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2,919,532

CAPPING DEVICE FOR BUTTER TUBS

Filed April 10, 1957

2 Sheets-Sheet 1

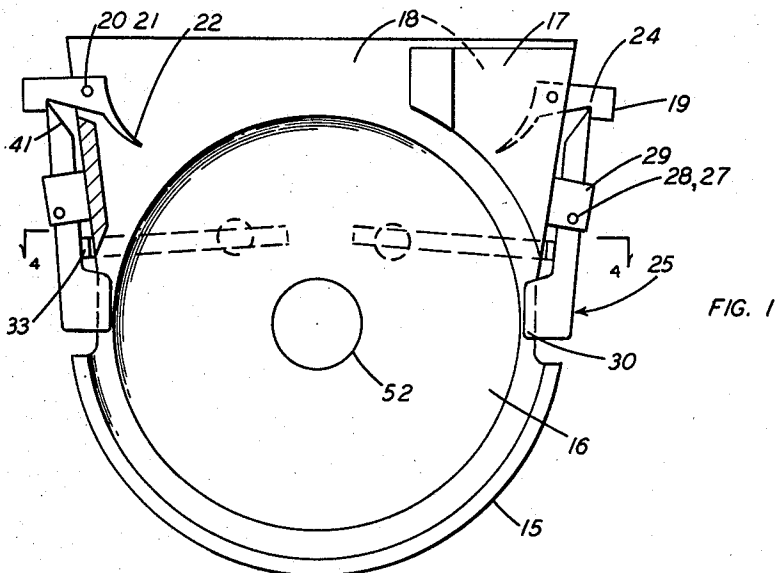


FIG. 1

