Feb. 17, 1953 M. L. EVERHART 2,628,874

BOTTLE DISPENSING CABINET

Filed March 25, 1948 4 Sheets-Sheet 1

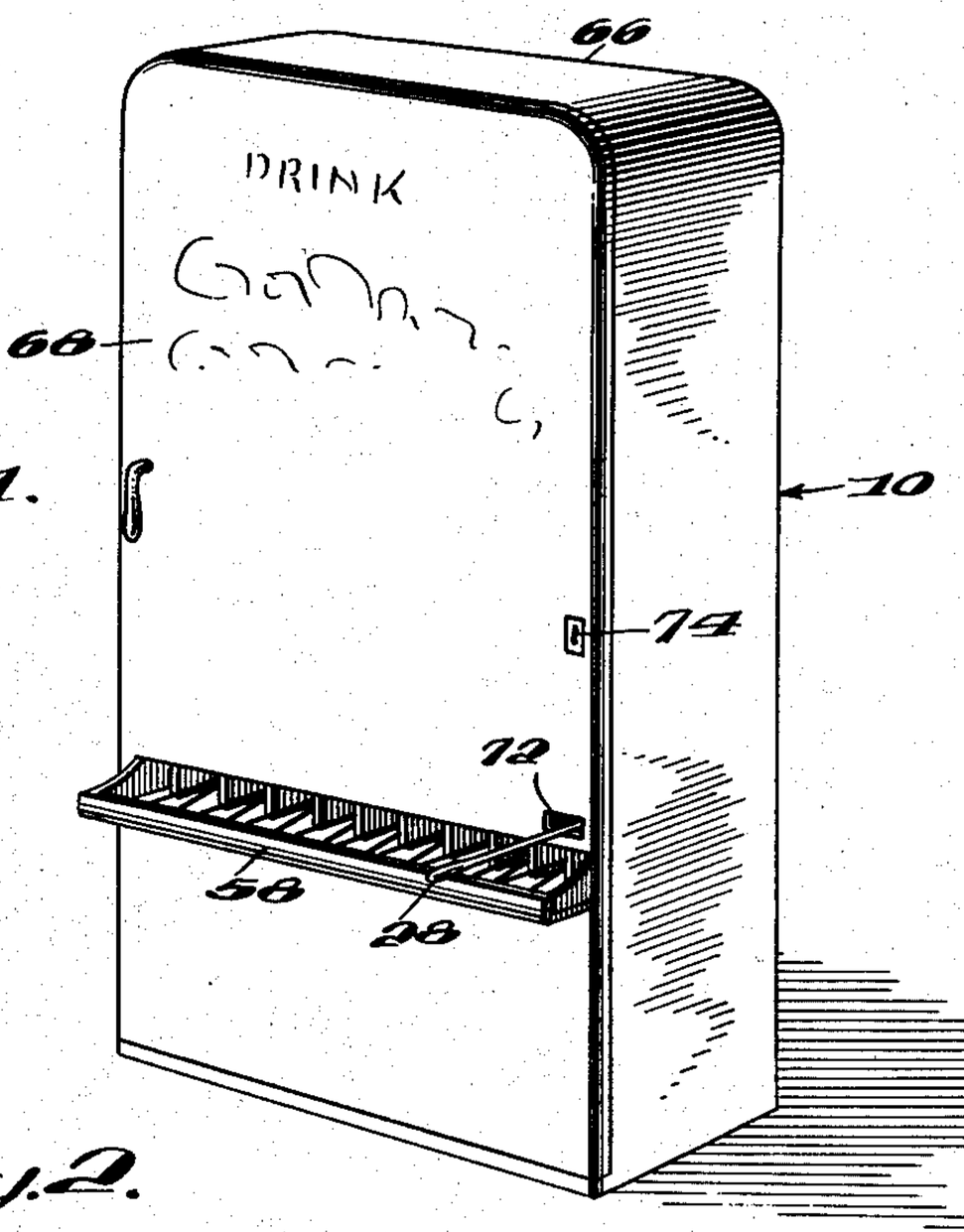
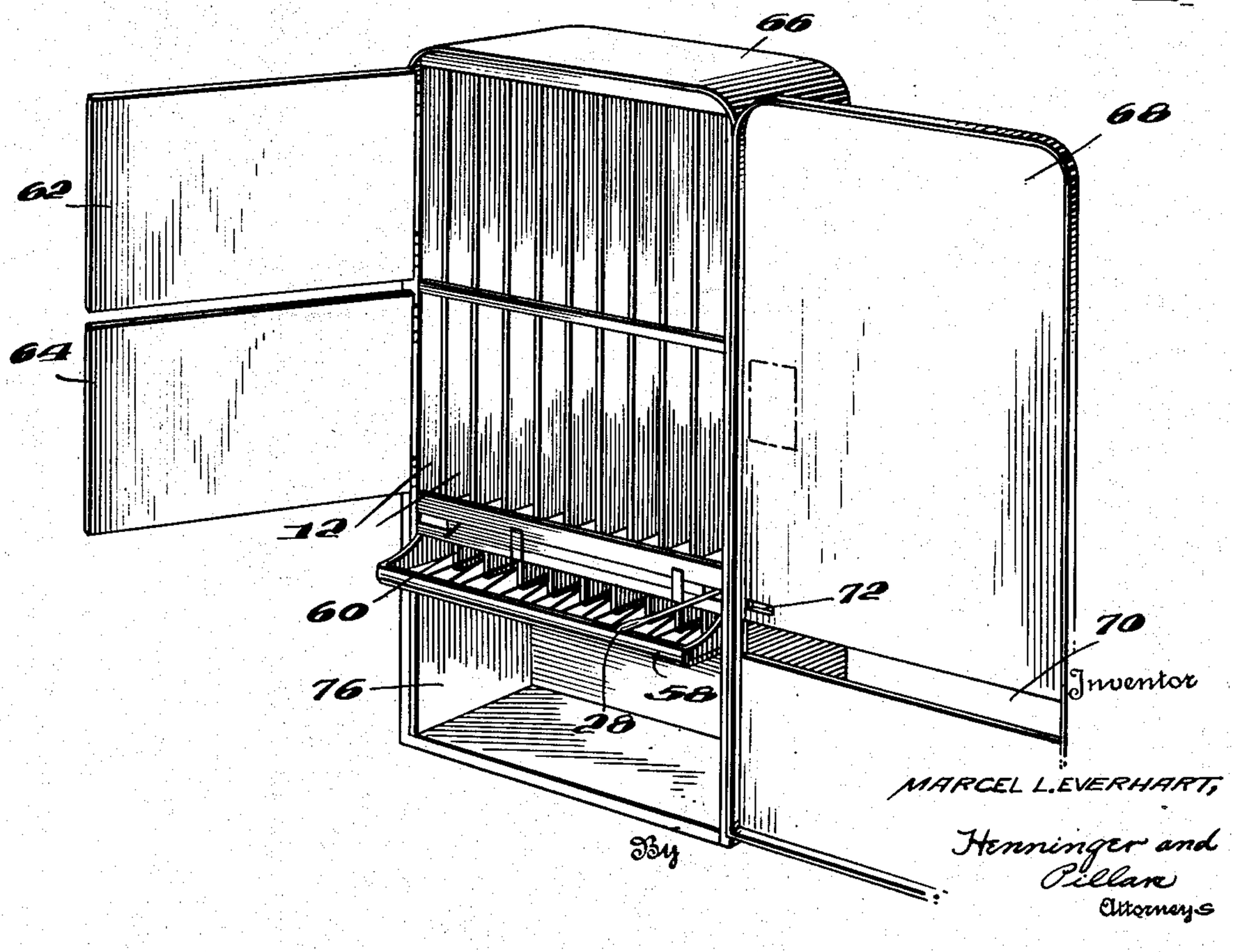


