

Mar. 3, 1925.

1,528,544

D. M. HAUGER

CONTAINER HANDLING APPARATUS

Filed Aug. 31, 1923

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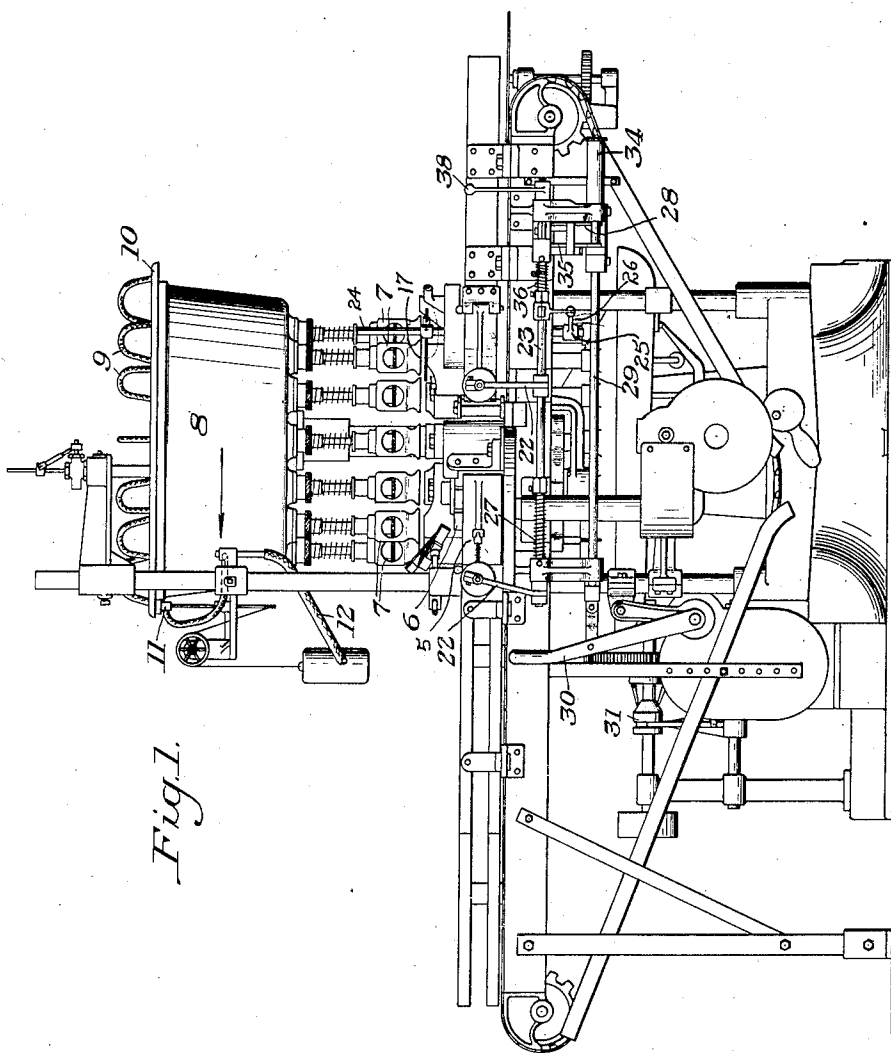


Fig. 1.