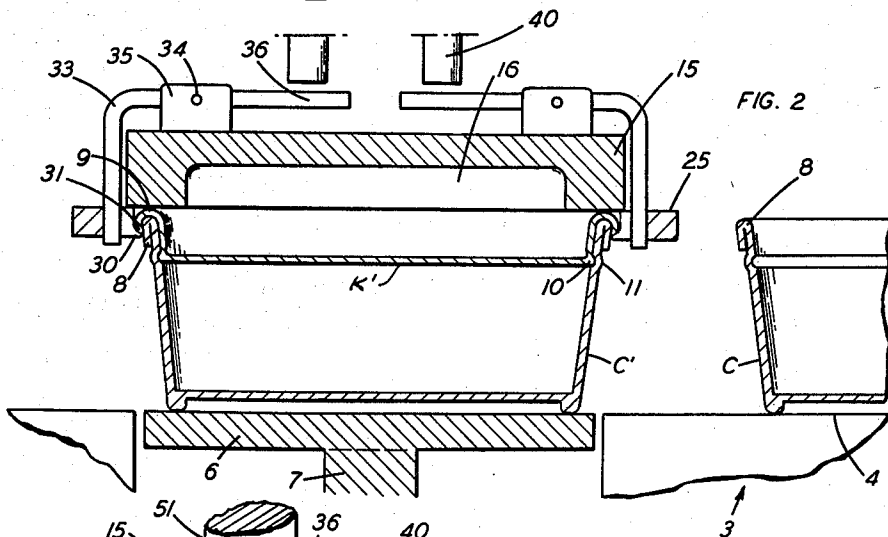


FIG. 2

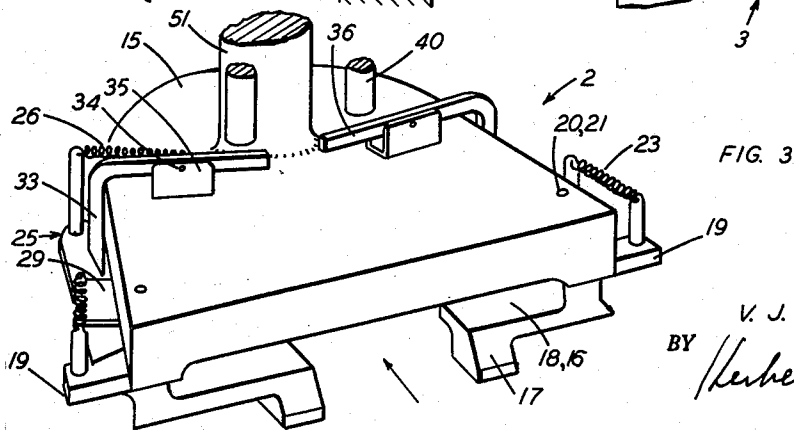


FIG. 3

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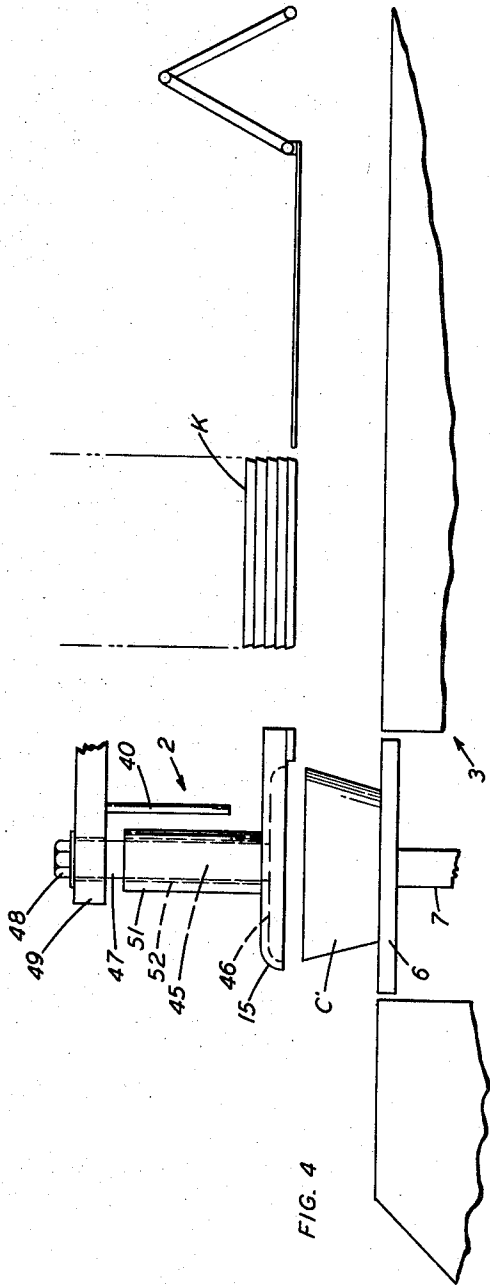


