No. 652,725. Patented June 26, 1900.

J. RONEY.

BOBBIN HOLDER AND THREAD CATCHER.

(Application filed Feb. 15, 1900.)

(No Model.)

Fig. 1.

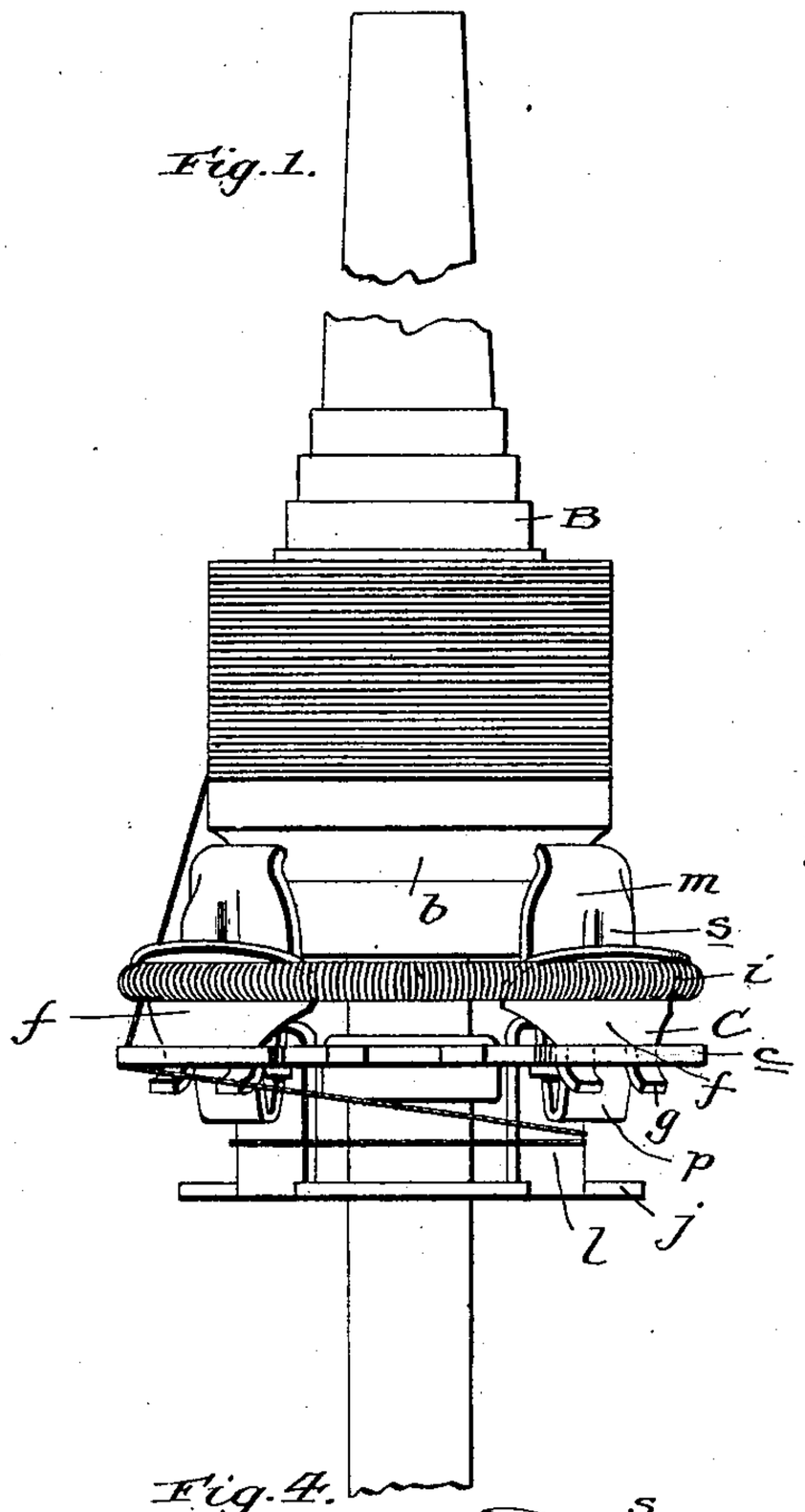


Fig. 2.

