No. 815,075. PATENTED MAR. 13, 1906.

H. DOLL.

RELATING TO PREPARATORY MACHINES AND TO SPINNING, DOUBLING, WINDING, AND THE LIKE PROCESSES, AND TO APPARATUS THEREFOR.

APPLICATION FILED AUG. 10, 1904.

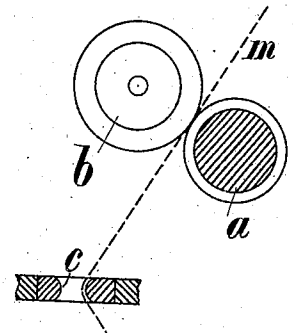


Fig 1.

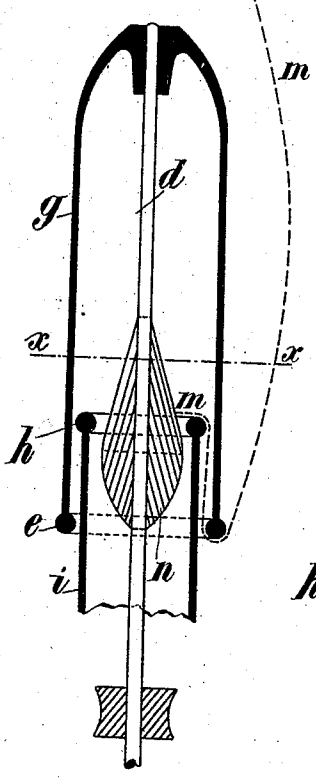
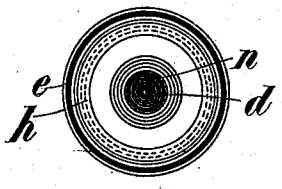


Fig. 2.



Witnesses:
Waldo M. Chapin
Randall H. Tunmey

Inventor:
Henri Doll
by Rosenbaum & Stockbridge
Attys

UNITED STATES PATENT OFFICE.

HENRI DOLL, OF PARIS, FRANCE, ASSIGNOR TO PEIGNAGES & FILATURES DE BOURRE DE SOIE, OF PARIS, FRANCE, A SOCIETY.

RELATING TO PREPARATORY MACHINES AND TO SPINNING, DOUBLING, WINDING, AND THE LIKE PROCESSES AND TO APPARATUS THEREFOR.

No. 815,075. Specification of Letters Patent. Patented March 13, 1906.

Application filed August 10, 1904. Serial No. 220,195.

To all whom it may concern:

Be it known that I, HENRI DOLL, engineer, a citizen of Switzerland, residing at Paris, in the Department of the Seine, France, have invented new and useful Improvements in Spinning Machinery, of which the following is a specification.

This invention relates to all doubling, twisting, or preparatory or spinning machines or frames in which the material under treatment is simultaneously and continuously twisted and wound, and has for its object, first, the simplification of the present usual systems and the abolition of their different inconveniences; second, to render the working quite independent of the diameter of the winding—that is to say, to enable the spinning and winding to be equally accomplished on small or large diameters or on small or large tubes and even on the bare spindle whatever its diameter may be; third, to permit more particularly these results to be attained on frames for producing weft-cops.

The desired object is attained by effecting the winding in the following manner: The roving or the like after quitting the drawing and delivery rollers passes in the usual manner through a guide or eye which is situated in a prolongation of the spindle upon which the cop or the like is to be wound. Thence the roving passes under the lower side of a ring which is secured to the spindle in any suitable manner, and consequently rotates at the same speed as the spindle. From this ring the roving or thread passes upward vertically or at an angle which will vary with the respective positions of the various parts and passes on to the upper edge of a second and non-rotatable ring which is situated in such a position that its upper part will always be higher than the lower or under part of the first ring. The second ring has an alternative vertical movement which is determined by the form in which the bobbin or cop is to be built and is transmitted through suitable parts or devices from a rising and falling rail which is operated in a manner as is well understood in connection with spinning-frames. The thread is then wound on the spindle, tube, or bobbin. The two rings just described and the axes of which are coincident with the axis of the spindle are of any suitable and desired cross-section and may, for example, be so shaped as to permit, if necessary, the addition of travelers or other devices of a like nature with a view of increasing the frictional resistance.

The drawings hereunto annexed indicate the improved appliances.

Figure 1 illustrates them in vertical section. Fig. 2 shows them in cross-section along the line $x\,x$ of Fig. 1.

a and b indicate the delivery-rollers; c, a thread guide or eye of the usual construction situated in a prolongation of the axis of the spindle.

d is the spindle, and e the first ring, which is attached to the spindle by means of the part g. g is an approximately bell-shaped part, the lower part of which is formed to the ring e, or the ring may be otherwise attached in any suitable manner which will preserve it in about the position shown relatively to the spindle.

h is a non-rotatable ring carried by a part i, by means of which a suitable reciprocating vertical motion can be given to the ring h. The part i, which carries the ring h, passes through the ring e and is secured to a rising and falling rail or equivalent. The part i shown is cylindrical; but this can be substituted by any other convenient support. The amount of motion given to the ring h must be sufficient to enable it to move along the whole length of that part of the spindle upon which the cop or the like is being formed or built.

m indicates the thread or roving; n, the cop in process of formation. The thread m, delivered by a and b, passes through the guide c, under the ring e, up over the ring h, and from there is wound on the spindle d to form a cop. It will thus be seen that the thread under the conditions specified is acted upon as follows: in the direction of rotation, first, by the friction of the rotatable ring e, and, second, by a pull tangential to the diameter of the wound part; in the opposite direction, third, by the air resistance to the ballooned thread, and, fourth, the friction of the fixed ring h. Under these four influences the thread takes up an equilibrated tension in which it endeavors to remain and to which it will endeavor to return if the equilibrium is disturbed in any manner. For example, the feeding or delivery of the thread continually tends to diminish this tension,

and a counterbalancing is effected by the winding or building of the cop or the like.

The dimensions, dispositions, and forms of the different parts and appliances may be modified according to circumstances, as the manner or speed of working or the like.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In a preparatory or other spinning machine, the combination of a spindle, a ring coaxial to and rotating with the spindle, a second ring also coaxial to the spindle, but non-rotatable and movable to and from a plane above that of said first-named ring, by a movement through the same, the thread being passed from the drawing-rollers through an eye and under the first ring and over the second to the spindle cup or bobbin, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRI DOLL.

Witnesses:

MEIER CRESPIN,

HANSON C. COXE.