Oct. 25, 1932. H. L. GUENTHER 1,884,666

CAN PACKER

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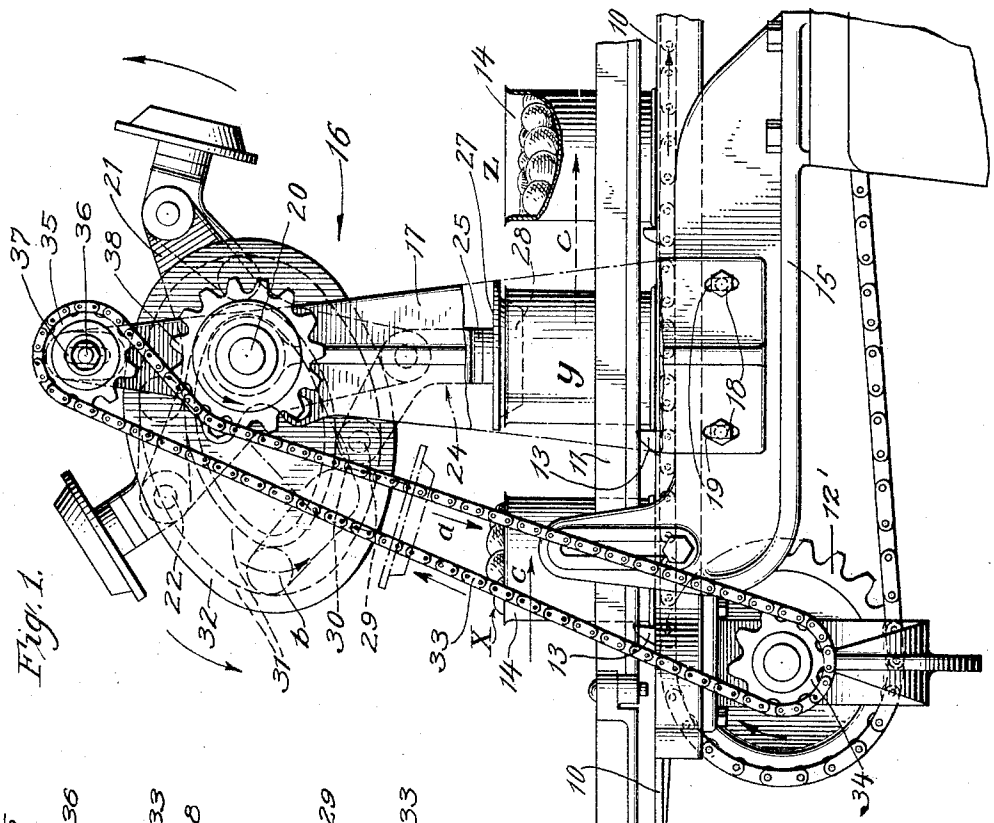


Fig. 1.

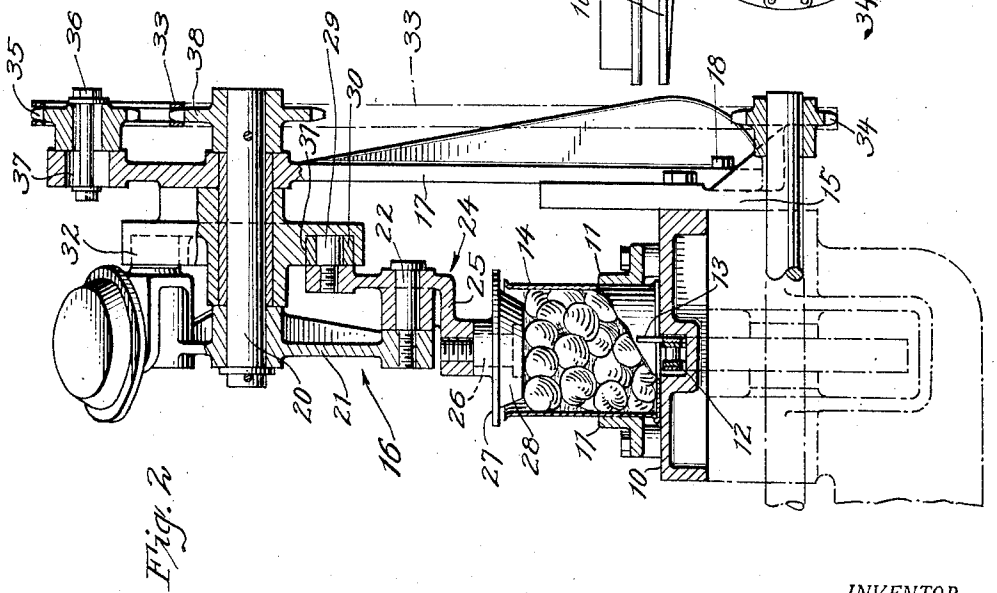


Fig. 2.