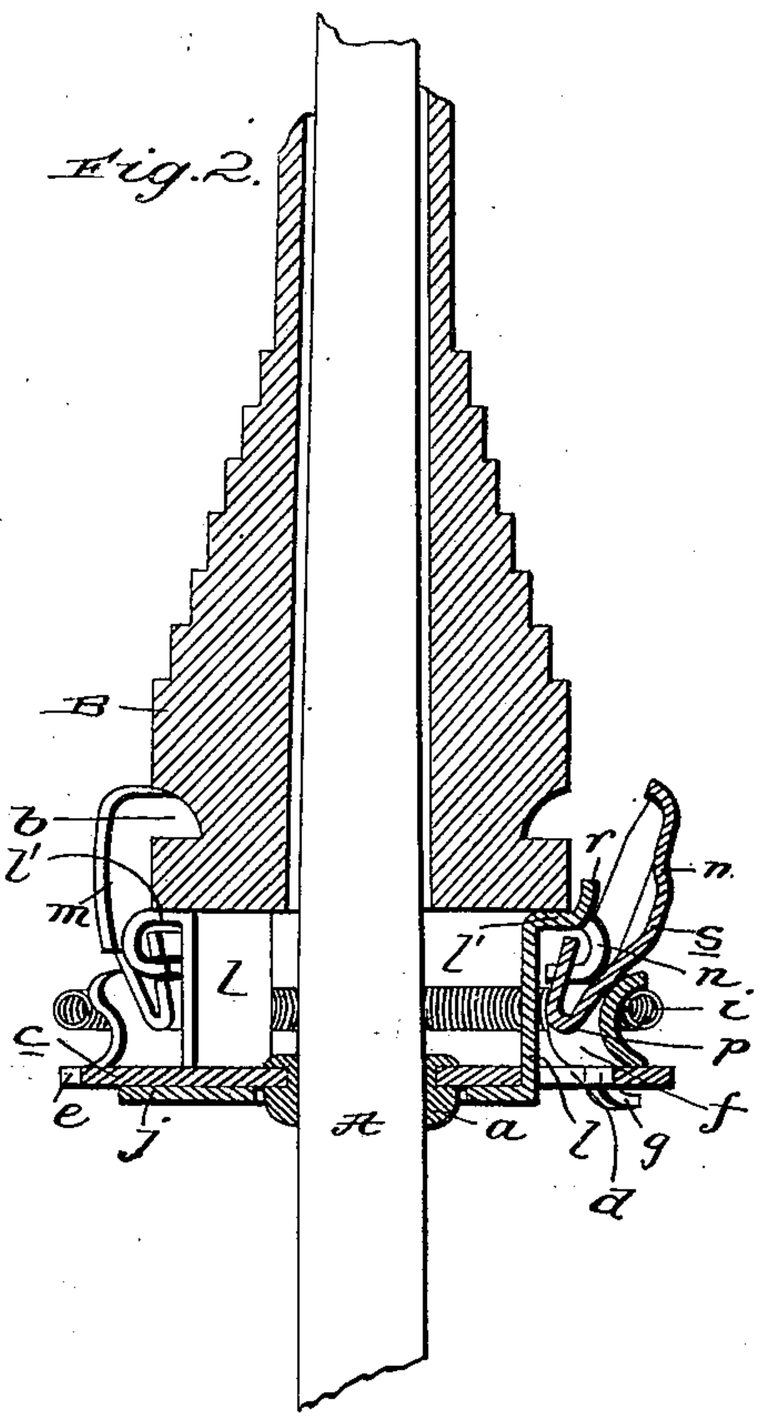


Fig. 3.

