

L. H. BALLOU.
WINDING MACHINE REEL.
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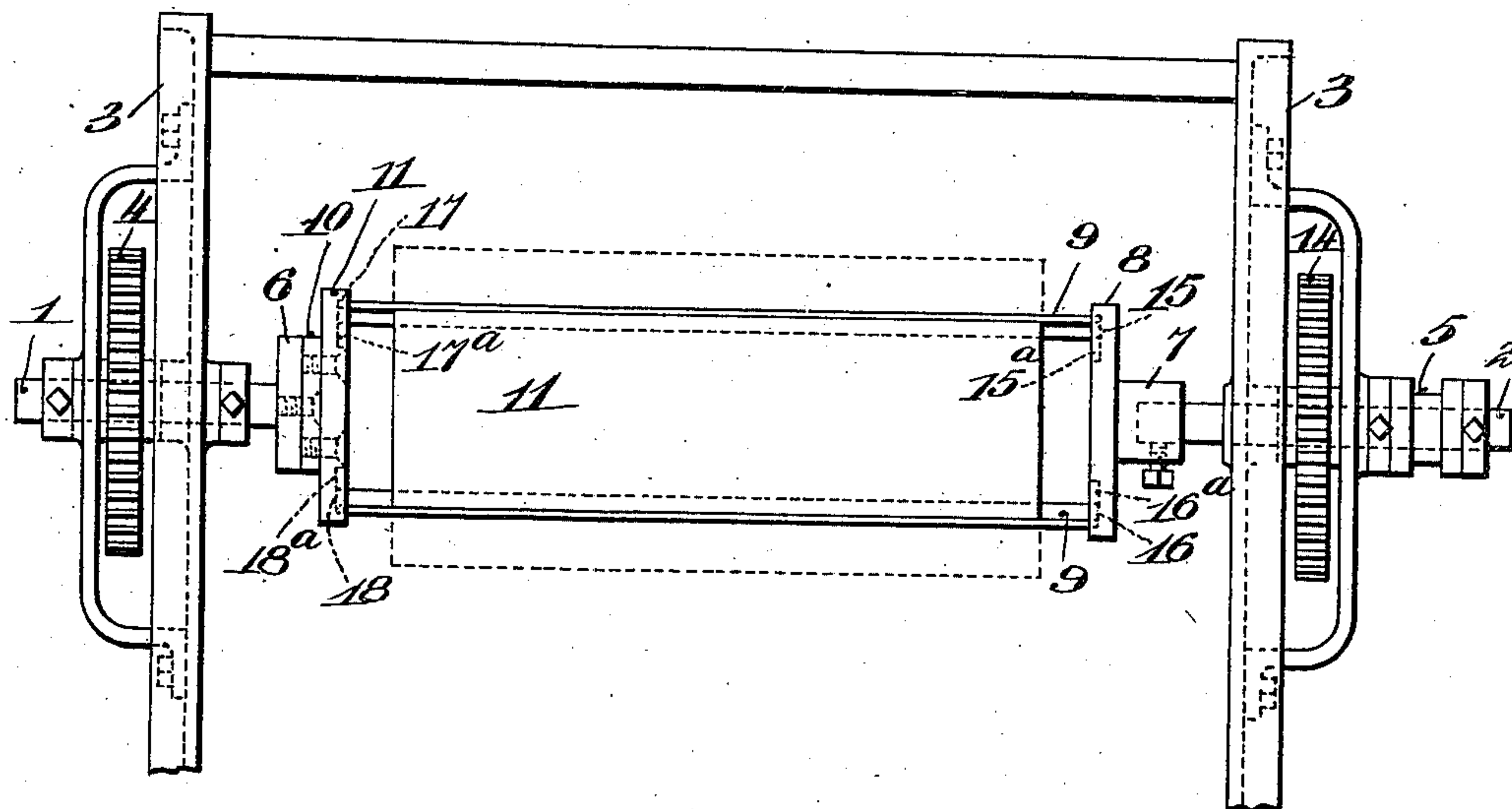


