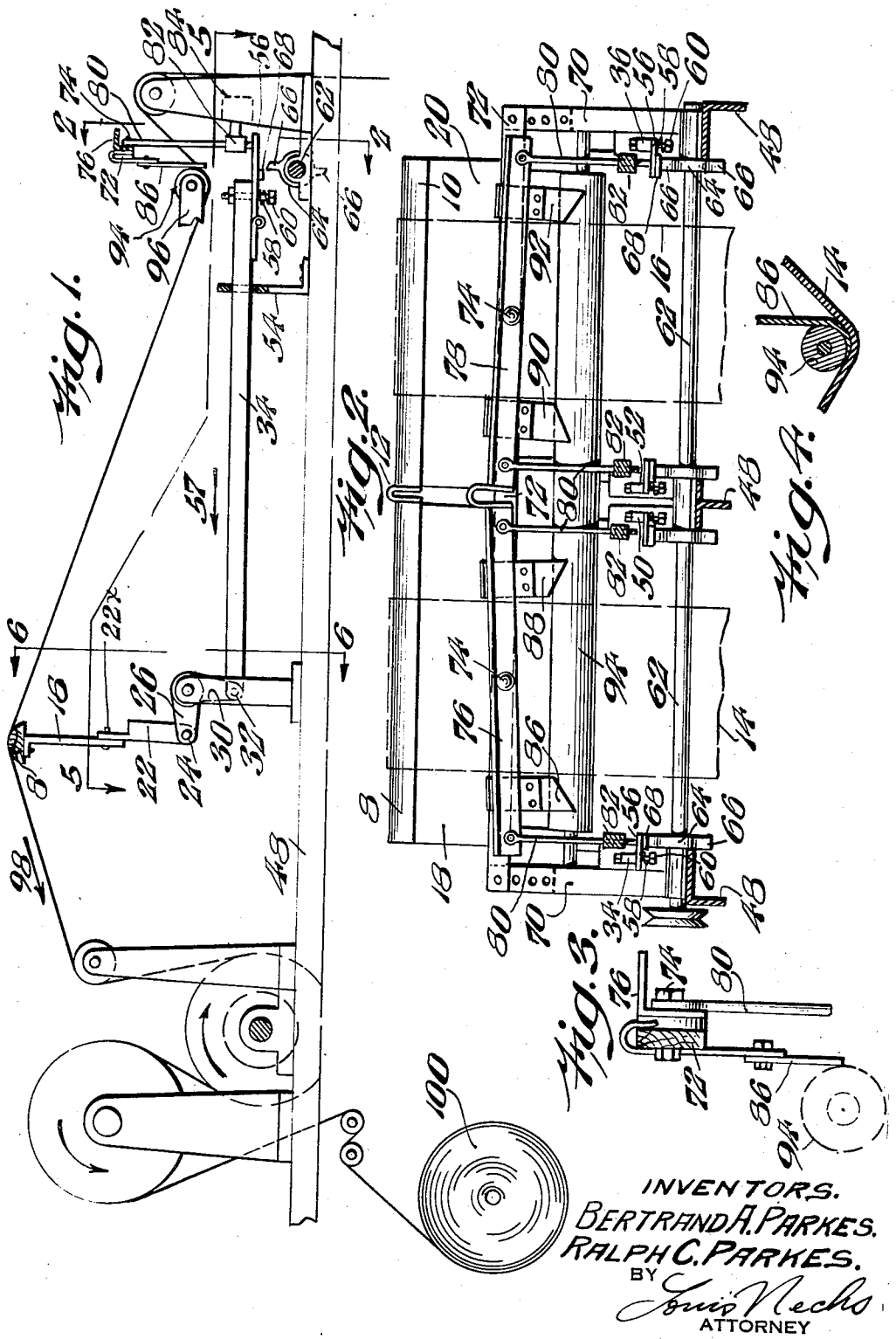
Nov. 5, 1940. B. A. PARKES ET AL 2,220,613

