

Dec. 14, 1943.

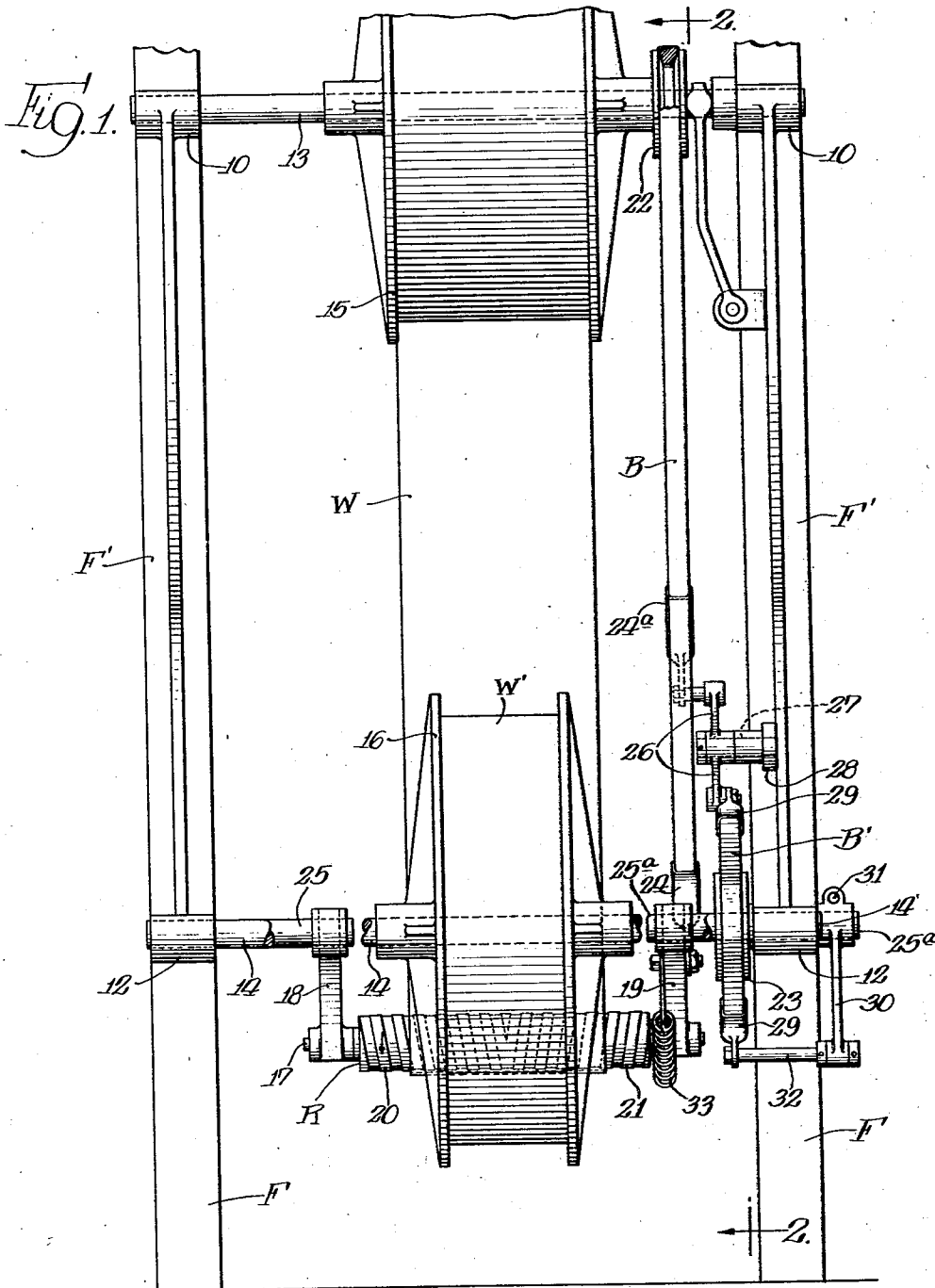
O. SANDBERG

2,336,751

WRAPPER SUPPLY MECHANISM

Filed Dec. 24, 1941

2 Sheets-Sheet 1



INVENTOR.
Oscar Sandberg.
BY Bain & Dreeman
Attys.

