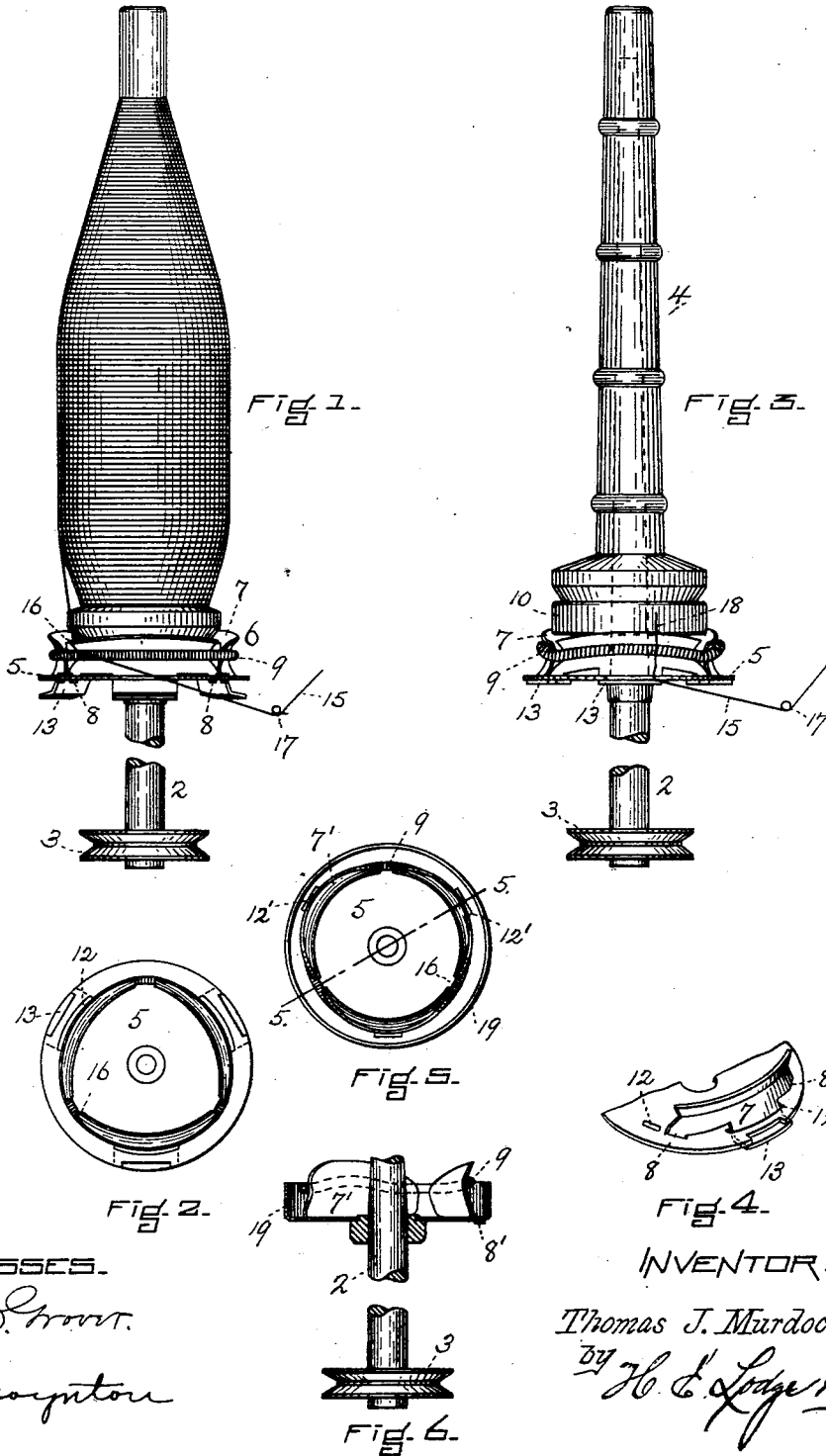


(No Model.)

T. J. MURDOCK.
BOBBIN AND THREAD HOLDER.

No. 587,748.

Patented Aug. 10, 1897.



WITNESSES.

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BOBBIN AND THREAD HOLDER.

SPECIFICATION forming part of Letters Patent No. 587,748, dated August 10, 1897.

