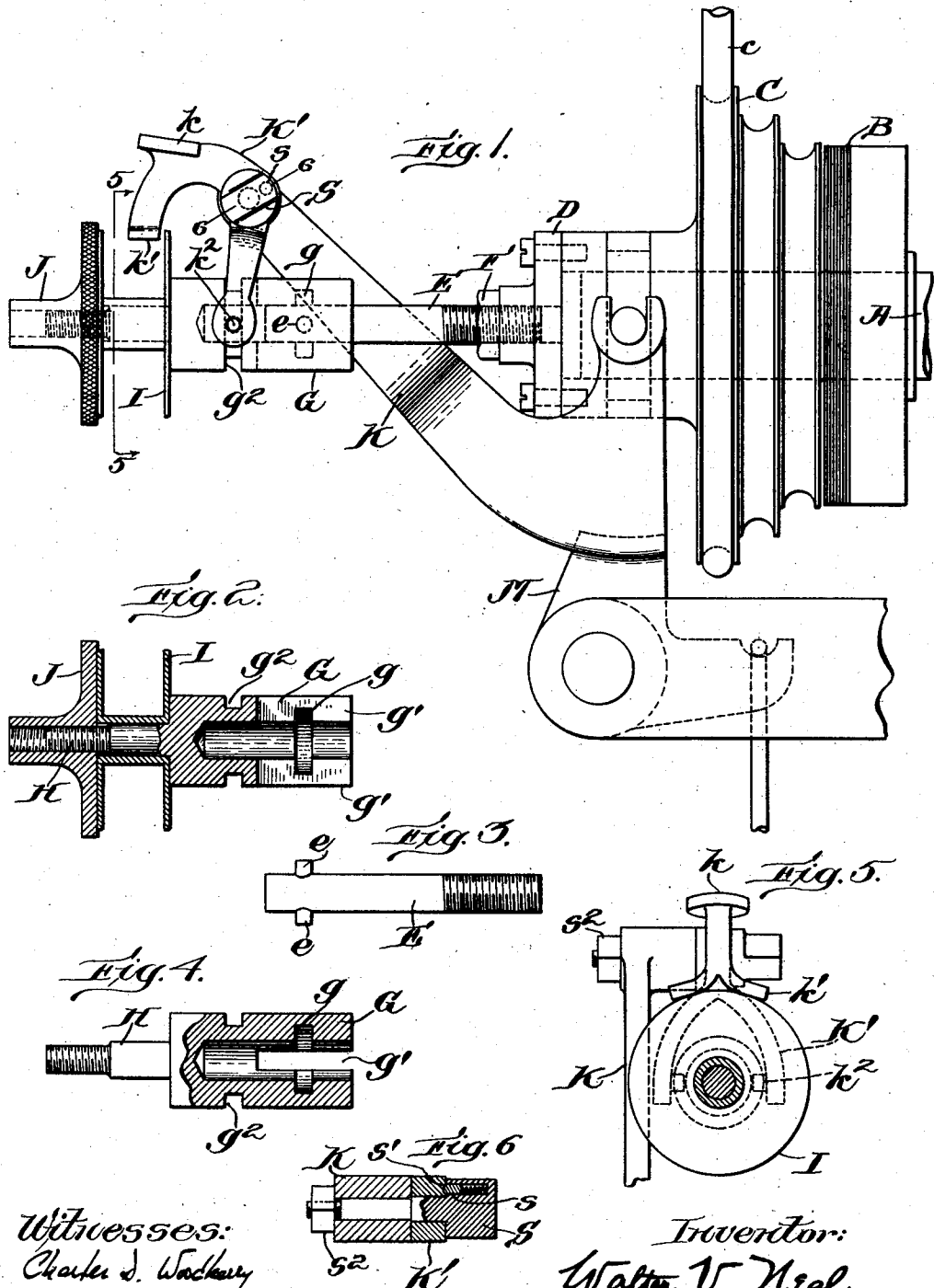


W. V. NEAL.
BOBBIN WINDER.
APPLICATION FILED SEPT. 16, 1910.

997,408.

Patented July 11, 1911.



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UNITED STATES PATENT OFFICE.

WALTER V. NEAL, OF BOSTON, MASSACHUSETTS.

BOBBIN-WINDER.

997,408.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed September 16, 1910. Serial No. 582,306.

To all whom it may concern:

Be it known that I, WALTER V. NEAL, a citizen of the United States, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Bobbin-Winders, of which the following is a specification.

My invention relates to bobbin winders for use in the winding of bobbins generally and particularly adapted for use in the winding of bobbins for the sewing machines commonly used in the manufacture of boots and shoes.

The object of this invention is to provide a bobbin winder which shall be simple, comprising in its construction no springs or other working parts likely to be injuriously affected by heat; which is adapted to be operated by the same pulley which operates the sewing machine, thus eliminating the necessity of a special belt for the bobbin winder; and wherein the winding of the thread is automatically stopped when the body of thread upon the bobbin reaches a predetermined size.

Referring to the drawings, which illustrate an embodiment of my invention,—Figure 1 is a side elevation of my improved bobbin winder; Fig. 2 is a sectional view of the sleeve, bobbin and bobbin nut; Fig. 3 is a side view of the spindle; Fig. 4 is a sectional view taken on a plane at right angles to the plane on which Fig. 2 is taken; Fig. 5 is a sectional view on the line 5—5 Fig. 1; and Fig. 6 is a sectional view on the line 6—6 Fig. 1.

