

Aug. 16, 1949.

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2,479,396

PACKAGE DISPENSING APPARATUS

2 Sheets-Sheet 1

Filed Nov. 13, 1943

FIG. 2.

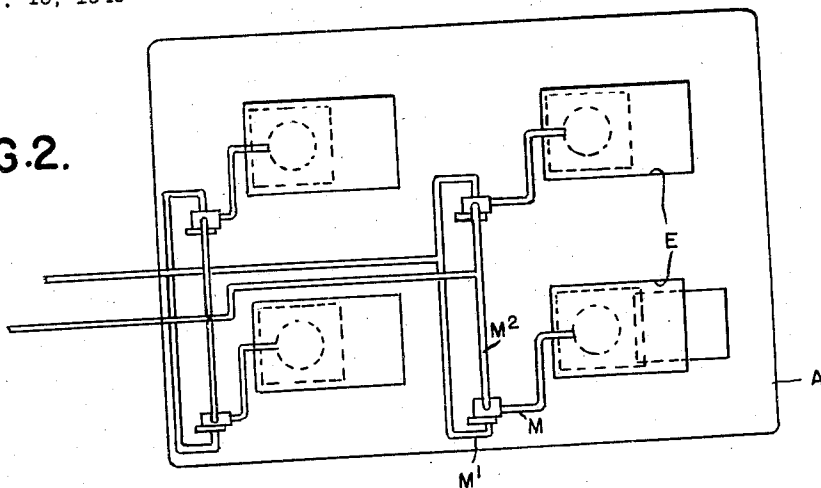
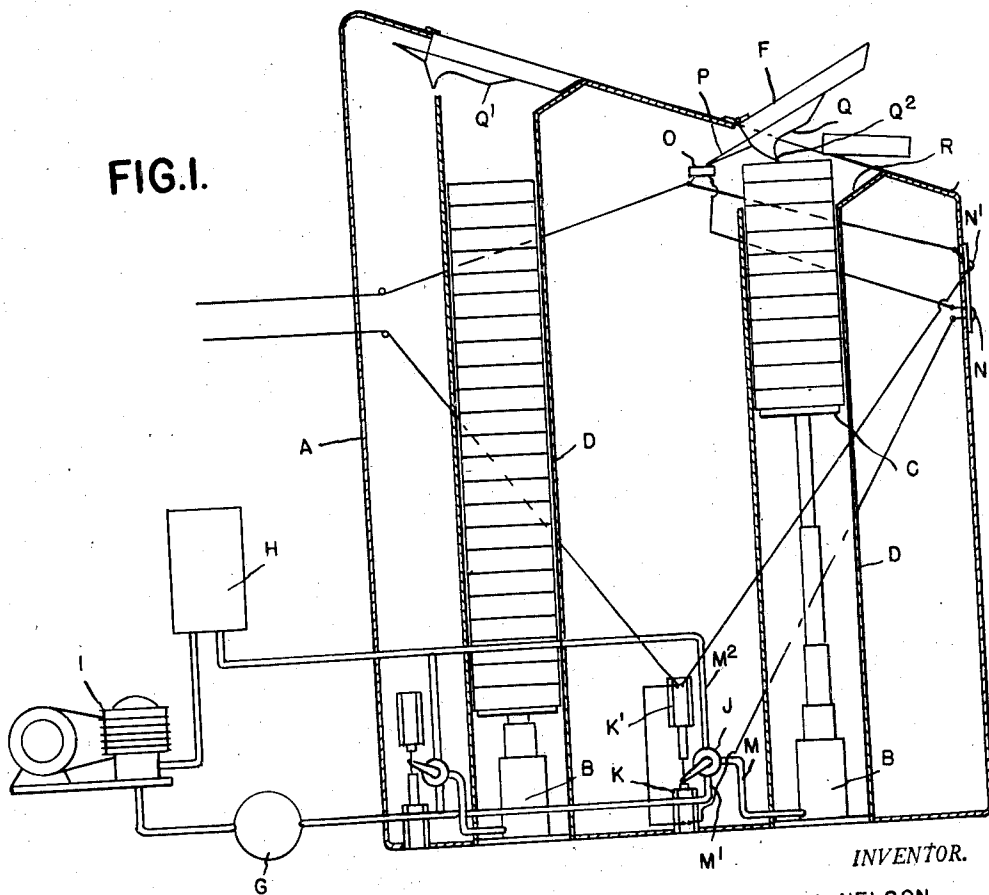


FIG. 1.



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FIG. 4.