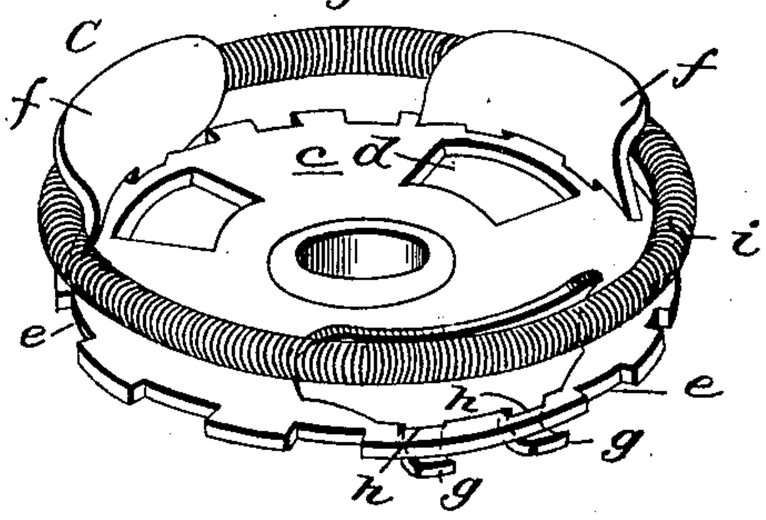


Fig. 4.

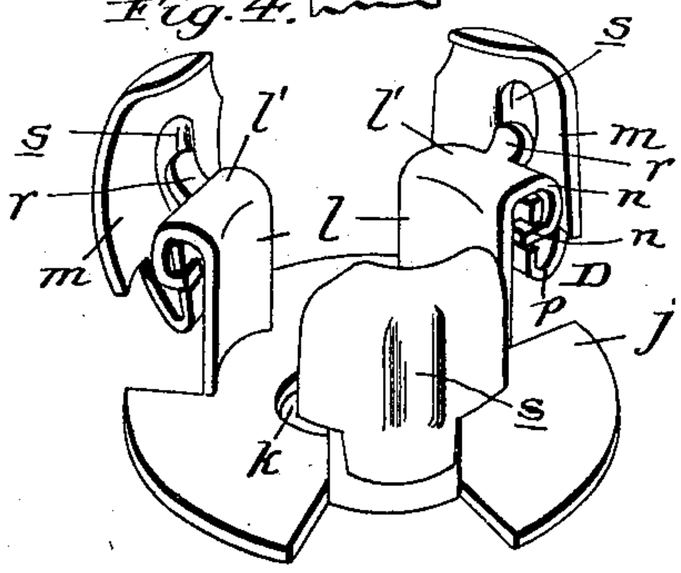


Fig. 5.

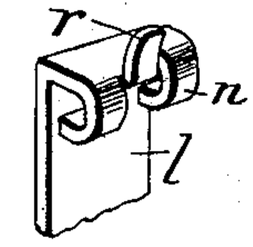
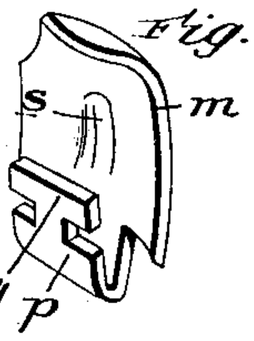


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN RONEY, OF WOONSOCKET, RHODE ISLAND.

BOBBIN-HOLDER AND THREAD-CATCHER.

SPECIFICATION forming part of Letters Patent No. 652,725, dated June 26, 1900.

Application filed February 15, 1900. Serial No. 5,352. (No model.)

To all whom it may concern:

Be it known that I, JOHN RONEY, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Bobbin-Holders and Thread-Catchers, of which the following is a specification.

My present invention relates to bobbin-holders and thread-catchers, and is designed more particularly as an improvement upon the bobbin-holder and thread-catcher forming the subject-matter of my Letters Patent No. 632,473, of September 5, 1899.

It has for its general object to provide a bobbin-holder and thread-catcher adapted for use in conjunction with bobbins having bases of various diameters, and one in which the parts are so constructed and arranged that the mere doffing of the bobbin through the coöperation of the faller-wire will result in the thread being caught and held until a new or empty bobbin has been placed on the spindle and forced down into its seat, and the forcing of the base of the bobbin down into the holder will automatically release the thread.

