Oct. 17, 1933. C. F. ALLISON 1,931,280

MECHANISM FOR COLLAPSING NECKS OF PAPER BAGS

Filed July 6, 1931 4 Sheets-Sheet 1

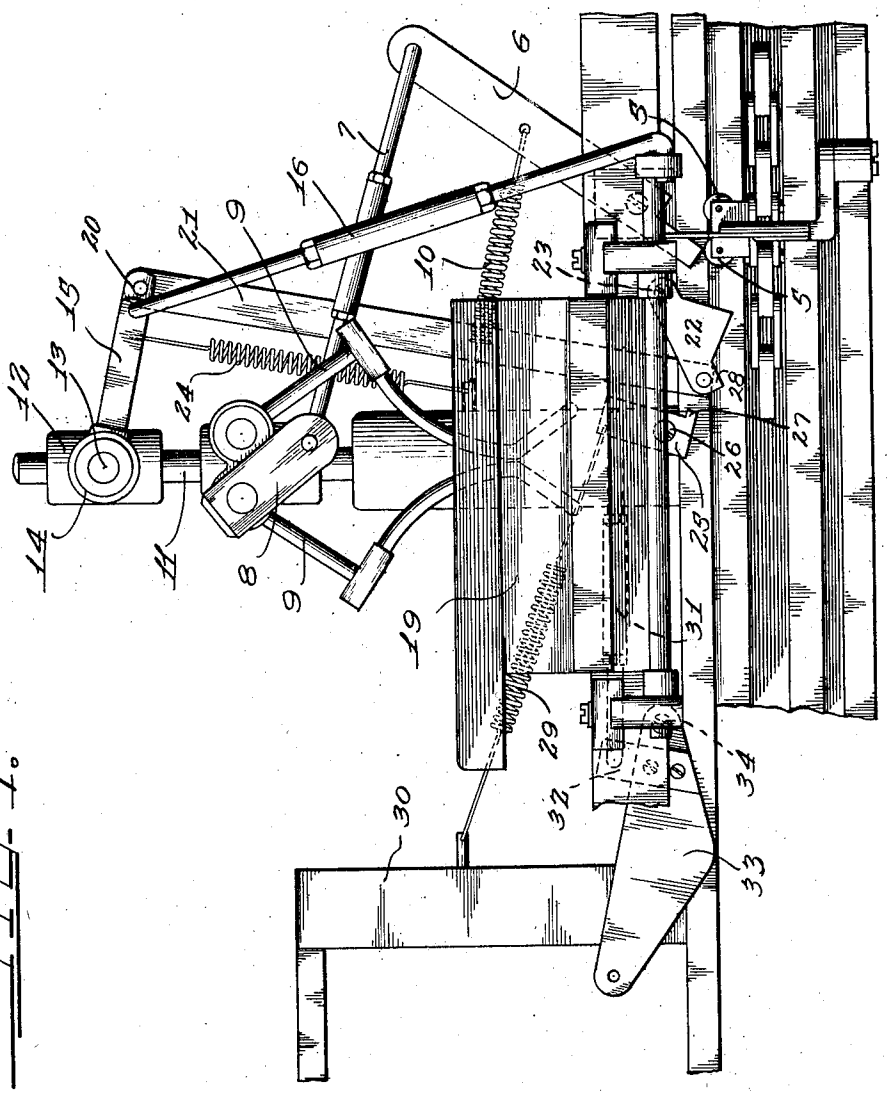


FIG. 1.

