

No. 864,480.

PATENTED AUG. 27, 1907.

T. J. MURDOCK.
BOBBIN HOLDER.

APPLICATION FILED MAR. 24, 1906.

Fig. 1.

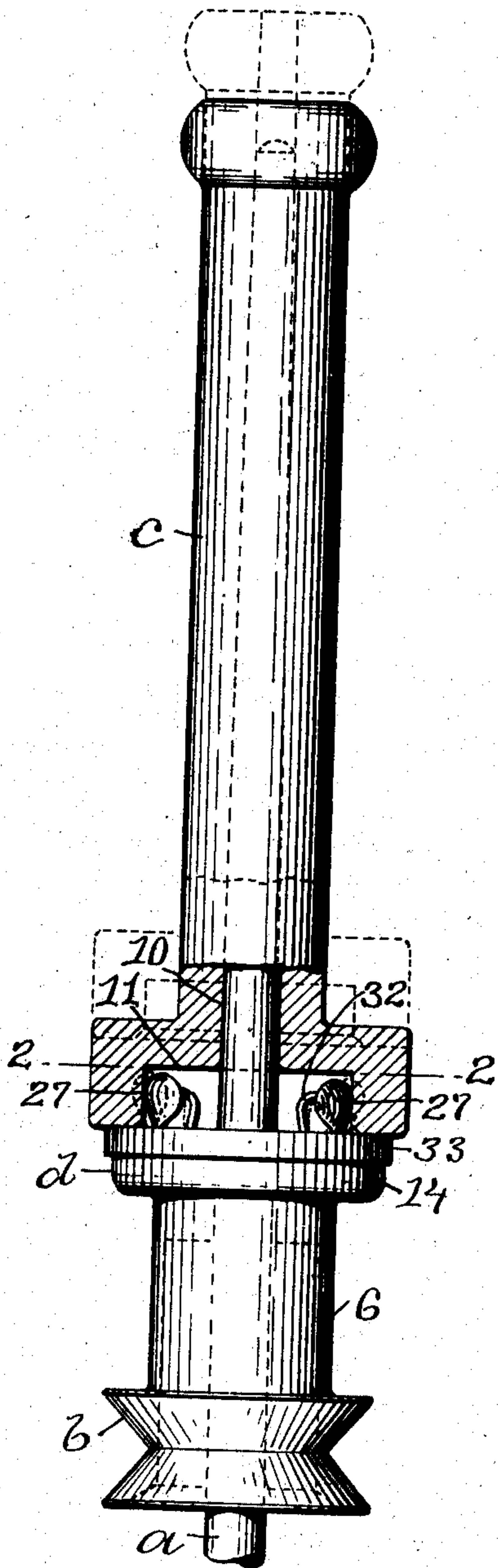


Fig. 2.

