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PACKING MACHINE

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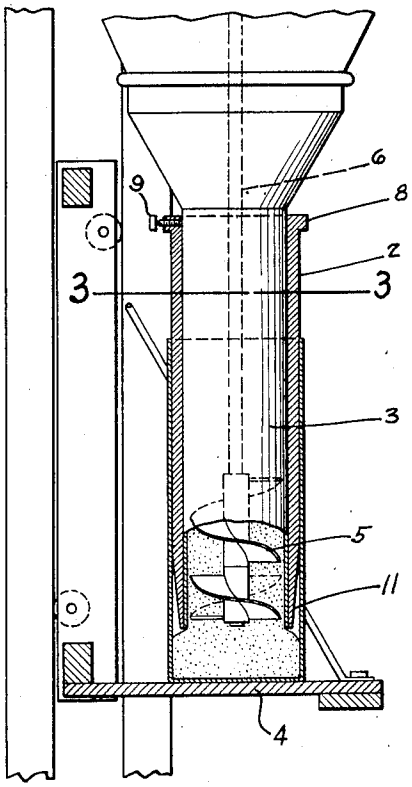


FIG. 1

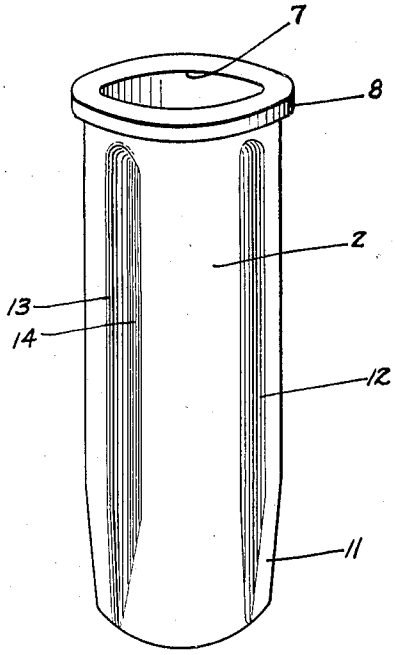


FIG. 2

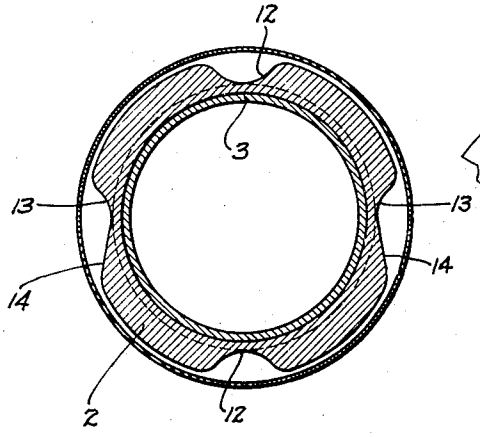


FIG. 3

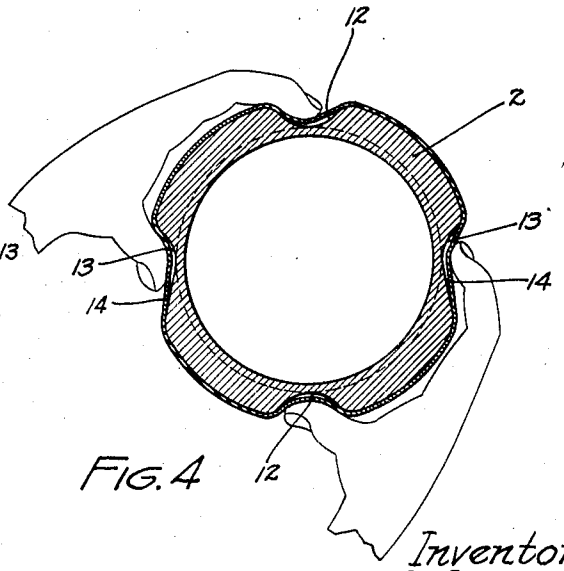


FIG. 4

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PACKING MACHINE

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2 Claims. (Cl. 226—47)

This invention relates to new and useful improvements in packing machines, generally, and more particularly to such machines of the type comprising a filling tube adapted to be inserted into the bag or container to be filled.

An object of the invention is to provide an attachment for the filling tube of a packing machine whereby when said tube is inserted into an empty bag or container, the latter will be substantially axially alined therewith so that the material will be delivered into the center of the bag.