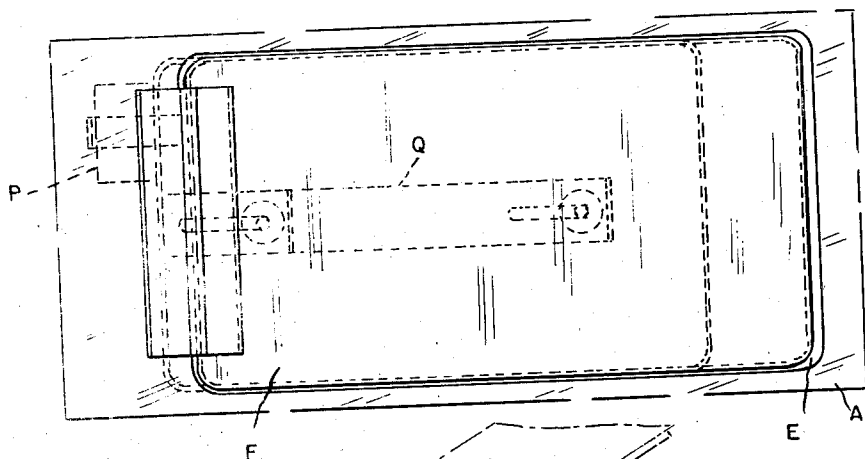


FIG. 3.

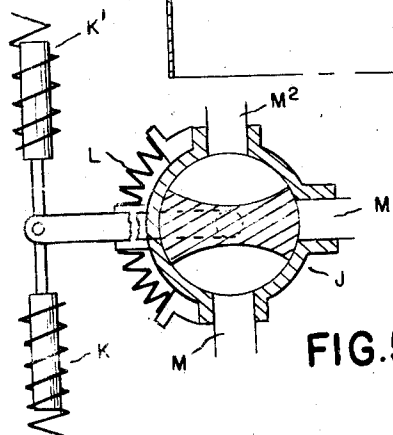
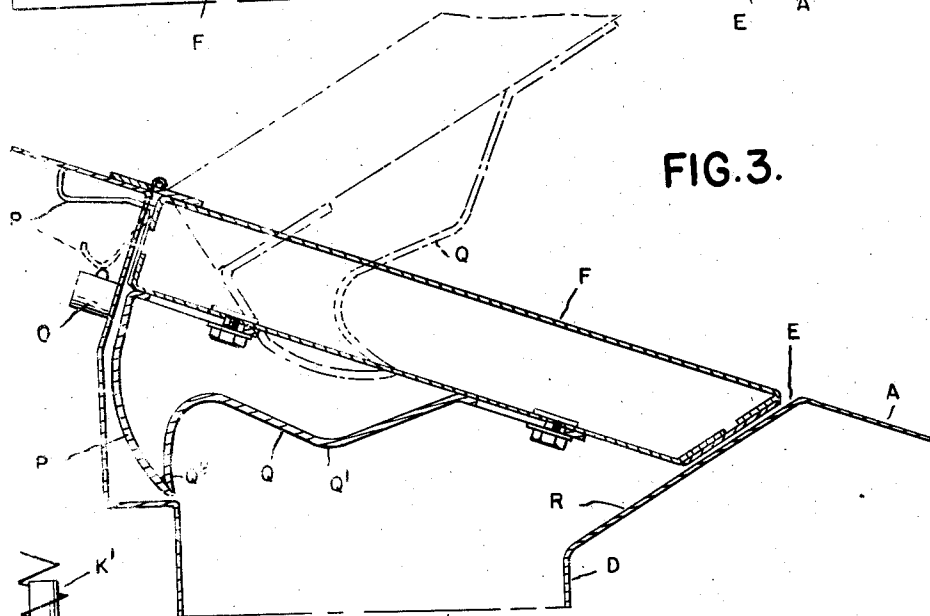


FIG. 5.

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PACKAGE DISPENSING APPARATUS

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5 Claims. (Cl. 312-69)

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The invention relates to the merchandising of frozen food products and the like and it is the object of the invention to provide means for dispensing packages of said product from a refrigerated storage cabinet.

To this end the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a diagrammatic sectional elevation showing the storage cabinet and dispensing means;

Fig. 2 is a diagrammatic plan view thereof;

Fig. 3 is a section through the upper portion of the cabinet showing the door automatically opened upon the raising of the stack to effect the ejection of the uppermost package;

Fig. 4 is a plan view thereof;

Fig. 5 is a section through the controlling valve for one of the hydraulic jacks;

A diagrammatically indicates the storage cabinet which it is to be understood will be provided with suitable insulation and refrigerating means (not shown). B is a hydraulic jack located within the cabinet and having a movable platform C for supporting a stack of packages to be successively dispensed. D is suitable guiding means for retaining the packages in the stack against lateral displacement. E is an opening in the top wall of the cabinet in alignment with the stack. F is a hinge door or closure for said opening which will be automatically opened by the raising of the stack and which preferably also functions to laterally displace the uppermost package. The jack B is actuated by hydraulic fluid from a pressure storage tank G and a tank H receives the fluid when the jack is collapsed. A motor driven pump I may be used for returning fluid from the tank H to the pressure tank G or any other suitable means may be employed for this purpose. The controlling means for the hydraulic fluid includes a three-way valve J and an electromagnetic actuating means therefor. The latter preferably comprises a pair of solenoids K and K' for respectively turning the valve in opposite directions and springs L or equivalent means for returning the valve to neutral position when the solenoids are deenergized. The valve is connected by a conduit M with the hydraulic jack and by conduits M' and M² respectively to the tanks G and H. Normally the valve is in a position to close the conduit M. When, however, the solenoid K is energized, the valve will be turned to connect the conduit M' with the conduit M and when the solenoid K' is energized, it will be turned in the reverse direc-

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tion to connect the conduit M with the conduit M². Thus, the solenoid K controls the raising of the jack and the solenoid K', the retraction of the same. These solenoids may be controlled by suitable manually operable means, such as push buttons N and N'.

