June 8, 1937. A. A. GARNERO 2,082,882

AUTOMATIC STOP MECHANISM FOR CANNING APPARATUS

Filed Dec. 30, 1935 2 Sheets-Sheet 1

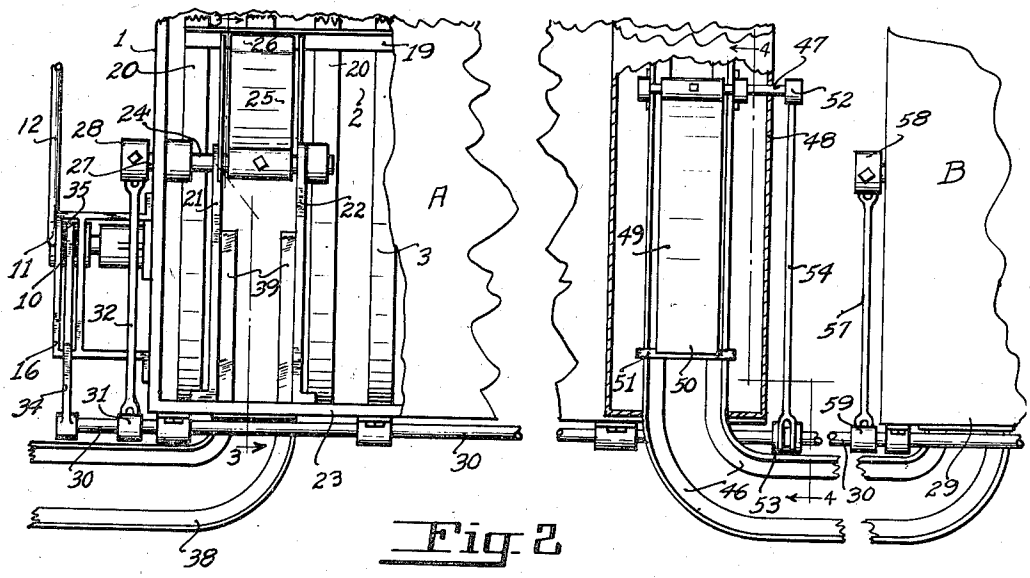



Fig. 2

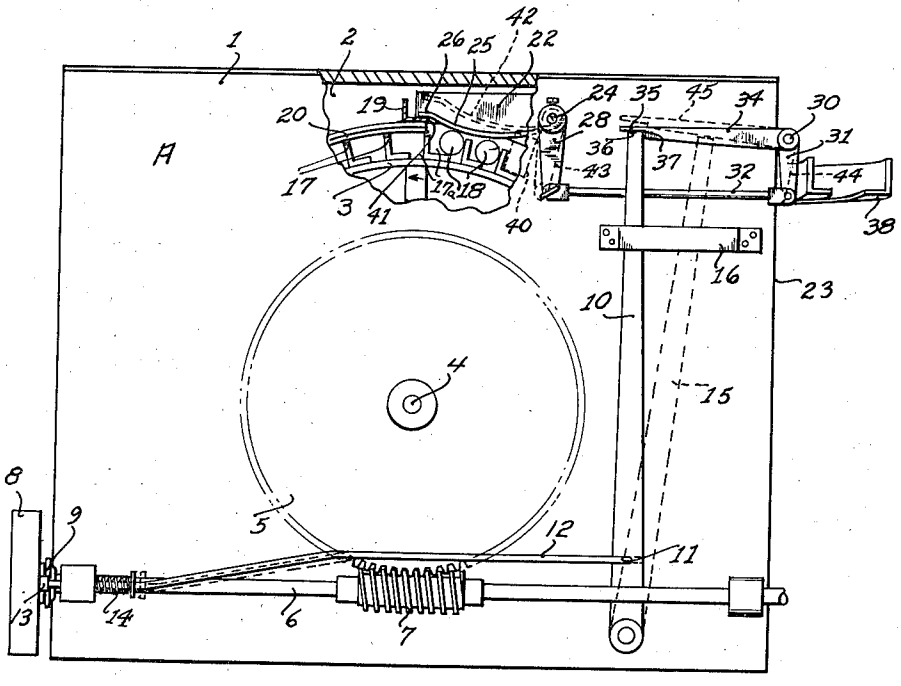



Fig. 1

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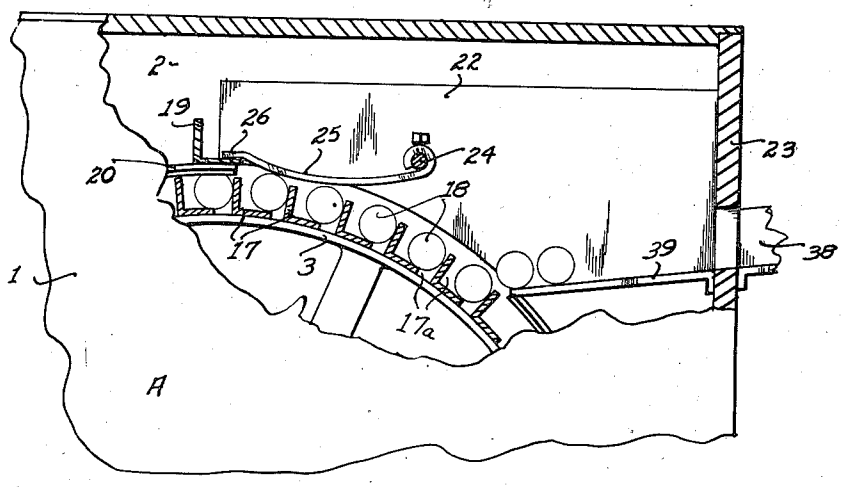



Fig. 3

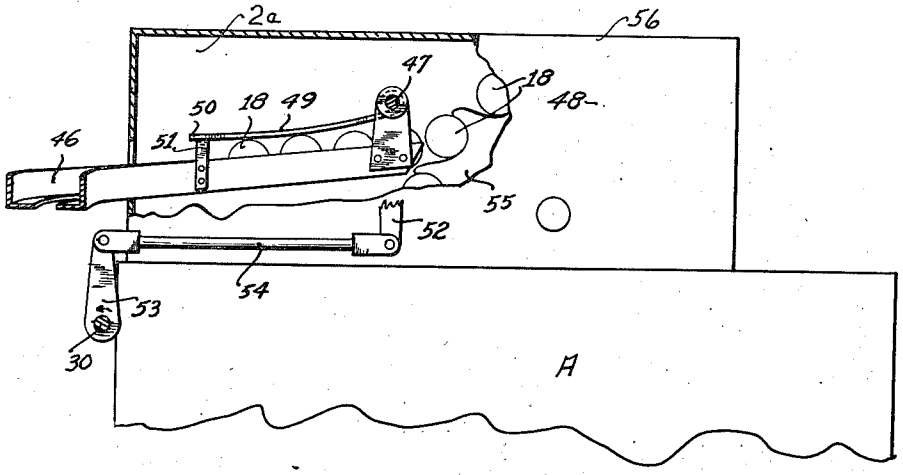



Fig. 4

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2,082,882

## AUTOMATIC STOP MECHANISM FOR CANNING APPARATUS

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Application December 30, 1935, Serial No. 56,752

5 Claims. (Cl. 192—125)

This invention relates in general to safety devices which are automatically actuated by the apparatus with which they are associated and relates specifically to mechanism intended to automatically stop the canning apparatus when the normal operating steps are in any way disturbed.

The invention is primarily intended for use in conjunction with continuous steam cookers, both of the variable and extractor discharge types, and with continuous coolers and has for its main object the provision of means for automatically stopping the operation of such cookers and coolers, when any containers therein are not in their normal position.

An important object of my invention is to provide means associated with continuous steam cookers and coolers intended to immediately stop the movement of the cooker and cooler when the containers are out of proper alignment and position.

Another object of my invention is to provide automatic means for tripping the clutch mechanism associated with continuous steam cookers in case the mechanism inside the cooker is about to be jammed by a container to thereby stop the operation of said mechanism.