CLOTH WINDING MECHANISM

Original Filed May 15, 1937 2 Sheets-Sheet 1



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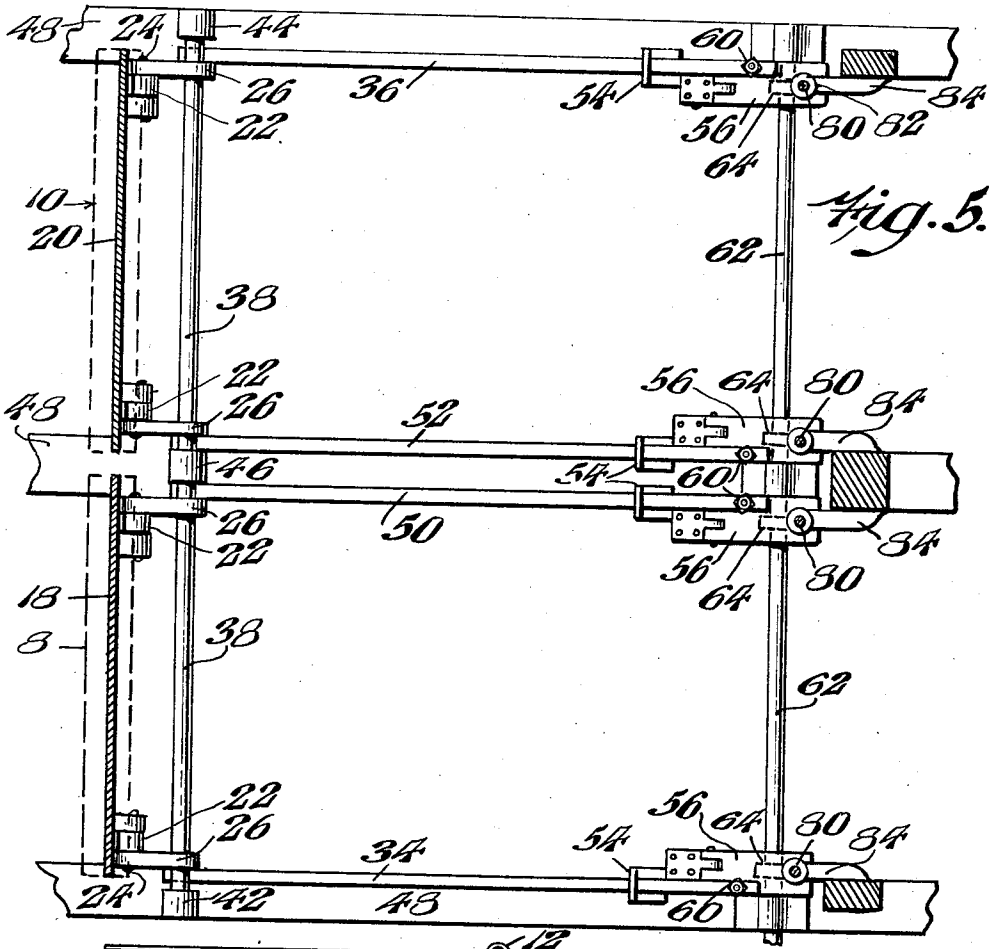


Fig. 5.

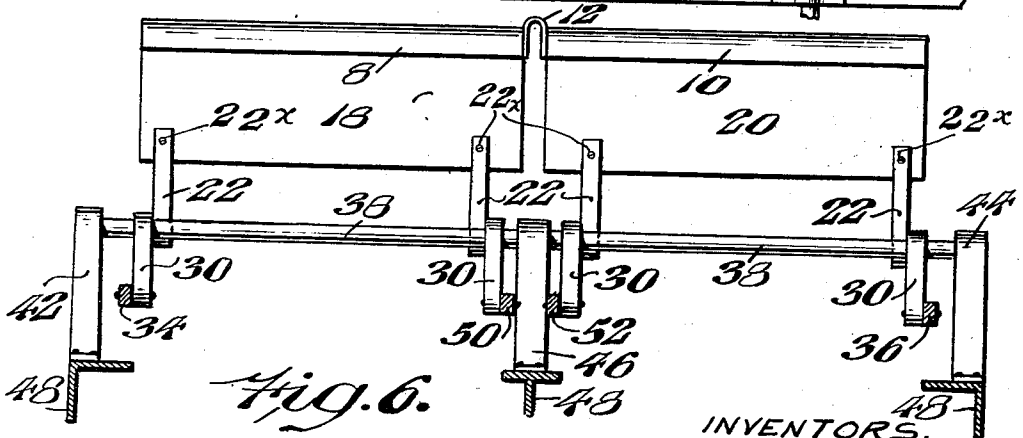


Fig. 6.

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CLOTH WINDING MECHANISM

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Original application May 15, 1937, Serial No. 142,778. Divided and this application August 24, 1938, Serial No. 226,445

2 Claims. (Cl. 271—2.6)

Our invention relates to a new and useful Cloth winding mechanism, the present application being a division from our co-pending application Serial No. 142,778, filed May 15, 1937 on a Drying machine.

In drying machines, after the cloth has emerged from the drying chamber, it is wound on a take-up roll. Due to the movement of the parts and the distance intervening between the take-up roll and the drying chamber, the cloth has a tendency frequently to divert from true center thus necessitating the presence of an attendant constantly to rectify such diversion in order to have the cloth wound accurately upon the take-up roll.

It is the object of our invention to provide drying machines of this character with means for automatically centering the cloth, such means to become operative only by the diversion of the cloth from true center.

The construction and operation of our novel winding mechanism will be more clearly understood from the following specification and the accompanying drawings in which:

Fig. 1 represents a fragmentary and diagrammatic view in side elevation illustrating our invention.