Dec. 14, 1943.

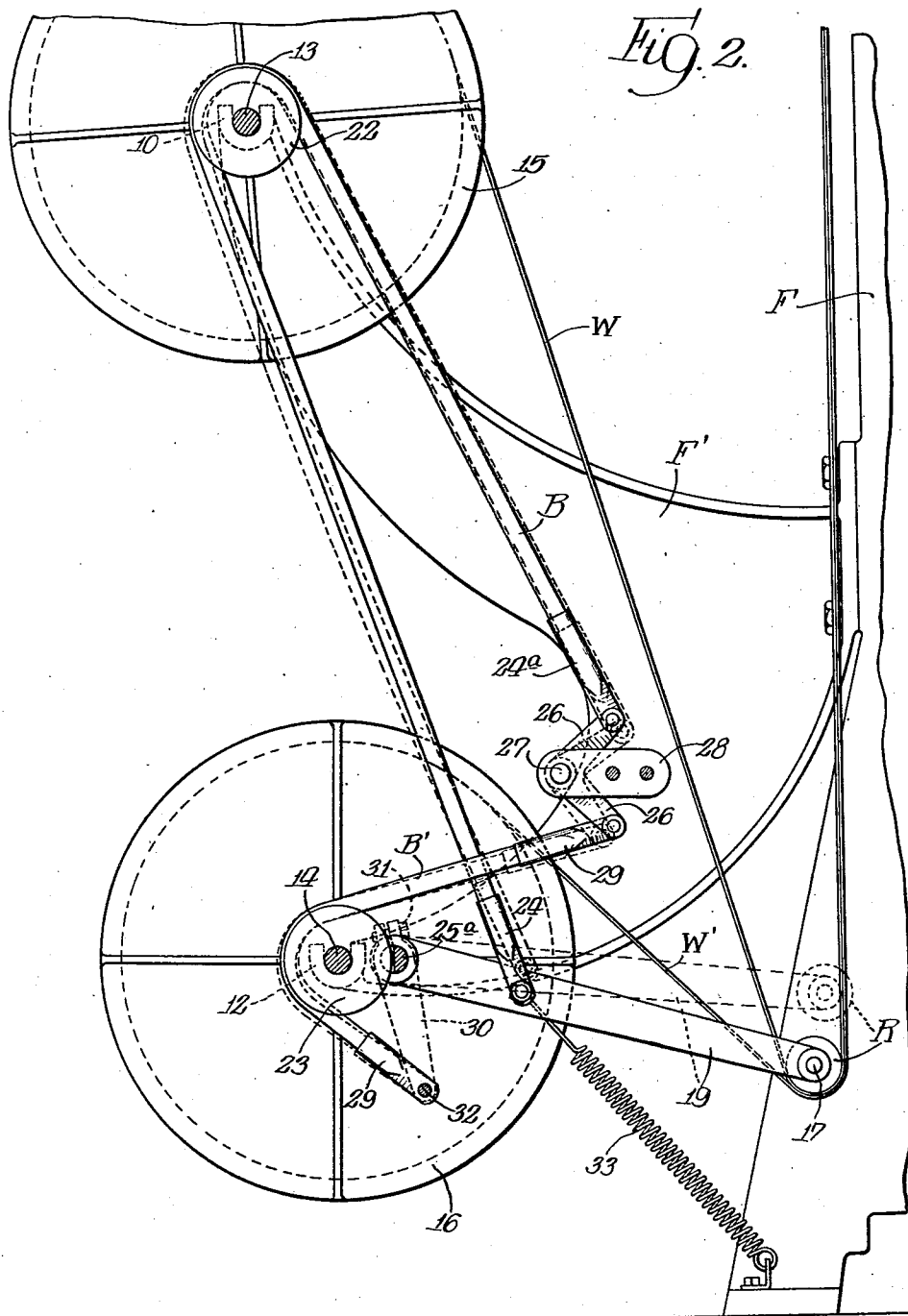
O. SANDBERG

2,336,751

WRAPPER SUPPLY MECHANISM

Filed Dec. 24, 1941

2 Sheets-Sheet 2



INVENTOR.
Oscar Sandberg,
BY *Bair & Freeman*
Attys.