A further object of the invention is to provide means both at the entrance and discharge end of continuous steam cookers for preventing the jamming of the cooking apparatus.

Another object of the invention is to provide means at the entrance of a continuous cooler for preventing the jamming of the cooling apparatus.

As the following detailed description unfolds itself, other objects and advantages of my invention will become apparent, especially when examined and read in conjunction with the accompanying drawings which illustrate but one example by which my invention may be practiced and in which:

Figure 1 is a front elevation of a rotary type continuous cooker showing a portion of the structure embodying the principles of my invention, a portion of the cooker being broken away to show both the normal position of the food containers and showing in dotted line the abnormal position of a food container.

Figure 2 is a top plan view, partly in section, and partly broken away, showing the relative relationship of the structure contained in a rotary type continuous cooker and a rotary type continuous cooler.

Figure 3 is an end view, partially in section, and partially broken away, taken on line 3—3 of Figure 2 looking in the direction indicated, showing a portion of the inside of a rotary type continuous cooker and graphically illustrating the normal position which the food containers assume on the periphery of the spiral drum and also showing part of the mechanism embodying the principles of my invention in its relation to the said drum.

Figure 4 is an end view, partially in section, and partially broken away, taken on line 4—4 of Figure 2 looking in the direction indicated, illustrating the application of the principles of my invention to the extracting mechanism of a rotary type continuous cooker.

Like reference characters refer to similar parts throughout the several views.

The continuous cooker to which my invention has been applied by way of example is designated in the drawings by reference character A and the continuous cooler to which my invention is also applied is designated by reference character B. The invention as applied to the continuous rotary type cooker, generally designated by reference character A, is shown, in part, in Figure 1 wherein reference numeral 1 designates the front end wall of cooker A, reference character 2 designates the interior of the cooker A, and reference character 3 designates the spiral drum which rotates within the interior 2 of the cooker on drive shaft 4. Drive shaft 4 has secured thereto, adjacent the front end 1, gear wheel 5. Shaft 6 is disposed transversely of the front end 1 and is rotatably secured thereto in any well known manner. Worm 7 is secured upon shaft 6 so that its gears are aligned and mesh with the gears of gear wheel 5. Power wheel 8 is joined to one end of shaft 6 and is provided with clutch mechanism 9, so that the rotation of wheel 8 causes the shaft 6 to rotate and to transmit power to worm 7 and in turn to gear wheel 5 subject, however, to the actuation of clutch 9 which may disconnect wheel 8 from shaft 6.

Clutch shifting lever 10 is secured to the front end 1 in any well known manner. The end 11 of clutch shifting rod 12 is secured to lever 10 and the other end of the clutch shifting rod 12 is secured to the clutch shifting fork 13. A resilient member, such as spring 14, is disposed about rod 12 and normally urges the clutch shifting rod 12 in a direction which will cause the clutch shifting lever 10 to assume the position shown in dotted line at 15. The clutch shifting lever 10 is retained in alignment by bracket 16

which is secured in any well known manner to the front end 1.

The spiral drum 3 which rotates within the interior 2 of the cooker A has on its outer periphery a series of angle arms 17 extending longitudinally throughout the entire length of the drum. These angle arms are spirally positioned upon the drum and form channelways or tracks 17a in which containers 18 move during the cooking process when placed therein in horizontal position. Angle arm 19 is fixedly secured to and extends longitudinally of the cooker A within the interior 2. Secured to this angle arm 19 is a spiral drum 20 disposed in parallel spaced relationship to the drum 3 throughout the entire length of the cooker. This apron 20 guides the containers 18 along the channelways 17a as the drum 3 rotates in the direction shown by the arrow in Figure 1 and prevents them from leaving said channelways.

While the structure heretofore described is part of a well known rotary type continuous cooker, the description thereof is essential to the proper understanding of my invention which I am now about to describe in detail.

Supports 21 and 22 are secured to the side 23 of the cooker A in spaced relationship to each other as shown in Figure 2. A shaft 24 passes through supports 21 and 22 and front end wall 1 of cooker A and is supported with respect to these supports, and the end wall in any well known manner. Fixedly secured in any well known manner to shaft 24, is a tripping tongue 25, the end 26 of which normally rests on a portion of angle arm 19 as clearly shown in Figure 3. An arm 28 is fixedly secured to the end 27 of shaft 24 in any well known manner.