Fig. 1

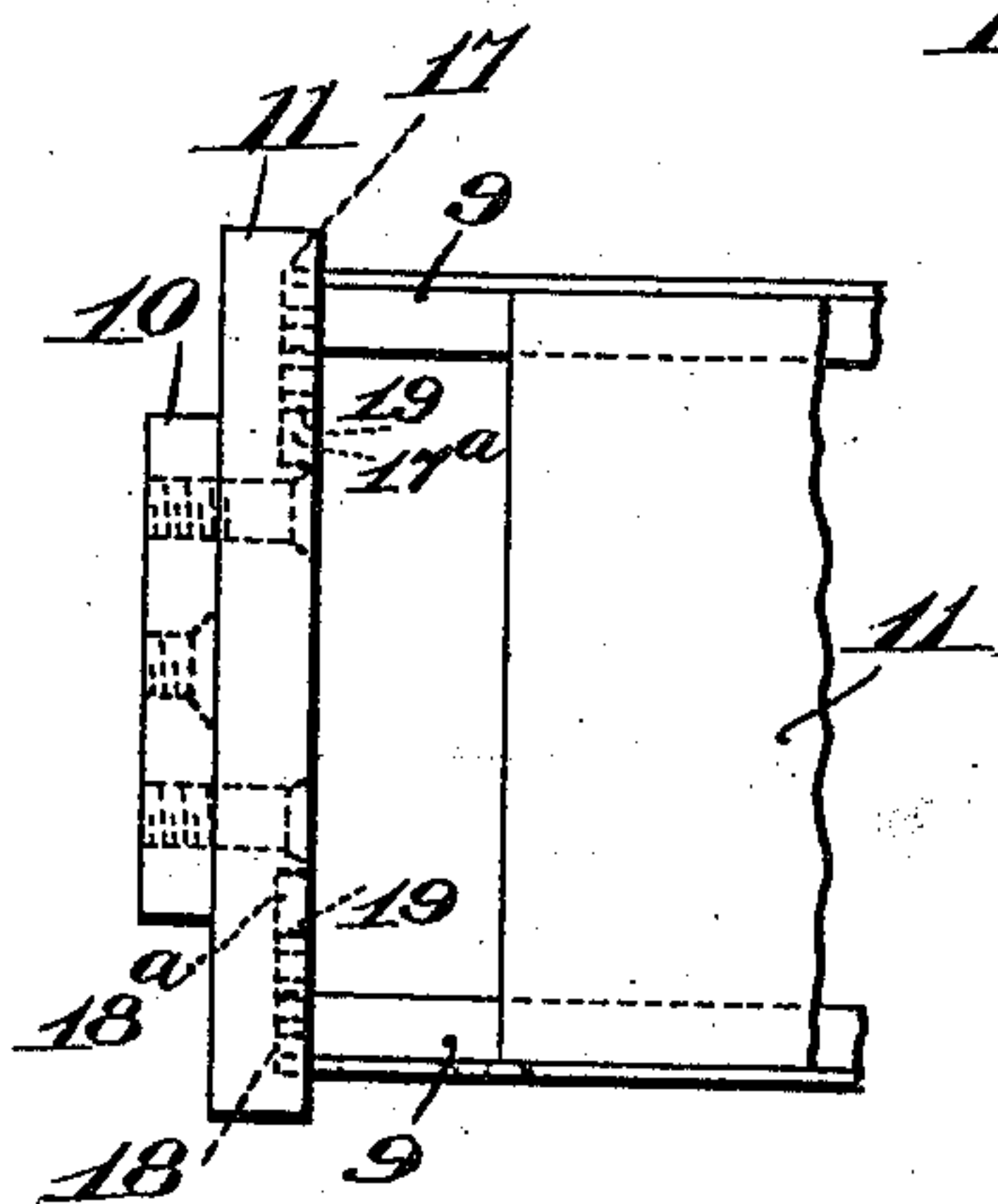


Fig. 2.