UNITED STATES PATENT OFFICE

2,336,751

WRAPPER SUPPLY MECHANISM

Oscar Sandberg, Defiance, Ohio, assignor to
Lynch Manufacturing Corporation, Defiance,
Ohio, a corporation of Ohio

Application December 24, 1941, Serial No. 424,286

9 Claims. (Cl. 242—75)

My present invention relates to wrapper supply mechanism for use in connection with a wrapping machine of the kind shown in my co-pending application Serial No. 317,370, filed February 5, 1940, now Patent No. 2,283,097 issued May 12, 1942, of which this application is a continuation-in-part.

One object of the invention is to provide wrapper supply mechanism having a control arrangement for the webs of wrapping material unwound from supply reels, the control mechanism being automatically operable in response to the tension applied to the wrapping material by the wrapping machine itself.

Another object is to provide a roller around which webs of wrapping material pass, the roller being movable and friction brakes for the web reels being so connected therewith that increased tension on the web reduces tension on the brake, and vice-versa, the tension thus being automatically maintained within close limits and all possibility of excessive rotation of the reels by momentum being eliminated, the wrappers being thus maintained in smooth and unwrinkled position during operation of the wrapping machine.

Still a further object is to provide a further means to keep the wrapping web smooth by oppositely arranged helical protuberances on the roller.

Still another object is to provide a simple braking arrangement for the web reels wherein a plurality of reels have individual friction belts, the belts being operatively connected in tandem so that a single connection to the roller and its supporting arm can effect release of all the friction belts involved.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, wherein:

Figure 1 is an elevational view of a wrapper supply mechanism embodying my invention; and

Figure 2 is a sectional view thereof on the line 2—2 of Figure 1.

On the accompanying drawings I have used the reference character F to indicate a main frame, such as the frame of the wrapping machine shown in my parent application. Sub-frames F' are supported on the main frame and are provided with bearings 10 and 12 which support the reel shafts 13 and 14 respectively. The

bearings 10 and 12 are made U-shaped so that the reel shafts 13 and 14 can be readily removed and replaced as desired when renewing the supply of wrapping webs.

On the shaft 13 a reel 15 is provided for a web W. On the shaft 14 a reel 16 is provided for a web W'. The webs W and W' may be, for instance, "Cellophane" and wax paper.

The webs W and W' extend under a roller R. The roller R is rotatable on a shaft 17 carried by a pair of arms 18 and 19. The roller is provided with oppositely arranged helical protuberances 20 and 21, as shown in Figure 1. The protuberances 20 may be formed by cutting relatively wide and shallow grooves in the roller. The purpose of the protuberances is to tend to remove all wrinkles from the webs W and W', and particularly from the web W, as it is the outside wrapper for candy bars or the like, wrapped in the wrapping machine, and is usually formed of "Cellophane" or the like. The direction of rotation of the roller R is counter-clockwise in Figure 2, and the helical protuberances are wound in the proper direction for tending to smooth the webs from the center toward their side edges.

A friction pulley 22 is mounted on the shaft 13 and a similar friction pulley 23 is mounted on the shaft 14. These are preferably of the type having a V-groove. Friction belts B and B' extend around the pulleys 22 and 23, and these belts are preferably of V-cross-section, whereby to produce the effective degree of friction necessary due to the tendency for the belts to increase in frictional relation to the pulleys as the belts are drawn tighter into the grooves thereof.