Extending along and journaled in any well known manner to side 23 of cooker A and side 29 of cooler B, is main shaft 30. Secured to main shaft 30 is arm 31 and a link 32 connects arm 28 to arm 31. A locking arm 34 is secured to and is positioned with respect to main shaft 30 so that its end 35 is in registerable alignment with the top 36 of clutch shifting lever 10. A cut-out portion 37 is formed within the locking arm 34 so that the end 36 of clutch shifting lever 10 may be positioned therein in order to maintain the clutch shifting lever 10 against the urging of spring 14 and in the position which will hold the clutch shifting fork 13 engaged within wheel 8, thus permitting the rotation of the spiral drum 3.

The containers 18 are delivered by conveyor track 38 into the interior 2 of the cooker A in a horizontal position and the inclined trackway 39, disposed within the interior 2 and secured to supports 21 and 22, receives the containers 18, and they normally roll one at a time toward the spiral drum 3 so that normally one container at a time is placed in horizontal position within each of the channelways 17a.

Frequently, a container enters into one of the channelways 17a in an upright position, as is shown at 40 in dotted line position in Figure 1. When a container assumes such a position in a channelway, as the drum 3 rotates in the direction indicated by the arrow in Figure 1, the exposed portion of the container would strike the edge 41 of angle arm 19. As a result not only is the container in question damaged, but the other containers being conveyed pile up in the interior 2 causing a serious jam and complete stoppage of the drum 3. When this occurs, the contents of all containers in the drum are destroyed by over cooking. Furthermore, since the cooker is a part of a canning process, all other machinery must cease operation until the cooker is again in condition for operation. Sometimes, containers pile up on each other in horizontal position because they are delivered in too great quantities into the interior 2. This condition also causes trouble and there are other conditions which might arise to cause similar difficulties. It is impossible for any of these conditions to arise, when my invention is applied to cooker A. If the containers 18 fail to assume their normal horizontal positions within the channelways 17a, tripping tongue 25 is raised in a position similar to that shown in dotted line at 42 in Figure 1. Since tongue 25 and arm 28 are both secured to shaft 24, arm 28 is placed in the position shown in dotted line at 43 in Figure 1. Since arm 31 is secured to arm 28 by link 32, it is placed in the position shown in dotted line at 44 in Figure 1. Main shaft 30, therefore, is rotated sufficiently to force locking arm 34 to be raised to the position as shown in dotted line at 45 in Figure 1. When this occurs, the end 35 of clutch shifting lever 10 is released, thereby forcing the clutch lever arm 10 to assume the position as shown in dotted line at 15 due to the urging of resilient member 14 against clutch shifting rod 12 and clutch shifting fork 13 is released from wheel 8. This action stops the rotation of drum 3 and, therefore, it becomes evident that by the application of my invention, no trouble of the kind stated herein can occur.

Substantially the same principles of my invention are utilized at the discharge end of the cooker A as shown in Figures 2 and 4, wherein there is provided the usual trackway 46 leading from the interior 2a of the extractor casing 56. Journaled to trackway 46 is a shaft 47 which extends through side 48 of the extractor casing 56. A tripping tongue 49 is secured to shaft 47 in any well known manner and has its end 50 resting on an angle bar 51 secured in any manner to the sides of trackway 46. Arm 52 is secured to the exposed end of shaft 47 and another arm 53 is secured to main shaft 30. Arms 52 and 53 are joined with each other by link 54.

If, for some reason, the containers 18 being extracted from the channelways of drum 3 by extractor 55 are retarded on the trackway 46 and are not conveyed quickly enough from the extractor 55 and pile up on the trackway 46, the tripping tongue 49 is raised and main shaft 30 is rotated through the action of the arms 52 and 53 connected to each other by link 54, so that locking arm 34, secured to main shaft 30, is raised in a position shown in dotted line at 45 which causes the clutch shifting lever 10 to be released to the position shown in dotted line at 15 as heretofore stated.