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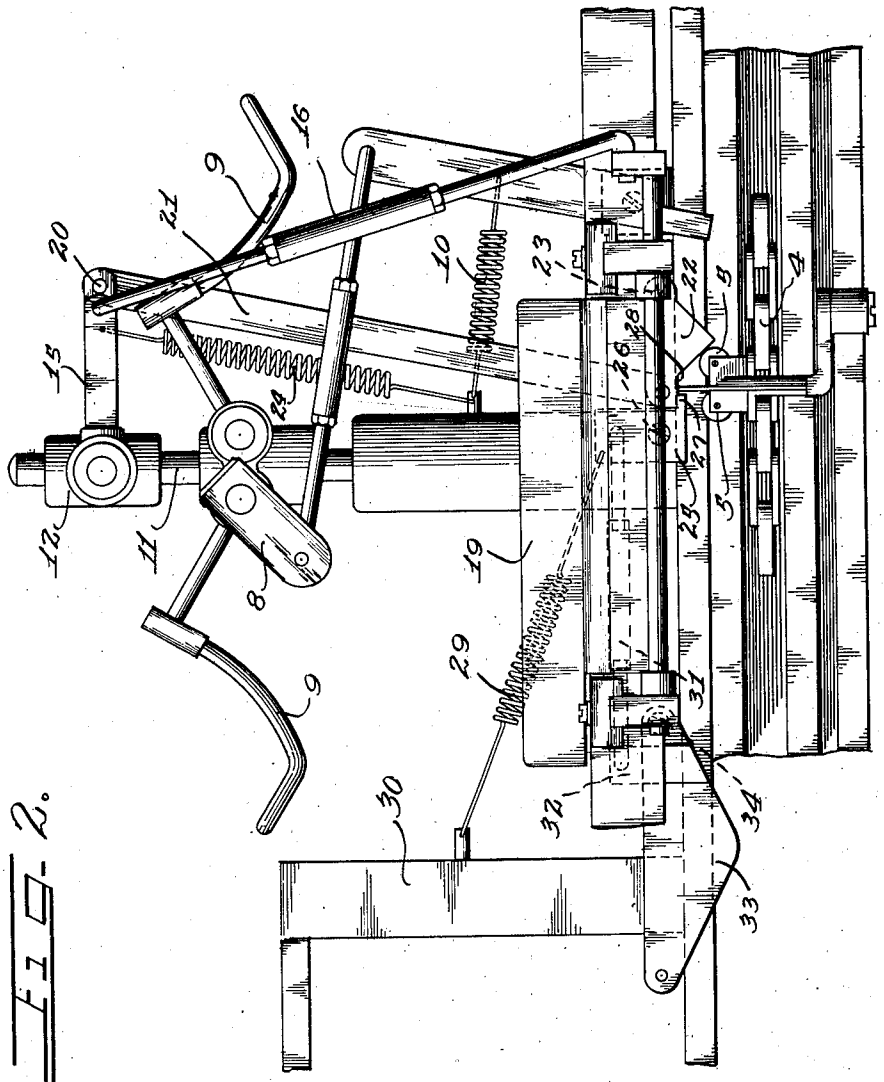


FIG. 2.

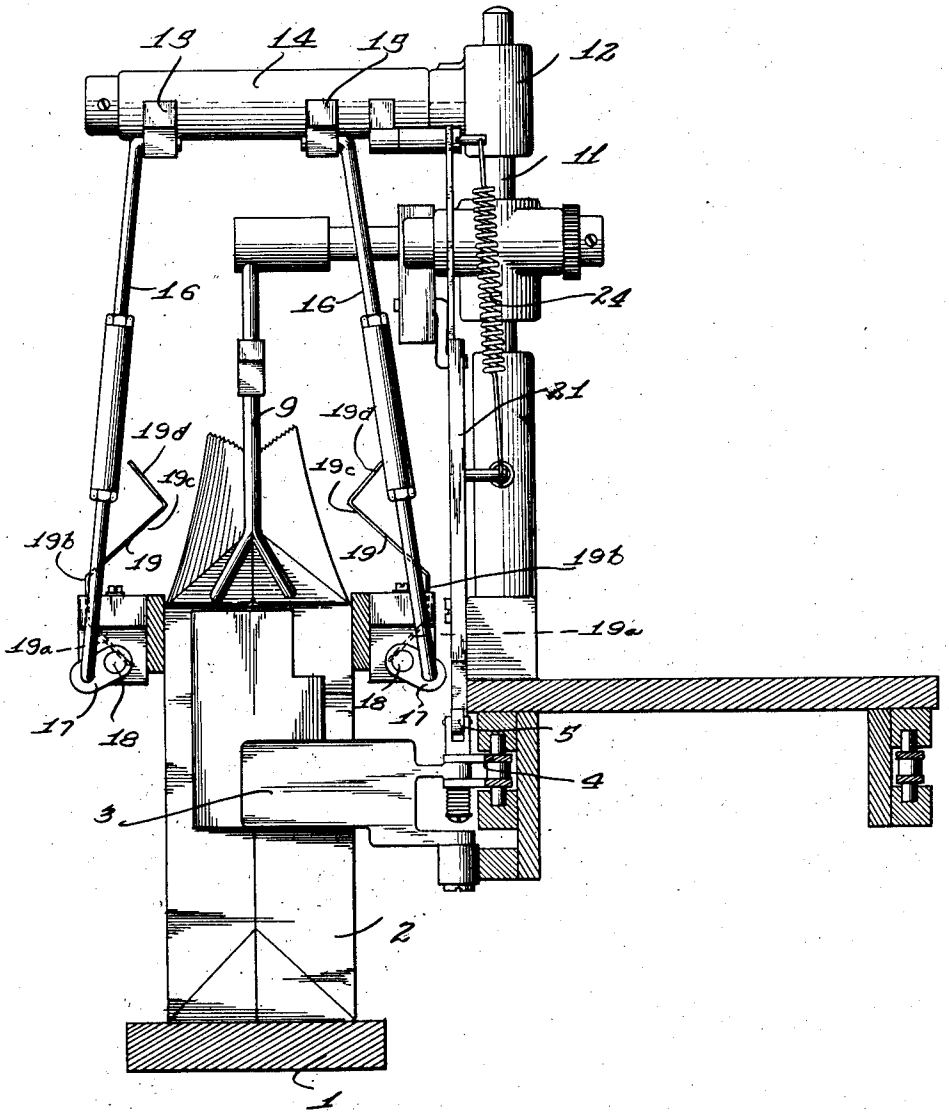
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FIG. 3.



