(No Model.)

L. A. WARREN.

Clutch for Loose Pulleys on Sewing Machines.

No. 236,656. **Patented Jan. 11, 1881.**

Fig. 1.

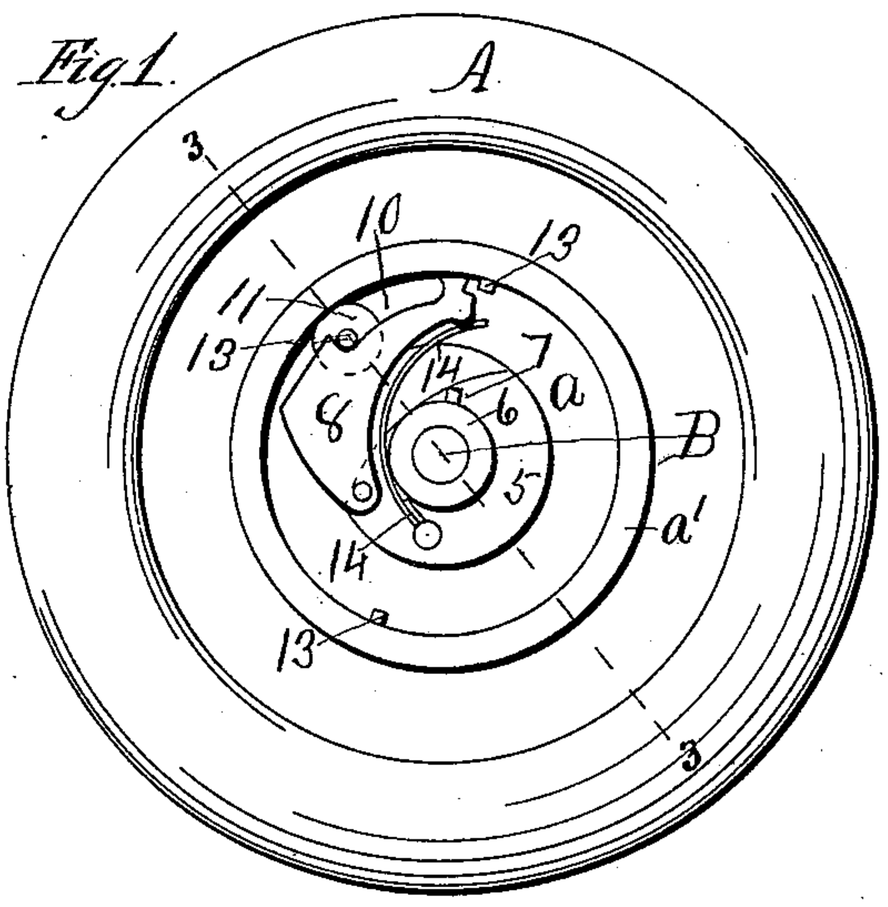


Fig. 2.

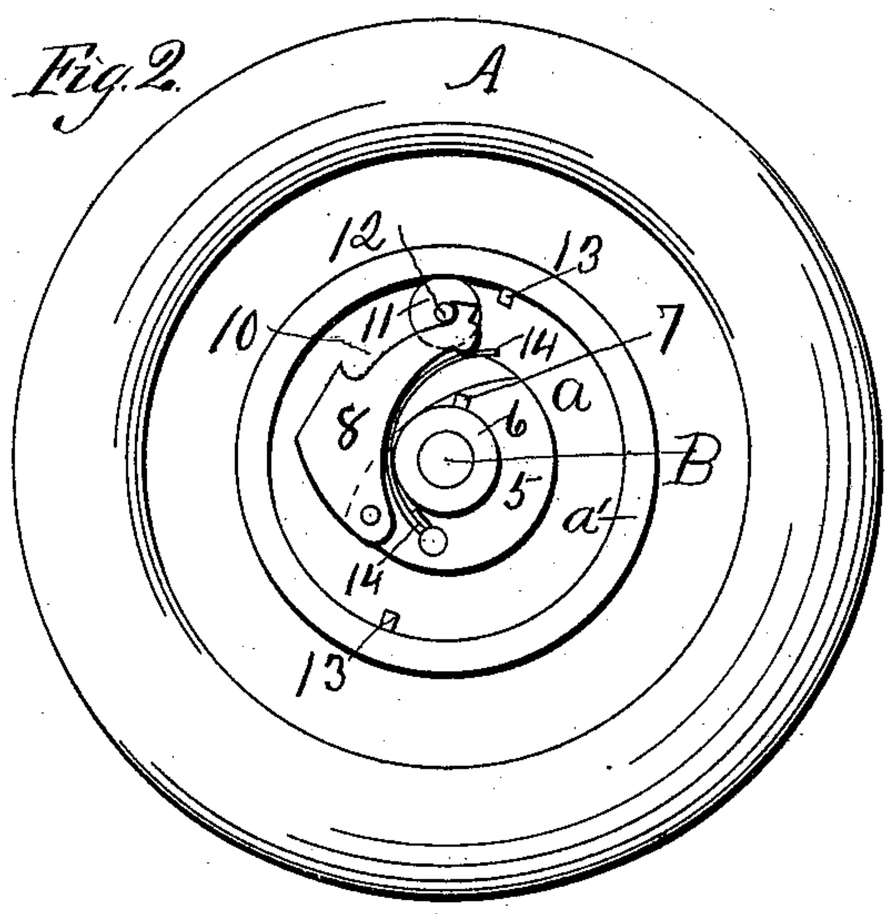


Fig. 3.