It should be noted that in Figure 2 is shown a fragmentary portion of a well known cooler into the interior of which trackway 46 extends. It should also be noted that main shaft 30 is secured to side wall 29 of cooler B. Link 57, identical in construction to link 32, joins arms 58 and 59, which are identical in construction to arms 38 and 31 respectively used with cooker A. The interior of the cooler B contains the identical mechanism heretofore described in connection with cooker A, including supports, a shaft and a tripping tongue, and this mechanism performs the same function in cooler B as it does in cooker A.

The invention has been described in connec-

tion with a specific illustrative embodiment disclosing a definite arrangement of parts. However, it will be understood that variants thereof are possible to those skilled in the art, and the invention, in its broader aspect, is not limited to the specific construction herein illustrated and described, as changes in size, proportions, substitutions and combinations of forms, members and features, may be made without departing from the spirit of the invention.

Having thus described my invention, what I claim as new and upon which I desire to secure Letters Patent is:

1. Means for releasing a clutch mechanism used with apparatus of the class described, comprising a pair of supports disposed in spaced relationship to each other, a shaft passing through said supports, a tripping tongue secured to said shaft between said supports, an arm secured to the exposed end of said shaft, a main shaft, an arm secured thereto in direct alignment with the first mentioned arm, a link joining said arms together and means secured to said main shaft for locking the lever of said clutch mechanism and responsive to actuation into unlocked position, when the tripping tongue is actuated in any manner.

2. In a device of the class described, a pair of supports secured in spaced relationship with each other, a shaft journaled within said supports, a tripping tongue secured to said shaft, a second shaft, a second tripping tongue secured to said second shaft, a main shaft, a locking arm secured to one end of said shaft, a clutch mechanism associated with driving means, said clutch mechanism adapted to be normally held in engagement with the driving means by said locking arm, means secured to the first shaft for transmitting any movement of the first tripping tongue to the locking arm, means secured to the second shaft for transmitting any movement of the second tripping tongue to the locking arm, whereby, in either case, the clutch mechanism will be released from its locked position to thereby disengage the driving means.

3. In a clutch and release mechanism therefor, a shifting lever extending upwardly and normally urged to be maintained out of operative connection with the driving mechanism with which it is associated, a main shaft, a locking arm secured to said main shaft adapted to hold said shifting lever, so that the clutch mechanism will be retained in operative connection, a second shaft, means adapted to be actuated by any object coming into its path-way secured to said second shaft, and means joined to the first means and to the main shaft whereby the actuation of said first means causes the locking arm to release said shifting lever.

4. A clutch release to be used with apparatus of the class described comprising, a main shaft, a second shaft parallelly disposed with relation to the main shaft, but placed in a different horizontal plane therefrom, a locking arm secured to one end of the main shaft, said arm being in registerable alignment with the shifting lever of any conventional clutch mechanism, said locking arm having a cut-out portion therein to receive the end of said shifting lever, a pair of arms, one secured to the main shaft and the other secured to the second shaft, a link joining said arms, and a tripping tongue secured to the second shaft and disposed in the line of travel and capable of being moved by any object which comes in its path.

5. A clutch release to be used with apparatus of the class described comprising, a main shaft, two secondary shafts parallelly disposed with relation to the main shaft, but placed in a different horizontal plane therefrom, and in the same plane with respect to each other, a locking arm secured to one end of the main shaft, said arm, being in registerable alignment with the shifting lever of a clutch mechanism, said locking arm having a cut-out portion therein to receive the end of said shifting lever, a pair of arms secured to the main shaft and disposed in spaced relationship to each other, one of said arms extending upwardly and the other arm extending downwardly, a pair of arms secured to the secondary shafts, one on each of said shafts, so that said arms are in registerable alignment with the arms secured to the main shaft, a pair of links joining said arms; and a pair of tripping tongues secured to the secondary shafts and adapted for being moved by an object which comes in their paths, so that upon the movement of either one of said tongues the locking arm is removed from its engagement with the shifting lever.

ANTHONY A. GARNERO.