T. WHITEHEAD.

SPINNING RING CARRIER.

APPLICATION FILED APR. 15, 1921.

1,399,418.

Patented Dec. 6, 1921.

3 SHEETS—SHEET 1.

FIG. 1.

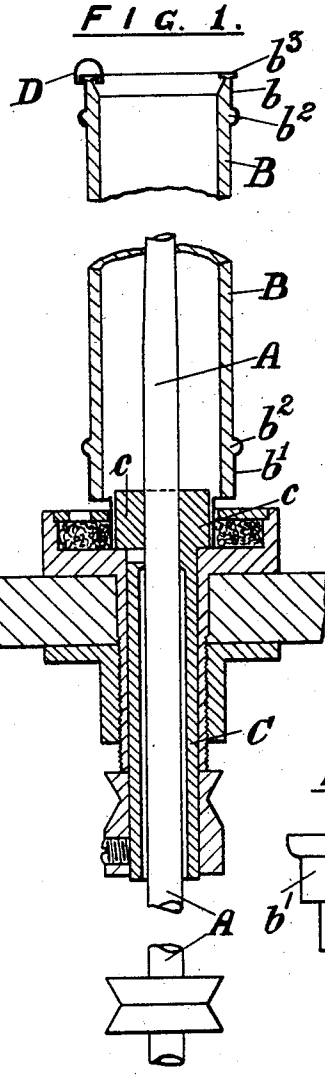


FIG. 2.

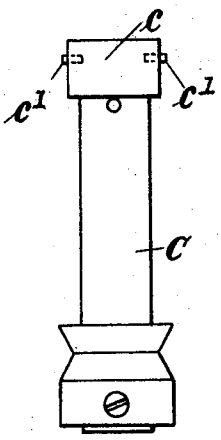


FIG. 3.

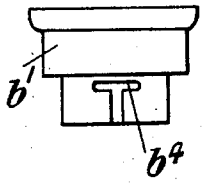
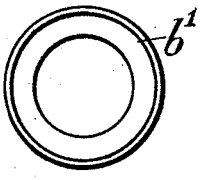


FIG. 4.



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3 SHEETS—SHEET 2.

FIG. 5.

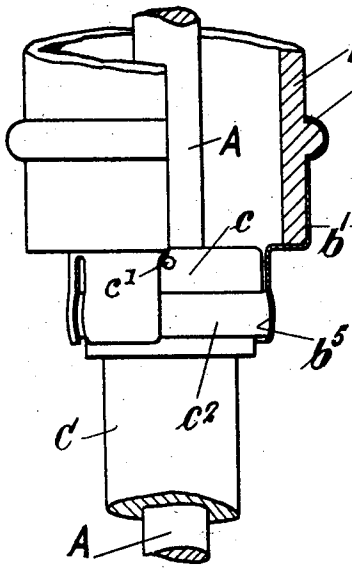


FIG. 6.

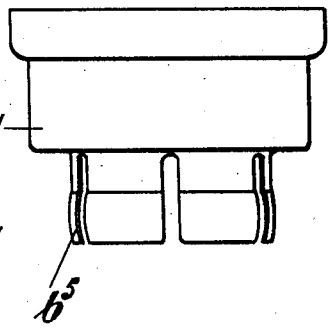


FIG. 7.

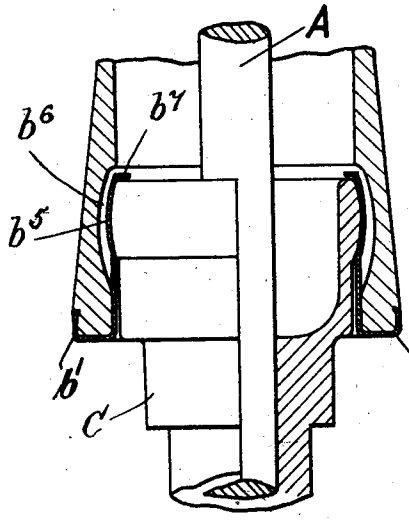
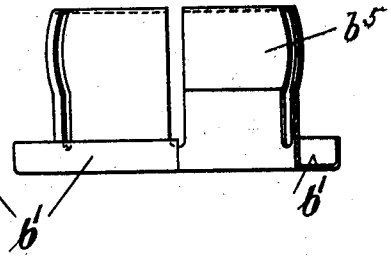


FIG. 8.