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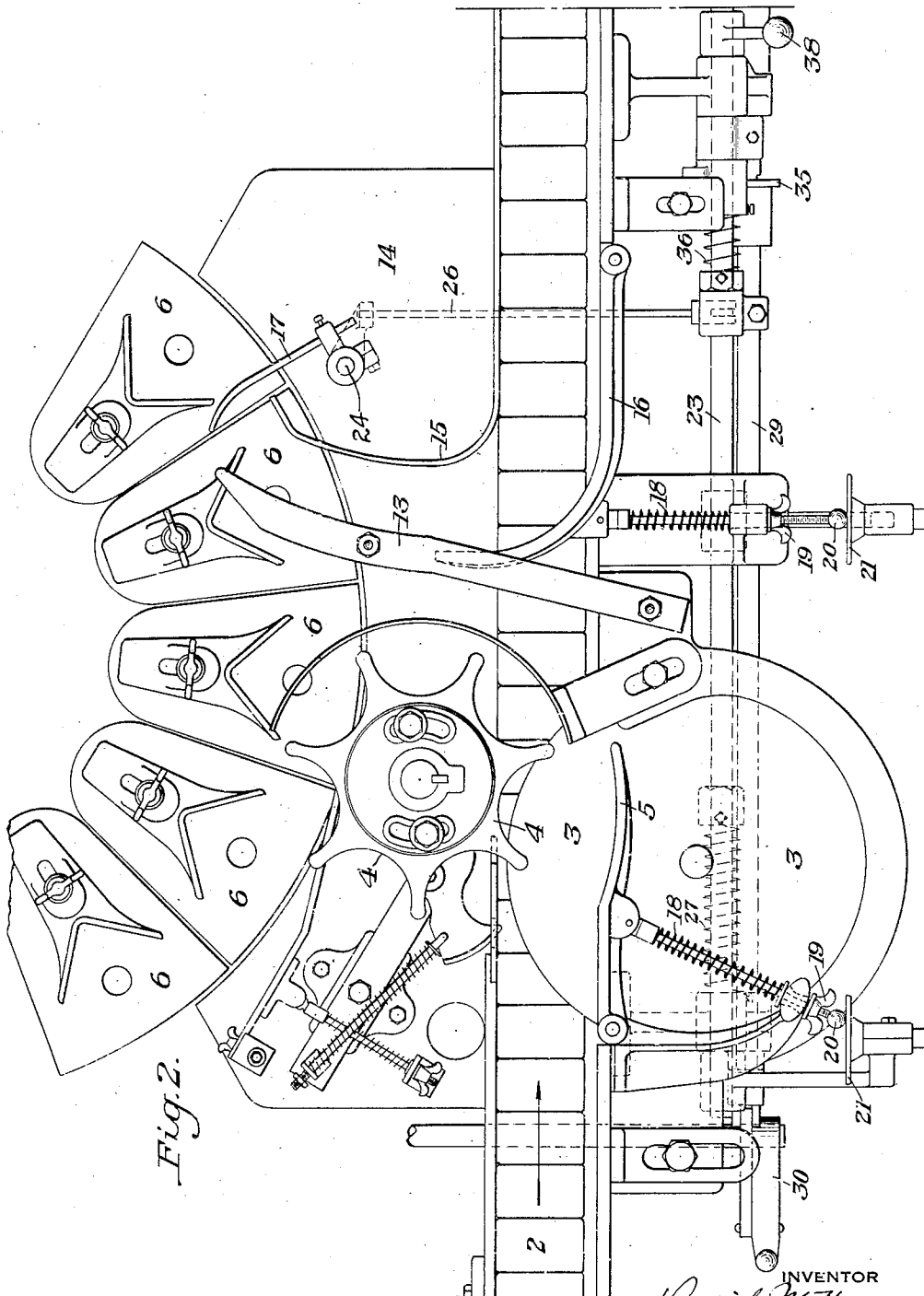
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