Fig. 1.

Fig. 2.



Feb. 17, 1953 M. L. EVERHART 2,628,874

BOTTLE DISPENSING CABINET

Filed March 25, 1948 4 Sheets-Sheet 2

Fig. 3.

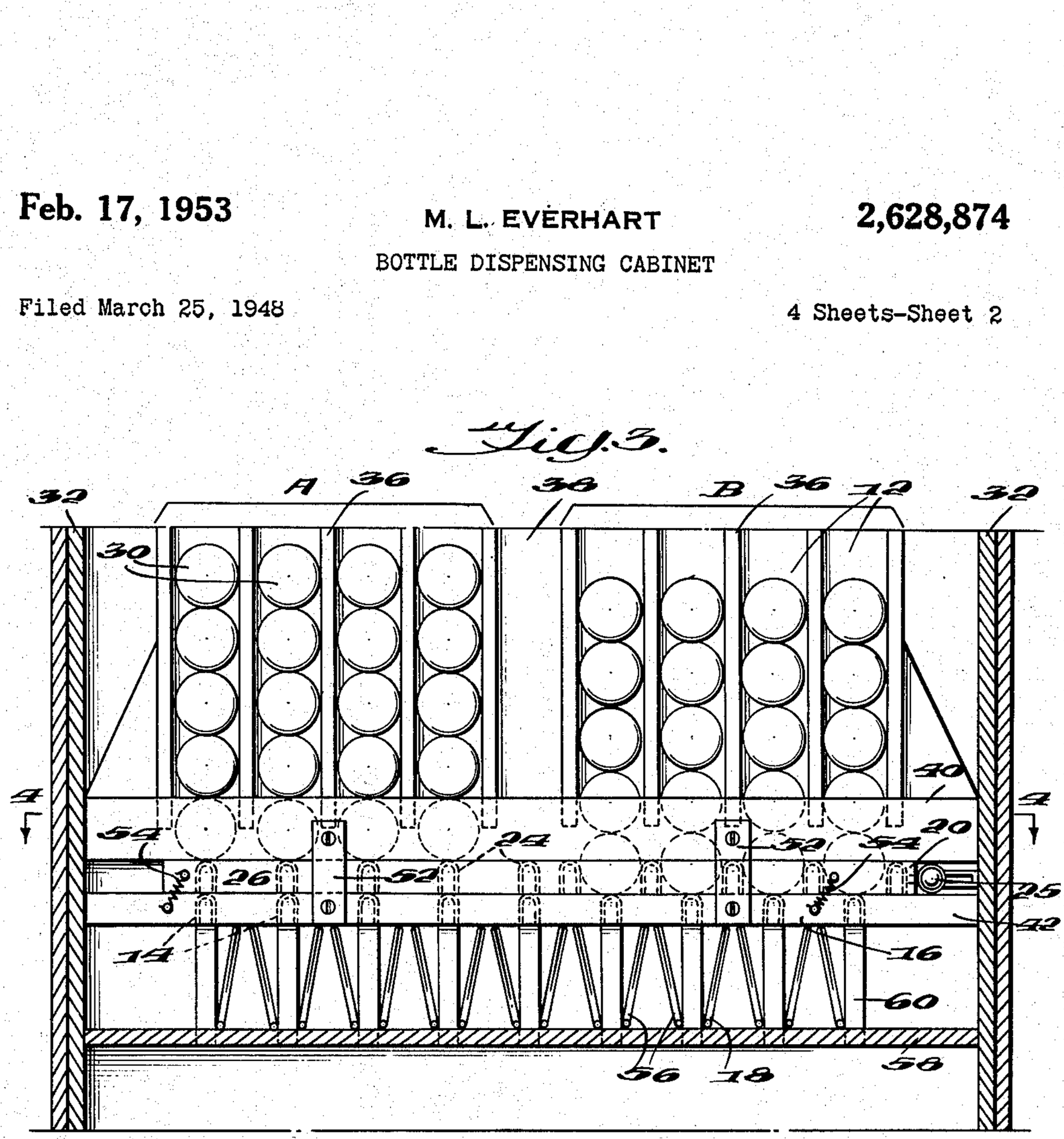
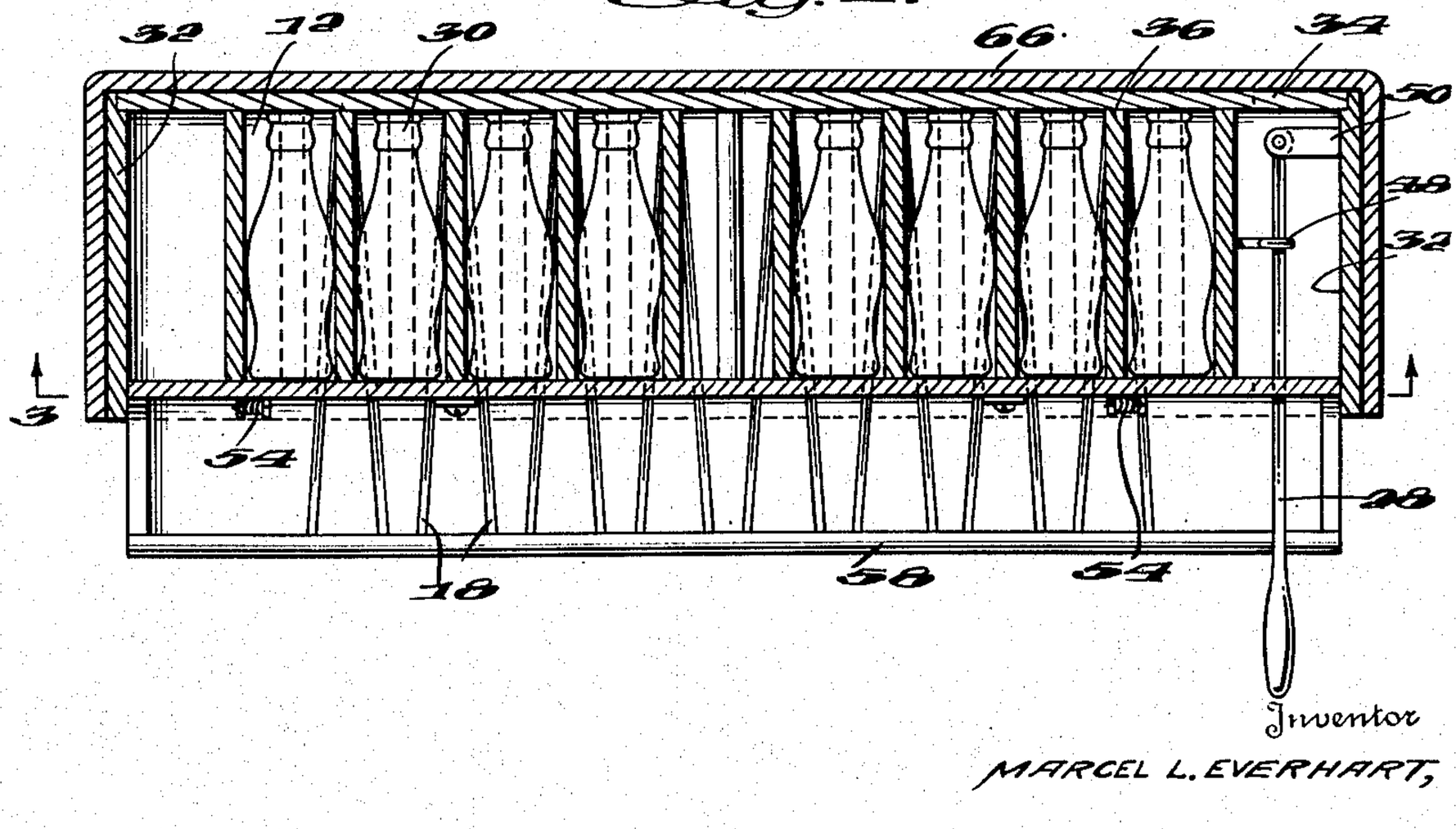