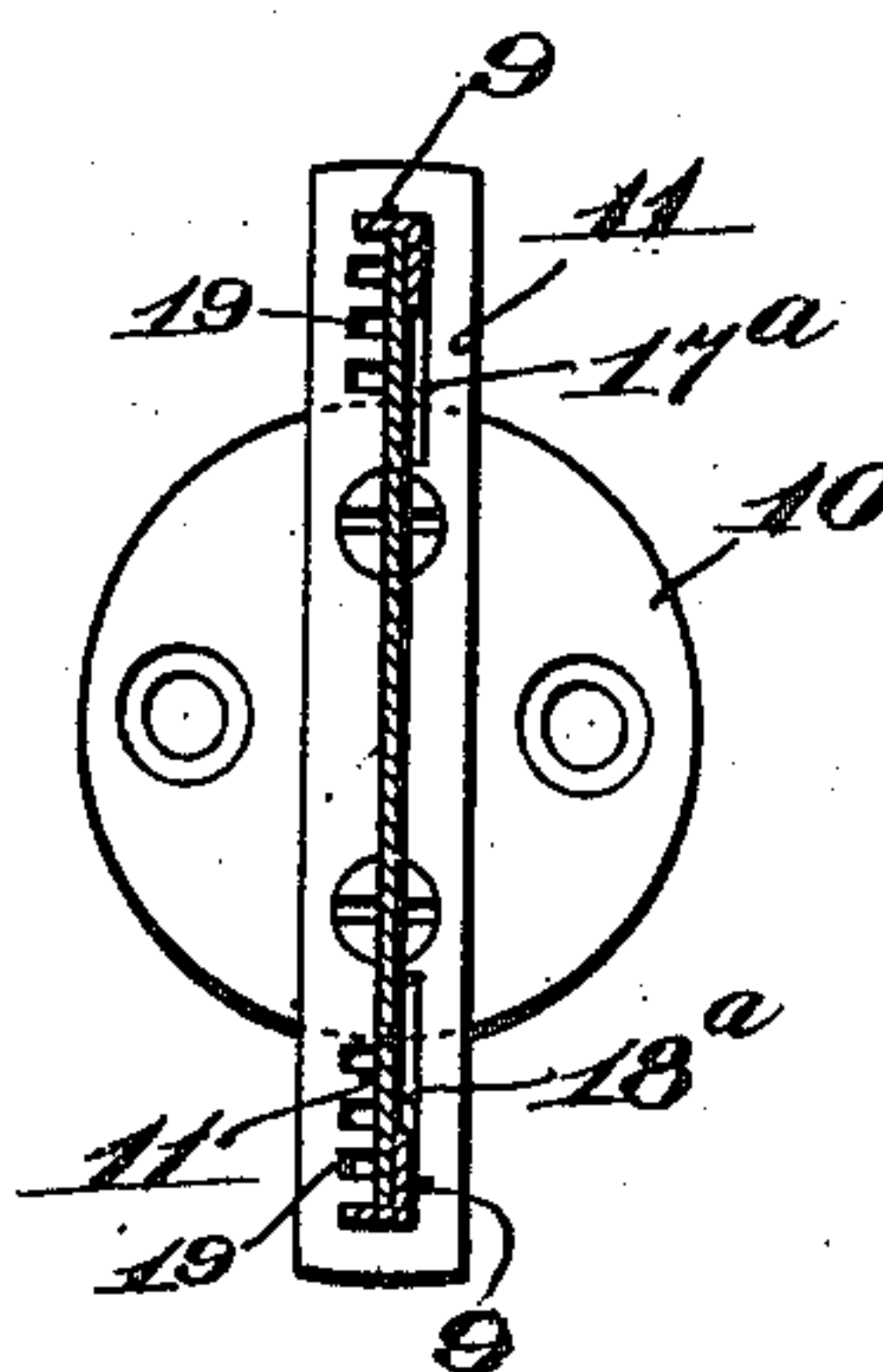


Fig. 3.

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LATIMER H. BALLOU, OF LAWRENCE, MASSACHUSETTS.

WINDING-MACHINE REEL.

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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-Machine Reels; 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.

This invention relates to winding machines, and more particularly to winding reels upon which the cloth board is supported during the winding operation.

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 end 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. A considerable pressure is exerted upon these boards, however, during the winding operation, and in order to enable them to withstand this pressure, it is necessary to construct them of a heavy material.

The object of my invention is to provide means whereby the bolt of cloth may be tightly wound upon a comparatively light cloth board without crushing or breaking the same.

A further object of my invention is to provide an improved reel which will retain the cloth board in position during the winding operation, and which may be easily removed from the bolt of cloth upon the completion of the winding.

With the above objects in view, the invention consists of the winding reel hereinafter described and particularly defined in the claims.

In the accompanying drawings Figure 1 is an elevation of my improved reel attached to a winding machine; Fig. 2 is a detail of the left-hand end of the winding reel with a portion of the same broken away and showing the means for attaching the reel to the fixed winding shaft of the machine; and Fig. 3 is a view similar to Fig. 2, showing a front elevation, with a portion of the reel and of the cloth board held therein, shown in section.

