

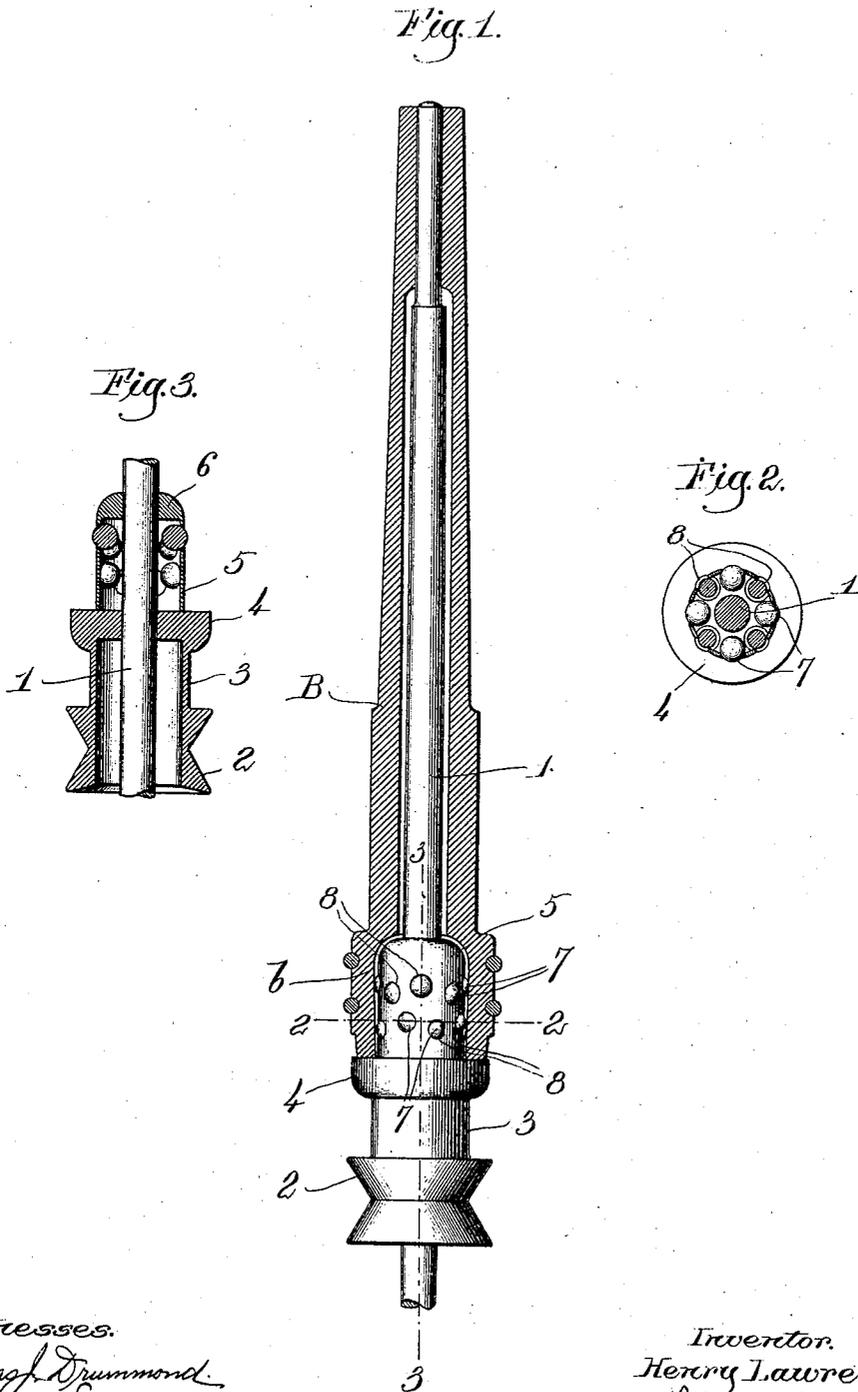
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H. LAWRENCE.
BOBBIN CLUTCHING MEANS FOR SPINNING SPINDLES.

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NO MODEL.



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UNITED STATES PATENT OFFICE

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BOBBIN-CLUTCHING MEANS FOR SPINNING-SPINDLES.

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Application filed June 9, 1904. Serial No. 211,726. (No model.)

To all whom it may concern:

Be it known that I, HENRY LAWRENCE, a citizen of the United States, residing at Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Bobbin-Clutching Means for Spinning-Spindles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a simple, novel, and effective bobbin-clutch of the centrifugally-acting type to retain a yarn-receiver or bobbin in operative position upon the rotatable spindle of a spinning, twisting, or other similar apparatus, whereby the yarn-receiver or bobbin may be easily applied to or removed from the spindle, yet will be rotated therewith and firmly held in proper position thereon during the spinning, twisting, or similar operation.

In the class of bobbin-clutching means to which my invention relates a plurality of radially-movable clutch members bodily rotatable with the spindle are thrown outward by centrifugal force when the spindle is rotated, and such members engage the walls of a chamber in the bobbin-head, and the higher the spindle speed the more securely will the bobbin be held thereon without any danger of splitting or straining. In my present invention the clutching members are of symmetrical shape, and they are adapted to project part way through openings in a retaining member fixedly mounted on the spindle, the said clutching members being freely movable to a limited extent in a radial direction.

The novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a view in elevation of a rotatable spindle provided with bobbin-clutching means embodying one form of my invention, a bobbin being shown in vertical section operatively positioned upon the spindle. Fig. 2 is a transverse section on the line 2 2, Fig. 1, taken through the clutching means; and Fig. 3 is a diametral sectional view of the clutching

means and a portion of the spindle on the line 3 3, Fig. 1.

The rotatable spindle 1 and its whirl 2, rigidly connected therewith by a depending sleeve 3, the latter having an enlarged flat-topped head 4 to form a bottom support or rest for the bobbin B, may be of well-known construction.

I have herein shown a substantially cylindrical or tubular retaining or motion-limiting member 5 surrounding the spindle and having its upper end 6 thickened and rigidly secured to the spindle, the lower end of the member or shell 5 resting upon the top of the bobbin support or rest 4. By reference to Figs. 2 and 3 it will be seen that there is a considerable annular space between the spindle and the interior of the tubular retaining member 5, and in this space the centrifugally-acting clutch members are located. Such members are loosely inserted and are symmetrical in shape, such as balls or cylinders, and herein I have illustrated the clutch members as small spheres or balls 7. The balls are preferably made of steel and of such diameter that when pushed inward they will touch the spindle and be substantially flush with the outer surface of the retaining tube or shell 5, which latter is provided with apertures 8 to permit the clutch members to project part way therethrough when the spindle is rotated. In the present embodiment of my invention the apertures 8 are arranged in two rows, the adjacent apertures in a row preferably being at different vertical heights, while the apertures in one row are opposite the spaces between the apertures of the other row. This arrangement provides for a better distribution of the acting surfaces of the clutch members and disposes of the same within the shell to give them a freer radial movement.

It will be manifest that when the spindle is rotated the centrifugal force will tend to throw the balls 7 outward away from the spindle and to project them as far as possible in the apertures 8, it being understood that such apertures are too small to permit the complete passage of the balls therethrough. The shell 5 thus acts as a motion-limiting device for the clutch members, as well as retaining them in

