No. 755,153. PATENTED MAR. 22, 1904.

R. W. MONCRIEFF.

APPARATUS FOR SPINNING AND DOUBLING.

APPLICATION FILED FEB. 11, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

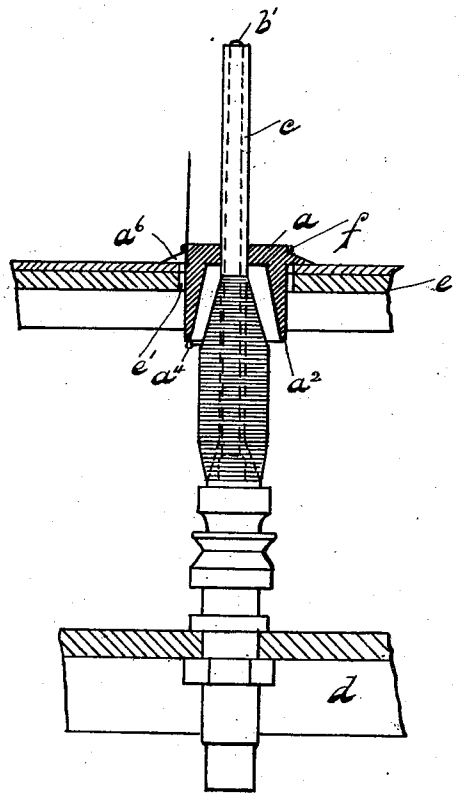


Fig. 1.

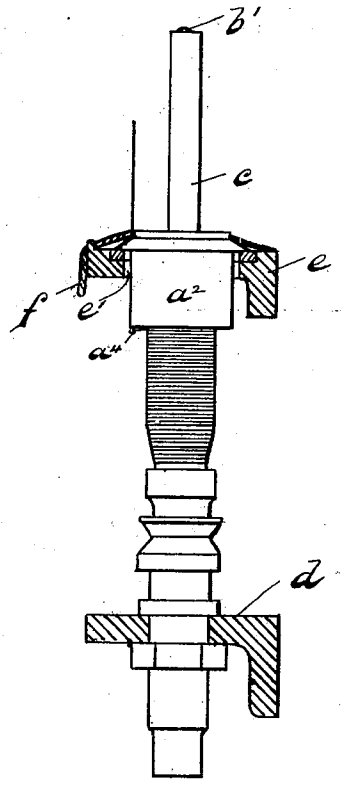


Fig. 2.

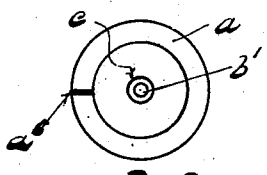


Fig. 3.

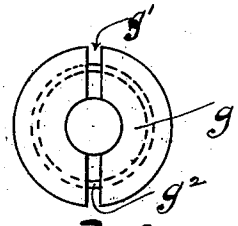


Fig. 4.

Witnesses.
Alf. E. Thornton
S. Thomas.

Inventor.
Robert. W. Moncrieff
By Vincent Hughes
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 755,153. PATENTED MAR. 22, 1904.

R. W. MONCRIEFF.

APPARATUS FOR SPINNING AND DOUBLING.

APPLICATION FILED FEB. 11, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

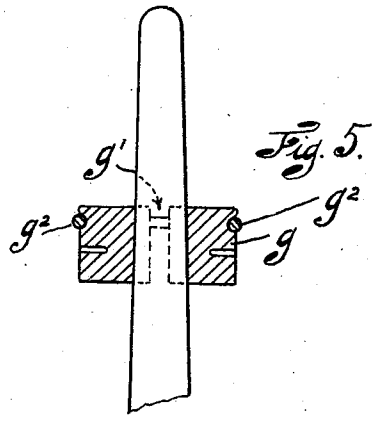


Fig. 5.

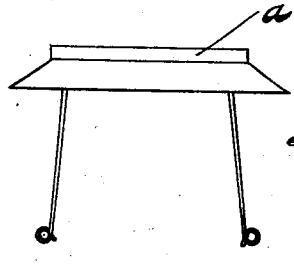


Fig. 6.

Witnesses.
W. F. Thomas.
B. Emery.

Inventor
ROBERT W. MONCRIEFF
By Vincent Hughes
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 755,153. Patented March 22, 1904.

UNITED STATES PATENT OFFICE.

ROBERT WIGHTON MONCRIEFF, OF NEWPORT PAGNELL, ENGLAND.

APPARATUS FOR SPINNING AND DOUBLING.

SPECIFICATION forming part of Letters Patent No. 755,153, dated March 22, 1904.

Application filed February 11, 1902. Serial No. 93,623. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WIGHTON MONCRIEFF, a subject of His Majesty the King of Great Britain, residing at Newport Pagnell, in the county of Buckingham, England, have invented a new and useful Improvement in Apparatus for Spinning and Doubling, (for which I have applied for a patent in Great Britain, No. 13,861, said application bearing date the 8th of July, 1901,) of which the following is a specification.