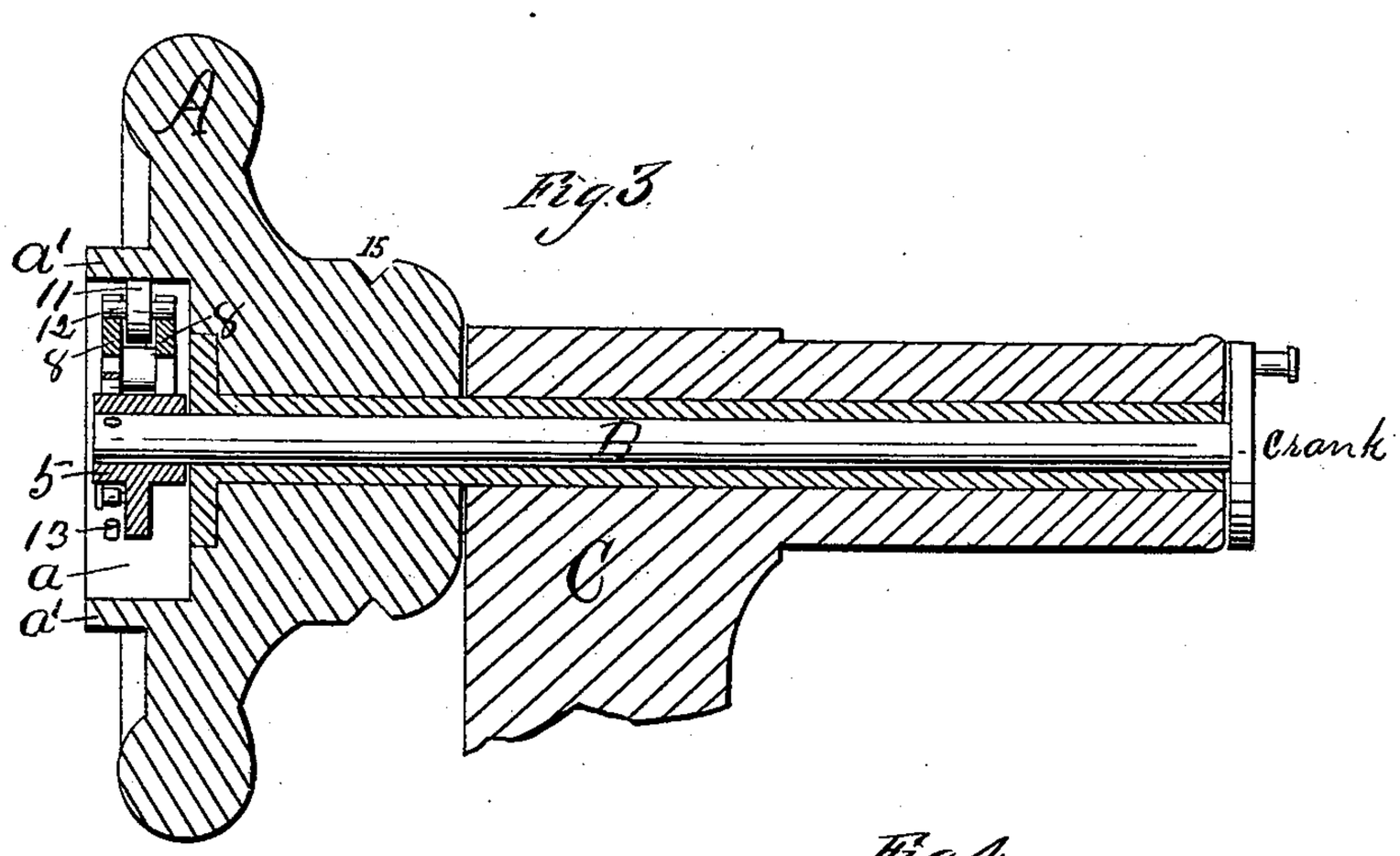
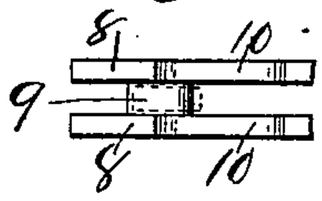


Fig. 4.



WITNESSES—

F. B. Townsend
W. A. Schonfeld.

INVENTOR—

Luke A. Warren

By L. B. Coupland & Co
attys.