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CAN PACKER

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This invention relates to canning machinery, and particularly pertains to an automatic can packer adapted to operate in conjunction with a double seaming machine.

In the canning of various products, particularly fruits, and the like, the cans are filled to overflowing and slices of the fruit usually are projected above the mouth of the can making it necessary to compress the material prior to, or when the cap is applied to the can and double seamed thereon.

It is the principal object of the present invention to provide means disposed along the route of the filled cans to the seaming machine for automatically packing the material into the can and compressing it to a level below the top of the can.

The present invention contemplates the provision of packing members adapted to register with a can traveling on a lineal path of travel and to move with the can for a distance therealong while forcing the contents of the can into a packed condition.

The invention is illustrated by way of example in the accompanying drawing, in which:

Fig. 1 is a view in side elevation showing the present invention and the manner in which it operates.

Fig. 2 is a view in end elevation showing the relation of the operating parts of the invention.

Referring more particularly to the drawing, 10 indicates the floor of a runway defined by siderails 11. Cans are fed along this runway by a conveyor chain 12 which at its one end runs over a sprocket wheel 12′ while the other end of the conveyor chain runs over a second sprocket wheel (not shown in the drawing) which in the present arrangement would be the driving wheel for the conveyor chain and in turn the power source for the operation of the packer, to be hereinafter described. The chain 12 has flights 13 which engage cans 14 and positively feed them in a horizontal lineal path of travel. A bracket structure 15 is provided to secure a can packer unit 16 in position at the side of the path of travel of the cans. This bracket carries a vertical standard 17 secured thereto by cap screws 18 extending through slotted openings 19, and by which the packer structure may be adjusted with relation to the mouth of the cans to be packed. Secured in a horizontally extending position and supported by the standard 17 is a shaft 20 carrying a spider 21. This spider is here formed as having three radial arms disposed in equal angular relation to each other around the axis of the shaft. Pins 22 extend horizontally through bosses formed at the ends of the radial arms of the spider 21 to pivotally support packing members 24. These include an angle shaped lever 25, the vertical leg of which receives a pin 22 and an outwardly and horizontally extending leg of which receives a vertical pin 26. Upon this pin is mounted a packing disc 27 having an annular flange of greater diameter than the mouth of the can to be packed and being provided with a frusto conical projecting portion 28 adapted to extend into the mouth of the can being packed and to force the material therein to a level lower than the plane of the mouth of the can. The vertically extending leg of the lever 25 carries a pin 29 upon which is mounted a cam roller 30. The roller 30 of each of the levers 25 extends into a groove 31 of a substantially elliptical faced cam 32. This cam is secured to the side of the standard 17 and is disposed with its face parallel to the plane of travel of the levers 25 and the rotation of the spider 21.

The packing unit is suitably driven by a belt or chain 33 which passes around a driving member 34 and is led upwardly and over a driven member 35. This last named member is mounted upon a shaft 36 adjustably secured in an elongated vertical slot 37 formed in the upper end of the standard 17. The chain or belt after passing over the driven member 35, is led downwardly and around a spider drive wheel 38 and is in engagement therewith. The chain travels in the direction of the arrow "a" as indicated in Fig. 1, thus causing the drive wheel 38, the shaft 20 and the spider 21 to move in the direction of the arrow "b" as indicated in Fig. 1, so that the packing members will move into and pur-

sue coincident paths of travel with the tops of the cans as the cans move along a horizontally lineal path of travel.

In view of the necessity for the packers to gradually press downwardly upon the fruit in a can which is approaching the intersection of its path of travel with the vertical axis of the spider 21, it is necessary to insure that the packing members will move in a path of travel substantially parallel to the path of travel of the mouth of the can during the period of packing, and for that reason the packing members have been articulately connected to the spider 21 and are actuated by the cam to insure that the packers while moving on the lower half of their cycle of travel will travel along a flattened arc as compared with the normal radial arc which the packers would follow if they were rigidly connected to the arms of the spider. In order to accomplish this, the elliptical cam 32 has been provided with a substantially elliptical groove to receive the rollers 30 and this groove has been offset so that its minor axis is substantially coincident with the axis of rotation of the shaft 20 and so that its major axis will extend forwardly and downwardly with relation to the axis of the shaft.

In operation of the present invention a double seaming machine is set up and is equipped with a can conveyor means and the packer here disclosed. The filled cans are then positively fed along the runway between the rails 11 and when they reach station "*x*", a packing disc 27 will be disposed thereabove and will advance substantially in unison therewith. As the can continues to travel in the direction of the arrow "*c*" the packer will be gradually lowered into the mouth of the can until the intermediate station "*y*" is reached, at which time the frusto conical projecting portion 28 of the packing disc 27 will be exactly in register with the mouth of the can and will project thereinto a predetermined distance. The can and packer will then continue along paths of travel in the same vertical plane until the station "*z*" is reached, at which time the packer will be elevated free of the can and will permit the packed can to proceed to the double seaming machine where a cap may be readily applied thereto and assembled therewith.