In the drawings, A is a shaft provided with a fixed pulley B and a loose pulley C connected by a belt *c* with the main power shaft, said pulleys constituting the means for transmitting the power to the sewing machine. Upon said pulley C there is provided an extension D to which is adjustably secured a spindle E, forming one member of a clutch, and having a pair of oppositely disposed lugs *e, e*, said spindle being held in adjusted position by the lock-nut F. Upon said spindle E is slidably mounted a sleeve G, which forms the other member of the clutch, having a central bore adapted to receive the spindle E and provided with a circumferential groove *g* and a pair of oppositely disposed longitudinal slots *g', g'*. The groove *g* and slots *g'* are of sufficient size to permit the lugs *e* loosely to fit there-

in; and if desired, longitudinal grooves may be employed instead of the longitudinal slots *g'*. The sleeve G is further provided with a stem H adapted to hold the bobbin I, said stem being screw-threaded at one end to receive the bobbin nut J.

M is the usual shipping lever adapted to throw the loose pulley C into frictional engagement with the fixed pulley B. Secured to said shipping lever is a bracket K upon which is pivoted in any suitable manner a clutch actuating device or lever, K' having an upper and a lower arm. The upper arm of said lever is provided with a finger rest *k* and a bifurcated end *k'*. The lower arm of said lever is bifurcated extending downward upon opposite sides of the sleeve G, and provided with studs *k², k²* which fit within a peripheral groove *g²* in the sleeve G. While said lever K' may be pivotally secured to said bracket K in any suitable manner I prefer to employ for this purpose a stud or bolt S (Figs. 1 and 6) which passes through said lever and said bracket, and is provided with a spring operated dog *s* which, when the lever is in normal raised position, as shown in Fig. 1, rests within a socket *s'* in the side of said lever. The bolt or stud S may be tightened or loosened by the adjusting nut *s²* so as to permit the lever K' readily to move upward and downward in the manner presently to be described, the dog *s* serving to prevent the lever from falling of its own weight even though the parts be comparatively loosely bolted together.

Normally the parts are in the position shown in Fig. 1 the lugs *e* rotating in the circumferential groove *g*, the sleeve G being stationary. The operation of the device is as follows: The operator places his finger upon the rest *k* and depresses the lever K'. Simultaneously with the beginning of the downward movement of the lever K', the sleeve G begins to move inward upon the spindle E the lugs *e, e* leaving the circumferential groove *g* and entering the slots *g'* thus communicating the rotary movement of the spindle to the sleeve so that the bobbin carried thereby, begins to rotate. The downward movement of the lever K', and consequent inward movement of the sleeve upon the spindle, is continued until the bifurcated end *k'* of the lever rests upon the bobbin.

As soon as the body of the thread upon

the bobbin begins to grow, the lever *K'* is gradually lifted thereby, and this upward movement slides the sleeve *G* outward along the spindle *E*, the parts being so adjusted by lengthening or shortening the spindle *E* that when the body of thread upon the bobbin reaches a predetermined size, the clutch is disengaged and the rotation of the sleeve and bobbin stopped by the slipping of the lugs *e, e* from the slots *g', g'* and their re-entrance into the circumferential groove *g*.

It will be clear that as the pulley *C* is loose upon the shaft *A*, my improved bobbin winder is adapted for the winding of bobbins even though the sewing machine is not in operation. It is, however, equally adapted for this use when the sewing machine is in operation; for when the shipping lever *M* is depressed to throw the pulley *C* into frictional engagement with the fixed pulley *B*, it causes a simultaneous lateral movement not only of the parts carried by the pulley *C*, but also of the clutch actuating device which is supported by the shipping lever itself, so that the operative relation and adjustment of the clutch and its actuating device is not disturbed by the shipping of the pulley *C*.

I claim:

1. In combination with the loose pulley of a sewing machine, a bobbin winder secured to and carried by said pulley, comprising a clutch member fast to the center of said pulley and rotatable therewith, a second clutch member supported by the first named clutch member, a bobbin carried by the second clutch member and rotatable therewith, a shipping lever for said pulley,

and a clutch-actuating device supported by said shipping lever whereby when said shipping lever is operated said clutch and said clutch-actuating device will be moved laterally without disturbing their operative relation and adjustment.

2. The combination with the loose pulley of a sewing machine, of a clutch comprising a spindle adjustably secured to the center of said pulley and rotatable therewith, a lug on said spindle, a sleeve slidably mounted on said spindle provided with a longitudinal groove and a circumferential groove in which said lug normally rotates, a bobbin fast to said sleeve and rotatable therewith, a peripheral groove in said sleeve, a shipping lever for said pulley, a bracket fast to said shipping lever, a lever pivoted on said bracket and having a bifurcated arm extending on opposite sides of said sleeve and provided with studs fitting within said peripheral groove, said lever adapted when depressed to throw said clutch into operative relation to rotate said bobbin, and thereafter to rest upon the thread on said bobbin and to be raised thereby to disengage said clutch when the body of thread reaches a predetermined size, and said shipping lever adapted when operated to move said clutch and said clutch-actuating device laterally without disturbing their operative relation and adjustment.

Signed by me at Boston, Massachusetts, this 12th day of September, 1910.

WALTER V. NEAL.

Witnesses:

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