Application filed October 3, 1895. Renewed June 12, 1897. Serial No. 640,569. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MURDOCK, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Bobbin and Thread Holders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to apparatus which includes mechanism not only for holding the bobbin in the process of filling the same, but likewise in means whereby the yarn or thread ends are grasped and held during the act of doffing and while putting the empty bobbin on the spindle.

The object of this invention is to avoid "waste ends," so called; furthermore, to obviate the use of packing or the winding of yarn about the spindle, as is frequently practiced, and, most important of all, to provide cooperating parts in the form of bobbin and thread holders, whereby the act of doffing the bobbin serves to automatically actuate the thread-holders and causes the thread end to be grasped, while replacing the bobbin within the bobbin-holder simultaneously actuates the thread-holders to release the thread end.

Briefly stated, my invention includes, first, a fixed plate upon the spindle; secondly, a segmental bobbin-holder the several portions of which are made fast by pivots to said plates, while the upper ends are free. In this way the several pieces of the holder swing radially toward or away from the axis of the spindle when the bobbin is put on or taken off of the latter, and, thirdly, thread-holders which are operated and controlled by the rocking movement of the bobbin-holder, and thus caused to contact with the fixed plate or held therefrom. These thread-holders may be attachments to or form an integral part of the bobbin-holder.

The drawings accompanying this specification represent, in—

Figure 1, a side elevation of a bobbin and

thread holder embodying my invention, showing the bobbin about to be doffed and the thread in the position which it assumes just prior to that act. Fig. 2 is a plan of the bobbin and thread holder with the bobbin removed. Fig. 3 is a side elevation of a bobbin and thread holder embodying my invention, showing an empty bobbin in position, but not secured to the bobbin-holder, while the thread end is held just as when the act of doffing took place. Fig. 4 is a perspective view of one of the thread and bobbin holders upon the fixed disk. Fig. 5 is a plan of a bobbin-holder embodying my invention without the thread-holder. Fig. 6 is a vertical section on line 5 5.

In said drawings, 2 represents a spindle, operated in the usual manner by means of the wheel 3 and arranged to support and rotate a bobbin 4, upon which yarn is to be wound.

One of the objects of my present invention is to simplify the construction and at the same time to enable the group of elements which comprise the bobbin and thread holder as an entirety to perform their several and respective functions. In the carrying out of my invention I provide a circular plate 5, which is firmly and rigidly secured to the spindle. Mounted upon this plate is the bobbin-holder 6, comprising two or more segmental holders or plates 7, which are secured at their extremities by projecting lugs or spurs 8 to the fixed plate. This form of connection is to be such that said holders are free to rock or oscillate radially to and fro of the spindle. An annular coiled spring 9 clasps the several holders, and thus the bobbin-holder as an entirety not only serves to clasp and firmly grasp the bobbin-head 10, but tends to center it upon the spindle.

To combine with the bobbin-holder a thread-holder the fixed plate is perforated at intervals, and these surface openings 12 are preferably located centrally of the segments. Pendent from each segment and extending through the openings and the fixed plate is a finger 13 of such shape as to contact with the plate and serve as a thread-holder when the segments are pressed centrally inward by the spring, occasioned by removal of the bobbin-head and bobbin. Furthermore, a

series of notches 14 peripherally of the disk are formed, and these correspond in number and position with the thread-holders, cooperating to lead the thread 15 between the under surface of the disk and the top side of the holders.

It will be seen that the segmental plates which comprise the bobbin-holder are curved in cross-section, being concave exteriorly in order the better to retain the annular spring in position. Furthermore, the adjacent extremities of said plates are cut away in order to create openings or spaces 16 for reception of the thread, in order to guide and direct it downwardly and to insure that said thread shall enter the notches in the fixed disk upon operation of the faller-wire, which is shown at 17. This wire in the present instance is common to all the threads and is to be operated and mounted in some well-known manner.

The operation of the above-described elements as an entirety, and comprising a bobbin and thread holders, is as follows: As illustrated in Fig. 3, the act of replacing an empty bobbin is to occur. The spindle is now in rotation, while the thread end 18 is grasped between the disk 5 and one of the thread-holders 13, which is held firmly thereagainst by the pressure of the spring 9. At this time the segmental plates are on their extreme inward oscillation, which occurred when the previous full bobbin was doffed. The empty bobbin is now inserted upon the spindle and allowed to rest upon the upper edges of the bobbin-holder. The faller-wire is raised to allow two or three turns of yarn about the bobbin. When this has occurred, the bobbin-head is thrust home between the plates of the bobbin-holder. Said elements are now thrust apart and are caused to rock outwardly, diverging from a common center, which act swings the thread-holders downwardly away from the disk. This act releases the thread end, and the latter is at once wound about the bobbin simultaneously with the thread, which is now passing around the bobbin in the process of filling the latter.