It will thus be seen by the construction here disclosed that an automatically operating can packing device will be provided which is of few simple parts not liable to get out of order, and which will act effectively and without strain to pack cans as they pass in an uninterrupted flow to a double seaming machine.

While I have shown the preferred form of my invention as now known to me, it will be understood that various changes may be made in the combination, construction and arrangement of parts by those skilled in the art, without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A can packer adapted to press the contents of a can to a level below the mouth thereof as the can moves in a lineal horizontal path of travel, which consists of a plurality of packing members moving in a vertical plane around a common axis, and means whereby said members may be caused to register with the can and travel in unison therewith and in a plane substantially parallel to the path of travel thereof for a predetermined distance, said last named means including a rotary carrier having the packing members mounted on it and a non-circular guide operatively connected with the packing members for modifying the rotary movement imparted to the same by the carrier.

2. A can packing device comprising a plurality of packing members, a spider upon which they are articulately connected, means for rotating the spider around a horizontal axis, and means including a fixed non-circular guide operatively connected with and acting upon said articulately mounted packers to modify the rotary movement imparted to the packers by the spider whereby they may be maintained in a substantially horizontally aligned position during the lowermost portion of their travel with the spider.

3. A can packing device comprising a plurality of packing members, a spider upon which they are articulately connected, means for rotating the spider around a horizontal axis, means including a fixed non-circular guide operatively connected with and acting upon said articulately mounted packers and modifying the rotary movement imparted to the packers by the said spider whereby they may be maintained in a substantially horizontally aligned position during the lowermost portion of their travel with the spider, and whereby they may move downwardly into the mouth of a can and then recede therefrom while traveling in said horizontally aligned position and along a plane parallel to the path of travel of the can.

4. A can packing device comprising a means for feeding cans horizontally and in a lineal direction, a spider disposed over the path of travel of the cans and in a vertical plane parallel to said path of travel, a plurality of bell cranks pivotally mounted at the outer ends of the arms of the spider and adapted to swing in a vertical plane, a can packer carried on the end of one arm of each of said bell cranks, an elliptical cam, a roller on the opposite arm of each of said bell cranks adapted to travel along the spaced groove of said cam, and means for driving the spider in synchronism with the feed mechanism of the cans whereby the packing

devices will move downwardly into the mouth of the can and will be maintained in a horizontally aligned position as they advance with the can for a distance along its path of travel.

5. A can packing device comprising in combination, a conveyor to move cans in a lineal direction, a base, a vertical standard along side the path of travel of said cans, a spider revolvable in said standard, an elliptical guide in fixed relation to said standard, packer heads articulately supported on said spider, and means for operatively connecting the packer heads with the elliptical guide whereby the packers will be caused to travel along a substantially lineal path parallel with the cans during their lowermost travel in the cycle of operation.

6. In combination with a can conveyor to move cans in a lineal direction, a packing device comprising a vertical standard, a spider journaled in said standard, packer heads articulately supported by said spider, an elliptical guide in fixed relation to said standard, and means forming an operative connection between said packer heads and said guide to cause said heads in their lowermost travel to move in a substantially horizontal direction.

7. In combination with a can conveyor to move cans in a lineal direction, a packing device having a supporting frame, a plurality of articulated packer heads rotatably supported in said frame, an elliptical cam in fixed relation to said frame and means to cause said packer heads to follow said cam to effect a substantially lineal horizontal packer head travel when said packer heads are below the medial horizontal plane of said cam.

8. In combination with a can conveyor to move cans in a lineal direction, a packing device comprising a vertical standard, articulated packer heads rotatably supported in said standard, a guide in fixed relation to said standard, means to rotate said packer heads in synchronism with equally spaced points on said conveyor, and means for operatively connecting the packer heads with the guide for modifying the rotary movement imparted to the packer heads to cause said packer heads in their lower sweep to move in a relatively flattened arc.

9. In combination with a conveyor to move cans in a lineal direction, a packing device comprising a supporting structure, articulated packer heads rotatably supported in said structure, a guide in fixed relation to said supporting structure, means forming an operative connection between said packer heads and said guide to modify the rotary movement imparted to the packer heads to cause said packer heads in their lower sweep to transverse the course of a flattened arc, and means synchronizing the movement of said packer heads with lineally moving cans in relative spaced relation on said conveyor.

10. In combination with a conveyor to move cans in a lineal direction, a packer comprising a supporting structure, articulated packer heads rotatably supported in said structure, an elliptical guide in fixed relation to said structure, means to cause said packer heads to move in synchronized relation with cans on said conveyor and means operatively connecting the packer heads with the elliptical guide for modifying the rotary movement imparted to the packer heads operating between said packer heads and said guide to cause said packer heads to be in a substantially horizontal plane during the lower sweep of said packer heads.

HENRY L. GUENTHER.