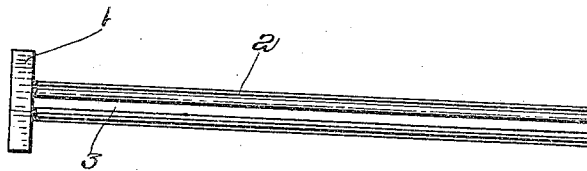
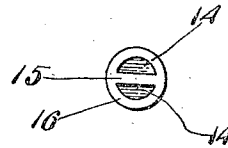
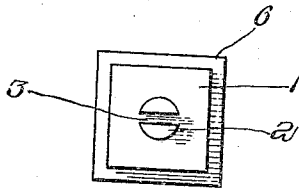
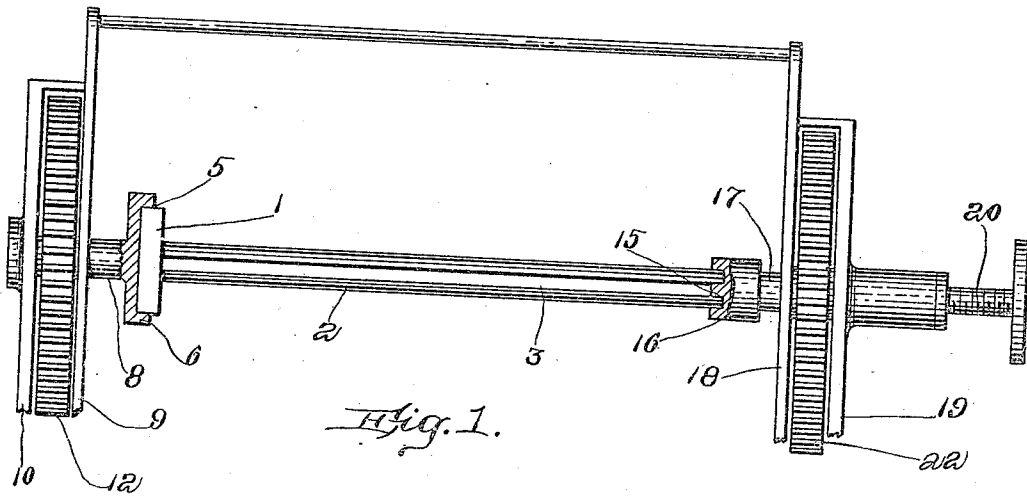


L. H. BALLOU.
WINDING MACHINE.
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952,497.

Patented Mar. 22, 1910.



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UNITED STATES PATENT OFFICE.

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WINDING-MACHINE.

952,497.

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To all whom it may concern:

Be it known that I, LATIMER H. BALLOU, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Winding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to winding machines, and more particularly to winding arbors or spindles for use in cloth or other winding machines.

In cloth winding machines as heretofore constructed the cloth is usually wound upon flat boards, and these boards are held in jaws formed on the ends of the winding shafts. One of the winding shafts is usually arranged so that it can be moved back and forth for the purpose of introducing a new board or allowing a full board to be removed from the machine. It has also been proposed to provide a winding spindle with a sleeve having a groove adapted to receive a binding bar whereby the end of the cloth is pressed into the groove and thus attached to the winding spindle.

The object of the invention is to provide a winding arbor or spindle which shall be an improvement on the construction and mode of operation above set forth, and which obviates the necessity of supplying a board or other material upon which to wind the cloth, thus effecting a considerable saving in the cost of winding.

With the above object in view the invention consists of the winding machine hereinafter described and particularly defined in the claims.

In the accompanying drawings Figure 1 is a sectional elevation of a portion of a cloth winding machine with the preferred form of the invention applied thereto; Fig. 2 is a view in side elevation of the arbor; Fig. 3 is an end elevation as viewed from the right-hand end of the arbor, showing the arbor and the head on the fixed winding shaft; and Fig. 4 is an end elevation of the head on the longitudinally movable winding shaft.

As shown in the drawings, the specific embodiment of the invention comprises an arbor having a square head 1 and an elongated

cylindrical body portion 2 bifurcated by a longitudinal slot 3 extending throughout its entire length. The head 1 of the arbor is adapted to fit a correspondingly shaped recess 5 formed in a head 6 on the fixed winding shaft 8 of the machine, said shaft being journaled in the side standards 9 and 10 of the machine and provided with a gear 12 adapted to rotate therewith. The other end of the arbor is adapted to fit into a pair of segmental recesses 14 separated by a tongue 15 formed in a head 16 on the longitudinally movable winding shaft 17 journaled in the side standards 18 and 19 of the machine. The winding shaft 17 may be moved back and forth by means of an adjusting screw 20. A gear 22 is keyed to the winding shaft 17 so as to drive the latter, but is slidably mounted thereon. The gears 12 and 22 are adapted to be driven at the same speed by any suitable means so that both edges of the cloth will be under the same tension and wound evenly upon the arbor.

In use, the end of the cloth is inserted in the slot 3 when the arbor is in the machine, as shown in Fig. 1, and then the winding proceeds. After the proper amount of cloth has been wound on the arbor, the winding shaft 17 is moved back and the arbor and cloth removed from the machine. The arbor may now be withdrawn from the roll of cloth and re-inserted in the machine preparatory to the next winding operation.

It will be observed that the winding arbor may be used indefinitely, and there is no expense for lumber or other material for boards or other supports which are to remain in the roll after removal from the machine.

The winding arbor above described may be readily applied to existing machines in which, for example, the fixed winding shaft is provided with a plate on its inner end. In this form of machine the socket for the square head 1 of the spindle may be formed by securing a plate provided with a square recess to the face of the plate on the winding shaft. And the longitudinally movable winding shaft may be provided with a collar secured thereto by a set screw and having recesses in one end for firmly holding the bifurcated end of the body of the winding arbor in place of the integral head shown in the drawings.

Having explained the nature and object of

the invention, and specifically described one form in which it may be embodied, what I claim is:—

1. A winding machine, having, in combination, a fixed winding shaft having a head provided with a recess, a winding arbor having a head adapted to fit said recess and having a bifurcated body portion, a longitudinally movable shaft having a head adapted to receive the end of the bifurcated body portion, and means for driving said shafts, substantially as described.

2. A winding machine, having, in combination, a winding shaft having a head provided with a recess, a winding arbor having a head adapted to fit said recess and having a bifurcated body portion, a shaft having a head adapted to receive the end of the bifurcated body portion, means for driving

said shafts, and means for relatively moving the shafts to insert and remove the arbor, substantially as described. 20

3. A winding machine, having, in combination, a winding shaft 8 provided with a head 6 having a recess 5, a winding arbor 25 having a head 1 fitting the recess 5 and a cylindrical body portion 2 bifurcated by a longitudinal slot 3 extending throughout its length, a shaft 17 provided with a head 16 having segmental recesses 14 separated by a tongue 15 and adapted to receive the end of the body portion 2 of the arbor, and means for moving one of the shafts longitudinally, substantially as described. 30

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