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RING SPINNING AND DOUBLING FRAME

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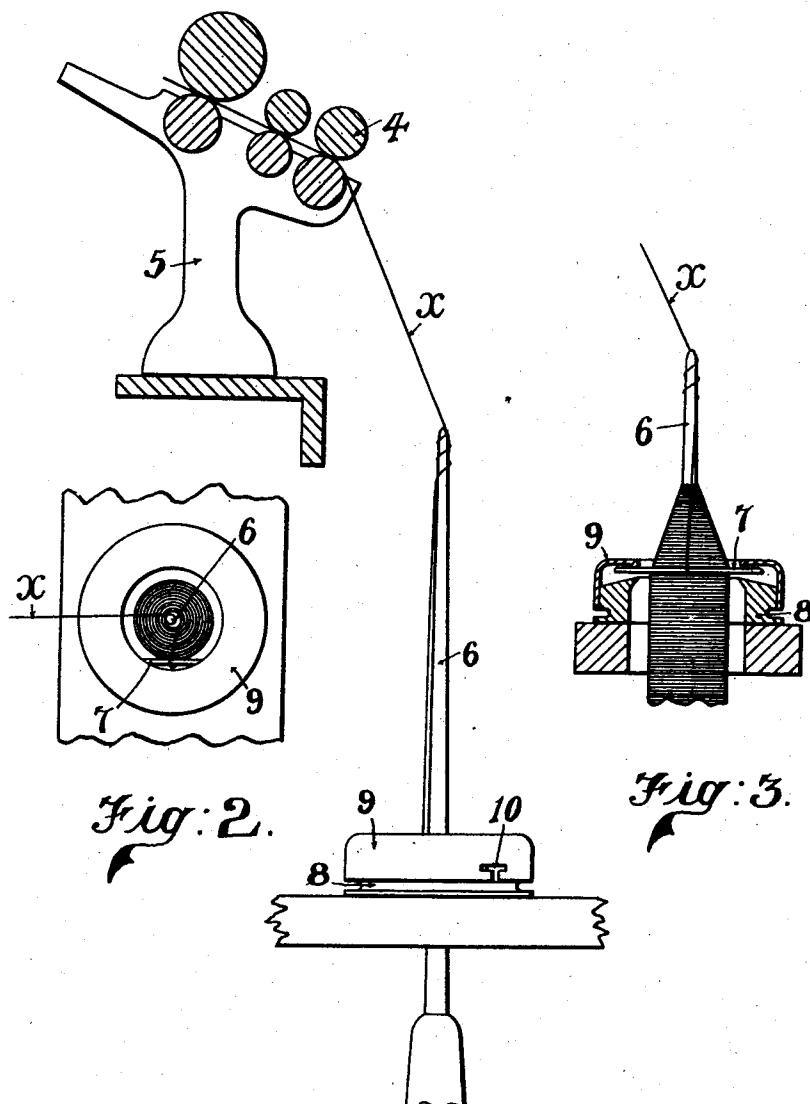


Fig:1.

Fig:3.

Fig:2.

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UNITED STATES PATENT OFFICE.

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RING SPINNING AND DOUBLING FRAME.

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In the spinning and doubling of yarns in a ring frame it has been proposed to wind the roving or yarns coming from the delivery rollers around the tip of the spindle on which the yarns are to be wound in the form of a cop, the yarn coming from the spindle tip and thence through a traveller or guide provided with a hook which traveller puts winding tension upon the yarn in the ordinary manner of a spinning traveller. This has a certain disadvantage, as when the ring rail is lowered in the usual way to wind a few coils lower down the spindle before dofing a completed cop—to preserve continuity of the yarn and save piecing up for a fresh cop—the traveller hook or the like is liable to catch in the side of the wound cop and break. The provision of special means of maintaining tension on the yarns during the descent of the ring rail, adds to the cost of the frame and requires extra attendance in operation.

It is the object of this present invention to provide a combination of means which will allow of continuous and safe working of a spinning or doubling frame in which the yarn is spun or doubled at the spindle tip, thus obtaining the advantages of such spindle spinning, by causing the yarns spun or doubled to approach to the "feel" of yarns spun in this way in the mule, and which means will allow of spinning on the bare spindle in a ring frame. This I effect by providing in combination, a spindle the tip of which is in the path of the material coming from the front delivery rollers of a ring frame, and a winding guide in the place of the usual traveller, which guide has its central portion which receives the yarn, absolutely straight, the yarn passing below the guide and thence to the spindle. There is thus no projecting portion on the guide to fall over on relief of yarn tension, and become entangled with the cop which has been completed.

In the accompanying drawings which illustrate the invention.

Figure 1 is a side elevation of the delivery rollers, with a spindle and ring mounted in a ring rail; it being understood that the delivery rollers, ring rail, and means for driving the spindle are as usual; Figure 2 is a plan of a ring rail showing a cop upon the spindle and the relation of the winding guide thereto; and Figure 3 is a section of the ring rail.

In Figure 1, 4 are the usual delivery rollers of a set of rollers upon the usual roller stand 5. From the rollers 4 the roving descends to the tip of a spindle 6, the spindle being so arranged and of such a length that the yarn α may be wound upon the tip of the spindle to be twisted thereon by slipping off the spindle tip, the twisted yarn then passing downwardly underneath the guide 7 of bar form and thence to the spindle 6 to be wound into a cop as usual—see Figures 2 and 3.

The ring is formed of two parts, viz: the base 8 and the cover 9 shown in Figures 1 and 3 which cover is placed over the base as seen in the latter figure and given a slight turn to be secured in position by a bayonet joint 10 Figure 1.

The guide 7 may be of steel and be slightly resilient and the tension or drag is imparted to the yarn being wound upon the spindle 6 by the action of centrifugal force upon the guide and by the friction between the latter and the lower face of the ring cover 9.

It will be seen that on the cop being completed and the ring rail lowered there is nothing to catch the outer windings of the completed cop as the guide is cylindrical and has no projections whatever.

The weight of the guide and the effect of its frictional contact with the lower face of the ring cover will be calculated as usual according to the counts of yarns being dealt with.

I make no claim to the use of the guide 7 as a traveller for use in spinning or doubling in the known way where the roving or yarn to be doubled descends direct from the front rollers to a traveller, as I find that in using it in this manner there is a difficulty at the commencement of the cop winding and also in the winding of the yarns at the cop nose.

I claim:—

1. In a spinning and doubling frame in which delivery rollers deliver the roving to the tip of a rotating spindle to be spun, by the rotation of the said spindle, between the latter and the delivery rollers, a rising and falling ring rail, a ring in the said rail surrounding the spindle, and a yarn guide held within the ring to move tangentially, radially, and angularly thereto, the said yarn guide being straight and cylindrical and without projections within the ring, for the purpose set forth.

2. In a spinning and doubling frame in which delivery rollers deliver the roving to the tip of a rotating spindle to be spun, by the rotation of the said spindle, between the latter and the delivery rollers, a rising and falling ring rail, a ring base in the said rail surrounding the spindle, a removable annular cover for the said ring base and a yarn guide mounted on the ring base to move tan-

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gentially, radially and angularly thereto and having slight vertical play between the said base and the inner face of the annular cover, the said yarn guide being straight and cylindrical and without projections within the ring.

In testimony whereof I have hereunto set my hand.

ROBERT WILLIAM EDGE.