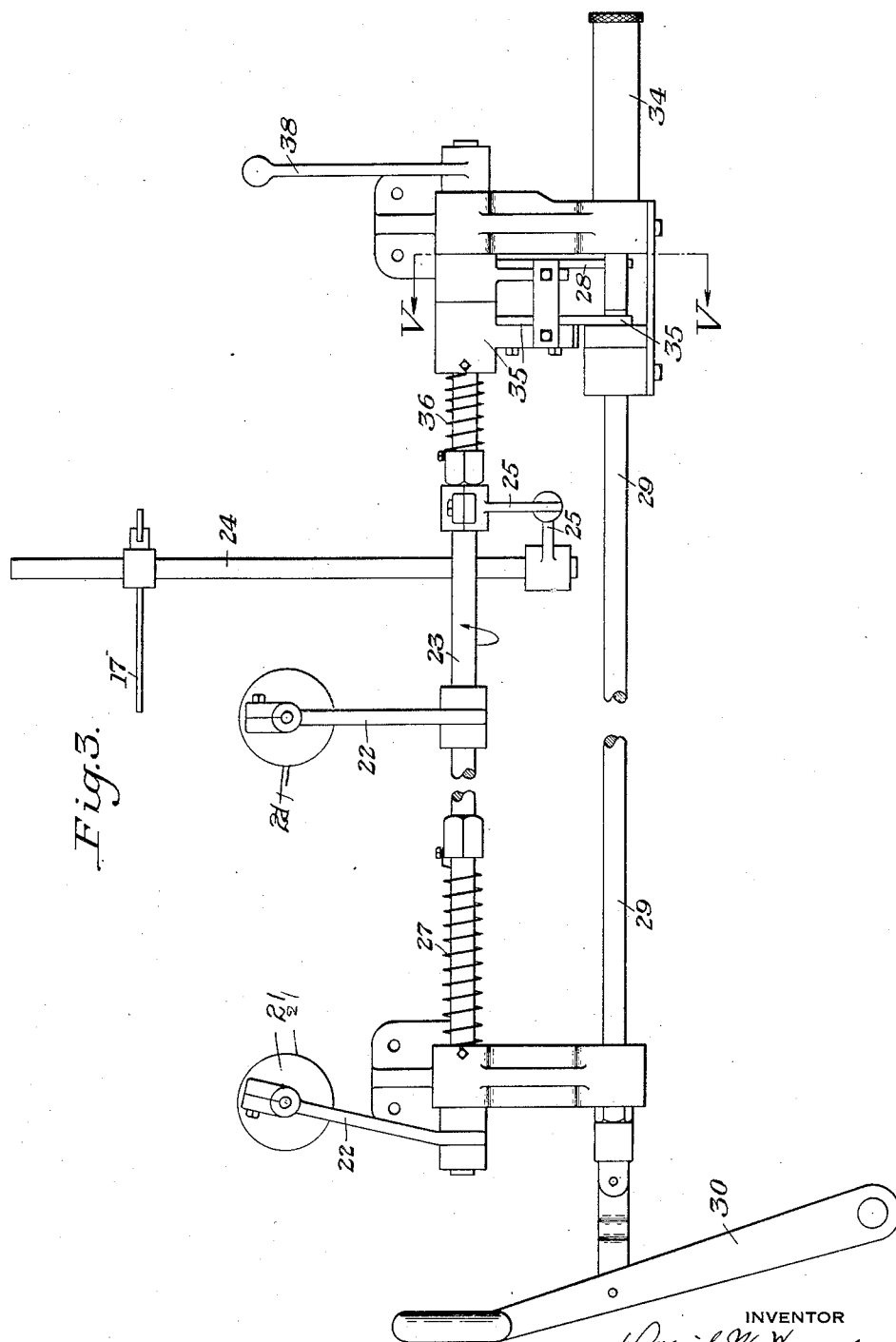
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5 Sheets-Sheet 3