Other objects and advantages of the present invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a broken elevation of a spindle equipped with my improvements and a bobbin thereon, the bobbin being shown as provided with a part of a cop to illustrate the disposition of the thread precedent to the action of the catcher. Fig. 2 is a diametrical section of the same with the empty bobbin in a position to be forced into its seat, and thereby open the catcher. Fig. 3 is a detail perspective view of that member of the bobbin-holder and thread-catcher which is fixed with respect to the spindle. Fig. 4 is a perspective view of the movable member of the device. Fig. 5 is a detail perspective view of the upper end of one of the upwardly-extending arms of the movable member. Fig. 6 is a perspective view of one of the catchers of the movable member.

Referring by letter to the said drawings, A is a spindle having a fixed collar *a*, and B is a bobbin which has a circumferential groove *b* in its base and is otherwise of the ordinary construction. I have not deemed it necessary to illustrate driving means for the spindle or the faller-wire and its operating mechanism, as such parts form no part of my invention.

C is the member of my improved bobbin-holder and catcher which is fixed on the spindle A. This member C in the preferred embodiment of the invention comprises a disk *c*, held against movement on the spindle by the collar *a* thereof and having openings *d* and peripheral notches *e*, shoes *f*, of concavo-convex form in cross-section, which are disposed above the disk and have curved lugs *g* at their lower edges loosely resting in openings *h* in the disk, whereby they are enabled to swing toward and away from the spindle, and an encircling spring *i*, which surrounds the shoes *f* and has for its purpose to press the same inwardly or toward the spindle. The spring is shown as composed of spiral wire; but it is obvious that any other spring or springs which will tend to force the plates inwardly may be used.

D is the movable member of the bobbin-holder and thread-catcher. As best shown in Figs. 4 to 6, this member is made up of a disk *j*, which has a central aperture *k* of a size to loosely receive the spindle below the disk *c* of the fixed member, and is also provided with arms *l*, arranged to extend upwardly through the openings *d* of said disk *c* and having lateral portions *l'* at their upper ends and catches *m*, which are designed to engage the grooved base of the bobbin and are loosely connected to the upper ends of the arms *l*, so as to enable their upper portions to swing toward and from the spindle and bobbin for a purpose presently described. While the catcher *m* may be loosely connected to the arms *l* in any manner suitable to the purposes of my invention, I prefer to effect such connection by providing the arms *l* at their upper ends with bearings *n* and the catches *m* with inner upwardly-extending portions *p*, which terminate in T-heads *q*, loosely arranged or journaled in the bearings of the arms *l*. I also prefer to provide the arms *l* with stops *r* to limit the inward movement of the upper portions of the catches, and to shape the said catches as shown and provide the same with exterior vertically-disposed ribs *s*, which are formed

by pressing the metal of the catches outwardly and are designed to be engaged by the shoes *f* of the member C.

The practical operation of my improved device is as follows: A bobbin having been built up or filled by the usual operation and the faller-wire having carried the thread through one of the peripheral notches of the fixed disk *c* and below said disk in a diagonal manner after the thread has been wound one or more times around the arms *l* of the movable disk *j*, the catcher is ready to operate when by the mere act of doffing the bobbin, which is effected by raising the member D, the thread will be clamped between the disk *j* of member D and the disk *c* of the member C. The catches *m* of the member D extend above and below the points where they are connected to the arms *l* and have their outer sides inclined inwardly from their middles to their upper and lower ends, whereby it will be seen that when the bobbin is raised by the arms *l* of member D and is about to be released by the catches *m* of said member D a quick upward movement will be imparted to the member D by the spring-pressed shoes *f* acting against the lower portions of the catches *m*. It will also be seen that subsequent to the upward movement of the member D the spring-pressed shoes *f*, bearing against the lower portions of the catches *m*, serve to retain said catches in their open position and also serve to hold the disk *j* of member D snug against the disk *c* of member C, so that the thread clamped between the two disks will be securely held thereby until another bobbin has been placed in the holder and caused to depress the member D. When the bobbin is placed in the holder, its base bears on the lateral portions *l'* at the upper ends of the arms *l* of the member D, as shown in Fig. 2, and hence when it is pressed downwardly the member D will also be depressed and caused to assume the position shown in Fig. 1. The catches *m* are carried down with the member D and into such position that the shoes *f* bear against their upper portions—*i.e.*, their portions above their middles. From this it follows that the spring-pressed shoes are enabled to hold the catches *m* in secure engagement with the base of the bobbin and also enabled to hold the member D against casual upward movement from the position shown in Fig. 1.

