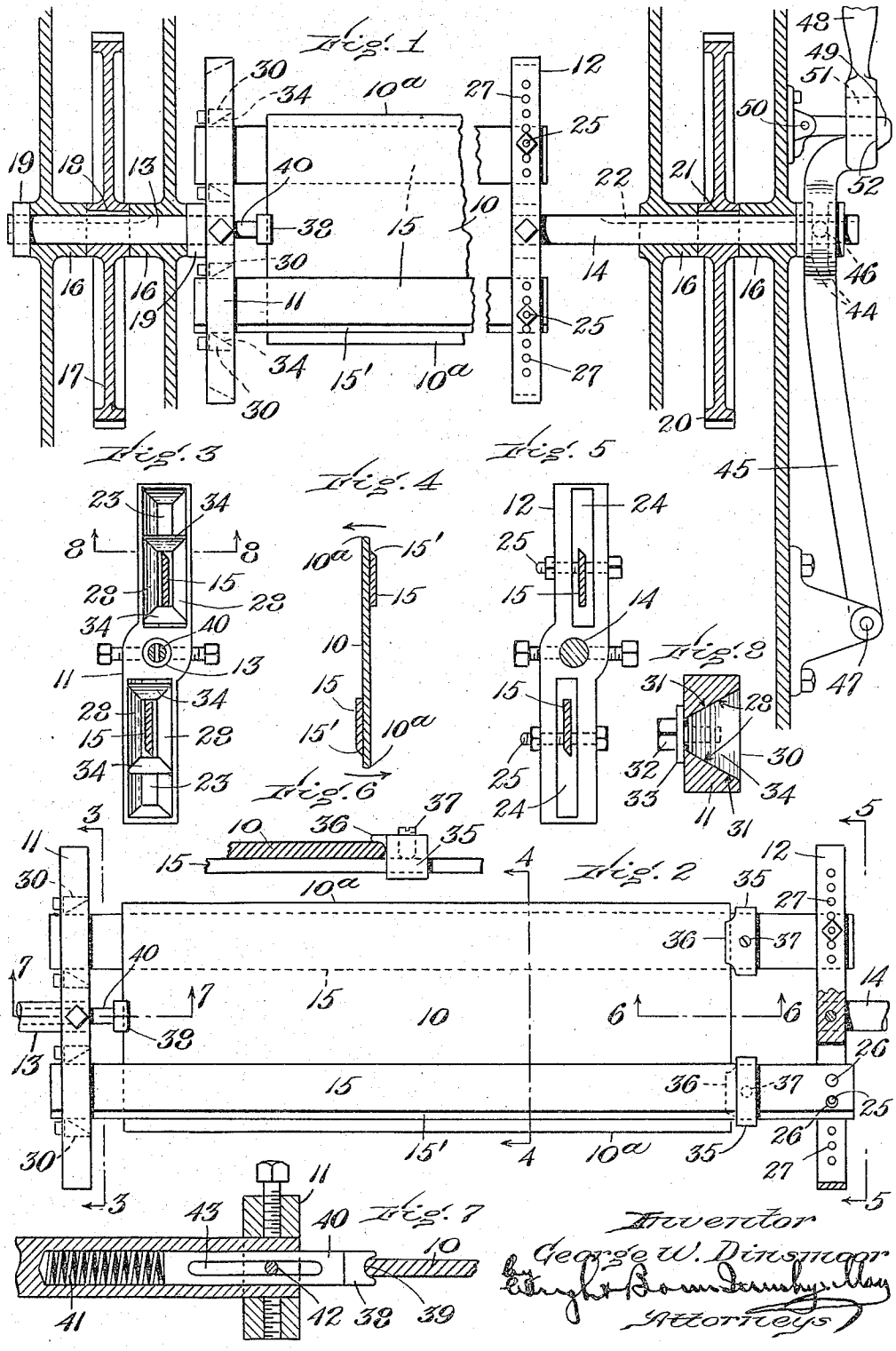
G. W. DINSMOOR.

CLOTH BOARD WINDER.

APPLICATION FILED NOV. 17, 1915.

1,176,819. Patented Mar. 28, 1916.



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UNITED STATES PATENT OFFICE.

GEORGE W. DINSMOOR, OF LAWRENCE, MASSACHUSETTS.

CLOTH-BOARD WINDER.

1,176,819. Specification of Letters Patent. Patented Mar. 28, 1916.

Application filed November 17, 1915. Serial No. 61,932.

To all whom it may concern:

Be it known that I, GEORGE W. DINSMOOR, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Cloth-Board Winders, of which the following is a specification.

This invention relates to cloth-board winders and its object is to provide improved means for holding, rotating, and reinforcing a cloth-board.

Cloth-boards are used by weaving mills to wind the cloth into bolts for storage and shipment. Such boards have been made of wood, hitherto, and although the latter is satisfactory material it involves considerable expense. Still a less stable material would not have been usable in the winding machines now in use, because of the stresses which the boards have to sustain while in such machines.