FIG. 4

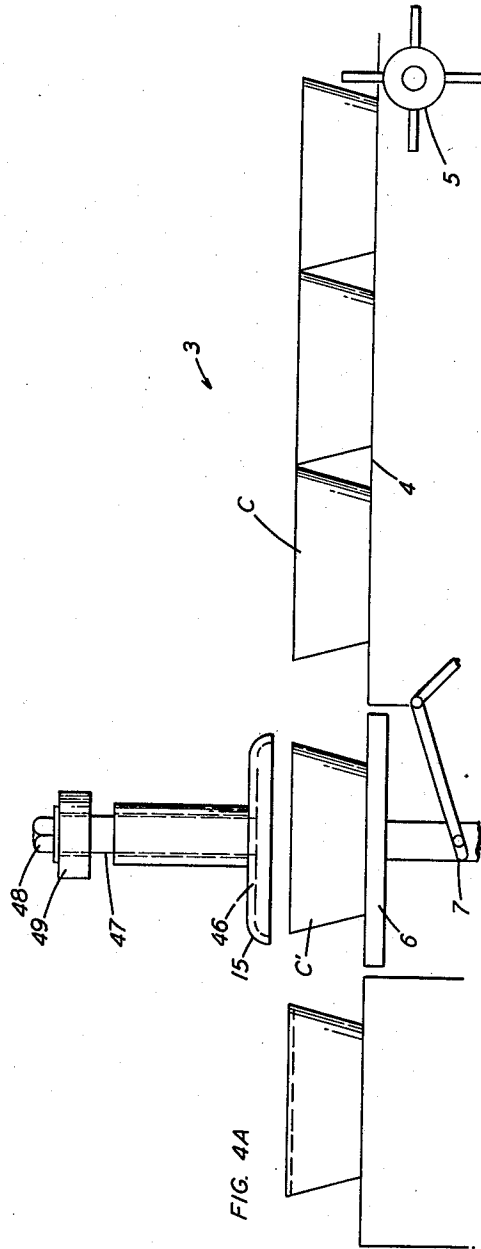


FIG. 4A

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CAPPING DEVICE FOR BUTTER TUBS

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3 Claims. (Cl. 53—310)

This invention relates generally to machines for handling packaged food products and more particularly to machines of this type for mass production sealing of filled containers by assembly line technique.

The primary object of this invention is to provide an improved device for impressing caps on filled containers which is entirely automatic once the device is put into operation.

Another object is to provide a device of this character wherein a cap will be dispensed for each container that passes therethrough even though any particular cap may fail to register precisely so that no damage will be occasioned by caps piling up in the machine.

A further object is to provide a capping bell for a capping machine in which caps will only be dispensed if a container is passing under the capping bell.

And another object is to provide a capping bell for a machine of this type wherein the upward pressure of the containers provides the force to cause the cap to release from the capping bell.

And yet another object is to provide a capping bell which is simple and economical to construct and yet one which is extremely effective for the purpose intended.

These and other objects and advantages will be apparent from an examination of the specification and drawing in which:

Figure 1 represents a bottom plan view of the capping bell of this invention.

Figure 2 is a cross sectional elevational view of the capping bell and showing associated parts in the capping machine.

Figure 3 is a perspective view taken from the rear of the capping bell and showing the cap entering guides.

Figure 4 is a side elevational view of the capping bell of this invention installed in a capping machine used to cap and seal tub-like containers.

Figure 4a is the corresponding end view of the capping bell as shown in Fig. 4.

Referring now more particularly to the characters of reference on the drawing it will be observed that the novel capping bell assembly indicated generally at 2, may be used in conventional capping machines indicated at 3 which include a track or path 4 over which containers C may be pushed or conveyed as by conveyor wheel 5 which is timed to propel containers C, one at a time, and only after a capping operation has been completed. Capping bell assembly 2 is located directly over the assembly line of moving containers and also directly over upwardly moving platform 6 so that when a specific container C' occupies the top side or platform 6 it is in direct vertical alignment with the cap K' which is held by bell assembly 2. Consequently, when container C' and platform 6 are power raised by the mechanism indicated at 7, the top reinforced circumference 8 of the container C' and the indented annulus 9 of cap K' are forced together in close binding engagement and the lower protruding ring 10 on the cap is also forced into sealing engagement with recess 11 of the container

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C'; when this operation is complete the now capped and sealed container C moves on down the assembly line to a discharge point (not shown). The novel mechanism of capping bell assembly 2 which provides the function described will be examined in detail herein.

