Jan. 28, 1936. G. KUWADA 2,028,875

DOUBLING SPINDLE

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Fig. 1.

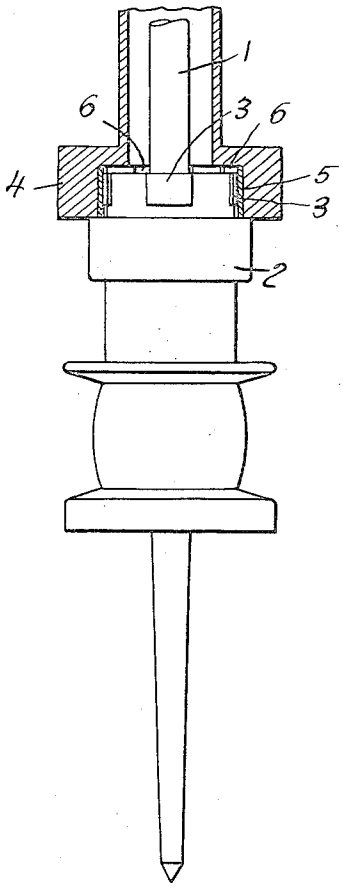
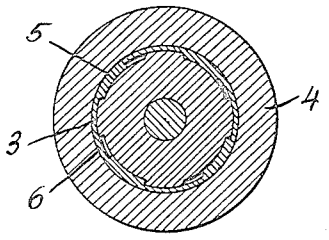


Fig. 2.



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DOUBLING SPINDLE

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2 Claims. (Cl. 242—46.2)

My invention relates to a doubling spindle and its bobbin with the object of securing the fit of spindle and bobbin circumferentially.

The reference is to be had to the accompanying drawing in which

Fig. I is an elevation of the spindle with the vertical cross section of the bobbin.

Fig. II is the horizontal cross section of the spindle and the bobbin.

In the drawing (1) is the spindle blade, (2) the wharve, (3) the projections provided on the upper part of the wharve, (4) the bottom flange of the bobbin, (5) the metal ring inserted into the bottom flange of the bobbin, (6) the clearance space between projections (3) and the corresponding grooves on the inside of the metal ring (5).

In above drawing the same notation indicates the same part.

As shown by Fig. I, the top cylindrical portion of the spindle wharve (2) is provided with projections on its periphery while the metal ring (5) inserted into the bottom flange (4) has corresponding grooves with certain clearance (6) between said projections and grooves, these projections fitting loosely into the grooves act as keys to cause bobbin to revolve with the spindle.

In doubling spindles heretofore the projections to turn the bobbin along with the spindle were provided at the top of the wharve in form of upwardly projecting horns, and the bobbin was lined with metal pieces grooved to fit over the said horns, both radial to centre. When by usage these horns wear by being frequently brought into contact with the metal grooves of bobbins the corners of the horns are either broken or rounded over, consequently the bobbin grooves slip over the wharve horns and bobbins are given jarring motion up and down.

Such a motion is greatly detrimental to the proper process of doubling yarns. Moreover such wear as before described is much more rapid than the wear on other parts of the spindle, that and the spindle frequently needs to be replaced merely because of the wear on the upwardly projecting horns.

In my invention the projections (3) on the wharve as well as the corresponding grooves on the metal ring of the bobbin being circumferential and their sides vertical along with the centre of spindle and bobbin, though certain wear may occur in either there is not caused any jarring motion up and down to the bobbin. The clearance (6) between the projections on the wharve and the corresponding grooves on inside of the ring (5) allows bobbin to be placed over the spindles with ease of manipulation.

Having thus described the principle of my invention what I claim is:—

1. In a doubling spindle, a spindle wharve having a cylindrical top portion, the outer periphery of said top portion having projections formed with vertical sides, a bobbin having a recessed base portion fitting over said top portion, and a ring fitting in the recess of the base portion, the inner periphery of said ring also having projections formed with vertical sides whereby grooves are formed in the inner periphery of said ring between the projections thereon, the projections on the periphery of the top portion of the wharve and the projections on the inner periphery of the ring fitting respectively into the grooves formed between the projections on the ring and the projections on the wharve, the spaces between the projections on the wharve and the projections on the ring being greater circumferentially than the circumferential dimension of the projections on the ring and wharve respectively, whereby the wharve and bobbin may have a limited circumferential movement relative to one another.

2. In a doubling spindle, a spindle wharve having a cylindrical top portion, the outer periphery of the cylindrical top portion having projections formed with radial and vertical sides, a bobbin having a recessed base portion fitting over said cylindrical top portion of the spindle wharve, and a wear-resisting ring fitting in the recess of the base portion of the bobbin, said ring having grooves corresponding to the projections on the wharve, said grooves and projections interlocking to provide a driving connection between the wharve and bobbin, said grooves being larger, circumferentially, than the projections whereby a clearance is provided between the sides of the projection and the sides of the grooves.

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