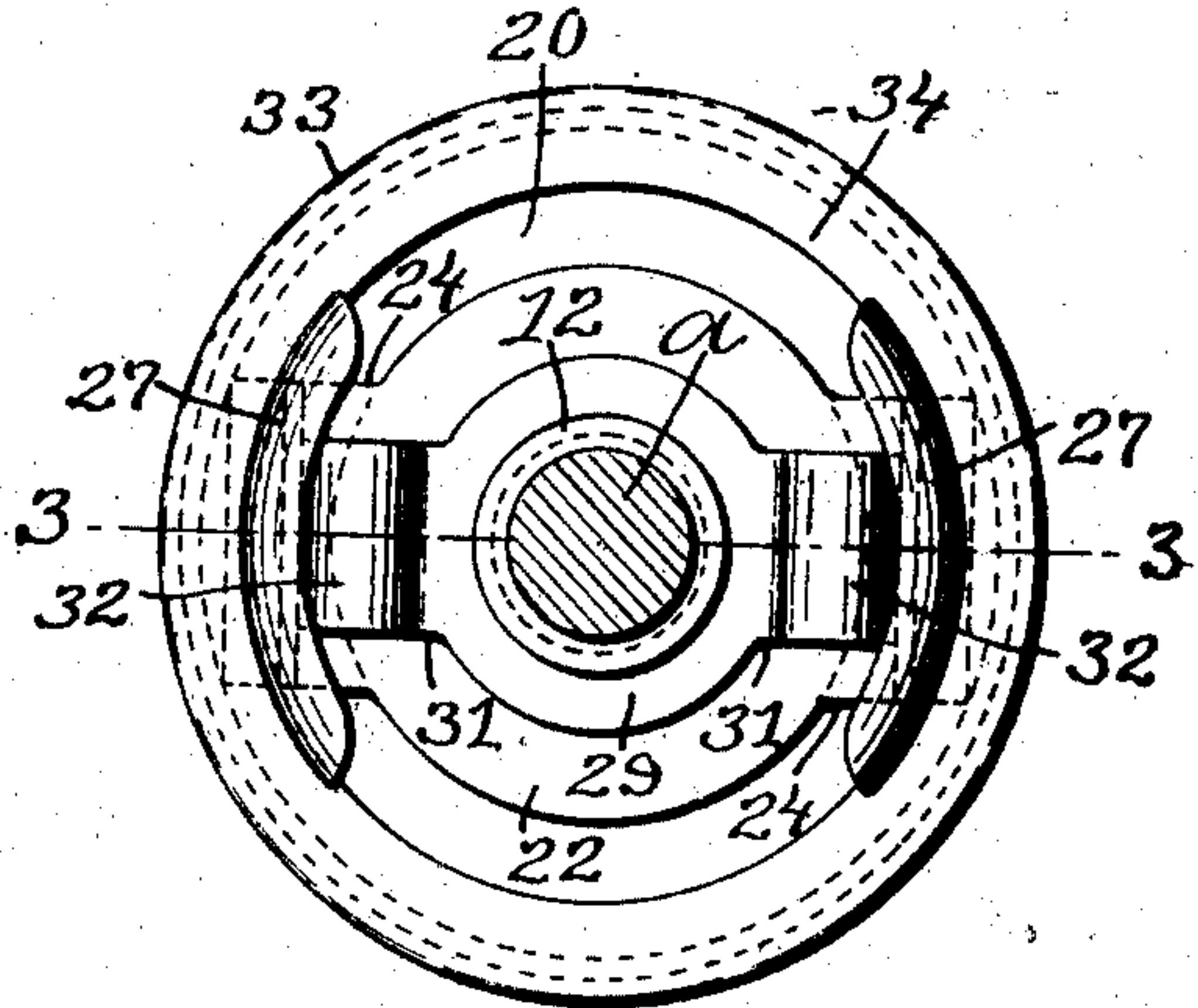


Fig. 3.