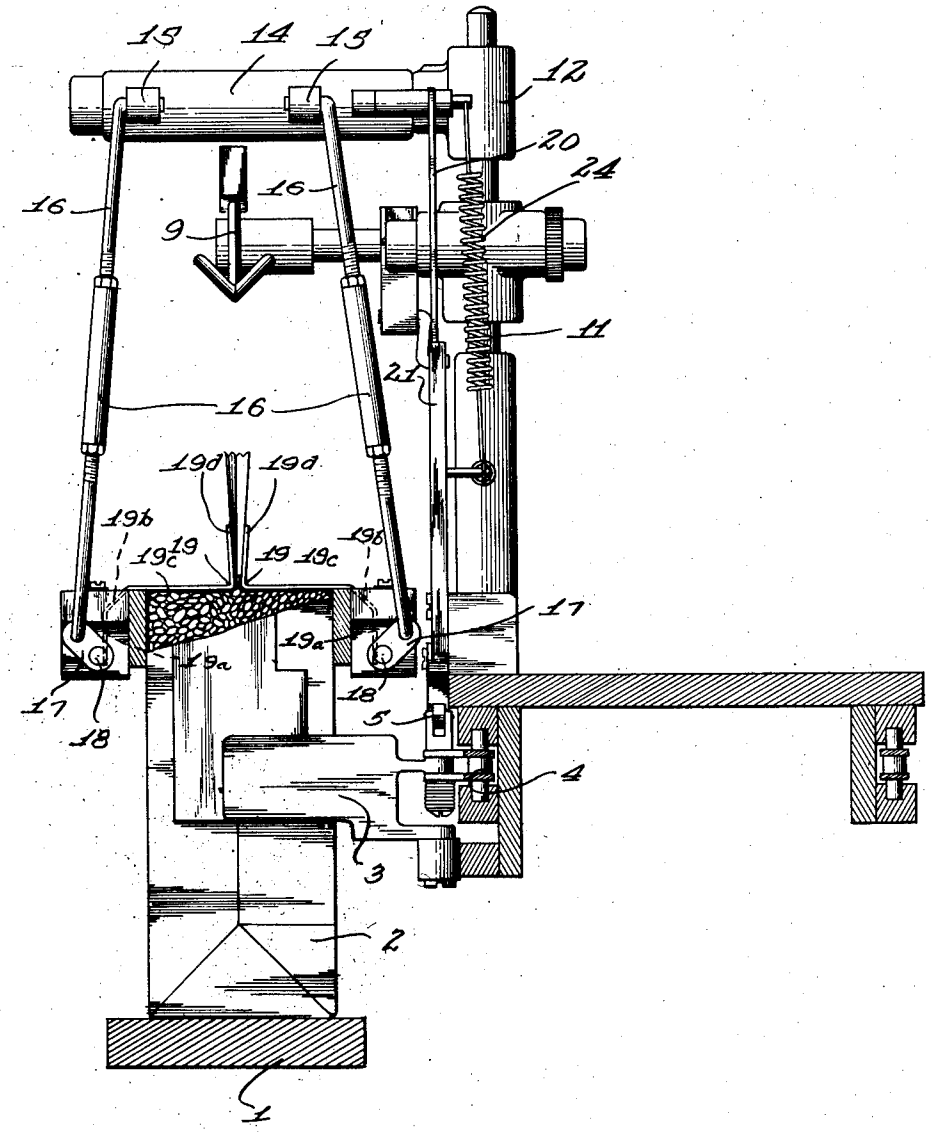
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MECHANISM FOR COLLAPSING NECKS OF PAPER BAGS

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Fig. 4.