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3 SHEETS—SHEET 3.

Fig. 9.

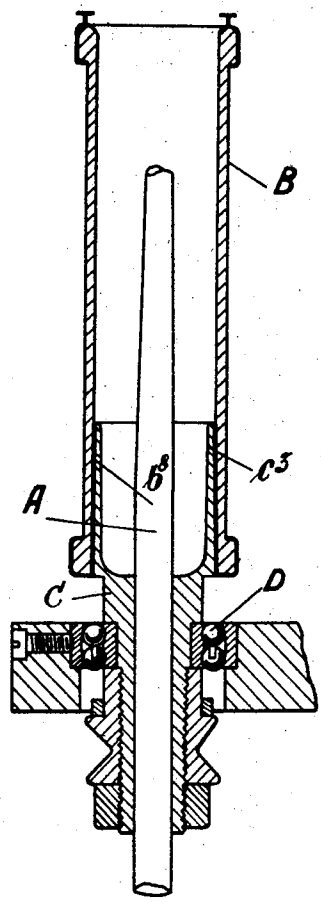


Fig. 10.

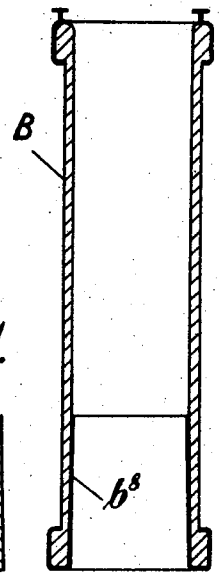
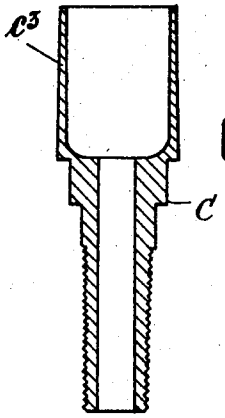


Fig. 11.



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UNITED STATES PATENT OFFICE.

THOMAS WHITEHEAD, OF BLACKPOOL, ENGLAND.

SPINNING-RING CARRIER.

1,399,418. Specification of Letters Patent. Patented Dec. 6, 1921.

Application filed April 15, 1921. Serial No. 461,485.

To all whom it may concern:

Be it known that I, THOMAS WHITEHEAD, a subject of the King of Great Britain, residing at 81 Palatine road, Blackpool, Lancaster, England, have invented certain new and useful Improvements Relating to Spinning-Ring Carriers, of which the following is a specification.

This invention relates to spindle apparatus for spinning, doubling and twisting yarns or threads of fibrous substances wherein a spindle passes through a tube, cylinder or its equivalent (hereinafter referred to as the "carrier") carrying at its upper end a ring and traveler the said tube and spindle being driven at different speeds by separate whirls from any convenient source of driving power.

In apparatus of this class the carrier and the sleeve or whirl which drives it are constructed in one piece or are rigidly and permanently connected together and unless great accuracy of construction is maintained the carrier does not run concentrically with the sleeve or whirl and undesirable vibration is set up.

The chief object of this invention is to simplify and cheapen the cost of production of the apparatus and also to insure accuracy and the concentricity of running with freedom from vibration.

According to this invention instead of the carrier being constructed in a piece with or permanently fixed to the sleeve or whirl which drives it, it is detachably connected with such sleeve and is advantageously constructed from wood, aluminium, or compressed paper with steel rings attached to its upper and lower ends. This connection is advantageously made in such manner that when the carrier is rotated at its ordinary working speed it will automatically take up a vertical position like a top under the action of centripetal force and run steadily and without vibration.

