Dec. 2, 1941. C. C. CONWAY, JR 2,264,932

PACKING DEVICE FOR HEAVY STICKY PRODUCTS

Filed Sept. 24, 1940

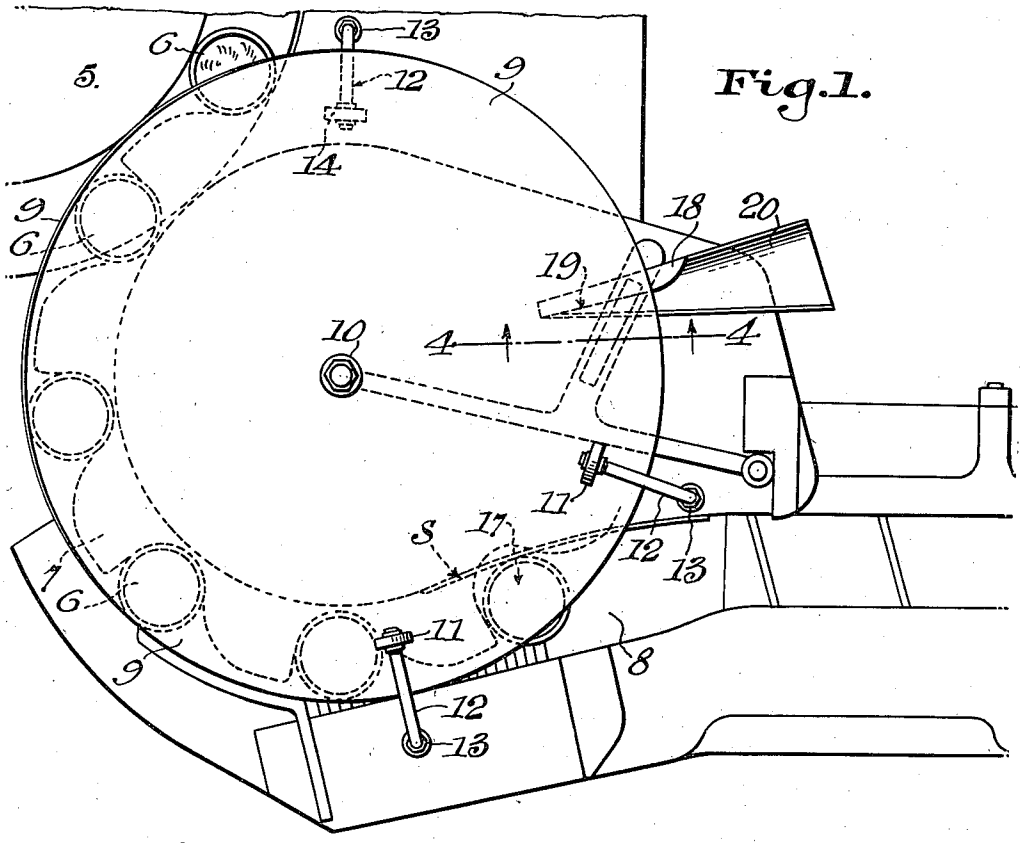


Fig.1.

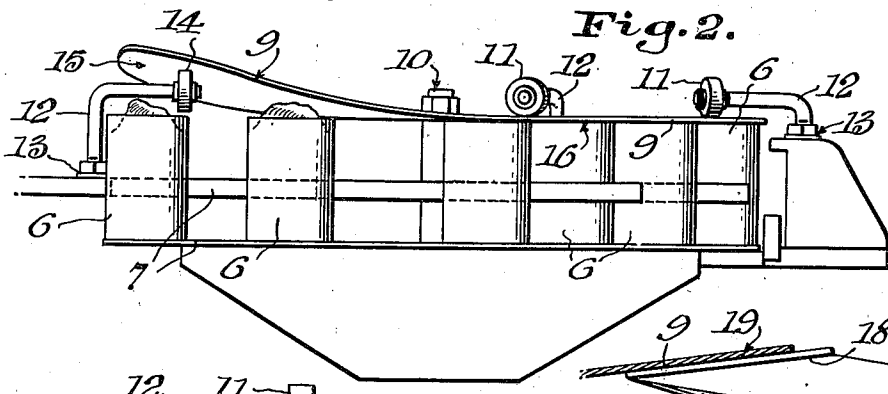


Fig.2.

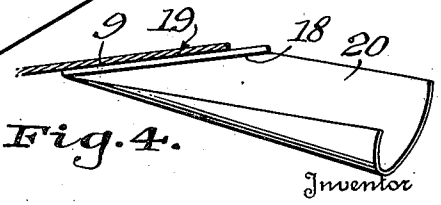


Fig.4.

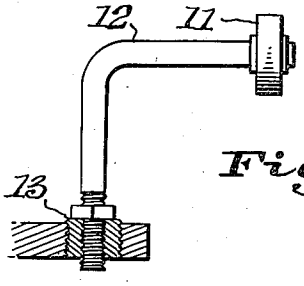


Fig.3.