A further object is to provide in combination with a packing machine including a filling tube, a tubular member adapted to be fitted over said tube to enlarge the diameter thereof, and said member having means in the periphery thereof for taking up slack in the walls of the bag mouth to prevent the material from discharging from the top of the bag during the filling operation.

A further object is to provide an attachment for the filling tube of a packing machine, comprising a tubular member adapted to be fitted over said tube and secured thereto in fixed relation, said tubular member having a plurality of longitudinally extending flutes or grooves in the periphery thereof into which the walls of the bag mouth may be pressed to take up the slack therein, and whereby the joint between the bag mouth walls and the periphery of said member will be substantially sealed, thereby preventing material from discharging from the top of the bag during the filling operation, and the lower portion of said member being tapered to facilitate the insertion of the member into an empty bag or container.

A further object is to provide a sleeve adapted to be fitted over the usual filling tube of an ordinary auger type packing machine, whereby paper bags or sacks may be filled with flour or other finely pulverized materials in a manner to cause the powdered material to be packed into the bag uniformly tight from the bottom thereof clear up to the top level of the material therein, and without danger of damaging or wrinkling the walls of the bag mouth, thereby permitting the bag mouth walls to subsequently be folded into a smooth neat appearing closure.

A further object is to provide a member adapted to be used in connection with the filling tube of a packing machine, and over which the bag or container to be filled is loosely fitted, and the diameter of said member being such as to cause the bag or container to be filled, to be substantially axially aligned with the filling tube, whereby the material will be delivered into the center of the bag in a manner to cause it to be uniformly packed against the bag walls the entire circumference thereof, thereby providing a well-shaped and neat appearing bag body, and means being provided in the construction of said member whereby slack in the bag mouth walls may be taken up to prevent leakage of the material from the bag top, during the filling operation, and also whereby air may be admitted into the filled bag from the open top thereof, during the removal of the filled bag from said member.

Other objects of the invention will appear from the following description and accompanying drawing and will be pointed out in the annexed claims.

In the accompanying drawing, there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawing:

Figure 1 is a detail sectional view showing only a portion of a conventional type of packing machine, and the improved attachment being shown mounted upon the filling tube thereof;

Figure 2 is a perspective view showing the attachment removed from the packing machine;

Figure 3 is an enlarged detail sectional view on the line 3—3 of Figure 1, with some of the parts omitted, showing the position of the bag mouth wall, when initially fitted over the tubular member; and

Figure 4 is a view similar to Figure 3, showing the manner of taking up the slack in the bag mouth wall.

Flour and other finely pulverized materials which are frequently packed on conventional type auger packers, often have entrained therein a considerable quantity of free air, making the material quite fluffy. As the air-filled material is packed or compressed into a container by means of the usual auger of the packing machine, the major portion of the air entrained therein is forced out of the material, and tends to carry with it up around the packing tube of the machine and out of the top of the bag, quantities of the powdered material. This phenomena, in the milling trade, is commonly called "spouting" or "boiling."

In order to overcome this objectionable spouting of the material from the bag top, the usual practice heretofore has been for the operator to

pull the bag up around the packing tube and then grasp the bag mouth walls in such a way as to take up the slack therein and thereby pull the walls of the bag mouth into reasonably tight contact with the periphery of the filling tube. When the bag is thus held upon the filling tube and the packing operation takes place, the pulverized material cannot spout or boil out of the top of the bag, and the free air entrained with the material will then be forced through the walls of the bag, which walls are porous to a considerable degree. The grasping of the bag top walls must necessarily be done with sufficient force to draw the bag walls into tight contact with the periphery of the filling tube and often results in the formation of numerous very pronounced wrinkles in the bag mouth walls. These wrinkles are objectionable, because they interfere with the subsequent closing of the bag mouth walls particularly, when the bag tops are closed and sealed in the manner disclosed in the pending applications of Daniel Belcher, Serial No. 451,702, filed May 12, 1930, and Serial No. 514,540, filed February 9, 1931. It is therefore desirable that means be provided whereby this objectionable feature of wrinkling the walls of the bag mouth, during the filling operation of the bag, may be dispensed with.

The novel attachment featured in this invention is particularly applicable for use in connection with ordinary bag filling machines of the auger type, as hereinbefore stated, and comprises a tubular member or sleeve 2 adapted to be fitted over the usual filling tube 3 of the packing machine, as shown in Figure 1. The packing machine here shown is of ordinary construction, and comprises a platform 4 which usually is mounted for vertical movement by suitable means, not shown. A packing auger 5 is provided within the filling tube 3 and is driven by means of a shaft 6 having an operative connection with the driving mechanism of the packer, not shown.