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Fig. 4.

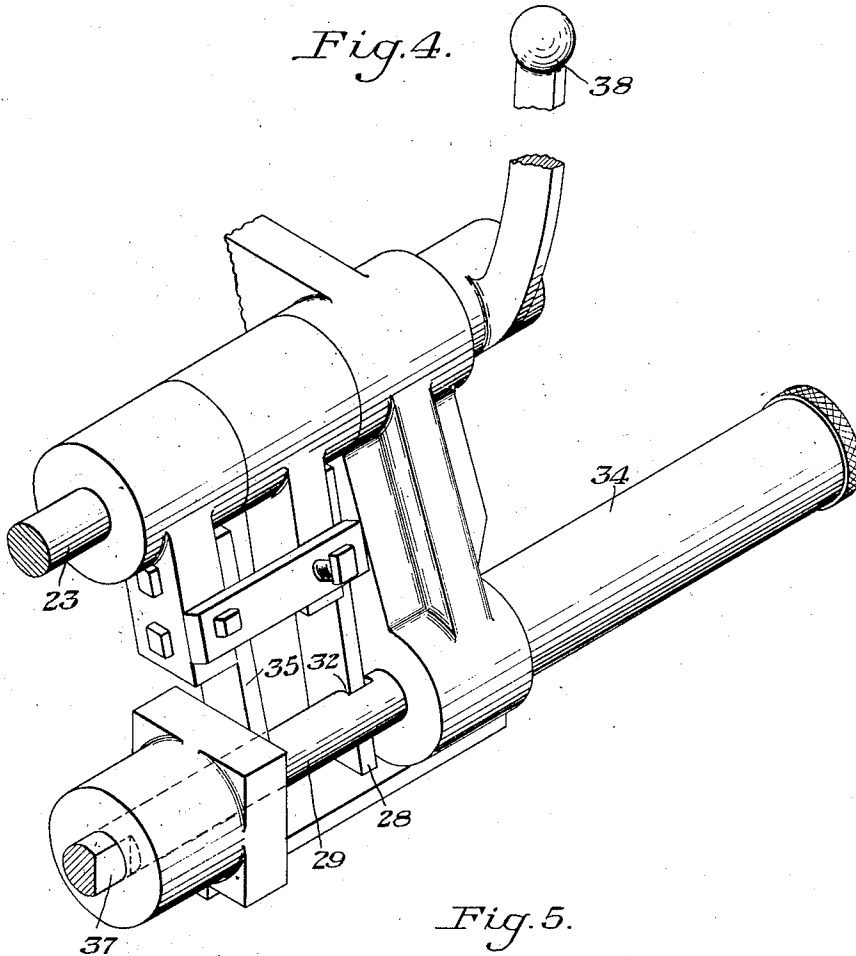
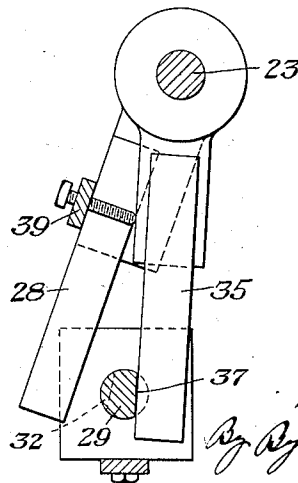


Fig. 5.



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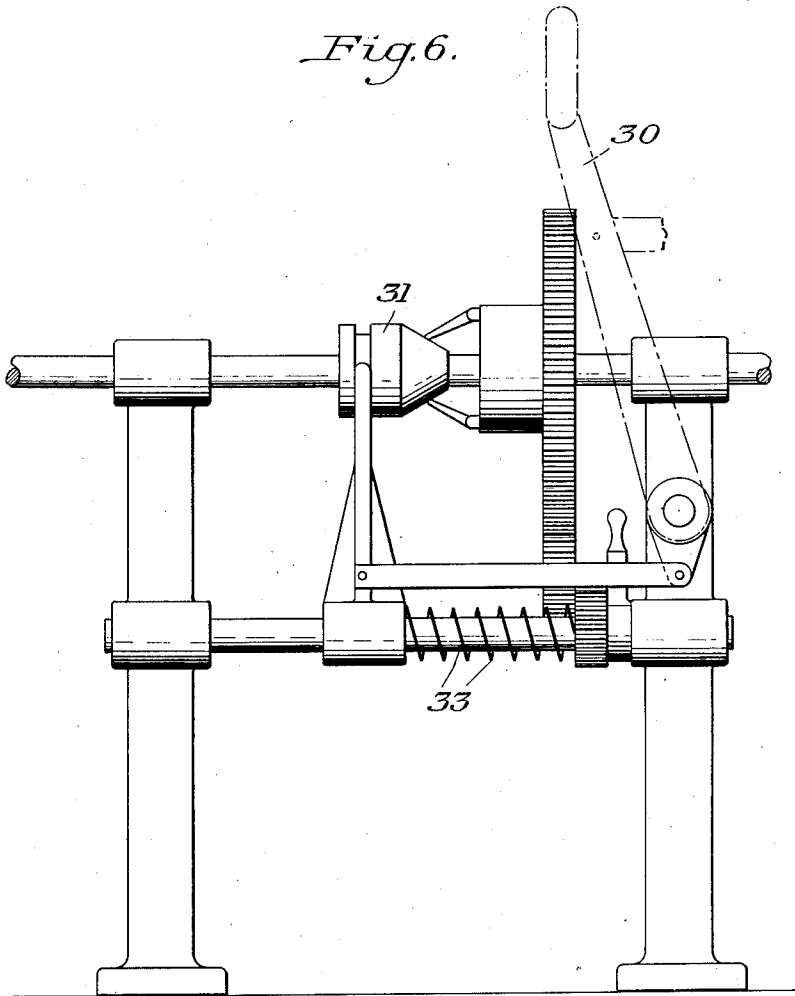
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Filed Aug. 31, 1923

5 Sheets-Sheet 5

Fig. 6.