Inventor

C. C. Conway, Jr.,

By Mason & Porter

Attorneys

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PACKING DEVICE FOR HEAVY STICKY PRODUCTS

Carle C. Conway, Jr., Scarborough, N. Y., assignor to Continental Can Company, Inc., New York, N. Y., a corporation of New York

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12 Claims. (Cl. 226—71)

The invention relates generally to the art of packaging heavy, sticky substances in cans or similar containers and primarily seeks to provide novel means for packing such substances in the containers in which they have been filled so that the closing or sealing of the containers can be performed with facility.

In the packaging of heavy, sticky substances, of which dog food, squash or pumpkin pie filling, or mince meat form examples, it is found that portions of the masses filled into the containers commonly project above the containers and seriously hamper efficient closing or sealing of the containers. Attempts to solve this problem have included the provision of various forms of packers, such as endless belts or reciprocable rod carried plunger pads, but these attempts have been only partially successful because these packing devices have forced the product into the containers but have subsequently lifted some of the product out of the containers due to the sticky product adhering to the packing element or elements as it is being drawn away therefrom. Therefore, it is the purpose of the present invention to provide a novel packing means which will effectively force the sticky masses down into the containers and then move away from the containers in a manner assuring against objectionable drawing away of the packed masses or substantial portions thereof.

In its more detailed nature, the invention resides in the provision of a rotor onto which the filled containers are fed, either directly or indirectly from the filling machine, and a thin flexible plate which rotates generally flatwise over the open tops of the containers and is flexed as it rotates so that a portion thereof will be elevated to permit moving containers to pass thereunder whereas another portion thereof will move down onto and in flat contact over the open tops of the containers so as to pack portions of the filled product which might be protruding from the containers down into said containers.

Another object of the invention is to provide a packing disk equipment of the character stated which rotates at like speed with the container supporting rotor over which it is mounted.

Another object of the invention is to provide means for bringing about a relative movement of the disk and containers into which material has been packed by the disk, while said disk is in contact over the open tops of said containers, whereby a wiping action will occur which will effectively prevent withdrawal by the disk of any appreciable quantity of the packed masses from the containers because of adhesion of said masses to the disk.

Another object of the invention is to provide novel, adjustably mounted roller means for effecting the desired flexing of the rotating packer disk.

Another object of the invention is to provide novel means for scraping from the under surface of the disk and recovering any of the material being packed which might adhere thereto.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by following the detailed description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawing—

Figure 1 is a somewhat diagrammatic plan view illustrating the invention.

Figure 2 is a side elevation of the packer rotor shown in Figure 1 looking at the side of the rotor onto which the containers are received.

Figure 3 is a detail vertical cross section illustrating an adjustable mounting for one of the disk flexing rollers.

Figure 4 is a fragmentary vertical cross section taken on the line 4—4 on Figure 1.

In the more or less diagrammatic illustration of a single embodiment of the invention herein made, the packing means is shown as associated with the feed table which delivers filled cans from a filling machine, but it is to be understood that this packing apparatus can be mounted over any rotor disposed to receive filled cans at one point and deliver them at another point.

In this particular example of embodiment of the invention herein illustrated, the turret of a filling machine is indicated at 5. The filled cans 6 are delivered from the turret 5 into the receiving pockets of a delivery turret or rotor 7, and from the rotor 7 the filled cans are delivered tangentially onto a take-off way 8 leading to any suitable feed away means. The filled cans are caused to move onto the take-off way 8 by engagement thereof with a stationarily supported stripper member S in the manner illustrated in Figure 1 of the drawing.

The improved packing means comprises a thin flexible disk 9, preferably of stainless metal, and this disk is secured as at 10 to rotate over and with the turret or rotor 7, it being spaced above the container supporting surface of the rotor in the manner best illustrated in Figure 2 of the drawing so as to be engageable with the open tops of containers moving about with said rotor.

In this particular illustration of the invention, the disk 9 rotates at the same speed as the rotor 7, it being secured directly to the rotor. It is to be understood, however, that the flexible disk 9 may be otherwise positioned so long as it is flexed with relation to the open tops of the containers and has the desired wiping contact therewith which is hereinafter described in detail and broadly defined in the appended claims.