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UNITED STATES PATENT OFFICE

1,931,280

MECHANISM FOR COLLAPSING NECKS OF PAPER BAGS

Charles F. Allison, Chicago, Ill., assignor to B. F. Gump Co., Chicago, Ill., a corporation of Illinois

Application July 6, 1931. Serial No. 548,912

6 Claims. (Cl. 93—2)

This invention relates to mechanism for collapsing the necks of paper bags or the like.

In machines for folding and sealing the empty necks of paper bags, it is necessary to provide means for flattening or bringing together the sides of the neck of the bag before the same can be folded. In instances where the bags contain granular matter such as coffee beans or the like, it frequently happens that some beans enter or are squeezed up between the flattened sides of the bag and interfere with the folding and sealing operations. This invention is designed to overcome such an objection in the provision of collapsing means that not only presses the two side walls of the neck of the bag together but that also presses downwardly over the top of the bag to prevent any granular matter from entering or being squeezed between the two collapsed walls of the neck of the bag.

The invention comprises the novel structure and combination of parts hereinafter described and more particularly pointed out and defined in the appended claims.

In the accompanying drawings which illustrate a preferred form of this invention and in which similar reference numerals refer to similar features in the different views:

Figure 1 is a fragmentary side elevational view of a bag closing and sealing machine involving this invention.

Figure 2 is a view similar to Figure 1 illustrating the parts of the machine in different positions.

Figure 3 is an end elevational view of said bag closing and sealing machine involving this invention.

Figure 4 is a view similar to Figure 3 illustrating the parts in the different positions.

In the drawings, certain parts of the bag closing machine to which this invention is applied have been illustrated. In referring especially to Figures 3 and 4, it will be observed that a longitudinally extending platform 1 has been shown upon which the bags are adapted to be propelled by means of suitable propellers 3 extending from a conveyor chain 4 which is adapted to travel in an oblong path. The conveyor chain 4 is provided with a casting in which a pair of rollers 5 are mounted for a purpose that will later appear.

A lever 6 (Figure 1) is pivoted intermediate its ends to the frame work of the machine and the lower end of this lever extends into the path of the rollers 5. The upper end of the lever 6 is connected by a link 7 with a crank arm 8 which is connected to a shaft for supporting one of the end tuckers 9. The other end tucker 9 is secured to an adjacent shaft which is geared to the first mentioned shaft, for conjoint rotation as disclosed in the Allison application Serial No. 491,923, filed October 30, 1930. A coiled spring 10 is attached to the lever 6 and to a stationary part of the machine for normally elevating the end tuckers 9 to their inoperative position. A vertical support 11 carries the end tuckers 9 and extends thereabove for supporting a collar 12 which carries a rod 13 upon which a sleeve 14 is journalled for rocking movements. A pair of arms 15 extends outwardly from the sleeve 14 and these arms 15 are connected by adjustable links 16 to crank arms 17 which are secured upon shafts 18 which are journalled in suitable bearings carried in the framework of the machine and located upon opposite sides of the path of travel of the bag. Collapsing members 19 are secured to the shafts 18 for folding down the top of the bag and collapsing the neck thereof as shown in Figure 4. Before specifically describing the bag collapsing members 19, it might be mentioned that the sleeve 14 is adapted to be rocked by means of a crank arm 20 which extends in parallel relation to the arms 15 and is connected by a link 21 to a cam member 22 which is pivoted at one end 23 to the frame work of the machine. A coiled spring 24 which is anchored to the upright support and the arm 20 normally urges the cam 22 into the path of the rollers 5.