Fig. 4.



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BOTTLE DISPENSING CABINET

Filed March 25, 1948 4 Sheets-Sheet 3

Fig. 5.

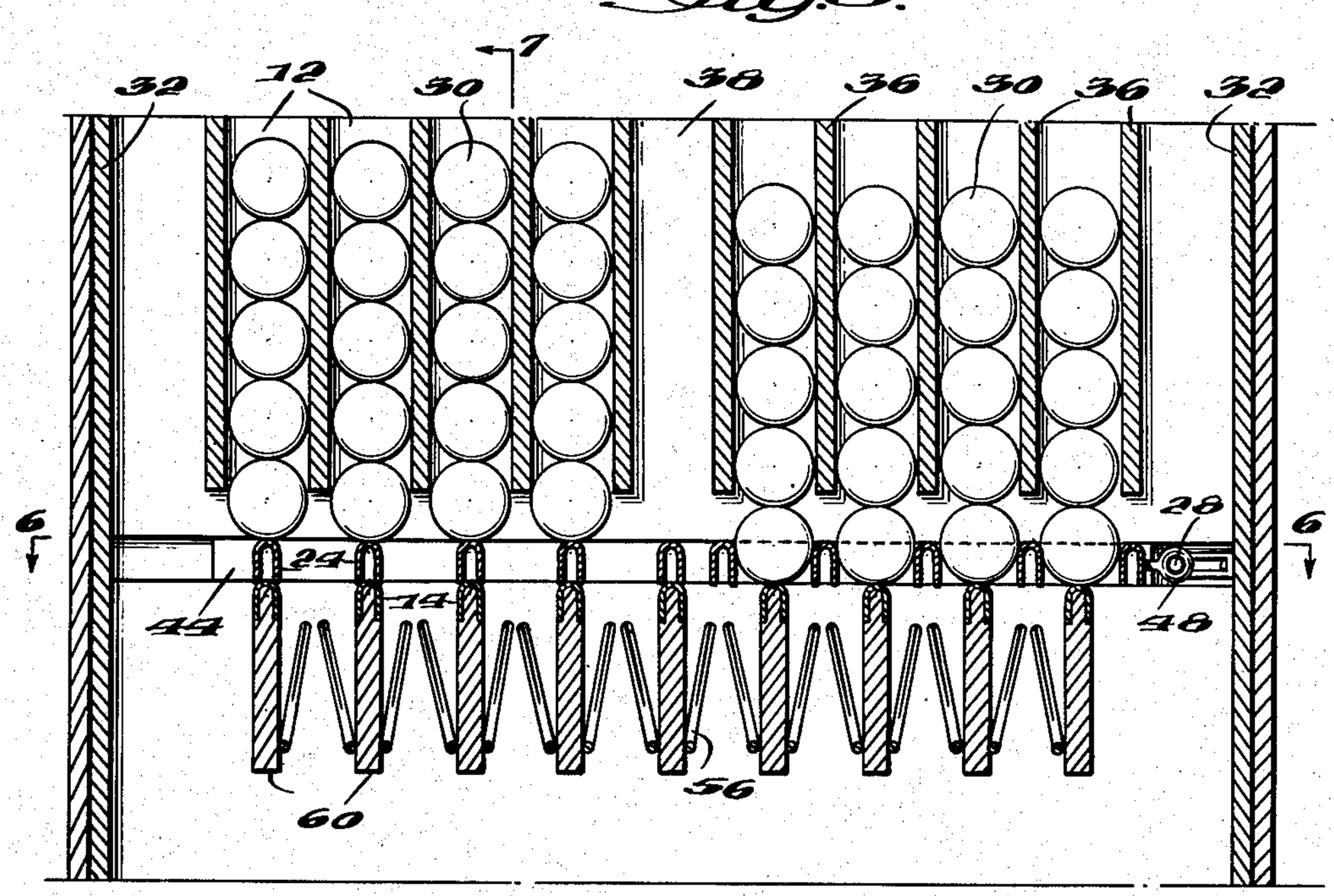