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UNITED STATES PATENT OFFICE.

DAVID M. HAUGER, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO McKENNA BRASS & MANUFACTURING CO., INC., OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CONTAINER-HANDLING APPARATUS.

Application filed August 31, 1923. Serial No. 660,337.

To all whom it may concern:

Be it known that I, DAVID M. HAUGER, a citizen of the United States, residing at Pittsburgh, county of Allegheny, State of Pennsylvania, have invented a new and useful Improvement in Container-Handling Apparatus, of which the following is a full, clear, and exact description.

This invention relates to container handling apparatus and more particularly to a safety device therefor.

I provide means normally lying adjacent the path of the containers, and preferably comprising guides therefor, which are movable out of normal position when engaged by a container leaving its normal path, such movement being effective for throwing the drive out of operation. I further provide means preventing the operator from throwing the drive back into operation until the safety means has been returned to its normal position, as by removing the jammed containers.

Preferably I provide a drive having a clutch therein which is normally urged to released position, and means for holding the clutch in driving position, such means being releasable by movement of the guide member or members. A single holding means may be acted on by a plurality of guiding means for releasing the clutch when a jam occurs at any of the positions which experience shows to be the most likely points at which such action takes place. A dash-pot or similar device is preferably provided to insure smooth action in throwing the clutch in and out of engagement.

In the accompanying drawings illustrating the present preferred embodiment of my invention as applied to a low pressure filling machine for bottling ketchup or the like;

Figure 1 is a side elevation showing the filling machine with the safety device applied thereto;

Figure 2 is top plan view of the feeder and take-off for the machine;

Figure 3 is a side elevation corresponding to Figure 1, but showing the safety device apart from the machine;

Figure 4 is a perspective view of a portion of the apparatus shown in Figure 3;

Figure 5 is a section on the line V—V of Figure 3; and

Figure 6 is a side elevation of the clutch mechanism.

In the illustrated embodiment of the invention, the containers are supplied to the filling machine by a conveyor 2, which is constantly moving in the direction indicated by the arrow in Figure 2.

As the empty containers approach the feeding position, they are forced onto a rotating disk 3 and are held in engagement with a star wheel 4 by a yieldable guide 5. The star wheel 4 is effective for delivering the empty containers to the plungers 6 of the filling machine. As the empty containers are rotated with the filling machine in the direction of the arrow in Figure 1, the plungers 6 rise to bring the containers into engagement with filling heads 7, each connected to a tank 8 and provided with a tube 9 terminating in a flange 10 surrounding the tank 8. Continued rotation of the filling machine brings the outlets of the tubes 9 successively over a hollow presser foot 11 bearing against the lower face of the flange 10. Connected to the presser foot 11 is an air line 12 which delivers a puff of air through the filling head 7 as the tube 9 passes over the presser foot 11. As the machine continues to rotate, the containers are filled from the tank 8 and are discharged from the machine, the empty head passing the feeding station and taking on an empty container, which goes through the same operation. The puff of air from the line 12 is effective for blowing into the succeeding container that portion of the product which remains in the filling head from the filling operation of the preceding container, effectively cleaning the filling head at each revolution and preventing dripping thereof.

The containers are removed from the filling machine by a projecting arm 13 which guides the filled containers onto a table 14 and thence to the belt conveyor 2 between a fixed guide 15 and a movable guide 16.