Fig. 2 represents a view partly in section and partly in elevation on line 2—2 of Fig. 1.

Fig. 3 represents, on a slightly enlarged scale, a fragmentary view in side elevation of a portion of the structure at the upper right hand corner of Fig. 1.

Fig. 4 represents, on an enlarged scale, a fragmentary sectional view showing the manner in which the automatic action of the winding mechanism takes place.

Fig. 5 represents a section on line 5—5 of Fig. 1.

Fig. 6 represents a section on line 6—6 of Fig. 1.

As shown in the drawings we have illustrated our winding mechanism as it would be applied to a drying machine and in which two separate pieces of cloth are being dried simultaneously but it is to be understood that if a lesser or a greater number than two pieces of cloth are being dried simultaneously the construction will be reduced or duplicated accordingly.

Referring to the drawings in which like reference characters indicate like parts, and more particularly to Fig. 6, we have shown two bars, poles or other smooth supporting surfaces 8 and 10 flexibly connected at 12 and over which the two pieces of cloth 14 and 16, which are being treated, travel as best seen in Figs. 1 and 2. The cloth supports 8 and 10 are held in normally horizontal positions by the plates or other supports 18 and 20 which in turn are carried by suitable bell crank arrangements which, while normally retaining the plates 18 and 20 and the cloth supports 8 and 10 in a horizontal position, are nevertheless capable of being actuated in one direction or the other to tilt the cloth supports 8 and 10 away from the horizontal in the desired direction or in a direction calculated to maintain or bring back the cloth into a true center position with respect to the supports 8 and 10 and with respect to the take-up drum or roll on which the cloth is to be wound and which will hereinafter be again referred to. The left hand end of the support 18 and the right hand end of the support 20 (as viewed in Fig. 6) are supported by identical bell crank arrangements consisting of the arms 22 which are secured at their upper ends to the supports 18 and 20 by the swivel connections 22x and are secured at 24 to the links 26 which are secured to the upper ends of the links 30 the lower ends of which are secured at 32 to the bars 34 and 36. It will be noted that the links 26 and 30 are carried by the shaft 38 which is carried at its outer end in the brackets 42 and 44. The inner ends of the supports 18 and 20 are carried by bell crank constructions identical to those described and disposed on either side of the center bracket 46 which also supports the shaft 38. The brackets 42, 44 and 46 are all suitably secured to any portion 48 of the frame of a drying machine. For the purpose of convenience we have applied to the central bell crank constructions adjacent the center bracket 46 the same numbers applied to the bell crank constructions adjacent the end brackets 42 and 44. The bell crank constructions adjacent the bracket 46 are connected at their lower ends respectively to the bars 50 and 52 which are similar to the bars 34 and 36. The bars 34, 36, 50 and 52 are all supported and guided by apertured brackets 54 (see Fig. 1) which are also suitably secured to the supporting frame 48.

It will be seen that if the bar 34, for instance, is moved in the direction of the arrow 57, the left hand end of the cloth support 8, as viewed in Fig. 6, would be raised and the cloth support 8 would be inclined towards the center flexible connection 12. If the bar 50 is actuated in the direction of the arrow 57, the end of the cloth support 8 near the flexible connection 12 will be raised to tilt the cloth support 8 to the left, as viewed in Fig. 6. The same of course applies to

the cloth support 10 which is actuated by the bars 52 and 36.

As long as the pieces of cloth 14 and 16, which are travelling over the supports 8 and 10, are running true to center, the cloth supports 8 and 10 remain in their "neutral" or horizontal position, and, if the cloth should run, say, to the left of center on the cloth support 8, and to the right of center on the cloth support 10, it becomes necessary, in order to return the cloth to center, to tilt the supports 8 and 10 so as to give them a position inclining towards the center connection 12, and vice versa.

In order automatically to so tilt the cloth supports 8 and 10 to the extent, and as often as may be needed, to maintain the cloth on true center, we have devised a novel mechanism which is entirely automatic in its operation and which is constructed as follows:

Each of the bars 34, 36, 50 and 52 is provided with a hinged extension 56 which is maintained in a horizontal upper position by the spring 58 but which is afforded a limited amount of play corresponding to the distance between the head of the bolt 60 and the bottom side of the extension 56. Below the extension 56 extends the shaft 62 which is driven from any suitable source of power (not shown) and which is provided with a series of wheels 64 each having the lugs 66, it being understood that the shaft 62 is constantly rotated, and that as long as the extensions 56 are in their upper horizontal position the lugs 66 on the wheels 64 clear the lugs 68 on the bottoms of the extensions 56 and the rotation of the shaft 62 is of no effect. This situation is maintained as long as the cloth is running true on either or both of the supports 8 or 10.