In its rotation with the rotor 7, the disk 9 passes under presser rollers 11 mounted on standards 12 which are vertically-adjustably supported as at 13 so as to enable adjustments of the elevation of these rollers, and this disk also passes over one or more similarly mounted rollers 14, the latter roller equipment serving to flex the disk upwardly in the manner illustrated in Figure 2 of the drawing so as to permit filled containers with their upwardly protruding fill masses to readily pass beneath said disk and into the receiving pockets of the turret 7. This lifted condition of the disk is indicated at 15 in Figure 2 of the drawing, and after the filled containers have passed under the disk, the disk is pressed tightly against the open tops of the containers in the manner indicated at 16 in Figure 2. By pressing the disk against the open tops of the containers, the masses of sticky product protruding from the containers are packed down, and as the containers move tangentially away from the rotor 7 over the tangentially disposed feedway 8, the disk has a wiping contact with the open tops of the cans which is effective to cause the defining edges at the tops of the containers to wipe off and retain any filler substance which tends to adhere to the under surface of the disk. A container moving in this wiping contact with the packer disk 9 is indicated at 17 in Figure 1 of the drawing.

As the disk 9, lifted by the roller equipment 14, moves upwardly out of the plane from which it is effective to pack the product fill into the open tops of the containers, it is engaged by a stationarily supported scraper 18 which drags the under surface of the disk as at 19 and scrapes therefrom any of the product fill which may have adhered to the under surface of the disk. This surplus fill scraped off by the plate 9 is reclaimed by an inclined chute or trough 20.

The outstanding feature of the present invention is considered to be the provision of a packing surface which is moved into contact with the open tops of the filled containers so as to pack the fill thereinto, the packing element being so related to the traveling containers that a wiping contact between the packing member and the open tops of the containers is brought about, this wiping contact being effective to prevent objectionable adhering of the product fill to the under surface of the packing member and the carrying away of the adhering fill portions with the packing member. It is to be understood that the particular construction and arrangement of the packing member and the container-conveying devices can be variously altered without departing from the scope of the invention as defined in the appended claims.

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

1. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor, means for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, and means for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof.

2. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor, means for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, means for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, and means for bringing about relative movement between the disk and containers while the disk is engaging the open tops thereof flatwise thereby to cause the containers to wipe off and retain filled substance therein tending to adhere to the opposing surface of said disk.

3. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor, means for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, means for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, and means for delivering the containers in a generally tangential direction with respect to the flatwise engaging disk thereby to cause the containers to wipe off and retain filled substance tending to adhere to the under surface of said disk.

4. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor and secured to rotate at like speed with said rotor, means for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, and means for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof.

5. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor and secured to rotate at like speed with said rotor, means for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, means for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, and means for delivering the containers in a generally tangential direction with respect to the flatwise engaging disk thereby to cause the containers to wipe off and retain filled substance tending to adhere to the under surface of said disk.

6. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor and secured to rotate at like speed with said rotor, roller means engaging under the disk for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, and roller means disposed above the disk for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof.

7. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor and secured to rotate at like speed with said rotor, roller means engaging under the disk for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, roller means disposed above the disk for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, and means for delivering the containers in a generally tangential direction with respect to the flatwise engaging disk thereby to cause the containers to wipe off and retain filled substance tending to adhere to the under surface of said disk.

8. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor and secured to rotate at like speed with said rotor, roller means engaging under the disk for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, roller means disposed above the disk for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, means for delivering the containers in a generally tangential direction with respect to the flatwise engaging disk thereby to cause the containers to wipe off and retain filled substance tending to adhere to the under surface of said disk, and means for vertically-adjustably supporting said roller means.

9. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor, means for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, means for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, means for bringing about relative movement between the disk and containers while the disk is engaging the open tops thereof flatwise thereby to cause the containers to wipe off and retain filled substance therein tending to adhere to the opposing surface of said disk, and means for scraping off and reclaiming any of the container filling substance which might adhere to the under surface of said disk.

10. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk closely overlying the open tops of containers on said rotor and secured to rotate at like speed with said rotor, roller means engaging under the disk for flexing the disk upwardly above the containers at the place where they are fed onto the rotor, roller means disposed above the disk for pressing the disk flatwise onto the open tops of containers traveling on said rotor for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, means for delivering the containers in a generally tangential direction with respect to the flatwise engaging disk thereby to cause the containers to wipe off and retain filled substance tending to adhere to the under surface of said disk, and means for scraping off and reclaiming any of the container filling substance which might adhere to the under surface of said disk.

11. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk overlying the rotor at at least one part of the path of rotation thereof, means for causing said disk to move flatwise down onto filled containers at said part for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, and means for causing said disk and filled and packed containers to engage in wiping contact to prevent carrying away by the disk of container filler substance tending to adhere to said disk.

12. In apparatus for packing heavy sticky substances in containers, a rotor onto which the filled containers are fed to be packed and from which they are discharged after being packed, a flexible disk overlying and movable at the same speed with said rotor, means for causing said disk to move flatwise down onto filled containers at a point for packing into said containers any of the filled substance therein which might be protruding from the open tops thereof, and means for moving the containers tangentially from the rotor while they are engaged in wiping contact with said disk thereby to prevent carrying away by the disk of container filler substance tending to adhere to said disk.

CARLE C. CONWAY, JR.