

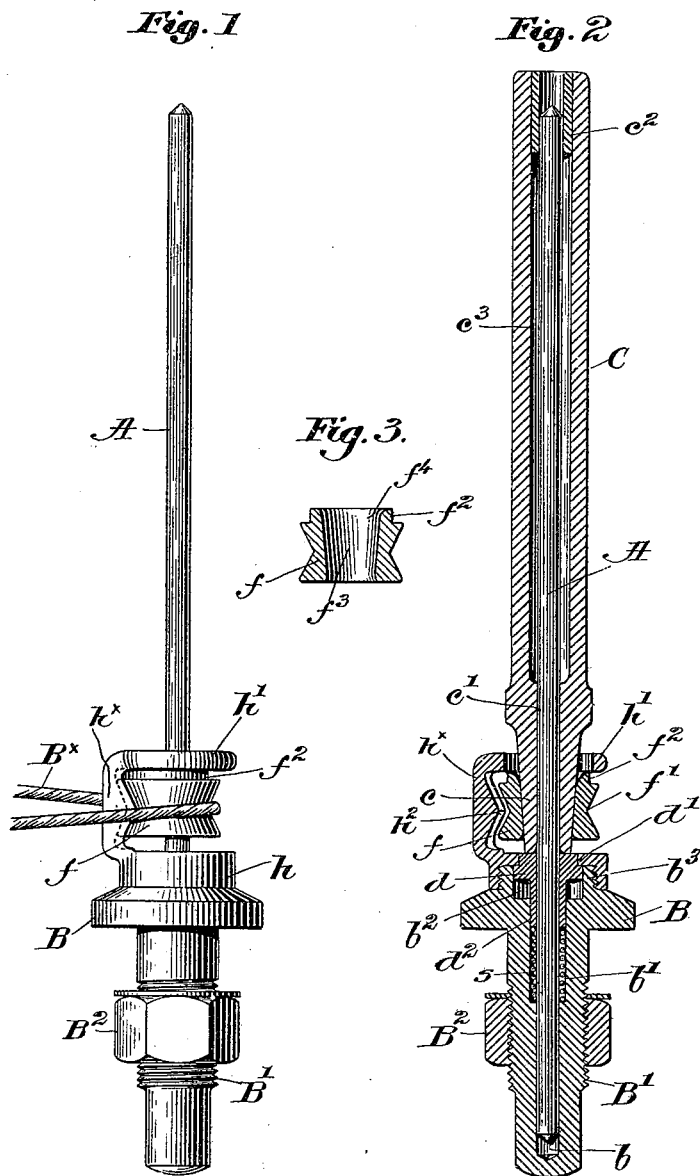
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G. O. DRAPER.  
SPINNING APPARATUS.

(Application filed Oct. 23, 1899.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## SPINNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 645,915, dated March 20, 1900.

Application filed October 23, 1899. Serial No. 734,426. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE O. DRAPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in  
5 Spinning Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to apparatus for  
10 spinning yarn, and has for its object the production of novel and effective means for obviating the use of a rotating spindle, and comprises, essentially, a fixed axial support upon which the yarn-carrier or bobbin is rotated,  
15 the latter having contained bearings and a loose whirl to be engaged by the yarn-carrier.

While in my present invention the whirl and yarn-carrier are practically one in operation, yet they are readily separable when it  
20 is necessary to piece up or doff.

Various features of my invention will be hereinafter described in detail, and particularly pointed out in the claims.

Figure 1, in side elevation, represents spinning apparatus embodying my invention, the  
25 yarn-carrier being omitted. Fig. 2 is a vertical sectional view thereof with the yarn-carrier in position, and Fig. 3 is a detached sectional view of the whirl.

Referring to the drawings, an upright cylindrical metallic standard A is fixed at its lower end in a base or holder B, having an externally-threaded shank B' to receive a suitable nut B<sup>2</sup>, by which the holder is secured to  
30 the usual rail. The longitudinal bore b in the holder, in which the standard A is fixed, is counterbored at b', Fig. 2, and at the top of the holder a chamber b<sup>2</sup> is formed concentric with said counterbore and surrounded by  
35 an upturned exteriorly-threaded flange b<sup>3</sup>. A support or step d, annularly shouldered at d', is fitted to slide in the chamber b<sup>2</sup> on the standard A, the shank d<sup>2</sup> of said support entering the counterbore b' and being sustained  
40 by a spiral spring s therein, said spring tending to always lift the support.

The whirl f is shown as an annulus having an external band-receiving groove f', an annular shoulder f<sup>2</sup> at its top, and a downwardly-tapered opening f<sup>3</sup>, which opening is  
45 preferably flared at its upper end, as at f<sup>4</sup>.

The whirl loosely surrounds the standard A and is held from removal by the overhanging ring-like stop h' of a guard h, interiorly threaded at its lower end to engage the flange  
55 b<sup>3</sup> and overhanging the shoulder d' of the yielding support d to retain the latter in place. Between the base and the stop h' a connecting-neck h<sup>x</sup> is interiorly concaved, as at h<sup>2</sup>, Fig. 2, and shaped to correspond substantially to the periphery of the whirl to  
60 support the latter against the pull of the driving-band B<sup>x</sup>, Fig. 1, and out of contact with the standard A when the yarn-carrier is removed. The whirl may be of metal or wood,  
65 as desired, and if made of wood it can be treated with an antifriction compound.

The yarn-carrier C is preferably made of wood or other suitable fibrous material having an exteriorly-tapered base c and bearing  
70 portions c' c<sup>2</sup> at or near the ends of the yarn-carrier to embrace the standard with a running fit. Between the bearings the yarn-carrier is bored, as at c<sup>3</sup>, to prevent engagement with the standard, and the bearing-sections  
75 are preferably impregnated with an antifriction compound.

