

No. 667,849.

Patented Feb. 12, 1901.

A. B. MORSE.
QUILL RETAINING DEVICE.
(Application filed Nov. 8, 1899.)

(No Model.)

Fig. 1.

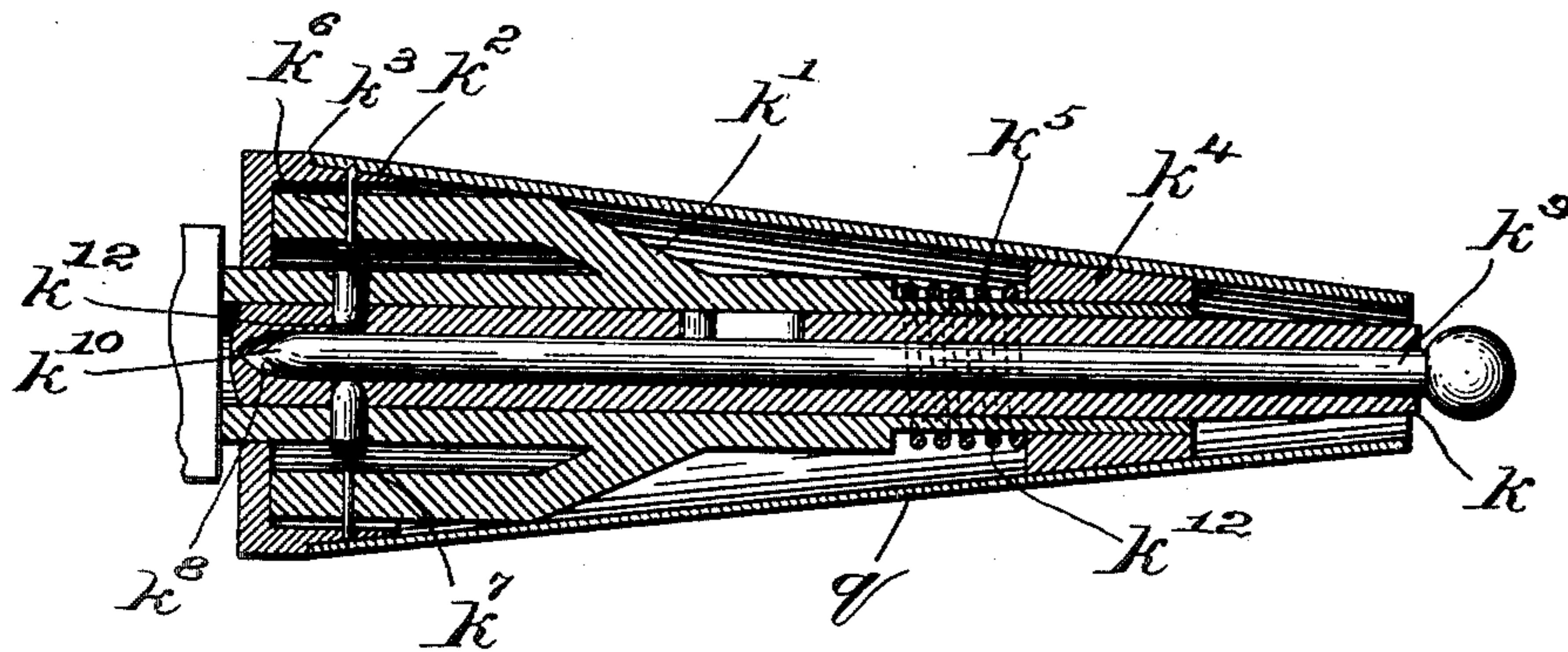
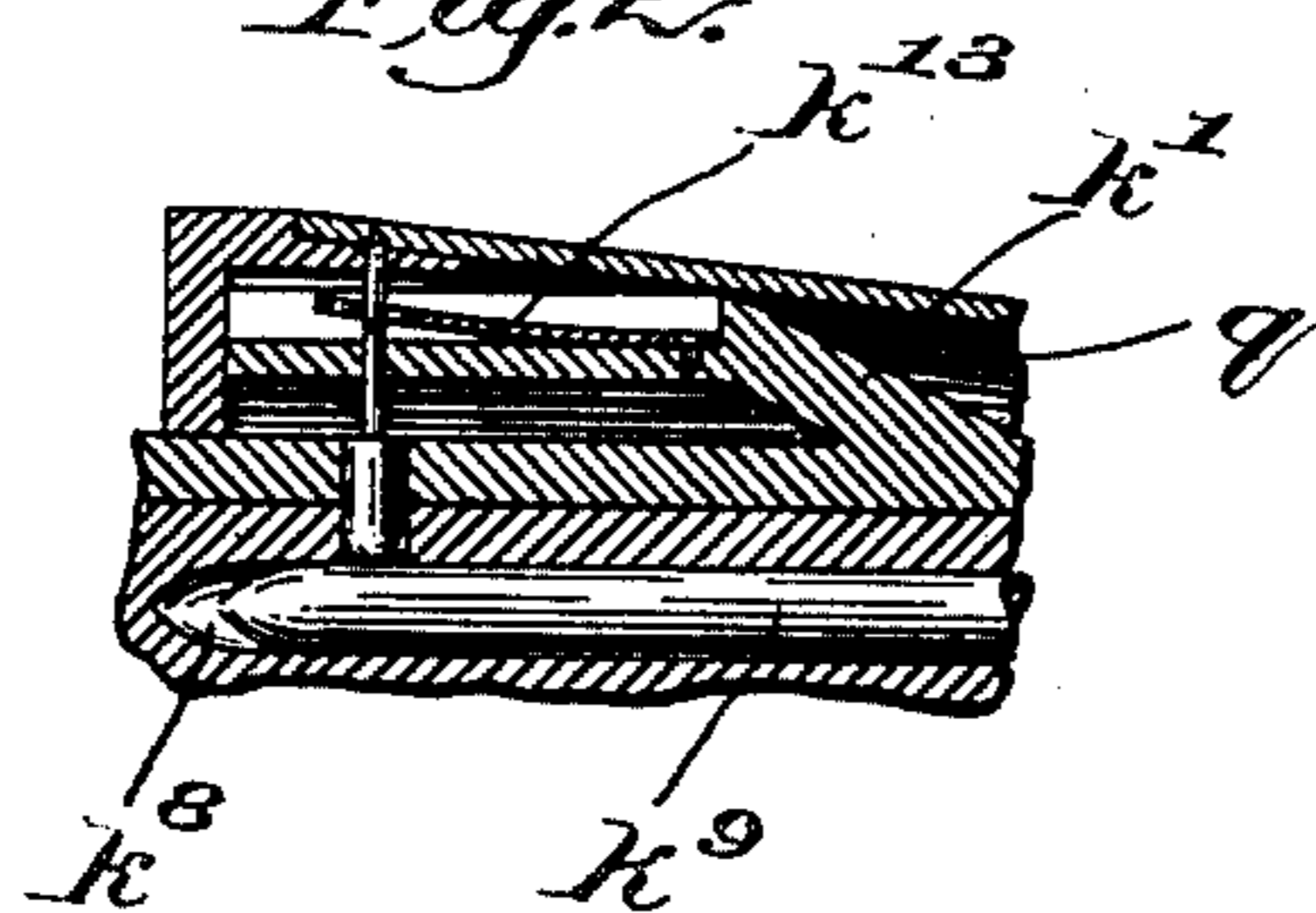