Any desired number of dispensing mechanisms such as above described may be placed within the storage cabinet but, as shown in Fig. 2, there are four of these devices. The top of the cabinet is preferably inclined so that an ejected package may be more easily removed. There is also provision for automatically stopping the rise of the stack after each package is removed therefrom thereby effecting a step by step action until all of the packages in each stack have been ejected. This automatic means includes a microelectric switch O actuated by a projecting finger P on the door F which breaks the circuit controlling the solenoid K. In use, whenever it is desired to remove one or more packages from the cabinet, the button N for a particular stack is pressed which through the solenoid K will turn the valve J to connect the hydraulic jack B with the pressure tank G. This will cause the stack to rise and by the pressure of the uppermost package on the door F, will open the latter. Preferably this door has arranged on its underside a member Q with a portion Q' first contacting with the upper face of the package and a hook portion Q² for moving the uppermost package laterally off from the stack. An incline R directs the forward end of the package upward into a position from which it can be readily removed. This action continues until the finger P actuates the microelectric switch O which by deenergizing the solenoid K permits the valve J to return to neutral position under the actuation of the springs L. After the last package in the stack has been ejected, the operator by pressing the push button N' will energize the solenoid K' turning the valve J into a position where the fluid in the jack will be exhausted through the conduit M² to the storage tank H. Packages for another stack may then be successively inserted through the opening and, if desired, the jack may be intermittently actuated in the collapsing of the same after the insertion of each successive package.

An apparatus such as above described will form a very convenient means for successively removing packages of frozen goods from a refrigerating cabinet.

What I claim as my invention is:

1. A dispensing means for packages of frozen

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goods comprising a refrigerated storage cabinet for a stack of packages, a hydraulic jack for said stack, manually controlled means for operating said hydraulic jack to raise the stack, a door normally closing an opening in the cabinet above said stack which door is opened by the pressure of the uppermost package when the stack is raised, and means actuated by said door when opened sufficiently for the ejection of a package for interrupting the upward movement of the jack.

2. A dispensing means for packages of frozen goods comprising a refrigerated storage cabinet for a stack of packages, a hydraulic jack for said stack, manually controlled means for operating said hydraulic jack to raise the stack, a door for said stack normally closing an opening in the cabinet above the same which door is opened by the pressure of the uppermost package when the stack is raised, means actuated by the opening of said door for ejecting said uppermost package laterally off from the stack, and means actuated by said door when opened sufficiently for such lateral ejection for interrupting further upward movement of said jack.

3. A dispensing means for packages of frozen goods comprising a refrigerated storage cabinet for a stack of packages, a hydraulic jack for said stack, a normally closed controlling valve for said jack, electromagnetic means for shifting said valve to a position for admitting hydraulic fluid to the jack thereby raising said stack, a door normally closing an opening in the top of the cabinet in alignment with said stack, said door being automatically opened by the uppermost package of the stack during the rise of the latter, and means actuated by said door when sufficiently opened for the ejection of a package for deenergizing said electromagnetic means thereby restoring said valve to closed position and interrupting upward movement of said stack.

4. A dispensing means for packages of frozen goods comprising a refrigerated storage cabinet for a stack of packages, a hydraulic jack for said stack, a door for said stack normally closing an opening in the top of the cabinet in alignment therewith, a normally closed controlling valve for said jack, manually controlled electromagnetic means for shifting said valve to a position for admitting hydraulic fluid to the jack thereby raising

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the corresponding stack and opening said door by the uppermost package of the stack, means operated by the opening of said door for deenergizing said electromagnetic means thereby interrupting the raising of the stack until said package is removed and the door closed whereupon a successive operation of said manually controlled electromagnetic means will further raise the stack, and a second manually controlled electromagnetic means for shifting said valve to a position for releasing hydraulic fluid from said jack to lower the same.

5. A dispensing means for packages of frozen goods comprising a refrigerated storage cabinet for a stack of packages, a hydraulic jack for said stack, a door for said stack normally closing an opening in the top of the cabinet in alignment therewith, an automatically closing normally closed controlling valve for said jack, manually controlled electromagnetic means for shifting said valve to a position for admitting hydraulic fluid to the jack thereby raising the corresponding stack and opening said door by the uppermost package of the stack, means operated by the opening of said door for deenergizing said electromagnetic means whereupon said valve will automatically close interrupting the raising of the stack and permitting the removal of the uppermost package therefrom and the closing of said door restoring the condition for a successive operation of said manually controlled electromagnetic means and further raising of the stack, and a second manually controlled electromagnetic means for shifting said valve to a position for releasing hydraulic fluid from said jack to lower the same.

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