One end of the belt B, indicated at 24, is connected to the arm 19 intermediate its ends, the arms 18 and 19 being pivoted to stud shafts 25 and 25^a respectively, extending from the sub-frame members F'. The opposite end of the belt B has a connector element 24^a thereon, pivoted to one arm of the bell crank 26. The bell crank 26 is pivoted on a stud 27 of a bracket 28, the bracket being supported by one of the frame members F'.

The belt B' has connector elements 29 on its upper and lower ends pivoted respectively with the second arm of the bell crank 26 and an adjustable stationary arm 30. The arm 30 is clamped on the stud shaft 25^a at the desired position of adjustment by a clamp screw 31, the arm 30 being shown dotted in Figure 2 as it is on the near side of the section line 2—2. The

arm 30 carries a pin 32 forming a stationary point to which the lower one of said connector elements 29 of the belt B' is connected.

The belts B and B' are, in effect, connected in tandem, the bell crank 26 being provided merely to effect the desired degree of wrap of the belts B and B' relative to the pulleys 22 and 23.

Practical operation

In the operation of my wrapper supply mechanism the webs W and W' are drawn into the wrapping machine by mechanism shown in my parent application. The present disclosure is of a control mechanism for maintaining substantially constant tension on the webs W and W'. This is effected by the roller R being movably mounted and its weight aided by a spring 33 normally effecting sufficient tightness of the belts B and B' with respect to their pulleys 22 and 23 that the reels 15 and 16 are rotated by pulling on the webs only with considerable force. However, as the webs are pulled upwardly along the right side of Figure 2 by the wrapping machine mechanism, the roller R is raised, as to the dotted position illustrated, thus releasing the belts B and B' to permit the reels 15 and 16 to rotate readily. As soon as the tension is released or the webs W and W' stop moving into the wrapping machine, the roller R will be moved downwardly by gravity and by the spring 33 to stop any excess rotation of the reels 15 and 16, and the portions of the webs extending therefrom to the roller R will remain taut. Depending upon the position of the stationary arm 30 and the tension of the spring 33, as well as on the weight of the roller R, a desired tension is thereby automatically maintained on the webs W and W' as they pass into the wrapping machine.

The tandem connection of the belts B and B' makes it possible to simplify the mechanism yet get effective release of both webs W and W' in response to raising of the roller R. I have found that this arrangement keeps both webs W and W' under substantially the same tension at all times, the roller R, due to its formation, smoothing out any wrinkles in the webs and thus insuring proper feed of the wrapping material to the wrapping machine.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope without sacrificing any of the advantages thereof.

I claim as my invention:

1. In wrapper supply mechanism, a plurality of reels for webs of wrapping material, a roller, a pivoted arm for supporting said roller, means biasing said arm to swing in one direction, said webs passing around said roller in a direction to cause increased tension on the webs to swing said arm against its bias, a grooved pulley connected with each reel and friction belts of V-cross-section connected together end to end and passing in tandem around the grooves of said pulleys, said belts having one end thereof connected to a stationary point and the other end thereof connected with said arm in opposition to said biasing means.

2. In wrapper supply mechanism, a pair of reels for webs of wrapping material, a roller, a pivoted arm for supporting said roller, means biasing said arm to swing in one direction, said

webs passing around said roller in a direction to cause increased tension on the webs to swing said arm against its bias, a pulley connected with each reel and friction belts connected together end to end and passing in tandem around said pair of pulleys, said pair of belts having one end thereof connected to a stationary point and the other end thereof connected with said arm in opposition to said biasing means.

3. In wrapper supply mechanism, a pair of reels for webs of wrapping material, a roller, means biasing said roller to move in one direction, said webs passing around said roller, a pulley connected with each reel and friction belts passing in tandem around said pulleys, said belts being connected together end to end and having one end of said belts connected to a stationary point and the other end of said belts connected with said roller in opposition to said biasing means, said webs, upon increased tautness, moving said roller in a direction opposite said first mentioned direction and increasing the looseness of one of said belts relative to its pulley, and through said last belt, increasing the looseness of the other belt relative to its pulley.