It will be understood that the plungers

6 are lowered as they approach the discharge position, as is well known in this type of filling machines, and I provide an arm 17 lying immediately above the normal path 5 of the containers. If for any reason a container should stick in a filling head 7 instead of dropping with the plunger 6, the arm 17 will be moved out of normal position and will be effective for stopping the 10 machine, as hereinafter set forth.

The guides 5 and 16 are normally held in position by springs 18 with adjustable stops 19 and are provided with ball ended fingers 20. The fingers 20 engage bearing plates 15 21 at the end of levers 22 attached to a shaft 23. The arm 17 is carried by a vertical shaft 24 connected to the shaft 23 by levers 25 and a link 26. A spring 27 normally urges the shaft 23 in the direction indicated 20 by the arrow in Figure 3 and thus tends to normally maintain a locking finger 28 in contact with a clutch controlling rod 29. The rod 29 is attached to a clutch lever 30 controlling a friction clutch 31 in the machine drive and is provided with a notch 25 32 normally engaged by the locking finger 28. The clutch is normally urged to released position by a spring 33 and the rod 29 is accordingly urged to the right as seen in 30 the drawings.

If a jam occurs either adjacent the guide 5 or the guide 16 or if a container fails to drop to discharge position with a plunger 6, the shaft 23 will be rotated to disengage 35 the locking finger 28 from the notch 32. As soon as this occurs, the spring 33 forces the clutch 31 out of engagement and moves the rod 29 to the right. A dash-pot 34 on the end of the rod 29 slows up the movement 40 and operates in starting and stopping the machine.

Loosely mounted on the shaft 23 is a finger 35 lying on the side of the shaft 29 opposite the finger 28. The finger 35 is 45 rotatable with the shaft 23 through a spring 36 and when the finger 28 is disengaged, the finger 35 bears against the rod 29. As the clutch moves to released position, a notch 37 in the rod 29 moves under the finger 35 50 and is engaged thereby to prevent resetting of the clutch 31. It will be seen that the finger 35 will remain in engagement with the notch 37 as long as any of the safety devices are out of normal position, and since 55 such engagement prevents movement of the rod 29, the clutch cannot be re-set until the finger is lifted out of the notch. A hand lever 38 is provided for manually releasing the finger 28 when it is desired to stop the 60 machine.

The provision of the spring 36 provides for over-travel of the safety means and prevents breaking of the safety apparatus since the spring 36 will yield in any desired 65 amount after the finger 35 comes in contact

with the rod 29. An adjustable stop 39 is provided for spacing the finger 35 from the finger 28 to provide suitable clearance for the axial movement of the rod 29. The first 70 portion of the movement when a container becomes jammed is effective for releasing the rod 29 from the locking finger 28 and causing release of the clutch. The finger 35 drops against the rod and enters the notch 37 as soon as it is presented. Any further 75 movement of the container-engaged members is taken up by the spring 36.

While the finger 35 engages the notch 37, the clutch cannot be reset. As soon as the jammed containers are removed, the spring 80 27 tends to rotate the shaft 23 back to its original position and does so rotate it until the finger 28 bears against the side of the rod 29. When this occurs, the stop 39 bears against the finger 35 and rotates it out of 85 the slot 37, at which time the clutch may be re-engaged. When this is done, the finger 28 is moved into the slot 32 by the spring 27.

I provide an effective safety device of simple and rugged construction which may 90 be readily applied to existent machines. It will be understood that it is not limited to use in connection with a filling machine, as it may be of equal value in connection with a sealing machine or the like. Starting and 95 stopping the machine is preferably accomplished by mechanical engagement as shown in the illustrated embodiment, since this form of apparatus is operable under extreme 100 working conditions and not likely to get out of order.

While I have illustrated the preferred embodiment of my invention, it will be understood that it is not limited thereto, but may be otherwise embodied within the scope 105 of the following claims:

I claim:

1. A safety device for container handling apparatus including a drive for the apparatus, means normally lying adjacent the 110 path of the containers and movable out of normal position when engaged by a container leaving its normal path, said movement being effective for throwing the drive out of operation, and a mechanical lock for 115 preventing the operator from throwing the drive back into operation until said first mentioned means has been returned to normal position, substantially as described.