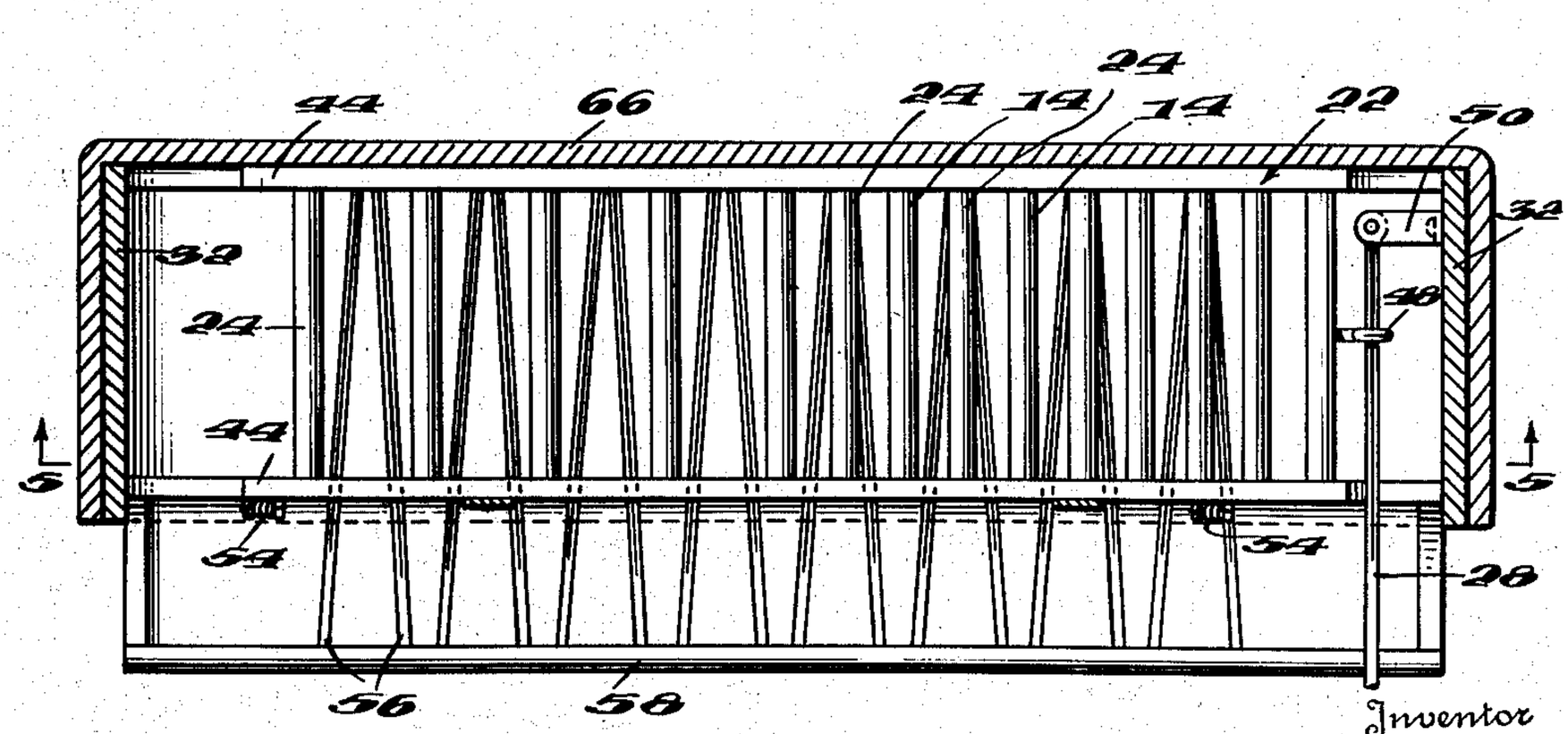


Fig. 6.



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4 Sheets-Sheet 4

Fig. 8.

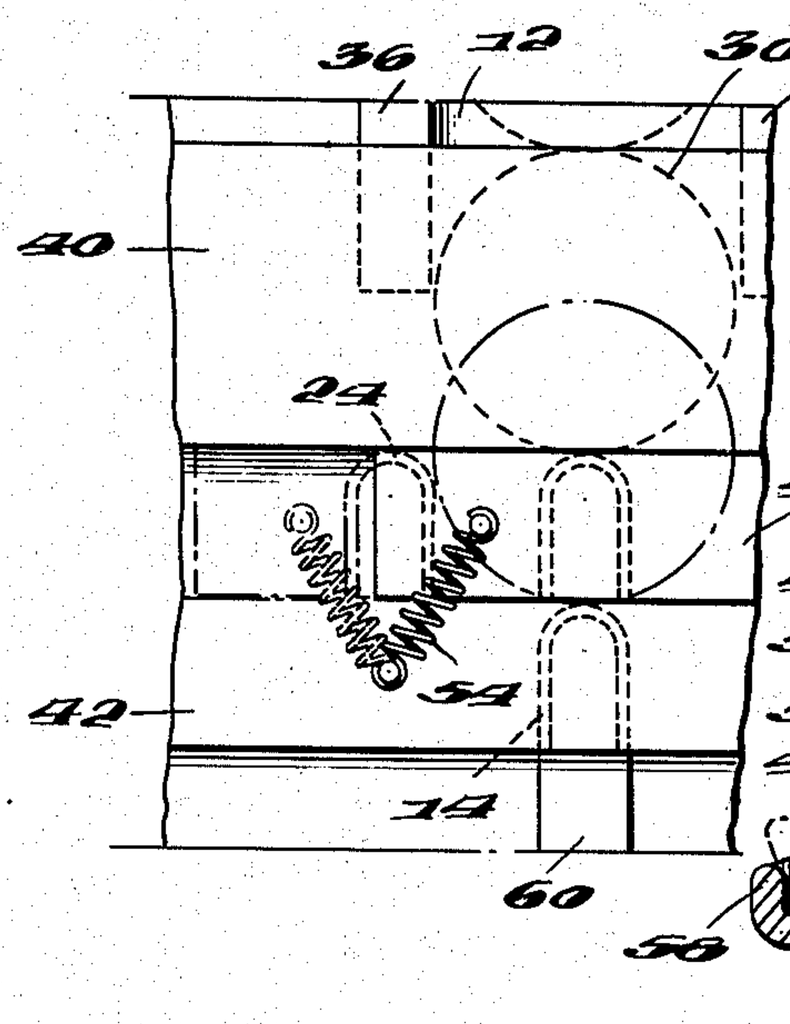


Fig. 7.