When the bobbin is full and the act of doffing is to take place, the faller-wire is depressed, as in Fig. 1, and the position of the thread now being inclined against the exterior of the bobbin-holder said thread lies in the path of the openings 16, between the segmental plates 7 and the notches in the disk 5, and the thread instantly assumes the position as in Fig. 1. The bobbin is now doffed, and this act allows the bobbin-holder to rock or tilt, the several plates 7 converging toward a common center until the thread-holders 13 contact against the disk 5. The several parts have now assumed the respective positions as shown in Fig. 3, and so remain until an empty bobbin is put on.

In some instances a bobbin-holder is to be used without a thread-holder. In such instances the pendent finger or thread-holder

13 is omitted, while in lieu of pivoting the segmental plates upon the surface of the disk 5 by means of two lugs or spurs 8 a central one 8' may be employed, said spurs extending through the openings 12'. In Figs. 5 and 6 the transverse disk is shown with an upraised lip 19. This, however, is not absolutely necessary, but is used by preference to conceal the spring in part and cause the bobbin-holder to present a more finished appearance, while at the same time preventing the yarn from becoming entangled. In both constructions I include a bobbin-holder, which comprises two or more segmental plates secured to and adapted to rock upon a disk transversely secured upon a revoluble spindle. These plates are to converge and diverge toward the central axis of the spindle and are to be spring-actuated, preferably by means of an annular spring either coiled or otherwise.

What I claim is—

1. In a bobbin-holder, a revoluble spindle, a plate affixed to said spindle, a plurality of upright segmental holders circumferentially about the bobbin-head, one or more lugs at the lower ends of the holders to engage said plate, and spring mechanism to press the upper free ends of said holders toward the bobbin-head, substantially as described.

2. In combination with a revoluble spindle, a fixed disk thereupon, a bobbin-holder comprising two or more segmental spring-actuated plates pivoted to and projecting above the disk, a group of thread-holders projecting beneath said disk and united with the bobbin-holders for simultaneous rocking movement, substantially as stated.

3. In combination with a revoluble spindle, a disk affixed thereto, a plurality of spring-actuated curved rocking plates or bobbin-holders supported on the upper side of said disk, fingers or thread-holders pendent from said plates beneath the disk, and a bobbin which serves, when placed upon or removed from the spindle, to actuate the bobbin-holders and thread-holders simultaneously, substantially as explained.

4. The combination with a spindle, a disk fast thereupon having a series of apertures and a series of notches, of a plurality of rocking plates or bobbin-holders secured to the upper side of said disk, a plurality of thread-holders united with the bobbin-holders, and a bobbin which prevents the free ends of the thread-holders from contact with the disk, when said bobbin is clasped by the bobbin-holders, substantially as specified.

5. The combination with a rotary spindle, a transverse disk fast to said spindle and with surface openings, a group of spring-actuated curved plates to serve as a bobbin-holder and to oscillate upon the upper side of said disk, a plurality of fingers or thread-holders beneath said disk and interconnected with the curved plates through the openings, and a bobbin removably held on the spindle, the

free ends of the thread-holders to rest against the disk when the bobbin is doffed, substantially as set forth and stated.

6. In combination with a spindle, and a
5 transverse disk thereupon provided with apertures, a bobbin, and a thread-holder pivoted to said disk and extending through the aperture, said holder comprising two or more segmental plates supported above the disk, and
10 two or more fingers extending beneath the disk, said holder being positioned to rock radially of the spindle and operating as set forth.

7. The combination with a rotating spindle,
a transverse disk affixed thereto, a plurality
15 of spring-actuated curved plates, lugs forming part of said plates at their base to inter-

lock with the disk to provide for rocking movement of the plates, and a cylindrical guard or cover for the plates, substantially as specified.

8. In a bobbin-holder, the combination, of 20
a revoluble spindle, a disk fixed thereupon, a plurality of bobbin-holding plates, supported by said disk and provided with means to engage the thread and hold it against said disk,
substantially as described. 25

In testimony whereof I affix my signature
in presence of two witnesses.

THOMAS J. MURDOCK.

Witnesses:

E. K. BOYNTON,
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