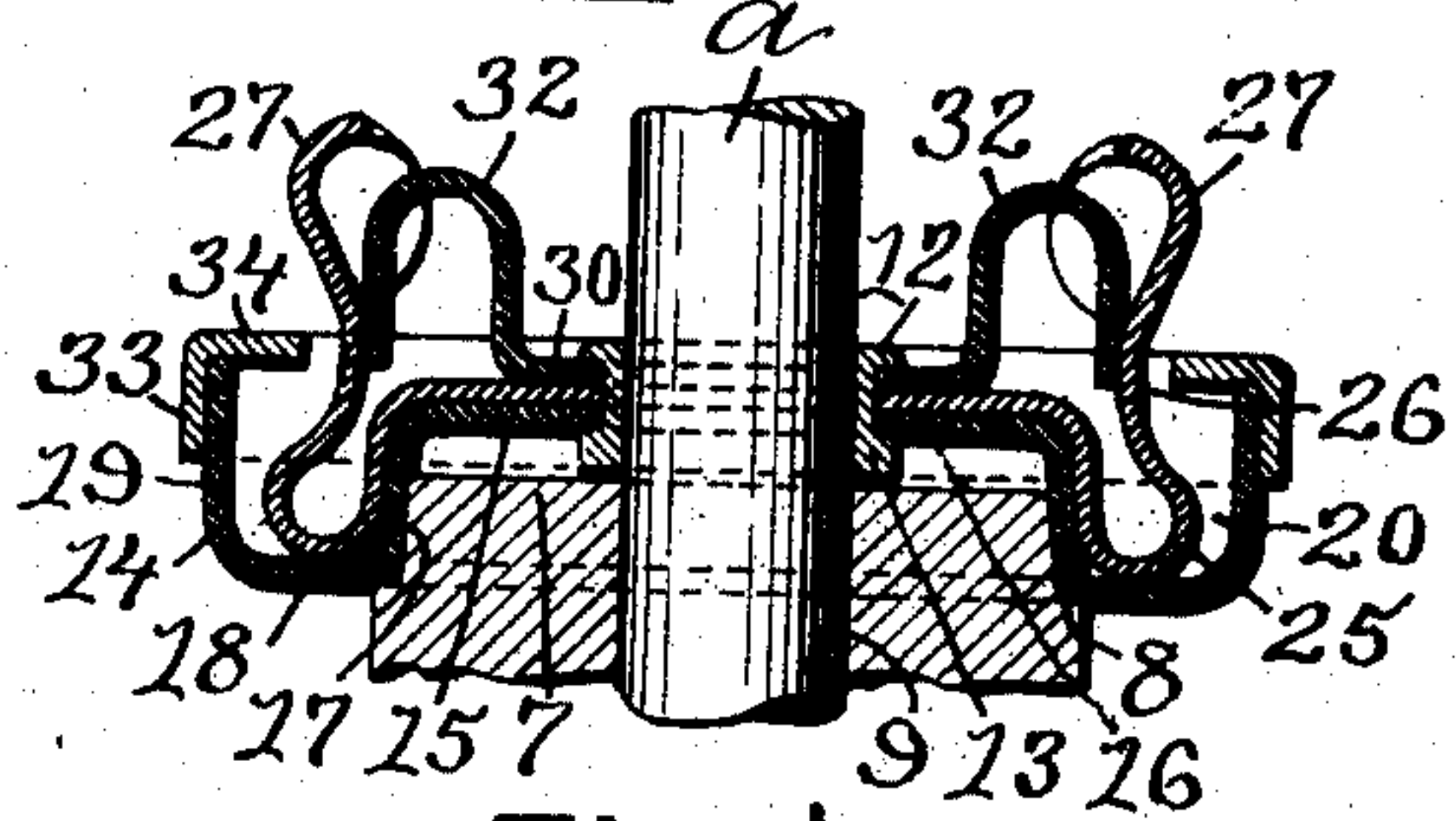


Fig. 4.