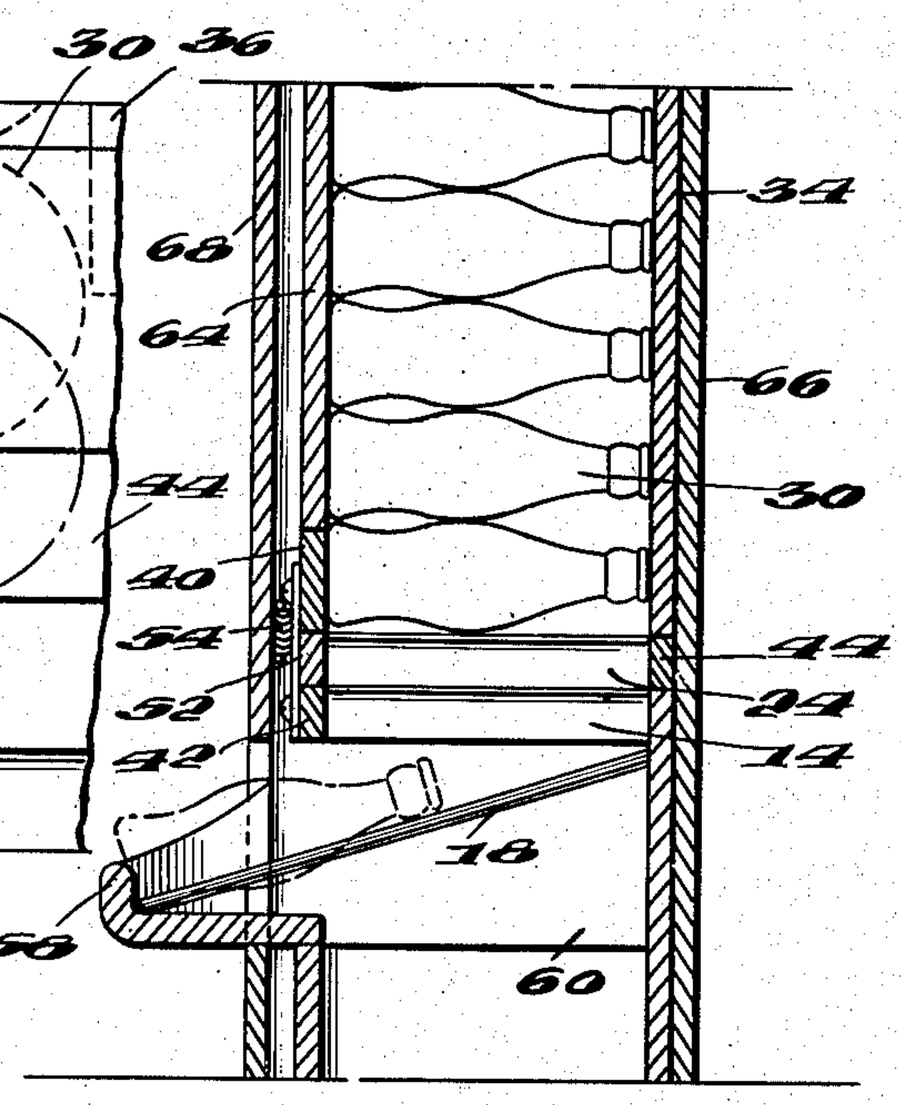
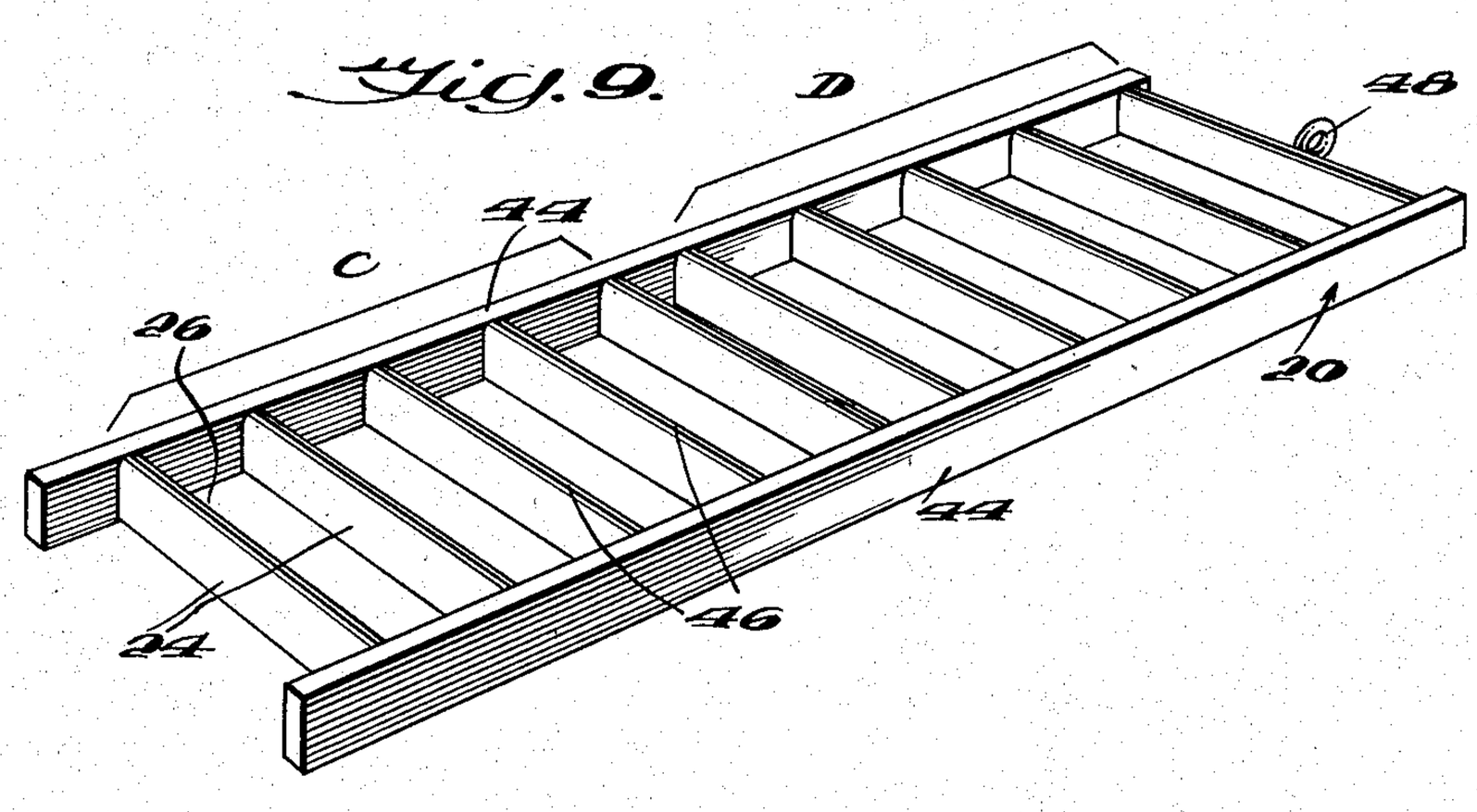


Fig. 9.