70 designates brackets suitably secured to the support 48 and carrying a bar 72 which extends the entire width of the machine. Pivoted to the bar 72 at 74 are the angle irons 76 and 78 corresponding to the cloth supports 8 and 10 respectively. At the opposite ends of the angle irons 76 and 78 are identical operating mechanisms only one of which will now be described. The operating mechanism referred to consists of the push rod 80 which is guided by the sleeve 82 (suitably carried by any bracket or the like 84) and which is adapted to bear down upon the extension 56 to bring the bottom lug 68 thereof into the path of the lug 66 on the wheel 64 on the shaft 62. The angle irons 76 and 78 also carry in any suitable manner flexible strips 86, 88, 90 and 92 which are spaced apart substantially the width of the cloth pieces 14 and 16, as best seen in Fig. 2, and which normally hang close to the roller 94 which is journaled in any suitable bracket 96 suitably secured to the support 48. The cloth pieces 14 and 16 after leaving the supports 8 and 10 travel in the direction of the arrow 98 to pass over the usual driving, driven, or idle rollers onto the take-up drum 100.

The operation is as follows:

As long as the cloth piece 14, for instance, is at proper center, it will be disposed between the flexible strips 86 and 88 as best seen in Fig. 2 and the operating rod 80 will be in an upper position and out of contact with the extension 56. Also, in this position the lugs 66 on the wheels 64 will clear the lugs 68 on the extension 56. If, however, the cloth piece 14 should move over towards the flexible strip 86 a sufficient distance, the adjacent edge of the cloth 14 will overlap the flexible strip 86 which will now become wedged between the cloth 14 and the roller 94 as best seen in Fig. 4 and will cause a downward pull on the corresponding edge of the angle iron 76 thus forcing down the corresponding operating rod 80 to push downwardly against the extension 56 to depress the latter against the tension of the spring 58 to the limit allowed by the head of the bolt 60 and thus bring the lugs 68 into the path of the lugs 66 which results in pushing the particular arm (34 in this instance) in the direction of the arrow 57, all of which results in raising the left hand end of the cloth support 8 (as viewed in Figs. 2 and 6) to incline the cloth support 8 towards the center hinge 12 and this results in sliding the cloth in that direction until the flexible strip 86 is released from between the cloth 14 and the roller 94. When this has been accomplished, the cloth support 8 automatically resumes its balanced position and, if the cloth 14 should move towards the flexible strip 88 more than is proper for the accurate winding of the cloth, then the flexible strip 88 will be wedged between the cloth 14 and the roller 94 and thus pull down the corresponding operating rod 80 again to depress the extension 56 in the matter hereinabove set forth. What has been said of the cloth support 8 and cloth 14 and flexible strips 86 and 88 applies, of course, equally to the other duplicate half of the machine or to as many units as may be incorporated in a single machine.

While we have described our winding mechanism as applied to the winding end of a drying machine, it is obvious that the winding mechanism itself can be used separately from and independently of the drying machine itself as desired, the invention residing in automatic means which are actuated by the displacement of the cloth from true center to tilt a support over which the cloth passes in the proper direction to reverse the tendency of the cloth and compel it to move in the direction of true center.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A winding mechanism for sheet material comprising a normally horizontal element over which the material to be dried is adapted to pass in advance of being wound on a take-up roll, bell crank supports for the opposite ends of said element and normally supporting it in horizontal position, bars connected to said bell cranks, a roller positioned above and in proximity to the free ends of said bars, pendant flexible strips adjacent said roller and spaced apart a distance slightly greater than the width of the material to be dried, push rods operatively connected to said strips and normally suspended above the rear ends of said bars, a shaft positioned transversely of and below the rear ends of said bars, lugs carried by said shaft, lugs carried by the underside of said bars, and means for rotating said shaft, the lugs on said shaft normally clearing the lugs on the underside of said arms, whereby when either of said flexible strips is wedged between the material being dried and the adjacent roller due to the deviation of said material from the true center, the corresponding push rod is depressed to depress the rear end of the corresponding bar to bring to corresponding lug on said shaft into engagement with the corresponding lug on the underside of said bar to actuate the latter and thus raise the corresponding end of said normally horizontal element.

2. A winding mechanism for sheet material comprising a support on which the sheet mate-

rial is adapted to travel, bell cranks at either end of said support and tending normally to maintain the same in a horizontal position, a roller disposed in the direction of the width of the material and in proximity to the path of travel thereof, a centrally pivoted bar intermediate said material and said roller, flexible elements suspended from said bar, said flexible elements being spaced apart substantially the width of said material and being adapted to be wedged between said material and said roller when said material deviates from a predetermined position during its travel over said support, and means adapted to be actuated by the wedging between said flexible strips between said material and said roller and operatively connected to said bell cranks automatically to tilt said support in a direction opposite to the direction of the deviation of said material from its predetermined course.

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