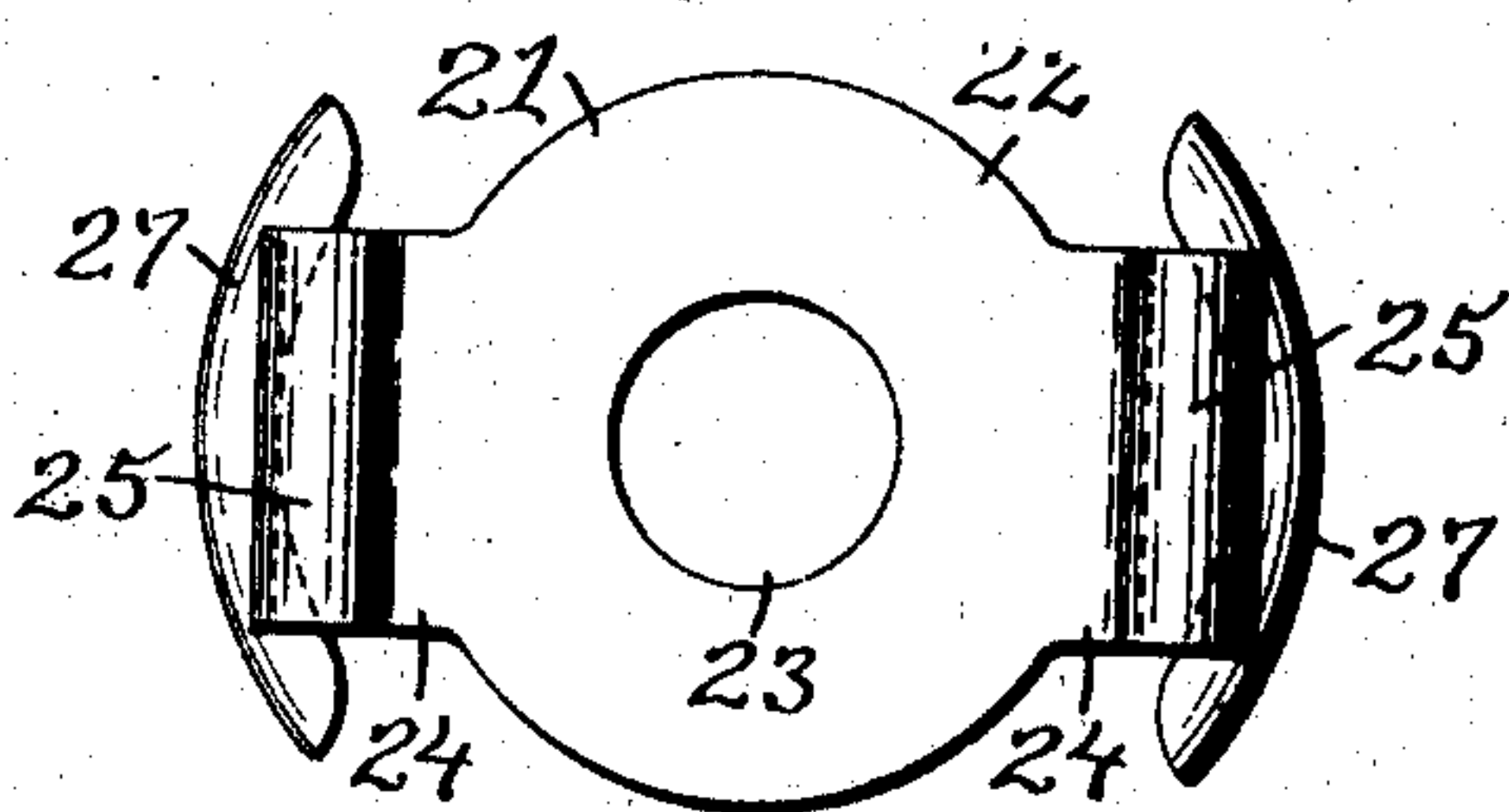