UNITED STATES PATENT OFFICE.

LUKE A. WARREN, OF SYCAMORE, ILLINOIS.

CLUTCH FOR LOOSE PULLEYS ON SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 236,656, dated January 11, 1881.

Application filed October 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, LUKE A. WARREN, of Sycamore, in the county of De Kalb and State of Illinois, have invented certain new and useful Improvements in a Clutch for Loose Pulleys on Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, that will enable others skilled in the art to which it appertains to construct and make use of the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, forming a part of this specification.

The object of this invention is an improved clutching device attached to the loose band-pulley of a sewing-machine, whereby the band-pulley and fly-wheel may be run backward for the purpose of winding the bobbin, the sewing mechanism proper in the meantime remaining stationary.

This improvement relates especially to the clutching mechanism herein shown, the balance of the sewing-machine being of the ordinary construction.

Figure 1 is an outside end view of the band-pulley, showing the position of the clutching device when rotating with the main shaft; Fig. 2, a view of the same, showing the position of the clutch when the motion of the machine is reversed and the band-pulley is rotating loosely on the main shaft; Fig. 3, a vertical section in the plane 3 3, Fig. 1; and Fig. 4, a detached detail of construction.

Referring to the drawings, A represents the band-pulley, B the main shaft, and C the arm carrying the needle-bar.

The clutch mechanism is located in the annular recess *a*, inclosed by the annular projecting rim *a'*, as shown in Fig. 3 of the drawings.

The cam-piece 5 and the collar 6 are constructed integral, and are rigidly attached to the main shaft B by means of the pin or set-screw 7.

The pawl 8 consists of two arms having a rigid connection with each other by means of the part 9, and is of the peculiar form shown in the drawings, Figs. 1 and 2 showing the side of the pawl, and Fig. 4 the outer edge of the same. The larger or inner ends of the pawl-arms 8 engage with and pass astride of the edge of the cam-piece 5, and are pivoted thereto, as shown in Figs. 1 and 2 of the drawings. The outer ends of the pawl-arms are loose, and are adapted to move up to or away from the inner circumferential surface of the annular recess *a*, in accordance with the direction in which the pulley A is rotating. The upper edges of the pawl-arms are cut away to form the eccentric slots 10.

The friction-roller 11 is of such longitudinal dimensions as to travel and rotate between the two arms forming the pawl 8, as represented by the dotted lines in Fig. 1 and in Fig. 3 of the drawings. The friction-roller 11 is rigidly attached to the small shaft 12, the ends of which have bearings in the eccentric slots 10, formed in the arms of the pawl, and the periphery of the roller 11, having a frictional contact with the inner circumferential surface of the annular recess *a*, by which means the friction-pulley 11 is made to change its position and bearings from one end of the slots 10 to the other, when the motion of the machine is reversed.

The stops 13 are inserted in the rim *a'* on a line passing outside of the friction-roller 11, and are intended to engage with the loose end of the outer arm of the pawl 8 when the pulley and main shaft rotate together.

One end of the spring 14 is rigidly secured to the cam 5, the opposite end being loose and bearing against the loose end of the pawl 8, and serving to force the end of the same up against the inner surface of the recess *a*.

The annular groove 15 in the pulley A is for the reception of the belt leading from the fly-wheel of the machine.

The operation of this attachment is as follows: As represented in Fig. 1 of the drawings, one of the stops 13 is about to engage with the outer end of the pawl 8, the pulley turning to the left, the friction-roller 11 resting in its inner bearings. The pulley now revolves with the main shaft, and the sewing mechanism is in operation. Fig. 2 shows the position of the friction-roller when the motion is reversed, which, as it moves up from the opposite end of the slots 10, forces the loose

end of the pawl away from its bearing on the inner surface of the recess *a*, and the pulley rotates loosely on the main shaft, which remains stationary.

This device is automatic in operation, requiring no adjustment at the hands of the operator, as it adjusts itself when the motion of the machine is reversed.

This improvement does away with the annoyance and inconvenience of having to throw off or change the belts each time it is necessary to wind the bobbin or to reverse the motion of the machine for any other purpose, and all danger of breaking the thread by running the machine backward is avoided.

This clutch device is not alone applicable to sewing-machines, but may be employed in connection with other mechanism requiring a clutch of this character.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the loose pulley A and the main shaft B, of the cam-piece 5, the pawl 8, consisting of two arms provided with the eccentric slots 10, as described, the friction-roller 11, and the spring 14, substantially as herein shown and described.

2. In a clutch device of the character hereinbefore described, the combination of the following elements, consisting of the loose pulley A, the main shaft B, the cam-piece 5, the pawl 8, the stops 12, the friction-roller 11, and the spring 14, all constructed, arranged, and operating in the manner and for the purpose set forth.

LUKE A. WARREN.

Witnesses:
J. E. SOUTHWORTH,
H. W. BACON.