My present invention provides a winding machine which braces the cloth board in such manner and to such degree that a board made of material much weaker than wood will amply fulfil requirements. Cloth-boards made of wood pulp are cheaper than those made of wood in its natural condition, but are not strong enough to sustain the stresses in the winding machines hitherto used. A winding machine made according to my present invention will brace the cloth-board so that even if the latter is made of wood pulp it will be satisfactory.

Of the accompanying drawings which illustrate one form in which the invention may be embodied: Figure 1 represents a sectional view in a vertical plane through the winding mechanism, a portion of the cloth-board and its holding elements being broken out. Fig. 2 represents an elevation of the complete cloth-board and its holding elements. Fig. 3 represents a section through the structure intersected by line 3—3 of Fig. 2. Fig. 4 represents a section through the structure intersected by line 4—4 of Fig. 2. Fig. 5 represents a view indicated by line 5—5 of Fig. 2. Fig. 6 represents a section indicated by line 6—6 of Fig. 2. Fig. 7 represents a section indicated by line 7—7 of Fig. 2. Fig. 8 represents a section indicated by line 8—8 of Fig. 3.

The same reference characters indicate the same parts wherever they occur.

The cloth-board is indicated at 10. The winding mechanism includes a pair of rotary heads indicated respectively at 11 and 12, shafts 13 and 14 carrying said heads respectively, and a pair of bars 15, 15 from one of said heads to the other, and other elements hereinafter specified.

The two heads are driven in unison, and the bars 15, 15 travel around the axis of the shafts 13 and 14 and thus rotate the cloth-board as indicated by arrows in Fig. 4. The shafts 13 and 14 are journaled in bearings 16 in the frame of the machine. A gear 17 is mounted upon shaft 13 and connected to the latter by a key 18. This shaft is held against endwise movement by collars 19, 19. A gear 20 is mounted upon shaft 14 and is connected to the latter by a key 21. This shaft is movable endwise in its bearings, for a purpose hereinafter explained, and is provided with an elongated keyway 22 in which the key 21 may slide.

The heads 11 and 12 are formed respectively with slots 23 and 24 to receive the bars 15. These bars are connected to the head 12 by bolts 25, each bar having in the present instance two bolt-receiving holes 26 (Fig. 2) at one end. The head 12 is provided with two series of bolt-receiving holes 27 arranged at various distances from the axis of rotation to enable the bars 15 to be set toward or from such axis according to the width of the cloth-board. It is desirable to set the bars 15 so that their outer edges will be sufficiently near the winding edges 10^a of the cloth-board to brace the latter against the winding stress. The outer edges of the bars 15 are preferably beveled as indicated at 15′, to facilitate their withdrawal from the bolt of cloth as the latter is removed from the bars.

Referring to Fig. 2, it will be observed that the distance between the two bolt-receiving holes 26 is greater than the space between adjacent bolt-receiving holes 27 in the head, the difference of spacing affording twice as many positions of adjustment as there are holes 27 in each series.

The left-hand ends of the bars 15 are movable into and out of the slots 23 in the head 11, and in order to facilitate the insertion of the bars into said slots the surfaces 28 of the head are beveled as shown best by Fig. 8. The left-hand ends of the bars 15 are held at the desired distance from the axis of rotation by adjustable blocks 30

carried by the head 11. These blocks are formed with beveled surfaces 31 which bear upon the surfaces 28 of the head. Each block 30 is clamped by means of a clamping bolt 32 and washer 33. Each block is formed with a beveled surface 34, and these surfaces of each pair of blocks are arranged toward each other, as shown by Fig. 1, to facilitate the insertion of the bars 15 into the head 11.

Each bar 15 carries an adjustable clamping member 35 for engaging one end of the cloth-board. The members 35 have undercut lips 36 (see Fig. 6) arranged to overlap the end of the board. The members 35 are bored and tapped for the reception of setscrews 37, said screws being arranged to bear against the bars 15. The members 35 are capable of sliding along the length of the bars 15 to the desired position according to the length of the cloth-board, and may be fastened at any position by tightening the setscrews.

The left-hand end of the cloth-board is held by a spring-pressed clamping member 38. This clamping member is formed with a groove 39 (Fig. 7) adapted to receive the edge of the cloth-board. The clamping member is formed with a shank 40, and the latter is arranged to slide in a socket bored in the shaft 13. A helical compression spring 41 arranged in said socket forces the clamping member toward the right and thus keeps the clamping member against the board as shown by Fig. 7, and also keeps the right-hand end of the board against the clamping members 35 as shown by Figs. 2 and 6. The shank 40 and shaft 13 have pin-and-slot connection which prevents the shank from being forced entirely out of its socket when the cloth-board is removed, the pin indicated at 42 being set in the shaft, and the slot 43 being formed in the shank. This pin-and-slot connection serves the additional purpose of keeping the groove 39 in position to register with the cloth-board.

