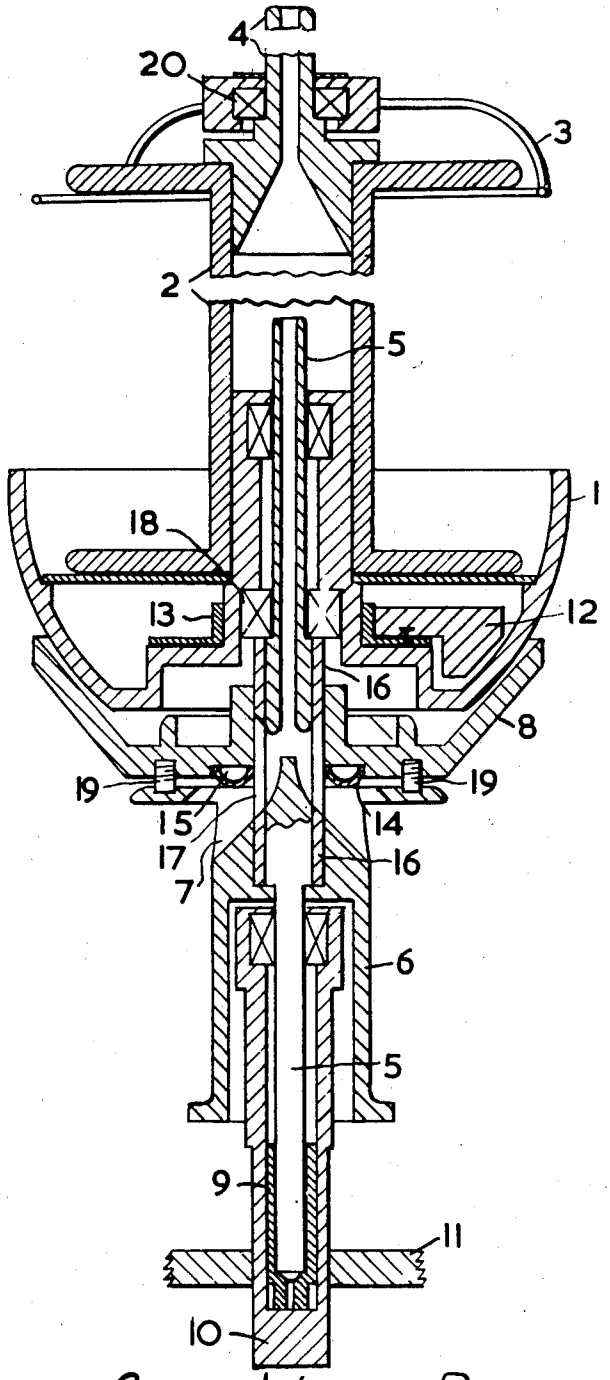
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DOUBLE-TWIST SPINDLE FOR SPINNING, WINDING, AND LIKE TEXTILE OPERATIONS

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DOUBLE-TWIST SPINDLE FOR SPINNING, WINDING, AND LIKE TEXTILE OPERATIONS

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2 Claims. (Cl. 57—58)

1

This invention relates to double-twist spindles for spinning, winding and like textile operations.

One known type of double-twist spindle includes a weighted carrier for a yarn holder such as a bobbin from which the yarn to be twisted is withdrawn, a rotatable flyer situated at the top of the yarn holder through which the yarn is first passed, a hollow live spindle on which the yarn holder is freely mounted and down through which the yarn is passed from the flyer, and a rotatable cup beneath the yarn holder below which the yarn is withdrawn from inside the hollow live spindle and is then passed as a balloon to a separate yarn collector.

This kind of double-twist spindle has previously been constructed with many individual parts of intricate and costly manufacture and in particular the several parts of the rotatable cup have been expensive and have required tedious assembly.

The object of the present invention is to provide an improved and cheaper construction of cup which can readily be fixed in position around the spindle.

In accordance with the present invention, in a double-twist spindle of the kind specified the cup is made in one piece and fits tightly on a metal sleeve on the hollow live spindle and is recessed on its lower face to accommodate an annular yarn guide washer of trough-shaped cross-section which can be sprung into the recess.

The cup is preferably an aluminium casting and the yarn guide washer is preferably made of chromium plated sheet brass. The carrier is conveniently moulded from a synthetic resin such as phenol-formaldehyde resin.

One form of twisting spindle in accordance with the invention is illustrated in the accompanying drawing which is a cross-section through the centre of the spindle.

The double-twist spindle illustrated includes the usual parts, namely a stationary moulded synthetic resin carrier 1 for a bobbin 2, a flyer 3 rotatably mounted on the hollow cap 4 which is pressed into the top of the bobbin 2, a hollow spindle 5 driven in the usual way by a flanged wharl 6 slotted at 7 as shown for the passage of the yarn, and a rotatable cup 8 beneath the carrier 1. Spindle 5 is set at an angle to the vertical in the usual way and plugs into a bush 9 forming a footstep bearing for the lower end of the spindle 5, the bush 9 being held in the bolster 10 fixed in the frame 11. A lead weight 12 to restrain the carrier 1, and to prevent it from rotating, is riveted to the flange of a collar 13 fitting freely round the carrier 1.

2

In accordance with this invention the cup 8 is made in one piece, for example as an anodised aluminium casting, and is recessed in its lower face at 14 to receive the annular sprung yarn guide washer 15. The washer is preferably of semi-circular cross-section. A metal sleeve 16, slotted at 17 for passage of the yarn, engages the spindle 5 and the bearing 18 supporting the carrier 1. The lower face of the cup 8 is formed with a concentric series of holes (for example ten in number) which are screw threaded to receive guide pins 19 which support the yarn in the storage groove and reduce friction as the yarn emerges from the spindle. The bearing 20 for the flyer 3 may be replaced by two bushes of the oil-less type.

When using the twisting spindle, yarn is withdrawn from the bobbin 2, passed through the eyelet of the flyer 3, down through the hollow cap 4 and the hollow spindle 5, out through the slot 17 in the sleeve and the slot 7 in the wharl and is then passed, as a balloon, to a separate yarn collector.

What I claim is:

1. A double-twist spindle comprising a hollow live spindle, a bobbin carrier freely mounted on the upper part and a driving wharl secured to the lower part of said spindle and having openings leading from the open center of the spindle to the outside, a weight secured to said bobbin carrier to restrain its rotation, a sleeve fitting tightly on said spindle and extending below the bobbin carrier to within the driving wharl, said sleeve having open slots registering with the openings in the wharl to permit yarn passage, and a cup-shaped take-up member between the bobbin carrier and the driving wharl, surrounding the lower end of the bobbin carrier and fitting tightly on the sleeve, said cup being made in one piece.

2. A double-twist spindle according to claim 1 in which the cup has a recess in its lower face adjacent to the sleeve, in combination with an annular yarn guide washer of substantially semi-circular cross section sprung into the recess.

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