The object of the present invention is to provide means for permitting of the yarn being wound at a greater speed than heretofore and without risk of greasing the rings or soiling the yarns, further objects being to reduce the initial cost of the spinning or doubling frame and to minimize the strain on the yarn, thereby enabling finer yarns to be spun than is at present possible on ring-frames.

Reference is hereby made to the accompanying sheet of illustrative drawings, forming part of this specification, in which drawings—

Figure 1 is a front elevational view, partly in section, of a rotating spindle fitted with the twisting-disk for winding the yarn into a tapered cop, Fig. 2 being a side view thereof. Fig. 3 is a plan view of the twisting-disk shown independently, while Fig. 4 is a plan view of a detail; Fig. 5, a cross-section thereof shown in connection with a taper spindle; and Fig. 6, an elevational view of a modified form of the twisting-disk, illustrating the arrangement of the depending arms.

In carrying my invention into practical effect I provide a twisting-disk *a* of wood, metal, or other suitable material, which is fitted to revolve freely upon the spindle-blade *b'* or tube or single-headed bobbin *c*, such twisting-disk preferably being bushed and faced on its under side with a soft substance or material—such as felt, cork, or the like—to obviate friction and soiling.

The spindle, of which the blade *b'* forms an integral part, is mounted in suitable bearings in the spindle-rail *d*, while the tube or bobbin *c* is arranged to revolve with the said spindle-blade and be removable therefrom.

The twisting-disk *a* is preferably given the form of a thin truncated cone, as shown, the lower portion of which is largest in diameter and rests at its outer edge on the upper surface of the copping-rail *e*, in which is provided an opening *e'* of sufficient diameter to admit of the withdrawal of the full cop or bobbin from the spindle-blade.

The disk *a* is somewhat larger in diameter than the said opening *e'*, and from such disk one or more arms project downwardly through the said opening to a depth corresponding to the greatest length of copping-taper required. I employ a thin depending rim a^2 or equivalent arms. The arms may be bent into eyes at their lower ends or slots may be formed in them for the yarn passing through, or detachable hooks a^4 may be fixed to the lower ends of such arms or to the lower edges of the rim aforesaid for the purpose before mentioned.

The yarn is brought down from the delivery-rollers of the spinning or doubling frame in any usual and well-known manner and passes through a vertical slot a^6 (or it may be an aperture) provided in the twisting-disk *a*, such slot being cut either from the outer edge of such disk, as shown, or from the inner edge. The yarn after being passed through the apertures or slot aforesaid is passed through the eye or its equivalents at the bottom of the downwardly-projecting arms or rim, and from thence it goes on to the spindle-blade, tube, or bobbin. The twisting-disk *a* is drawn round by the pull of the yarn that is being spun or doubled, assisted by the contact of the said disk or its bush with the blade *b'* of the spindle *b* or with the exterior of the tube or bobbin *c*, according to the nature of the work being performed.

The twisting-disk is caused to lag somewhat, owing to the drag put on by suitable temper-bands *f* combined with the friction of its under side with the upper surface of the copping-rail on the interposed washer.

The copping-rail is caused to rise and fall by any well-known means for the length of copping-taper required, while at the same time it is raised a short distance after each traverse, thus forming any length of cop for which the spindle is adapted.

At starting, the copping-rail is at its lowest point and the cop or copped yarn on the tube or bobbin is gradually built upward.

The copping-rail *e* is preferably made very thin at the fore part supporting the twisting-disks to enable the attendant to view the cop, &c., underneath, and a gap may be cut in the rail opposite to and in front of each spindle to clean the arm attached to the twisting-disk when the latter is lifted off and on, and this gap may be cut right through the front of the copping-rail for convenience when "piecing up."

When spinning or doubling onto taper spindles, tubes, or bobbins, the bush *g*, Fig. 4, or its equivalent may be divided, as at *g'*, and made to accommodate itself to the varying diameters by being held together in an expansible manner by means of an elastic band g^2 or a suitable spring placed around such bush or pressing sidewise thereon.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In apparatus for spinning and doubling, the combination with a positively-driven spindle; of a spindle-rail; bearings in said spindle-rail in which said spindle is mounted; a suitably-actuated copping-rail, having an opening of larger size than the cop in said rail; a twisting-disk having a truncated cone shape, such disk being loosely mounted on said spindle-blade and having its lower side in frictional contact with the said copping-rail, and being provided with a downwardly-projecting rim having at its lower end hooks for the yarn passing through onto the spindle-blade, said rim extending through the said opening in the copping-rail and free to rotate therein without contacting; and the drag-cords arranged to press against the conical surface of the disk to obtain the necessary tension of the yarn and to prevent said disk rising off the copping-rail, substantially as specified.

2. In apparatus for spinning and doubling, the expansible bush for use with taper spindles, tubes or bobbins, comprising a divided ring and the elastic ring placed around said ring to hold it together, substantially as specified.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ROBERT WIGHTON MONCRIEFF.

Witnesses:
A. M. TROUP,
E. T. BUTLIN.