In order that the said invention may be clearly understood and readily carried into effect the same is described with reference to the diagrammatic drawings in which—

Figure 1 is a vertical section of a carrier and sleeve constructed in accordance with this invention.

Fig. 2 is an elevation of the sleeve.

Fig. 3 is an elevation and Fig. 4 a plan of the ring which connects the carrier to the sleeve.

Fig. 5 is an elevation, partly in section showing an alternative method of connecting the carrier to the sleeve.

Fig. 6 is a detached view of the ring.

Figs. 7 and 8 are similar views to Figs. 5 and 6 showing a slightly modified construction.

Fig. 9 is a vertical section of a carrier and sleeve, with the carrier making a frictional fit upon a tapered portion of the sleeve.

Fig. 10 is a vertical section of the sleeve and Fig. 11 is a similar view of the carrier.

A indicates the spindle, B the carrier, C the sleeve and D the traveler.

The carrier B is advantageously made of wood, aluminium or compressed paper with steel rings b b^1 attached to its upper and lower ends by being spun over collars b^2 formed on the carrier. Such rings may, however, be attached to the carrier in any other suitable manner or if desired the carrier may be constructed from steel tubing, or from cast iron, malleable iron or steel bored and turned. The former however, are preferable on account of lightness and cheapness. The upper steel ring b is formed with a race b^3 for the traveler D to run upon. In the example shown in Figs. 1 to 3 the upper end of the sleeve C is formed with a collar c provided with two driving pins c^1. The ring b^1 is shaped to fit loosely over the collar c and is formed at opposite sides with bayonet or T slots b^4 Fig. 3 to engage the pins c^1 and form a driving connection therewith. In the modification shown in Figs. 5 and 6 a portion c^2 of the collar c is rounded or barrel shaped to engage a correspondingly recessed portion b^5 in the ring b^1. This portion of the ring is slotted at intervals as shown in Fig. 6 to enable it to be forced over the barrel shaped portion c^2. In this modification the slotted portions of the ring act as a spring clip and may either be driven from the sleeve C by friction, or by one or more pins c^1. The construction shown in Figs. 7 and 8 is substantially the same as that shown in Figs. 5 and 6 with the exception that the spring clip b^5 occupies a position within the carrier B which is recessed at b^6 to allow the clip to open

out. The top of the clip is flanged inwardly at b^7 to limit the downward movement of the carrier.

In the modification shown in Figs. 9 to 11 the portion c^3 of the sleeve is made slightly tapered to fit a slightly tapered ferrule b^8 in the carrier B and the sleeve is shown mounted in a self alining ball bearing D. If desired however the sleeve may be mounted in a plain bearing and its upper end only may engage the spindle as shown in Fig. 1. The self alining ball bearing may also be used in connection with the sleeve and carrier shown in Fig. 1.

By the invention described the difficulty of constructing a carrier and sleeve in one piece with sufficient accuracy to insure true concentricity of running is avoided, the cost of manufacture is greatly reduced and a much lighter carrier can be used.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. The combination, with a revoluble driving sleeve having an enlargement at its upper end, of a carrier provided with a race for a traveler at its upper end, and a reinforcing ring secured to the lower end of the carrier and provided with means for placing it into and out of driving engagement with the said sleeve.

2. The combination, with a revoluble driving sleeve having an enlargement at its upper end and a driving pin which projects laterally from the enlargement, of a carrier provided with a race for a traveler at its upper end, and a reinforcing ring secured to the lower end of the carrier and provided with a slotted extension for engaging disengageably with the said enlargement and pin.

3. The combination, with a revoluble driving sleeve having an enlargement at its upper end and a driving pin which projects laterally from the enlargement, of a carrier provided with a race for a traveler at its upper end, and a reinforcing ring secured to the lower end of the carrier and provided with a slotted spring clip for engaging disengageably with the said enlargement and pin.

In testimony whereof I affix my signature.

THOMAS WHITEHEAD.