Fig. 2.



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UNITED STATES PATENT OFFICE

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QUILL-RETAINING DEVICE.

SPECIFICATION forming part of Letters Patent No. 667,849, dated February 12, 1901.

Application filed November 8, 1899. Serial No. 736,248. (No model.)

To all whom it may concern:

Be it known that I, ALFRED B. MORSE, a citizen of the United States, residing at Easton, county of Bristol, and State of Massachusetts, have invented an Improvement in Quill-Retaining Devices, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention is an improved device for retaining and centering paper or other tubes or quills, such as are used in connection with thread-winding machines. These quills or tubes, as is well known, are frail, being usually made of paper, and are subjected to exceedingly rapid action of the thread-guides, which reciprocate longitudinally of the quills in guiding the thread to the quills for winding thereon, and accordingly it becomes necessary to provide supporting means capable of automatically and accurately centering and giving internal support to the quills, and also in view of the advances in the art of winding-machines it becomes necessary for the same reason to provide special means whereby the quills so centered cannot become detached from or disturbed on the quill-spindle during winding. To this end I have devised a retaining device which, stated in general terms, comprises a body, preferably hollow, on which the tube or quill is mounted, said body carrying or containing a movable tube-engaging device and being provided with means for actuating said engaging device and causing it to grip and retain the tube in proper position.

Stated more in detail, my invention includes radially-projecting locking-pins arranged to be wedged into gripping contact with the inner end of the quill, the preferred form of the quill-holder also having wedge-shaped collars or surfaces to engage the inner surface of the quill as the latter is pushed onto the holder-spindle, thereby centering and supporting the quill in properly-retained position.

The details of construction and further advantages of my invention will be pointed out in the course of the following description, reference being had to the accompanying drawings, illustrative of a preferred embodi-

ment thereof, and the invention will be more particularly defined in the appended claims.

In the drawings, Figure 1 is a vertical longitudinal section of my improved quill or bobbin-retaining device, and Fig. 2 is a fragmentary view in section of a portion of a modified form thereof.