My improved winding reel is attached to

a winding machine of the ordinary type, comprising a winding shaft 1 and a longitudinally movable shaft 2 mounted in the frame 3 of the machine. The shafts 1 and 2 are both driven at the same rate of speed by means of gears 4 and 14 respectively. The gear 14 is keyed to the shaft 2 so as to drive the latter, but is slidably mounted thereon. The shaft 2 is slidably mounted in the frame 3 and is moved therein by means of a collar 5 and a forked-lever (not shown) acting upon the same to slide the shaft in the frame. The winding shaft 1 has mounted upon its inner end a head 6, and the movable shaft 2 has mounted upon its inner end a head 7, having a transverse bar 8 formed integrally with the end thereof.

My improved reel comprises a pair of angle bars 9 which are detachably mounted at one end in the bar 8, the bar being provided with recesses 15 and 16 adjacent the two ends of the same in which the ends of the angle bars are inserted. I am enabled to apply my improved reel to machines of the existent type in which the winding shaft is provided with a head 6 upon the inner end of the same, by providing a head 10, to which is attached a transverse bar 11 provided with recesses 17 and 18 and similar in every respect to the bar 8. The opposite ends of the angle bars 9 are inserted in the recesses 17 and 18 in the bar 11. The recesses for the ends of the bars 9 are preferably so formed that the bars 9 may be adjusted for different widths of cloth boards. As shown, this adjustment is provided for by forming segmental grooves 15^a, 16^a, 17^a and 18^a in the bars 8 and 11 within which the radial flanges of the bars fit, and forming transverse grooves 19 for receiving the circumferential flanges of the bars. It will be seen from the above description that during the winding operation the angle bars 9 are supported at their ends in parallel relation to one another and spaced apart sufficiently to allow a cloth board to be held between them. The angle bars 9 in my preferred construction are oppositely disposed to each other. I mean by this that they are both arranged with their open sides facing the same way so that the cloth board 12 may be inserted from one side between them and held against lateral movement during the winding operation.

The operation of my improved machine is as follows: The reel comprising the angle

bars 9 is assembled in the winding machine, and the cloth board 11 is then inserted in the reel between the angle bars. The end of the cloth to be wound is then fastened to the board and as the winding shafts are rotated the cloth under tension will be tightly wound upon the reel and held by the same without any pressure being exerted upon the board. This is made possible because the strip of cloth bears wholly upon the angle bars comprising the reel without exerting any pressure upon the edges of the board between them. After the bolt of cloth has been wound upon the reel the shaft 2 is moved longitudinally in the frame, thus allowing the reel and cloth thereon to be easily removed. It may now be seen that it is a simple matter to remove the angle bars from within the bolt of cloth by pulling them out in the direction of their length, thus leaving the bolt of cloth compactly wound upon the board 11.

Having explained the nature and object of the invention, what I claim is:—

1. A winding machine having, in combination, a winding shaft, a second shaft movable relatively to said winding shaft, means for driving said shafts, and a reel supported and rotated between said shafts, the reel comprising two parallel bars spaced from one another and adapted to removably support a cloth board between them, the bars being detachably supported upon the opposite ends of the shafts and adapted to allow the cloth board to be inserted between them from one side of the bars when the reel is assembled in operative position and whereby the cloth board and reel may be easily removed from the machine at the conclusion of the winding operation, substantially as described.

2. A winding machine, having, in combi-

nation, a winding shaft, a second shaft movable relatively to said winding shaft, means for driving said shafts, and a reel supported and rotated between said shafts, the reel comprising a pair of oppositely disposed angle bars adapted to receive and support a cloth board between them, one side of each of the angle bars adapted to protect opposite edges of the cloth board about which the bolt of cloth is wound, substantially as described.

3. A winding machine, having, in combination, a winding shaft, a second shaft movable relatively to said winding shaft, means for driving said shafts, heads mounted upon the inner ends of each of the said shafts and comprising transverse bars having recesses adjacent the ends thereof, and a reel comprising a pair of oppositely disposed angle bars, the opposite ends of said angle bars being inserted in said recesses whereby the reel is detachably supported and rotated between the ends of the two shafts, substantially as described.

4. A winding machine, having, in combination, a winding shaft, a second shaft movable relatively to said winding shaft, means for driving the shafts, transverse bars supported upon the inner ends of the said shafts, a longitudinal row of recesses formed upon the face of each transverse bar, and a pair of oppositely disposed angle bars the opposite ends of which are adapted to be inserted in the recesses whereby the angle bars may be held at varying distances apart to support different widths of cloth board between them, substantially as described.

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