

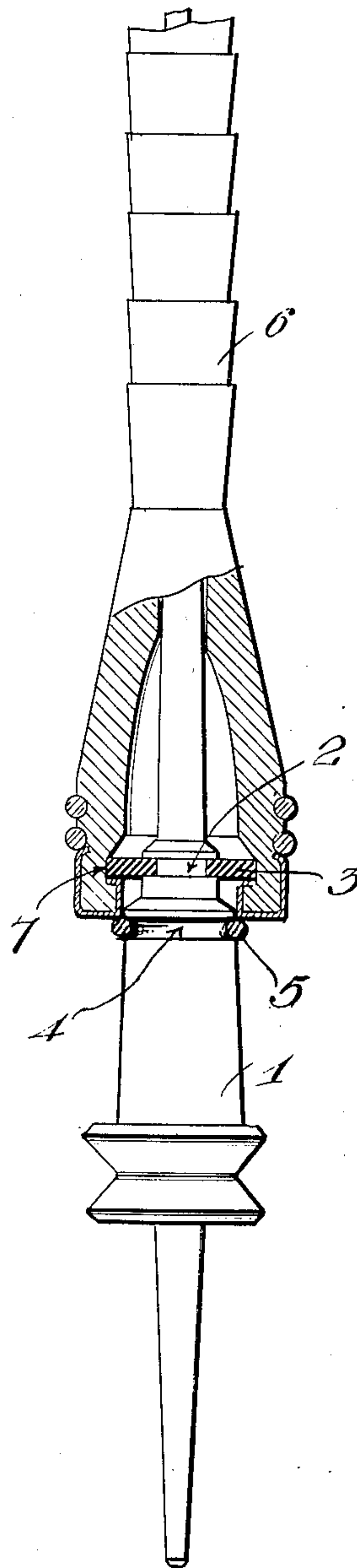
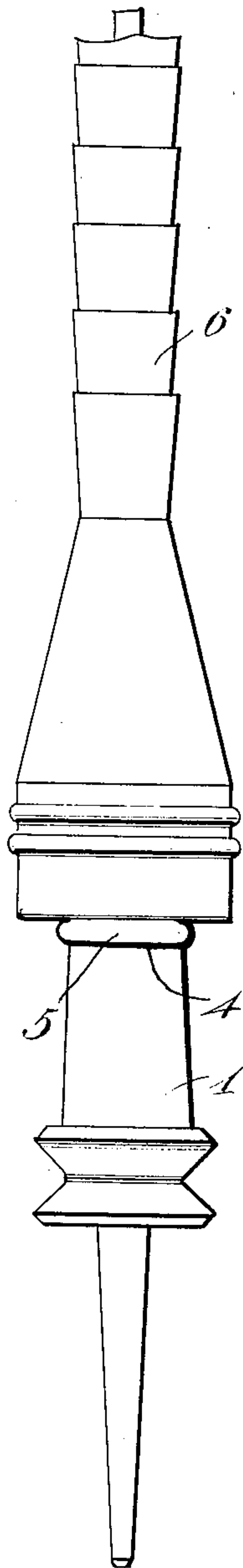
E. H. FORD & E. A. CUNNIFF.
 MEANS FOR ATTACHING BOBBINS TO SPINDLES.
 APPLICATION FILED JULY 7, 1908.

925,689.

Patented June 22, 1909.

FIG. 1

FIG. 2



Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN H. FORD AND EDWARD A. CUNNIFF, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNORS
OF ONE-THIRD TO EDGAR M. ALMY, OF NEW BEDFORD, MASSACHUSETTS.

MEANS FOR ATTACHING BOBBINS TO SPINDLES.

No. 925,689.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed July 7, 1908. Serial No. 442,348.

To all whom it may concern:

Be it known that we, EDWIN H. FORD and EDWARD A. CUNNIFF, citizens of the United States, residing at New Bedford, in the
5 county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Means for Attaching Bobbins to Spindles; and we do declare the following to be a full, clear, and exact description
10 of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in means for attaching bobbins to spinning frame spindles, and has for
15 its object to provide simple and efficient means for yieldingly and removably connecting the bobbin with the whirl in order that the former may be permitted to yield sufficiently to take up vibrations produced
20 in the spindle frame without the bobbin becoming disengaged from the whirl which would result in the bobbin rising and causing a twist or break in the yarn.

With these and other objects in view, the invention consists of certain novel features
25 of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is an elevation of a bobbin attached to the spindle whirl; and Fig. 2 is a central longitudinal section of the same.

In carrying out the invention, the upper end of the whirl is reduced as at 1 and this reduced portion provided with an annular or circumferential washer receiving groove or recess 2 adapted to receive the inner
35 edge of a flexible washer 3 of rubber or other suitable material. The upper end of the whirl is also provided immediately beneath its reduced end portion 1 with a second annular recess 4 in which is arranged a resilient or flexible ring 5 which provides a
40 bed or seat for the lower end of the bobbin 6, when the latter is mounted upon the spindle.

In practice, the bobbin is provided in its
50 inner surface and near its lower end with an annular recess 7 adapted to receive the outer

edge of the washer 3, when the bobbin is arranged upon the spindle, as clearly indicated in Fig. 2 of the drawing. In placing the bobbin in position the outer edge and
55 portion of the washer 3 is pressed against the reduced end portion of the whirl until the lower end of the bobbin has nearly reached the ring 5 when the outer edge of said washer is permitted to spring into the
60 annular groove in the lower end and inner surface of the bobbin. It will therefore be seen that by employing a structure such as we show the bobbin may yield sufficiently
65 to take up any vibrations induced in the spindle frame and prevent the bobbin from becoming disengaged from the whirl under which conditions the bobbin would rise and cause a twist or break in the yarn. It is
70 thought that the numerous other advantages achieved or obtained by the structure we show will be readily appreciated by those skilled in the art to which our invention appertains.

Various changes in the form, proportion
75 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the
80 appended claims.

Having thus described and ascertained the nature of our invention, what we claim as new and desire to secure by Letters-Patent, is:—

1. In combination with a spindle whirl
85 having an upper reduced cylindrical end portion formed with an annular groove, a flexible washer arranged with its inner edge seating in said groove, and a bobbin formed with an annular groove in the wall of its
90 bore and near its lower end to receive the outer edge of the washer whereby the bobbin may be yieldingly and removably connected with the whirl, the reduced end of the whirl providing a space permitting the projecting
95 portion of the washer to readily spring or bend inwardly during the operation of placing the bobbin in position.

2. In combination with a spindle whirl having an upper reduced end portion pro-
100 vided with an annular groove and an annular recess in its body below its reduced end

portion, a flexible washer seated in said groove, a bobbin having an annular groove in the wall of its bore to receive the outer edge of said washer, and a cushioning ring
5 seated in said recess to provide a bed for the lower end of the bobbin.

In testimony whereof we have hereunto

set our hands in presence of two subscribing witnesses.

EDWIN H. FORD.

EDWARD A. CUNNIFF.

Witnesses:

ANTONIO J. RAULINO,
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