I have not shown any means for driving the gears 17 and 20, but it will be understood that these gears are in practice driven in unison. It will be observed that the bars 15, 15 are arranged to bear on opposite sides of the cloth-board and that each is behind the cloth-board with reference to the direction of rotation, so that the marginal portions of the cloth-board will be amply braced by the bars as the latter sustain the winding stress. The stress of the clamping spring 41 must be considerable in order to prevent the board from slipping, and such stress would bend or buckle a comparatively weak cloth-board, such as one made of wood pulp, if it were not braced against such buckling stress. The structure shown affords the necessary bracing in this respect, for the lips 36 of the clamping members 35 hold the right-hand end of the board firmly against the bars 15, and the bars brace the marginal portions of the board throughout the length of such portions. Inasmuch as the bars are against opposite sides of the cloth-board, one of them braces the board against buckling tendency in one direction, and the other braces the other against buckling tendency in the opposite direction.

I have shown means for advancing and retracting the shaft 14, and means for keeping the shaft in working position. Referring to Fig. 1, at the outer end of the shaft 14 there is a pair of collars 44. These collars are pinned or otherwise affixed to the shaft. An operating lever 45 carries a pair of studs 46 arranged in line with each other and diametrically opposite with relation to the axis of the shaft. These studs project into the space between the collars 44. The lower end of the lever 45 is mounted upon a fulcrum stud 47, and the upper end of the lever is provided with a handle 48. A latch 49 is mounted upon the frame of the machine by means of a pivot pin 50. The lever 45 is formed with a hole 51 through which the outer end of the latch may pass. When the parts are in working position as shown, the latch hooks over a shoulder 52 on the lever.

Assuming that a cloth-board is set in the winder and that the latter is adjusted for winding, the board will be rotated as hereinbefore stated until the desired quantity of cloth has been wound. In order to remove the cloth-board together with the cloth wound thereon the attendant lifts the latch 49 to release the lever 45. The head 12 and shaft 14 will then be forced back by the compressed spring 41, but the attendant may complete the retraction of the head and the shaft by swinging the handle 48 to the right. The left-hand ends of the bars 15 will thus be withdrawn from the head 11, but an attendant will take hold of the bolt of cloth at such time so that it will not drop. When the bars 15 have thus been freed from the head 11 they may swing about the bolts 25 sufficiently to take them out of register with said head, the holes 26 in the right-hand ends of the bars being considerably larger than the bolts 25 to permit the necessary freedom of angular movement of the bars. The slots 24 in the head 12 are considerably wider than the thickness of the bars, and the latter are therefore capable of swinging in any direction. When the shaft 14 is retracted as far as it will go, the left-hand edge of the cloth-board is removed from the clamping member 38 and the cloth-board with the bolt of cloth thereon may therefore be withdrawn from the left-hand ends of the bars 15.

After the cloth and cloth-board have been removed, the left-hand ends of the bars 15

may be placed back in the head 11 as shown, this operation involving the return of the lever 45 to the position shown. An empty cloth-board may be put in the holding means by placing the left-hand edge in the groove of clamping member 38, moving the board to the left beyond the members 35, and placing the right-hand edge of the board between the lips 36 and bars 15 as shown by Figs. 2 and 6. When these operations have been performed the board and the winding machine are ready to wind another bolt of cloth.

I claim:

1. In a machine of the character stated, a pair of rotary winding heads journaled upon a common axis but separated from each other, a pair of bars carried by said heads, each said bar being connected at its ends to said heads respectively, said bars being arranged to bear against opposite sides of a cloth-board near the winding edges of the latter, means carried by said bars and arranged to hold one end of such board, and means arranged to hold the other end of such board, one of said two means being adapted to thrust such cloth-board endwise against the other said means, and one of said two means being adapted to keep the opposite sides of the board against said bars respectively.

2. In a machine of the character stated, a pair of rotary winding heads journaled upon a common axis but separated from each other, a pair of bars carried by said heads, each said bar being connected at its ends to said heads respectively, said bars being arranged to bear against opposite sides of a cloth-board near the winding edges of the latter, means carried by said bars and arranged to hold one end of such board, and means arranged to hold the other end of such board, one of said means including a spring arranged to cause clamping action endwise of the board by said two means conjointly.

3. In a machine of the character stated, a pair of rotary winding heads journaled upon a common axis but separated from each other, a pair of bars each connected at its ends to said heads respectively, said bars being arranged to engage opposite sides of a cloth-board near the winding edges of the latter, a pair of board-holding devices carried by said bars respectively, said devices being arranged to engage one end of the board, and a spring-pressed board-holding device arranged to engage the opposite end of the board to coact with said pair of devices to clamp the board endwise, said devices of said pair being adjustable lengthwise of said bars.

4. In a machine of the character stated, a pair of rotary winding heads journaled upon a common axis but separated from each other, a pair of bars each connected at its ends to said heads respectively, said bars being arranged to engage opposite sides of a cloth-board near the winding edges of the latter, said bars being adjustable toward and from said axis according to the width of the cloth-board, a pair of board-holding devices carried respectively by said bars and arranged to engage one end of the cloth board, and board-holding means arranged to engage the opposite end of the cloth board, said means and said devices conjointly being adapted to clamp the cloth-board endwise and keep its opposite sides against said bars respectively.

In testimony whereof I have affixed my signature.

GEORGE W. DINSMOOR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."