4. Wrapper supply mechanism comprising a pair of reels for webs of wrapping material, a movable roller, said webs passing around said roller in a direction to cause an increased tension on the webs to move the roller in one direction, means biasing said roller to move in the opposite direction, a pair of helical protuberances on said roller starting adjacent the center thereof and extending around the roller in opposite directions tending to smooth said webs outwardly from their centers and thus remove any wrinkles therefrom, the spaces between said protuberances being substantially as wide as said protuberances, pulleys operatively connected with said reels and friction belts connected end to end and passing in tandem around said pulleys, said belts having the free ends thereof connected to a stationary point and operatively connected to said roller to effect loosening of one belt and the other one through the first one when the roller is moved against the action of said biasing means by increased tensioning of said webs.

5. Wrapper supply mechanism comprising a pair of reels for webs of wrapping material, a movable roller, said webs passing under said roller in a direction to cause an increased tension on the webs to move the roller upwardly, means biasing said roller downwardly, a pair of helical protuberances on said roller starting intermediate its ends, extending around the roller in opposite directions tending to smooth said webs outwardly from the center as the roller is rotated, pulleys operatively connected with said reels and friction belts connected end to end and passing in tandem around said pulleys, said belts having the free ends thereof connected to a stationary point and operatively connected to said roller to effect loosening of one of said belts, and through it, loosening of the other belt when the roller is moved against the action of said biasing means by increased tensioning of said webs.

6. Wrapper supply mechanism comprising a pair of reels for webs of wrapping material, a brake drum connected with each of said reels, a roller, a movable mounting means for said roller, said webs passing around said roller in a direction to cause an increased tension on the webs to move the roller in one direction, means biasing said roller mounting means to move in

the opposite direction, a pair of opposite helical protuberances on said roller which tend to remove any wrinkles from the webs passing thereover, the spaces between said protuberances being substantially as wide as the protuberances, and series connected brake bands on said drums and connected with said roller mounting means to effect brake release action when said mounting means is moved against the action of said biasing means by increased tensioning of said webs on said roller.

7. Wrapper supply mechanism comprising a frame, a plurality of reels thereon, webs of wrapping material on said reels, a pair of arms pivoted to said frame on opposite sides of said reels, a roller spanning the distance between the free ends of said arms, said webs passing under said roller, means biasing said arms and roller downward, shafts for said reels, pulleys on said shafts, a friction belt around each pulley, one end of one friction belt being connected with one of said arms, a bell crank with which the other end of said belt is connected, said bell crank being pivoted to said frame, the other of said belts having one end connected with said bell crank and its other end connected with said frame to provide a stationary point.

8. Wrapper supply mechanism comprising a frame, a plurality of reels thereon, webs of wrapping material on said reels, a pair of arms pivoted to said frame on opposite sides of said reels, a roller spanning the distance between the free ends of said arms, said webs passing under

said roller, means biasing said arms and roller downward, shafts for said reels, pulleys on said shafts, a friction belt around each pulley and connected together in tandem, a bell crank pivoted to said frame and providing an operative connection between one end of one belt and one end of the other belt, the remaining ends of said belts being connected respectively to one of said arms and to a stationary point on said frame.

9. Wrapper supply mechanism comprising a frame, a plurality of reels thereon, webs of wrapping material on said reels, a pair of arms pivoted to said frame on opposite sides of said reels, a roller spanning the distance between the free ends of said arms, said webs passing under said roller, means biasing said arms and roller downward, said roller having a pair of spiral protuberances extending in opposite directions from the intermediate portion of the roller, said protuberances being substantially as wide as the spaces between them, shafts for said reels, pulleys on said shafts, a friction belt around each pulley, one end of one friction belt being connected with one of said arms, a bell crank with which the other end of said belt is connected, said bell crank being pivoted to said frame, the other of said belts having one end connected with said bell crank, an arm adjustably mounted on said frame and providing a stationary point at its outer end, the other end of said other belt being connected therewith.

OSCAR SANDBERG.