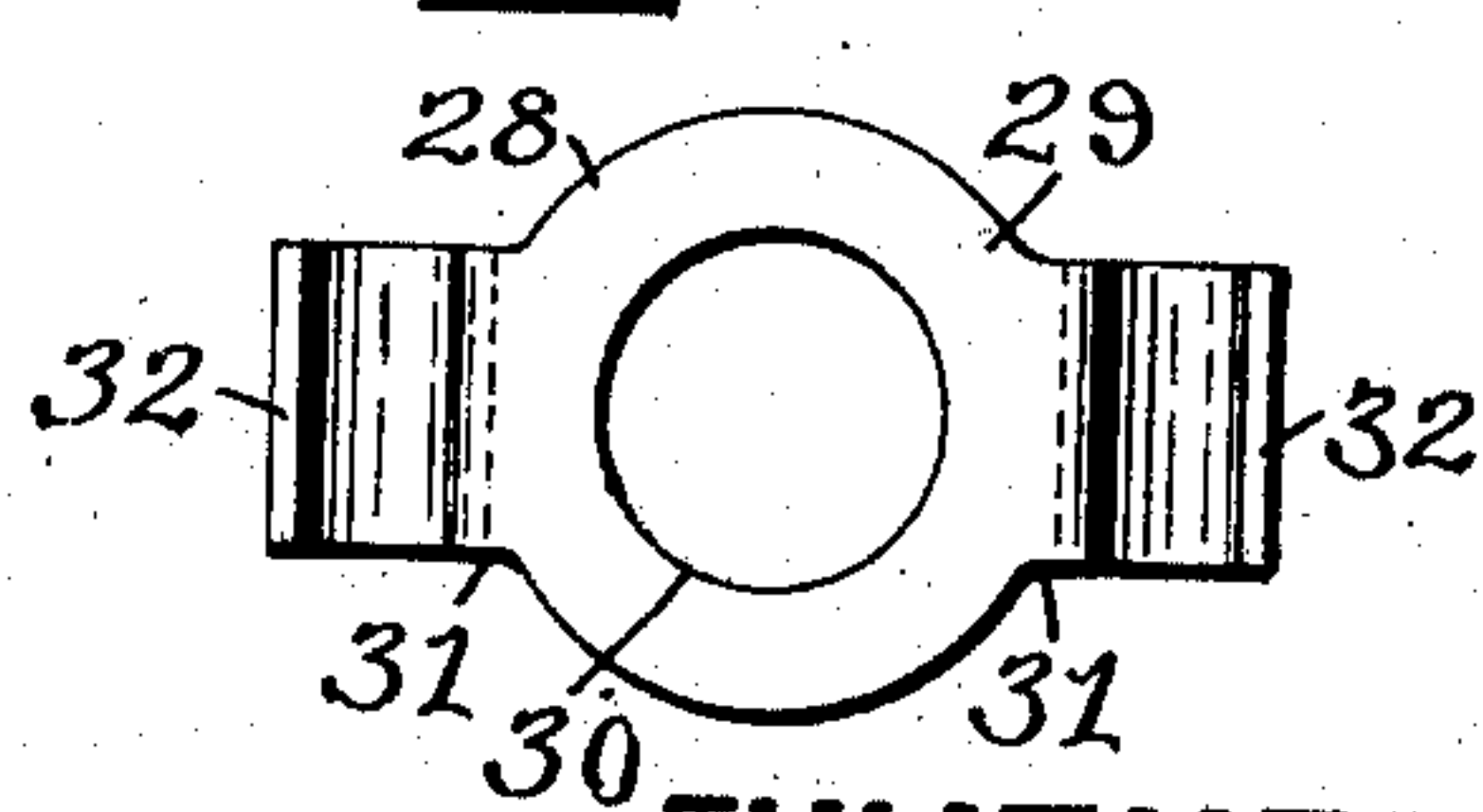