The tubular member or sleeve 2 has a bore 7 adapted to receive the filling tube 3 of the packing machine, and the diameter of this bore is such as to snugly fit said tube. An annular reinforcing flange 8 may be provided at the upper end of the member 2 having a suitable set screw 9 mounted therein, whereby the tubular member 2 may be rigidly secured to the tube 3. In some instances, the sleeve may be retained upon the tube by friction. The lower end portion 11 of the tubular member 2 is tapered, as shown in Figures 1 and 2, to facilitate initially slipping the empty bag over said member, and the outside diameter thereof is slightly less than the diameter of the bag, when the latter is unfolded or extended, so that the bag may readily be slipped onto the tube.

To prevent the powdered material from spouting from the top of the bag during the filling operation, means are provided whereby the joint between the bag top walls and the periphery of the tubular member 2 may be substantially sealed. Such means are shown in Figures 2, 3, and 4, and comprises a plurality of longitudinally extending flutes or grooves 12—12 and 13—13, formed in the periphery of the tubular member 2. The grooves 12—12 are preferably formed as best shown in Figure 3, while the grooves 13—13 are made relatively wider for the purpose of facilitating manually slipping the empty bag over the tubular member. By widening the grooves 13—13, as indicated at 14, the thumbs of the operator's hands, when he grasps the upper edge of the bag top, may conveniently slide or move upwardly in said grooves while pulling the bag upwardly onto the sleeve or tubular member 2. When the bag has been pulled onto the sleeve 2, the platform 4 is raised to the position, shown in Figure 1, by the usual operating mechanism, not shown.

Before the filling operation is started, the operator will place his hands about the bag top, as shown in Figure 4, whereby the thumb and fingers of one hand will press the bag top walls into the front groove 12 and right hand groove 13 and, at the same time, the thumb and fingers of the left hand will press portions of the bag top walls into the grooves 13 and 12, respectively, at the opposite side of the sleeve, thereby substantially taking up all slack in the bag top walls, and forcing said walls into tight contact with the periphery of the tubular member 2. When the bag is thus supported upon the filling tube of the packing machine, the material cannot spout from the bag top, and the material will also be packed into the bag substantially in the center thereof so that it will be uniformly packed in the entire body of the bag clear up to the level of the material therein, which will be readily understood by reference to Figure 1. During the filling operation, the platform 4 will be gradually forced downwardly by the bag in the usual manner, because of the material being packed firmly into the bag. The operator will retain his or her grasp upon the bag top walls until the bag is filled and the operating mechanism of the packer is actuated to stop the filling operation.

The invention herein disclosed is very simple and inexpensive and may be manufactured at a very small cost. By its use in connection with a packing machine, the material will be packed uniformly into the bag and the upper wall portions of the bag will not be damaged or wrinkled so that when the bag is subsequently sealed, a smooth and neat appearing closure may be formed. The sleeve is, of course, furnished in different sizes corresponding to the various sizes of filling tubes used on packing machines. They are preferably made of cast metal, and each is bored to fit the diameter of a certain size filling tube. The attachment may be fitted onto the filling tube of the packer without, in any way, altering the construction of the packing machine.

I claim as my invention:

1. In a packing machine, a filling tube adapted to be inserted into the mouth of a bag and through which material may be packed into the bag, said tube having a pair of oppositely disposed, longitudinally extending grooves in its periphery, and a second pair of oppositely disposed, longitudinally extending grooves in the periphery of said tubes arranged in substantially right angular relation to said first mentioned pair of grooves, and all of said grooves being shaped to receive the fingers of an operator, whereby when a bag is fitted over said tube, the operator may press the walls of the bag top into the bottoms of said grooves to thereby substantially seal the joint between the walls of the bag top and said tube to prevent spouting of the material from the bag top during the filling operation.

2. In a packing machine, a filling tube adapted to be inserted into the mouth of a bag and having means therein for packing pulverized material into the bag, said tube having a pair of oppositely disposed, longitudinally extending grooves in its periphery, and a second pair of oppositely disposed, longitudinally extending grooves in the periphery of said tube arranged in substantially right an-

gular relation to said first mentioned pair of grooves, and the grooves of one of said pairs of grooves being relatively larger than the grooves of the other pair, and all of said grooves being so shaped that when a bag is fitted over said tube, an operator may seal the joint between the periphery of the tube and the bag walls by pressing portions of the walls of the bag into the grooves with his thumb and fingers to thereby prevent spouting of the material from the bag top during the filling operation.

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