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UNITED STATES PATENT OFFICE

2,628,874

BOTTLE DISPENSING CABINET

Marcel L. Everhart, Washington, D. C.

Application March 25, 1948, Serial No. 16,982

11 Claims. (Cl. 312—47)

1

This invention relates to dispensing cabinets and more particularly to a dispensing cabinet designed to deliver a plurality of uniform articles such as beverage bottles at a single operation.

Heretofore, there have been numerous beverage bottle dispensing cabinets but they have been on the whole designed to dispense a single bottle at a time. Furthermore, because of bottle deposit requirements, these previous dispensers have been of necessity located only at attended vending points.

Again, bottle vending machines heretofore have been unduly complex, having a large number of moving parts requiring delicate adjustment, which factor requires frequent servicing with resulting loss of potential profit time. It is an object of this invention, therefore, to provide a dispensing device which may be suitably coin controlled and from which a plurality of bottles are dispensed at each insertion of a coin of the required denomination. The design herein is predicated on the thought that four bottles may be delivered to a purchaser for a selected coin unit, for example, twenty five cents in the case of soft drinks which have an over-the-counter sale price of five cents per bottle. This price may be considered as including seventeen cents for the contents and the usual two cents per bottle deposit. The slight gross loss on the contents according to this system of vending, is more than compensated by the fact that the vending device herein may be installed and used successfully in locations which are entirely unattended and which, consequently, have heretofore been unavailable for the use of automatic vending machines.

It is a further object of the invention to provide a vending machine which is extremely simple in its structure and which includes only a single moving part for effecting the vending operation. Simplicity of structure is an essential in a machine which is designed for installation in locations where no attendant is constantly available.

These and other objects of the invention will become clear as the description of the cabinet and the operation thereof is read in light of the drawings forming a part of this application, and in which drawings:

Fig. 1 is a perspective view of the exterior of the dispensing cabinet forming the subject matter hereof.

Fig. 2 is a perspective view of the cabinet showing the cabinet door and the load doors in open position.

Fig. 3 is a cross sectional view on line 3—3 of Fig. 4.

2

Fig. 4 is a cross sectional view on line 4—4 of Fig. 3.

Fig. 5 is a cross sectional view on line 5—5 of Fig. 6.

Fig. 6 is a cross sectional view on line 6—6 of Fig. 5.

Fig. 7 is a cross sectional view on line 7—7 of Fig. 5.

Fig. 8 is a fragmentary detailed view, and

Fig. 9 is a perspective view of the article discharge carriage.

The combination herein is embodied in a dispensing cabinet 10 which is designed to deliver a plurality of uniform articles simultaneously at a single operation. Within the cabinet are a plurality of vertical open ended article receiving compartments 12, which are designed to hold articles therein in stacked position. A fixed stop member 14 is spaced below the open end of each of the compartments 12 at a distance which is not substantially more than the diameter of the articles to be delivered. The members 14 form between each two thereof an open article delivering passage 16 through which the articles to be discharged may drop by gravity onto an article receiving support 18.

A discharge carriage 20 is mounted for reciprocation between the stop members 14 and the lower open ends of the article receiving compartments 12. The discharge carriage consists generally of a rectangular frame 22 which has provided therein a plurality of transverse article transfer elements 24 forming between each two thereof an open article receiving pocket 26 having a width which is not substantially more than the diameter of an article to be delivered. Suitable means, herein illustrated as an actuating handle 28, has been provided for reciprocating the carriage 20 whereby the transverse elements 24 may be aligned with the transverse stop members 14 for the simultaneous discharge of a plurality of articles through the delivery passages 16.

In its most specific aspect, the dispensing cabinet herein is designed for the simultaneous delivery of a plurality of cylindrical bottles 30 from one or the other of a plurality of bottle receiving magazines A or B (see Fig. 3), each magazine being composed of a plurality of vertical open ended bottle receiving compartments 12. The number of receiving compartments constituting a magazine is optional but has herein been shown as consisting of four such compartments to each magazine.

The dispensing cabinet consists of end walls 32, a rear wall 34 and a plurality of vertically

disposed substantially parallel compartment defining walls 36.

A predetermined number of compartment defining walls are contiguously located as a group to constitute a magazine, while a second spaced series of compartment defining walls form the compartments constituting the second magazine. Herein the magazines A and B have been illustrated as being composed of four article receiving compartments arranged in side by side relation. For convenience of illustration the magazines have been illustrated as being composed of an equal number of compartments, but one magazine may include a greater number of compartments than the other. Herein, the magazines A and B have been illustrated as spaced from each other by an upright channel 38 into which no articles are deposited. The compartment defining walls may be supported from a transverse supporting member 40. Spaced below the transverse supporting member 40 and consequently below the lower open ends of compartments 12 is a second transverse support member 42 between which and the rear wall 34 of the cabinet are fixed the stop members 14. It will be noted that the distance between the upper face of the stop members 14 and the lower ends of the compartment defining walls 36 is not substantially more than the diameter of the article for which the cabinet has been designed. The upper face of the stop members 14 is rounded to facilitate the gravity discharge of articles from the cabinet.

Positioned over the transverse support member 42 and lying under the transverse supporting member 40 is the discharge carriage 20 (best shown in Fig. 9) and this carriage is a generally rectangular frame member consisting of side supports 44 which are adapted to support the transverse article transferring elements 24. It will be noted that the transverse article transferring elements are arranged parallel to each other and defined between each two thereof an article receiving pocket 26. The article transfer elements 24 are arranged within the discharge carriage in two groups designated in Fig. 9 as C and D. The pockets of group C are designed to cooperate with article receiving compartments of magazine A while the pockets of group D are designed to cooperate with the article receiving compartments of magazine B.