The capping bell assembly 2 is seen in Figures 1-3 to include a bell-shaped body 15 having a cavity 16 therein and including generally L-shaped guide bars 17 attached to the lower side thereof which are so positioned as to form an open communication 18 between cavity 16 and the rear end of bell body 15 in the direction from which the caps K will be fed. A trigger 19 is pivoted on pin 20 which extends through a close fitting hole 21 from body 15 to guide bar 17. A finger 22 of the trigger 19 projects into the communication 18 at each side of the body 15 and when the trigger 19 is cocked, the finger 22 is directly in the path of an oncoming cap K so that as the cap moves into finger 22 it trips the trigger 19 against the resistance of spring 23. When the trigger 19 is cocked, its notch 24 engages and holds the rear end of cap holding latch 25 against the pressure of spring 26 which would normally tend to close latch 25 into its cap holding position as seen in Figure 1. The latch 25 is pivoted about pin 27 which may actually be a cotter pin which is inserted through aligned holes 28 in lugs 29 which project laterally from each side of body 15. The forward end of latch 25 includes an inwardly projecting lip 30 which rides under the circumferential ledge 31 of cap K' when the latter is in the position shown in Figure 2. Looking at the bottom plan view in Figure 1, the sequence of operation may be followed; i.e., as caps K move in the direction of the arrow (k) they enter into communication 18 and upon further movement will depress finger 22 and trip trigger 19 to thus release latch 25 so that its spring 26 will cause the forward end lip 30 to move inward until the inside edge of latch 25 has contacted the lower end of L-shaped release lever 33. Since this lever 33 is pivoted about pin 34 situated at the upper section of a U-shaped bracket 35, its free end 36 will move upward to an approximately horizontal position when the opposite end is moved inward to its maximum position at which point latch 25, the lower end of lever 33, and the lateral side of body 15 will all be in binding contact. With the latch 25 in its innermost position the cap K' can pass into its final position in cavity 16 preparatory to be placed on container C'.

Referring now to Figures 2 and 4, the action involved in the capping operation is first the simultaneous positioning of cap K' in cavity 16 and the positioning of container C' directly thereunder on platform 6. The next action is the upward movement of platform 6, as previously described, which carries container C' up into cap K' and then further upward movement carries both the container, cap and body 15 upward until the free ends 36 of levers 33 abut the lower end of stationary release rods 40 with sufficient force to move the lower ends of levers 33 and the forward ends of latches 25 outward until the inclined end 41 of the latter has moved trigger 19 sufficiently to recock the trigger and place the mechanism into the same position as shown in Figure 1. When this occurs, the container and cap drop back down to platform 6 and are moved along the assembly line once again. To facilitate the capping operation, a brass plunger 45 having a lower cap conforming disk 46 and an upstanding post 47, is inserted in and provides the core for the capping bell to move on and be supported by. The upper end of post 47 is threaded and is engaged by a lock nut 48 which suspends the plunger 45 from a cantilever arm 49 of the stationary part of the frame of machine 3. Plunger disk 46 snugly engages the center cavity of cap K' and also fits into the cavity 16 of bell body 15, and plunger post 47 extends through and

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slidably guides an upstanding hollow cylinder 51 on bell body 15. The engagement of post 47 in cantilever arm 49 is through a vertical guide hole 52 and this construction insures that the capping operation will be accomplished by the vertical movement in unison of the platform 6, container C', cap K', plunger 45 and end bell body 15 against the resistance offered by the cantilever arm 49.

The invention is not limited to the exemplary construction herein shown and described, but may be made in various ways within the scope of the appended claims.

What is claimed is:

1. In a capping machine including a conveyor line for containers and a cap feeding mechanism thereabove, a cap receiving body above said conveyor and positioned to receive caps from said cap feeding mechanism, a vertically movable platform in said conveyor line beneath said body, a depending post above said body, a hollow cylinder on said body and in sliding engagement with said post, spring loaded holding latches pivotally mounted on

opposite sides of said body and positioned to receive and holding a cap therebetween, and means releasing said cap when said platform is raised, said releasing means comprising L-shaped levers mounted on the top of said body and in engagement with said latches, and stationary means above said levers positioned to engage the same when said body is raised.

2. The construction defined in claim 1, and wherein said loaded holding latches include inwardly projecting lips positioned to engage opposite lower circumferential edges of the cap received therebetween.

3. The construction defined in claim 1 wherein said stationary means includes depending stationary release rods above the inner ends of said L-shaped levers.

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