For convenience of illustration I have shown an ordinary conical quill or tube q and have shown the same as mounted upon a usual quill-spindle k ; but it will be understood that I am in no wise limited in this particular. Especially in high-speed thread or yarn winding machines it is essential that the quill should be quickly and accurately placed in position on the quill-spindle, and for this purpose I have provided a conical engaging surface k' adjacent the inner end of the quill or tube holder to receive the larger end of the tube and direct the same quickly and accurately to a similarly beveled or conical surface k^2 at the rear end of the quill-holder, this surface k^2 preferably having a shoulder k^3 to limit the inward movement of the quill. At its forward end I provide the holder with a movable collar or wedge-shaped portion k^4 , yieldingly held forward by a suitable spring k^5 , so as to automatically center the quill and hold the same rigidly and firmly in proper supported position, as will be evident viewing Fig. 1. At its inner end the holder carries suitable tube-engaging devices, herein shown in the form of radially-operating plunger-like pins k^6 , reciprocating through perforations in the holder and provided within the holder with springs k^7 , normally holding the pins in inoperative retracted position. The quill-spindle k is hollow or centrally bored, as indicated at k^8 , and provided with an actuator k^9 , herein shown in the form of a rod, having a wedge-shaped portion k^{10} , preferably at its inner extremity, adapted to engage the beveled inner ends k^{12} of the tube-engaging devices or pins k^6 . By pressing inwardly the rod k^9 the plungers or pins k^6 are instantly projected radially, so as to prick into and hold the quill q , placed on the quill spindle or holder.

In Fig. 2 instead of the coiled springs k^7 (shown in Fig. 1) I have provided a leaf-spring k^{13} , serving the same purpose and operating in much the same manner as the coiled springs

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already explained, and in operation the quill is quickly and may be roughly or inaccurately shoved to the left on the body of the spindle or holder and will instantly be received and automatically adjusted into proper position by the shoulder k' until its inner end is in proper position on the flange k^2 , the larger end of the quill or tube being automatically directed into proper position by the successive conical surfaces or ledges. Inasmuch, however, as quills are not always the same size, but in actual practice are somewhat irregular, I have provided the yielding centering device k^4 , already explained, for engaging the inner surface of the quill slightly back of the forward end thereof, so that as the quill is shoved onto the quill-spindle the conical collar or annular wedge-block k^4 yields sufficiently to permit the quill to be moved the required extent to the left, and yet at the same time it presses continuously against the inner surface of the quill, so as to firmly support the same in proper centered position. The actuator k^9 is then shoved into the bore k^8 , and upon coming into engagement with the beveled ends of the tube-engaging pins k^6 instantly forces the same outwardly into gripping and retaining engagement with the tube on the body of the holder.

While I have herein shown my invention in its preferred form and with all the parts assembled as I prefer to use them, yet it will be understood that many changes and modifications may be resorted to and many substitutions employed with certain features thereof without departing from the spirit and scope of my invention, and accordingly I wish it understood that I am not otherwise limited than as expressed in the claims.

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

1. A holder for paper or other tubes, consisting of a body adapted to be surrounded by the tube, a tube-engaging device carried by and movable in said body, a spring automatically retaining by its spring-pressure said engaging device in its inoperative position, and a rod longitudinally movable against said device for moving it outwardly against the action of said spring, substantially as described.

2. A holder for paper or other tubes, consisting of a body adapted to be surrounded by a tube, and tube-holding means including a plunger-like engaging device capable of being driven radially into the material of the tube, and means for rigidly and unyieldingly driving said engaging device directly into the material of the tube, whereby the tube and engaging device are positively forced into biting or interlocking engagement, substantially as described.

3. The combination with a spindle having

a central bore and a body surrounding said bore and adapted to receive upon it a paper or other tube, of a suitable engaging device sustained in said body, and an actuator adapted to be inserted in the hollow spindle to move the engaging device and cause it to engage and hold a tube, substantially as described.

4. In a holder for paper or other tubes, a body adapted to receive upon it the tube, a radially-movable engaging device having a coöperating spring to maintain the engaging device in its inoperative position, and an actuator engaged by hand and moved relatively to said body to act upon the said engaging device and move it to effect the engaging of the tube for retaining the latter in position, substantially as described.

5. A holder for tubes or quills, comprising a quill-spindle provided at its inner end with outwardly-movable pricks for engaging a quill or tube, wedging means for moving said pricks outwardly, conical or wedge-like projections along said spindle for directing the tube into position, one of said wedge-like parts being yieldingly movable to accommodate it to various quills, substantially as described.

6. A tube-holder provided at its inner end with means to grip and retain a tube and at its outer end with centering means comprising a collar or wedge, and a spring normally moving said collar into wedging engagement with the tube, substantially as described.

7. A tube-spindle axially provided with a wedge-rod, locking pins or pricks carried by said spindle at the inner end thereof and adapted to be forced outwardly by said wedge-rod, said pins being arranged to project against the inner end of the quill and retain the same, substantially as described.

8. In a device for retaining a tube on a quill-spindle, the combination with said quill-spindle of a yielding centering device for engaging the inner surface of said tube adjacent the smaller end thereof, and means for engaging and holding the inner or larger end of the tube, substantially as described.

9. In a device of the kind described, a quill-spindle provided along its length with a plurality of sloping or conical projections successively larger toward the inner end of the spindle for directing the tube quickly and automatically into proper position, one of said projections being movable on the spindle and normally held yieldingly forward to properly center the tube and support the same in operation, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED B. MORSE.

Witnesses:

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