Fig. 5.



WITNESSES:

Chas. W. Luther Jr.
Ada E. Hagerty

INVENTOR:

Thomas J. Murdock
& Joseph A. Miller

ATTORNEY:

UNITED STATES PATENT OFFICE.

THOMAS J. MURDOCK, OF FRANKLIN, MASSACHUSETTS, ASSIGNOR TO MURDOCK & GEB COMPANY, OF FRANKLIN, MASSACHUSETTS.

BOBBIN-HOLDER.

No. 864,480.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed March 24, 1906. Serial No. 307,825.

To all whom it may concern:

Be it known that I, THOMAS J. MURDOCK, a citizen of the United States, residing at Franklin, in the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Bobbin-Holders, of which the following is a specification.

This invention has reference to an improvement in bobbin holders and more particularly to an improvement in internal expansion bobbin holders used for removably securing bobbins to the spindles of spinning machines.

The object of my invention is to improve the construction of a bobbin holder, whereby a bobbin is removably secured to a spindle by the expanding action of spring actuated jaws of the holder on the annular wall of a circular recess in the head of the bobbin.

A further object of my invention is to simplify the construction of an internal expansion bobbin holder, thereby reducing the cost of manufacturing the holder.

My invention consists in the peculiar and novel construction of an automatic bobbin holder having spring actuated expanding jaws adapted to be forced into a circular recess in a bobbin head and removably secure the bobbin to the holder by the expanding action of the jaws on the annular wall of the recess in the bobbin head, with details of construction, as will be more fully set forth hereinafter, and pointed out in the claims.

Figure 1 is a vertical side view of a spindle and whirl provided with my improved internal expanding bobbin holder, showing a bobbin secured to the holder in full lines and in a position to be forced onto the holder in broken lines. Fig. 2 is an enlarged transverse sectional view taken on line 2-2 of Fig. 1 with the bobbin removed and looking at the top of the holder. Fig. 3 is an enlarged vertical sectional view taken on line 3-3 of Fig. 2 through the holder and upper end of the whirl hub. Fig. 4 is an enlarged detail view of the spring expanding jaws looking at the underside and showing the jaws in the expanded position, and Fig. 5 is an enlarged detail view of the double reinforcing spring looking at the underside of the same.

In the drawings, *a* indicates a spindle, *b* a whirl on the spindle, *c* a bobbin, and *d* my improved internal expanding bobbin holder. The whirl *b* has a hub 6 with a reduced tapered upper end 7 forming an annular shoulder 8 and a central hole 9 for the spindle *a*, as shown in Figs. 1 and 3. The bobbin *c* has the usual central hole 10 (for the spindle *a*) merging into an enlarged circular recess 11 in the head end of the bobbin, as shown in Fig. 1. The edge of the recess 11 is beveled to facilitate the entering of the expanding jaws of the holder into the recess.

My improved bobbin holder *d* consists of a collar 12 adapted to fit the spindle *a* and having an annular flange 13 on its lower end, a circular box-shaped frame 14 stamped from sheet metal and shaped to have the

raised central bottom portion 15, in which is the central hole 16 for the collar 12, the circular tapered inner wall 17 adapted to have a driven fit on the tapered end 7 of the whirl hub, the flat bottom 18 rounding into the annular outer wall 19 forming a circular trough 20, the expanding jaw member 21 stamped from a sheet metal capable of being tempered and shaped to have the body portion 22 in which is the central hole 23 for the collar 12 and from which extends the oppositely-disposed arms 24 24 each arm being bent to form the downwardly-extending spring loop 25 merging into the inwardly and upwardly bent flat portion 26 which merges into an outwardly-bent and inwardly-curved semi-circular end of the expanding jaw 27, a double reinforcing spring 28 stamped from a sheet metal capable of being tempered and shaped to have the body portion 29 in which is a central hole 30 for the collar 12 and from which extend the oppositely-disposed arms 31 31, each arm having the inverted U-shaped spring end 32, and a ring 33 adapted to have a driven fit on the outer wall 19 of the frame 14 and shaped to have an inwardly-extending annular lip 34, as shown in Figs. 2 and 3.

The holder is assembled by placing the expanding jaw member 21 in the frame 14 with the loops 25 25 of the jaws 27 27 in the circular trough 20, placing the reinforcing spring 28 on the body portion 22 of the expanding jaw member 21 in a position for the inverted U-shaped ends 32 32 to engage with the flat portions 26 26 of the expanding jaws 27 27, inserting the collar 12 through the hole 16 in the frame 14, the hole 23 in the expanding member 21, and the hole 30 in the reinforcing spring 28, upsetting the end of the collar 12 onto the body portion 29 of the reinforcing spring 28, and forcing the ring 33 over the expanding jaws 27 27 onto the outer wall 19 of the frame 14, as shown in Fig. 3. In forcing the ring 33 over the jaws 27 27, the jaws are contracted against the spring tension of the loops 25 25 and are then held in their normal position by the annular lip 34 on the ring engaging with the flattened portions 26 26 on the jaws. The holder is now secured to the hub 6 of the whirl *b* by driving the tapered end 7 of the whirl hub into the cavity formed by the raised bottom 15 and the tapered inner wall 17 of the frame 14, or by driving the collar 12 onto the spindle *a*.