When the yarn-carrier is to be applied, it is slipped over the standard H and through the stop-ring h', the tapering base c of the  
80 yarn-carrier entering the annular whirl f and passing therethrough into engagement with the support d, which yields as the whirl and yarn-carrier are pressed downward until the latter passes sufficiently through the whirl  
85 to firmly engage therewith by frictional contact. The operative then releases the yarn-carrier, permitting the spring s to act to bring the parts into proper operative position, as shown in Fig. 2.

It will be understood that when the yarn-carrier enters the whirl it moves it downward and laterally from the position shown in Fig. 1 into the position shown in Fig. 2,  
90 thereby centering the whirl relatively to the standard and interposing a bearing, as c', between the standard and whirl and with which bearing the whirl rotates.

The whirl and yarn-carrier are yieldingly maintained in vertical position when in operation by the support or step d, the tapering  
95 base of the yarn-carrier being made long

enough to pass through and project slightly below the bottom of the whirl.

When it is necessary to stop the rotation of the yarn-carrier either to piece up or doff, the operative draws the yarn-carrier upward until the top of the whirl is engaged by the overhanging stop *h'*, so that the tapering base *c* of the yarn-carrier can then be drawn out of the annular whirl and off from the standard *A*.

My invention is not restricted to the precise construction or arrangement of parts herein shown, as the same may be varied or rearranged without departing from the spirit and scope of my invention.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A rotatable yarn-carrier, a fixed axial support therefor, and a loose annular whirl adapted to frictionally engage and rotate the yarn-carrier, said whirl having its internal bore of sufficient diameter to receive the end of the yarn-carrier.

2. A rotatable yarn-carrier having an externally-tapered base, a fixed axial standard therefor, and a whirl loosely surrounding the standard and adapted to be entered and frictionally engaged by the tapered base of the yarn-carrier, the said base at such time preventing engagement of the whirl and the standard.

3. In spinning apparatus, a fixed upright standard, a removable yarn-carrier having contained bearings to fit the standard, a whirl through which the base of the yarn-carrier is adapted to pass and frictionally engage, and a yielding support for the end of the yarn-carrier projecting below the whirl.

4. A standard, a yarn-carrier adapted to be rotated thereon, an annular whirl to engage and drive the yarn-carrier, and means to yieldingly sustain said yarn-carrier and whirl vertically.

5. A fixed standard, a whirl loose upon it, and a removable yarn-carrier adapted to engage and center the whirl and to provide a bearing therefor in contact with the standard.

6. An upright metal standard, a wooden yarn-carrier having contained bearing portions adapted to engage the standard with a running fit, and means to yieldingly support the yarn-carrier in vertical position on the standard.

7. A rotatable yarn-carrier having a tapering base, a fixed axial support therefor, a whirl having a tapering bore to receive the base of the yarn-carrier, and a support to peripherally sustain the whirl when disengaged from the yarn-carrier.

8. An upright, fixed standard, an annular whirl loose thereon, an exterior, eccentrically-located support therefor, and a removable yarn-carrier rotatable upon the standard and adapted to engage and support the whirl, and to center it upon the standard.

9. In spinning apparatus, an upright stand-

ard, a chambered holder therefor adapted to be attached to a supporting-rail, a spring-controlled step for the yarn-carrier in said chamber, an annular whirl loose on the standard, and a stop for the whirl.

10. In spinning apparatus, an upright fixed standard, a whirl loose thereupon, a removable yarn-carrier adapted to be rotated upon the standard when in frictional engagement with the whirl, and a ring-like stop for the whirl through which the yarn-carrier passes, said yarn-carrier being interposed between the whirl and the standard.

11. In spinning apparatus, a fixed upright standard, a whirl loosely surrounding it, and a guard for the whirl, having an overhanging stop portion and a support to sustain the whirl peripherally against the pull of the driving-band.

12. In spinning apparatus, an upright standard, a whirl loosely surrounding it and having an annularly-shouldered top, and a guard for the whirl, having an overhanging ring-like stop to engage the shouldered top of the whirl when lifted, and an external support to peripherally sustain the whirl at times.

13. A fixed standard and its holder, combined with a spring-controlled step supported independently of the standard and which yields as the yarn-carrier is applied to the standard.

14. A fixed standard, its holder, a loose whirl, and a stop to cooperate with the upper end of said whirl, combined with a spring-controlled step adapted to yield under the action of the lower end of the yarn-carrier as it is being forced onto the said whirl, the return of said stop into its normal position moving said yarn-carrier and whirl into operative position.

15. A fixed standard, its holder counter-bored at its upper end, a step loosely surrounding the standard and located in the counterbored portion of the holder, and a yielding support for the step, independent of the standard.

16. A fixed standard, a holder for its lower end, said holder having a rising neck provided with a laterally-extended stop surrounding the said standard, combined with a loose whirl surrounding said standard and retained between the said stop and holder.

17. An annular whirl, a fixed standard, surrounded loosely by said whirl, combined with a yarn-carrier having a central bore or chamber surrounding said standard, the lower end of said yarn-carrier being shaped substantially as described to be forced into and entirely through the said whirl, between the latter and the standard, to thereby cause said yarn-carrier and whirl to adhere and insure the rotation of the former by a band on the latter.

18. A fixed standard and a holder for it, combined with a non-metallic yarn-carrier surrounding and running directly on the standard at its upper and lower ends, a loose ring-

like whirl surrounding the standard and adapted to receive the lower end of the yarn-carrier and retain it frictionally within it, between the standard and the whirl, and means to prevent removal of the whirl from the standard when the yarn-carrier is doffed.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

GEORGE O. DRAPER.

Witnesses:

JOHN C. EDWARDS,  
AUGUSTA E. DEAN.