In order that articles may be discharged from the magazines alternately, the transverse article transfer elements 24 of one group are offset with respect to the transverse article transfer elements of the other group. This offset is substantially half the width of an article receiving compartment. The relationship of the transverse article transfer elements with reference to the lower open ends of the article receiving compartments 12 and the fixed stop members 14 may best be seen in Figs. 3 and 5. The fixed stop members extending along the medial depth of the compartments 12 thereby forming an abutment against which the articles in the respective compartments may rest when the discharge carriage 20 is reciprocated to bring the transverse article transfer elements of one group into registration with the compartment defining walls 36 of its related magazine.

When in such position, the transverse article transfer elements 24 of the other group are in alignment with the fixed stop members 14 underlying the opposite magazine. The upper face 46 of each of the transverse elements is cam shaped in order to utilize the weight of the cylindrical

articles for reciprocating the discharge carriage. Herein the upper face 46 has been illustrated as more or less semi-cylindrical in transverse cross section. It will be appreciated, however, that the same result may be achieved with other cam-like contours.

The discharge carriage 20 has provided in one end thereof an eye 48 through which the actuating handle 28 may be extended to impart manual reciprocating motion to the carriage. The handle 28 is pivoted on a post 50 about the end of which it may turn upon application of force to the handle 28.

The carriage 20 is effectively retained between the supporting members 40 and 42 by means of a pair of guide plates 52. The guide plates are removably secured in position so that the carriage may be easily withdrawn.

A pair of over-center springs 54 interconnect the supporting member 42 and one of the side supports 44 of the carriage to further facilitate carriage reciprocation.

The fixed stop members 14 provide between each two thereof an open article receiving passage 16 through which the articles within the cabinet may drop by gravity onto the article receiving support 18.

Herein the article receiving support has been illustrated as a pair of outwardly slanted members 56 which extend forwardly of the cabinet and terminate in an article receiving trough 58. Herein, each article receiving support is confined between a pair of adjacent walls 60 which are in effect a downward continuation of the fixed stop members 14.

In its preferred form the cabinet is provided with a pair of loading doors 62 and 64 which are hinged at one vertical edge of the cabinet to enclose the article receiving compartments. Furthermore, it is desirable that the entire structure be encased in an outer casing 66 which includes a casing door 68 provided with suitable lock mechanism for securely holding the same in closed position. The door 68 has a suitable aperture 70 through which the article receiving trough 58 projects when the door 68 is closed. Similarly, the operating lever 28 projects outwardly of the door 68 through the operating lever slot 72 in the face of the door. It is contemplated that a coin control mechanism 74 be provided, but since such devices are conventional in dispensing cabinets and form no part of this invention it is deemed unnecessary to describe the same specifically.

The cabinet will be arranged in the outer casing 66 so as to position the article receiving trough 58 at a convenient height and provide thereunder a compartment 76 adapted to receive supply cartons, such as beverage cases.

With parts in position as shown in Fig. 3 and the several compartments 12 loaded with bottles 30, the lower bottle in each of the compartments in magazine A will rest on the upper surface of the transverse bottle transfer members 24, while the lowermost bottles in magazine B will rest on the upper surface of the stop members 14. In this position all bottles are blocked against gravity discharge through the discharge passage.

A coin may now be inserted in the coin control mechanism thereby releasing the operating lever 28 for manual reciprocation toward the left in Fig. 3. Upon movement of the discharge carriage 20 to a position wherein the transfer elements 24 are in alignment with the stop members 14 under the magazine B, the bottles in the several compartments 12 will be discharged through the ar-

ticle delivery passages which are offset to the left of the respective compartments. Herein the four lower bottles in magazine B will be discharged into the article receiving trough 58 where they are readily accessible.

With the same movement of the discharge carriage 20, the transverse article transfer elements 24 underlying the compartments 12 of the magazine A will have been shifted to the left substantially half the distance between two of the compartment defining walls 36 in which position the transfer elements under the magazine A are in alignment with the compartment defining walls 36 of that magazine. This movement of the carriage under the magazine A will permit the bottles in the compartments of magazine A to drop down onto the fixed stop members 14, thereby loading the left end of the discharge carriage for discharge of bottles on the return reciprocation of the carriage.

Herein it is assumed that the coin control mechanism will permit operation of the manual operating lever 28 in one direction only for each coin insertion. Therefore, the carriage 20 will be locked in its extreme left hand position as viewed in Fig. 3 and a return reciprocation thereof necessitates the insertion of another coin into the coin control device. Upon subsequent release, therefore, of the operating lever 28 the carriage 20 may be returned to its right hand position as viewed in Fig. 3, thereby discharging the bottles from the compartments of magazine A. This discharge takes place through the discharge passages 16 which are offset slightly to the right with respect to the compartments 12 of the magazine A. While discharge is taking place from the magazine A, the transverse article transfer elements 24 underlying the compartments of magazine B will release the bottles in the compartments of that magazine thereby reloading the right hand end of the discharge carriage. The foregoing cycle of operation may be continued for the alternate discharge of a plurality of bottles from one magazine and then the other so long as there is a supply of bottles in the compartments of which the respective magazines are composed.

The cylindrical surface of the bottles in the respective magazines and the weight thereof cooperate with the cam shaped surface 46 of the transverse article transfer elements 24 to render effective aid in the reciprocation of the discharge carriage 20. With the parts in position as shown in Fig. 3, the carriage need only be started toward the left to render the bottle weight in the magazine A effective to complete the reciprocation of the carriage. Furthermore, the overcenter springs 54 further assist in rendering the reciprocating movement of the carriage quite easy.

Having described the dispensing cabinet in one operative embodiment, what is claimed herein is the following:

1. In a dispensing cabinet designed to deliver a plurality of uniform articles at a single operation, a plurality of vertical open ended article receiving compartments designed to hold articles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the articles to be delivered, said members between each two thereof forming an open article delivery passage, the upper surfaces of said stop members formed with a downwardly directed cam surface, a discharge carriage

mounted for reciprocation between said stop members and the open end of said compartments, transverse article transfer elements on said carriage cooperating with said stop members and forming between each two elements an open article receiving pocket having a width not substantially more than the diameter of an article to be delivered, at least one of said pockets being off-set with respect to the remainder, and means for reciprocating said carriage whereby said elements may be aligned with their cooperating stop members during each stroke of the carriage for the discharge of articles through said delivery passages.

2. In a dispensing cabinet designed to deliver a plurality of uniform articles at a single operation, a plurality of vertical open ended article receiving compartments designed to hold articles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the articles to be delivered, said members between each two thereof forming an open article delivery passage, a discharge carriage mounted for reciprocation between said stop members and the open end of said compartments, transverse article transfer elements on said carriage forming between each two thereof an open article receiving pocket having a width not substantially more than the diameter of an article to be delivered, the upper surface of said elements being cam-shaped whereby the weight of articles thereon tends to move said carriage transversely, and means for reciprocating said carriage whereby said elements may be aligned with said stop members for the simultaneous discharge of a plurality of articles through said delivery passages.