In the operation of my improved bobbin holder the expanding jaws 27 27 are held in their normal expanded position by the tension of the spring loops 25 25 and the tension of the ends 32 32 of the spring reinforcing member 28, as shown in Figs. 2 and 3. A bobbin *c* having a circular recess 11 is placed on the spindle *a* and forced downward over the jaws of the bobbin holder, contracting the jaws of the holder against the tension of the spring loops 25 25 and against the tension of the ends 32 32 of the spring reinforcing member 28, as shown in full lines in Fig. 1. The bobbin is now frictionally secured to the holder by the jaws expanding against the annu-

lar wall of the recess 11 in the bobbin head. The jaws are materially assisted in entering the recess in the bobbin head by the rounded construction of the end of the jaw and the beveled edge of the recess. The holder is made preferably smaller than the head of the bobbin, thereby facilitating the operation of doffing without disarranging the yarn on the bobbin.

Having thus described my invention, I claim as new and desire to secure by Letters Patent;—

- 10 1. In a bobbin holder, an expanding jaw member having upwardly-extending jaws shaped to fit a recess in a bobbin head and connected to the body of the member by spring loops and means for limiting the expanding movement of the jaws.
- 15 2. In a bobbin holder, an expanding jaw member having upwardly-extending jaws shaped to fit a recess in a bobbin head and connected to the body of the member by spring loops, and a reinforcing member having spring arms adapted to engage with the spring jaws.
- 20 3. In a bobbin holder, an expanding jaw member having upwardly-extending jaws shaped to fit a recess in a bobbin head and connected to the body of the member by downwardly-extending spring loops, and a reinforcing member having U-shaped spring arms adapted to engage with the jaws.
- 25 4. A bobbin holder comprising a frame, an expanding jaw member having upwardly-extending jaws shaped to fit a recess in a bobbin head and connected to the body of the member by downwardly-extending spring loops, a reinforcing member having U-shaped spring arms adapted to engage with the jaws, means for securing the expanding
- 30

jaw member and the reinforcing member to the frame, means for limiting the expanding movement of the jaws, and means for securing the frame to a spindle.

5. The combination with a spindle *a*, a whirl *b* having the hub 6 with the tapered end 7 on the spindle, and a bobbin *c* having the central hole 10 merging into a circular recess 11 in the head of the bobbin, of a bobbin holder *d* comprising a collar 12 having the annular flange 13 on its lower end, a circular box-shaped frame 14 shaped to have the raised central bottom portion 15 in which is a central hole 16 for the collar 12, the circular tapered inner wall 17, the flat bottom 18 rounding into the annular outer wall 19, forming a circular trough 20, the expanding jaw member 21 having the body portion 22 in which is a central hole 23 for the collar 12 and from which extends the oppositely-disposed arms 24 24 each arm being bent to form the downwardly-extending spring loops 25 merging into the inwardly and upwardly bent flat portion 26 which merges into an expanding jaw 27 having a semi-circular end, a double reinforcing spring 28 shaped to have the body portion 29 in which is a central hole 30 for the collar 12 and from which extends the oppositely-disposed arms 31 31 each arm having an inverted U-shaped spring end 32 and a ring 33 on the frame 14 and having an inwardly-extending annular lip adapted to engage with the flat portions 26 26 of the jaws 27 27 to limit the expanding movement of the jaws, as described.

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

THOMAS J. MURDOCK.

Witnesses:

ADA E. HAGERTY,
J. A. MILLER.