The bag collapsing members are in the form of angular plates, and in referring to Figure 4, it will be noted that each bag collapsing member comprises a vertical portion 19*a* which slopes inwardly as indicated at 19*b*. The sloping portion 19*b* terminates in a horizontal portion 19*c* which is adapted for pressing downwardly upon the top of the bag and compressing the contents to prevent the same from escaping into the neck portion of the bag it is desired to collapse. These horizontal portions 19*c* terminate in substantially vertical portions 19*d* which are adapted for collapsing the neck of the bag so that the same may be later folded. Of course, these parts assume different positions when the members are swung to their inoperative position as shown in Figure 3. In general, it might be said that the design of the bag collapsing members 19 is such that they engage over the top portions of the bag and prevent the escape of particles between the upstanding neck portion thereof.

A latch mechanism has been provided for maintaining the bag collapsing members 19 in their operative position as shown in Figure 4 for

a predetermined period while the neck of the bag passes therebetween. This latching mechanism is best illustrated in Figures 1 and 2. In referring to these figures, it will be noted that the latch member 25 is pivoted to the frame of the machine as indicated at 26. This latch member 25 has a laterally offset shoulder 27 which is adapted to be engaged by a shoulder 28 upon one end of the cam member 22. The latch member 25 is adapted to be held in its operative position as shown in Figure 2 by means of a coiled spring 29 which is connected to the upper end of said latch member and anchored to a stationary support 3 upon the machine. The latch member 25 is also connected by an adjustable rod 31 with a bracket 32 secured to a cam member 33 which is pivoted to the frame work of the machine 34 and which normally lies in the path of the rollers 5. It might be mentioned that the cam member 33 is connected to certain operating mechanism for folding the neck of the bag as is disclosed in the above mentioned application. The cam 33 is hence controlled by mechanism not specifically illustrated in this application. When the cam member 33 is in its elevated position as shown in Figure 1, the latch block 25 will be shifted to its inoperative position for releasing the cam member 22. However, the parts are so timed that when the cam member 22 is elevated by the rollers 5, the cam member 33 will be lowered to allow the spring 29 to swing the latch member 25 for engaging the shoulders 27 and 28 as shown in Figure 2 whereby the neck collapsing members 19 will be maintained in their operative position for a predetermined length of time and until the cam member 33 is again actuated for tilting the latch member 25 for disengaging the shoulder 28 and allowing the spring 24 to lower the cam member 22 into the path of the rollers 5 as shown in Figure 1.

From the foregoing it will be apparent that a very effective mechanism has been provided for collapsing the necks of the bags for folding purposes in such a manner as to prevent the escape of particles contained in the bag into or through the collapsed walls of the bag and interfere with the folding and sealing operations. It will also be appreciated that the latching mechanism for holding the collapsing plates in their operative position for a predetermined length of time will maintain the neck of the bag in collapsed position until it enters the folding members as illustrated in the aforementioned application.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. In a bag closing machine, mechanism for collapsing the empty neck portion of a bag and pressing down the contents therein, comprising a pair of angular members having portions for engaging the top portion of the bag and vertical portions for collapsing the vertical neck portion of the bag, and latching mechanism for maintaining said members in operative position for a predetermined length of time.

2. In a bag closing machine, a pair of swingable members having angular portions adapted for engagement with the top of the bag in a horizontal plane and collapsing the neck of the bag in a vertical plane, in combination with means for simultaneously actuating said members and means for latching said members in their operative position for a predetermined period.

3. In a bag closing machine, the combination with a pair of swingable members having portions for gripping the top of the bag and portions in angular relation therewith for collapsing the vertical neck portion of the bag, means for simultaneously actuating said members and means for temporarily latching said members in operative position for the purpose set forth.

4. In a bag closing machine, a bag runway, a conveyor for propelling bags along said runway, a shaft mounted upon each side of said runway, an L-shaped member secured to each shaft, and means for simultaneously operating said shafts including a member extending into the path of the conveyor for actuation thereby.

5. In a bag closing machine, a bag runway, a conveyor for propelling bags along said runway, a shaft journalled upon each side of said runway, an angular member secured to each shaft, a shaft above said angular members, a sleeve rotatably mounted upon said shaft, links connecting said sleeve and said first mentioned shafts and means extending into the path of said conveyor for rotating said sleeve.

6. In a bag closing machine, a bag runway, a conveyor for propelling bags along said runway, a shaft mounted upon each side of said runway, a plate secured to each shaft, each plate having an upwardly extending portion terminating in an angular portion for engaging the top of the bag, said angular portion terminating in a substantially right angular portion for engaging the neck of the bag, and means extending into the path of the conveyor for simultaneously actuating said shafts.

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