It will be appreciated from the foregoing that the mere act of doffing the bobbin will catch and hold the thread until the proper seating of a new bobbin has taken place and that when a new bobbin has been placed upon the holder and the faller-wire by the usual operation has taken the thread to the same by forcing the bobbin down into its seat the base of the bobbin acting against the arms *l* of member D will force said member downwardly, and consequently open the catches and release the thread. The peripheral notches of the disk *c* will of course receive the thread when it has been moved diagonally by the faller-wire whether the spindle is moving to the right or left, and the thread-catcher will act the same in either case. It will further be observed from the foregoing that by reason of the outwardly-directed branches *l'* at the upper ends of the arms *m* on member D and the general construction and arrangement of parts the holder is adapted for use in conjunction with bobbins having bases of various sizes, which is an important desideratum.

Having thus described my invention, what I claim is—

1. In a bobbin-holder and thread-catcher, the combination of a spindle, a disk fixed thereto, spring-backed shoes mounted on said disk and movable toward and from the spindle, a disk movable on the spindle and having arms extending through openings in the fixed disk and adapted to be engaged by a bobbin, and bobbin-catches mounted on the arms of the movable disk and arranged to be engaged by the shoes on the fixed disk.

2. In a bobbin-holder and thread-catcher, the combination of a spindle, a disk fixed thereto, spring-backed shoes mounted on said disk and movable toward and from the spindle, a disk movable on the spindle and having arms extending through openings in the fixed disk and provided at their upper ends with outwardly-directed, lateral branches, and bobbin-catches mounted on the lateral branches of the arms of the movable disk and arranged to be engaged by the shoes on the fixed disk, substantially as specified.

3. The combination of a spindle, a disk fixed thereto, a disk movable on the spindle and having arms extending through openings in the fixed disk, and spring-actuated bobbin-catches loosely mounted on said arms of the movable disk, substantially as specified.

4. In a bobbin-holder and thread-catcher, the combination of a spindle, a disk fixed thereto, spring-backed shoes mounted on said disk and movable toward and from the spindle, a disk movable on the spindle and having arms extending through openings in the fixed disk and provided with outwardly-directed, lateral branches at their upper ends, and bobbin-catches fulcrumed on and extending above and below the said branches and arranged to be engaged by the shoes on the fixed disk, substantially as specified.

5. The combination of a spindle, a disk fixed thereto and having openings, a disk movable on the spindle and having arms extending through the openings in the fixed disk and provided with broad bearings for the base of a bobbin, and spring-actuated bobbin-catches loosely mounted on said arms of the movable disk, substantially as specified.

6. In a bobbin-holder and thread-catcher, the combination of a spindle, a disk fixed thereto, concavo-convex shoes mounted on

the fixed disk and movable toward and from the spindle, a circumferential spring surrounding said shoes and seated in the concavities thereof, a disk movable on the spindle and having arms extending through openings in the fixed disk and provided with lateral, outwardly-directed branches at their upper ends, and bobbin-catches fulcrumed on and extending above and below said branches and arranged to be engaged by the shoes on the fixed disk, substantially as specified.

7. In a bobbin-holder and thread-catcher, the combination of a spindle, a disk fixed thereto, a disk movable on the spindle and having arms extending through openings in the fixed disk and terminating in lateral, outwardly-directed branches provided with bearings, bobbin-catches extending above and below the said branches and having T-heads arranged in the bearings thereof, and suitable means for holding said bobbin-catches in their open and closed positions.

8. In a bobbin-holder and thread-catcher, the combination of a spindle, a disk fixed thereto, a disk movable on the spindle and having arms extending through openings in the fixed disk and provided with broad bearings for the base of a bobbin, bobbin-catches loosely connected to the broad bearings of the arms and extending above and below the said bearings, and means for holding the catches in their open and closed positions.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN RONEY.

Witnesses:
HERBERT WHITEKER,
GEO. W. SPAULDING.