2. A safety device for container handling 120 apparatus including a drive for the apparatus, a guide for the container movable out of normal position when engaged by a container leaving its normal path, said 125 movement being effective for throwing the drive out of operation, and a mechanical lock for preventing the operator from throwing the drive back into operation until the guide has been returned to normal position, 130 substantially as described.

3. A safety device for container handling apparatus including a drive having a clutch therein, means tending to release the clutch, means for holding the clutch in driving position, means normally lying adjacent the path of the containers and movable out of normal position when engaged by a container leaving its normal path, said movement being effective for releasing the holding means, and means preventing the operator from throwing the drive back into operation until said first mentioned means has been returned to normal position, substantially as described.

4. A safety device for container handling apparatus including a drive having a clutch therein, means tending to release the clutch, means for holding the clutch in driving position, a guide for the containers movable out of normal position when engaged by a container leaving its normal path, said movement being effective for releasing the holding means, and means preventing the operator from throwing the drive back into operation until the guide has been returned to normal position, substantially as described.

5. A safety device for container handling apparatus including a drive for the apparatus, a plurality of means normally lying adjacent the path of the containers and movable out of normal position when engaged by a container leaving its normal path, said movement being effective for throwing the drive out of operation, and a single means actuated by any of said first mentioned means for preventing the operator from throwing the drive back into operation until said first mentioned means has been returned to normal position, substantially as described.

6. A safety device for container handling apparatus including a drive having a clutch therein, means tending to release the clutch, a single means for holding the clutch in driving position, and a plurality of means normally lying adjacent the path of the containers and each independently movable out of normal position when engaged by a container leaving its normal path, said movement being effective for releasing the holding means, substantially as described.

7. A safety device for container handling apparatus including a drive having a clutch therein, means tending to release the clutch, a single means for holding the clutch in driving position, a plurality of means normally lying adjacent the path of the containers and each movable out of normal position when engaged by a container leaving its normal path, said movement being effective for releasing the holding means, and means preventing the operator from throwing the drive back into operation until the first mentioned means have been returned

to normal position, substantially as described.

8. A safety device for container handling apparatus including a drive for the apparatus, a plurality of means normally lying adjacent the path of the containers and movable out of normal position when engaged by a container leaving its normal path, said movement being effective for throwing the drive out of operation, a single means actuated by any of said first mentioned means for preventing the operator from throwing the drive back into operation until the first mentioned means has been returned to normal position, and means for limiting the speed with which the drive is engaged or disengaged, substantially as described.

9. A safety device for container handling apparatus including a drive for the apparatus, means normally lying adjacent the path of the containers and movable out of normal position when engaged by a container leaving its normal path, said movement being effective for throwing the drive out of operation, means preventing the operator from throwing the drive back into operation until said first mentioned means have been returned to normal position, and a yielding connection between said first mentioned and said last mentioned means for permitting over-travel of said first mentioned means, substantially as described.

10. A safety device for container handling apparatus including a drive having a clutch therein, means tending to release the clutch, a rod adapted to move as the clutch is engaged or disengaged, means normally lying adjacent the path of the containers and movable out of normal position when engaged by a container leaving its normal path, a finger connected to said last mentioned means and engaging said rod for maintaining it stationary and holding the clutch in driving position, and adapted to move out of such engagement upon movement of the means lying adjacent the path of the containers, and a finger normally out of engagement with the rod and moved into engagement therewith to hold the clutch in released position until the last mentioned means has been returned to normal position, substantially as described.

11. A safety device for container handling apparatus including a drive having a clutch therein, means tending to release the clutch, a rod adapted to move as the clutch is engaged or disengaged, means normally lying adjacent the path of the containers and movable out of normal position when engaged by a container leaving its normal path, a finger connected to said last mentioned means and engaging said rod for maintaining it stationary and holding the clutch in driving position, and adapted to

move out of such engagement upon movement of the means lying adjacent the path of the containers, a finger normally out of engagement with the rod and moved into engagement therewith to hold the clutch in released position until the last mentioned means has been returned to normal position, and a yielding connection for permitting the over travel of said means, substantially as described. 10

In testimony whereof I have hereunto set my hand.

DAVID M. HAUGER.