3. In a dispensing cabinet designed to deliver a plurality of cylindrical bottles at a single operation, a plurality of vertical open ended bottle receiving compartments designed to hold bottles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the bottles to be delivered, said members between each two thereof forming an open bottle delivery passage, a discharge carriage mounted for reciprocation between said stop members and the open end of said compartments, transverse bottle transfer elements on said carriage cooperating with said stop members and forming between each two elements an open bottle receiving pocket having a width not substantially more than the diameter of a bottle to be delivered, the upper bottle engaging surface of said elements being rounded whereby the weight of bottles thereon tends to move said carriage transversely, at least one of said pockets being off-set with respect to the remainder thereof, and means for reciprocating said carriage whereby said elements may be aligned with their cooperating stop members during each stroke of the carriage for the discharge of bottles through said delivery passages.

4. In a dispensing cabinet designed to deliver a plurality of uniform articles at a single operation, two groups of article receiving magazines each consisting of a plurality of vertical open ended article receiving compartments designed to hold articles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the articles to be

delivered, the upper surface of said stop member being formed with a downwardly directed cam surface, said members between each two thereof forming an open article delivery passage, a discharge carriage mounted for reciprocation between said stop members and the open end of said compartments, transverse article transfer elements on said carriage cooperating with said stop members and forming between each two elements an open article receiving pocket having a width not substantially more than the diameter of an article to be delivered, the transfer elements under one of said magazines being off-set with respect to the elements under the other of said magazines, and means for reciprocating said carriage whereby said elements may be aligned with their cooperating stop members during each stroke of the carriage for the simultaneous discharge of a plurality of articles through said delivery passages.

5. In a dispensing cabinet designed to deliver a plurality of uniform articles at a single operation, two groups of article receiving magazines each consisting of a plurality of vertical open ended article receiving compartments designed to hold articles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the articles to be delivered, the upper surfaces of said stop members being formed with a downwardly directed cam surface, said members between each two thereof forming an open article delivery passage, a discharge carriage mounted for reciprocation between said stop members and the open end of said compartments, transverse article transfer elements on said carriage cooperating with said stop members and forming between each two elements an open article receiving pocket having a width not substantially more than the diameter of an article to be delivered, said transfer elements formed with a downwardly directed article engaging cam surface, the transfer elements under one of said magazines being off-set substantially half the distance between any two thereof with respect to the elements under the other of said magazines, and means for reciprocating said carriage whereby said elements may be aligned with their cooperating stop members during each stroke of the carriage for the simultaneous discharge of a plurality of articles through said delivery passages.

6. In a dispensing cabinet designed to deliver a plurality of cylindrical articles at a single operation, two groups of article receiving magazines each consisting of a plurality of vertical open ended article receiving compartments designed to hold articles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the articles to be delivered, said members between each two thereof forming an open article delivery passage, a discharge carriage mounted for reciprocation between said stop members and the open end of said compartments, transverse article transfer elements on said carriage cooperating with said stop members and forming between each two elements an open article receiving pocket having a width not substantially more than the diameter of an article to be delivered, the upper article engaging surface of said elements being cam-shaped whereby the weight of articles thereon tends to move said carriage transversely, the transfer elements under one of said magazines being off-set with respect to the elements under the other of said magazines, and means for reciprocating said carriage whereby said elements may be aligned with their cooperating stop members during each stroke of the carriage for the simultaneous discharge of a plurality of articles through said delivery passages.

7. In a dispensing cabinet designed to deliver a plurality of cylindrical bottles at a single operation, two groups of bottle receiving magazines each consisting of a plurality of vertical open ended bottle receiving compartments designed to hold bottles therein in stacked position, a fixed stop member spaced below the open end of each of said compartments a distance not substantially more than the diameter of the bottles to be delivered, said members between each two thereof forming an open bottle delivery passage, a discharge carriage mounted for reciprocation between said stop members and the open end of said compartments, transverse bottle transfer elements on said carriage cooperating with said members and forming between each two elements an open bottle receiving pocket having a width not substantially more than the diameter of a bottle to be delivered, the upper bottle engaging surface of said elements being rounded whereby the weight of the bottles thereon tends to move said carriage transversely, the transfer elements under one of said magazines being off-set substantially half the distance between any two thereof with respect to the elements under the other of said magazines, and means for reciprocating said carriage whereby said elements may be aligned with their cooperating stop members during each stroke of said carriage for the simultaneous discharge of a plurality of bottles through said delivery passages.

8. In a dispensing cabinet designed for the alternate delivery of articles from a pair of storage magazines, a pair of vertical open ended magazines arranged in contiguous parallel relation, a gravity discharge passage at the bottom of said magazines, a discharge carriage mounted for reciprocating movement across the open ends of said magazines, a plurality of article transfer elements forming an article receiving pocket for each of said magazines, said transfer elements formed with a downwardly directed article engaging cam surface, the elements forming one pocket being offset with respect to the elements forming the other pocket whereby discharge of an article may take place from one magazine while the discharge of an article from the other magazine is blocked by the cam surface of one of said elements.

9. In a dispensing cabinet designed for the alternate delivery of a plurality of articles from a pair of storage magazines, a pair of storage magazines each comprising a plurality of vertical open ended compartments arranged in contiguous parallel relation, a gravity discharge passage at the bottom of each of said compartments, a discharge carriage mounted for reciprocating movement across the open ends of said compartments, a plurality of article transfer elements in said discharge carriage forming an article receiving pocket for each of said compartments, said transfer elements formed with a downwardly directed article engaging cam surface the elements forming one set of pockets being offset with respect to the elements forming the other set of pockets whereby discharge of an article may take place from one magazine while discharge of an

article from the other magazine is blocked by the cam surfaces by said elements.

10. A discharge carriage for article dispensing cabinets having a plurality of vertical gravity discharge article receiving compartments, a rectangular frame adapted for reciprocation, a plurality of transverse bars dividing said frame into a plurality of open discharge pockets, the upper face of each of said bars being cam-shaped whereby the weight of articles thereon tends to reciprocate said carriage.

11. A discharge carriage for article dispensing cabinets having a plurality of vertical gravity discharge article receiving compartments, a rectangular frame adapted for reciprocation, a plu-

rality of transverse bars dividing said frame into a plurality of open discharge pockets, the upper face of each of said bars being semi-cylindrical whereby the weight of articles thereon tends to reciprocate said carriage.

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