

R. L. GREENE.
DISPENSING SYSTEM.
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1,359,696.

Patented Nov. 23, 1920.
2 SHEETS—SHEET 1.

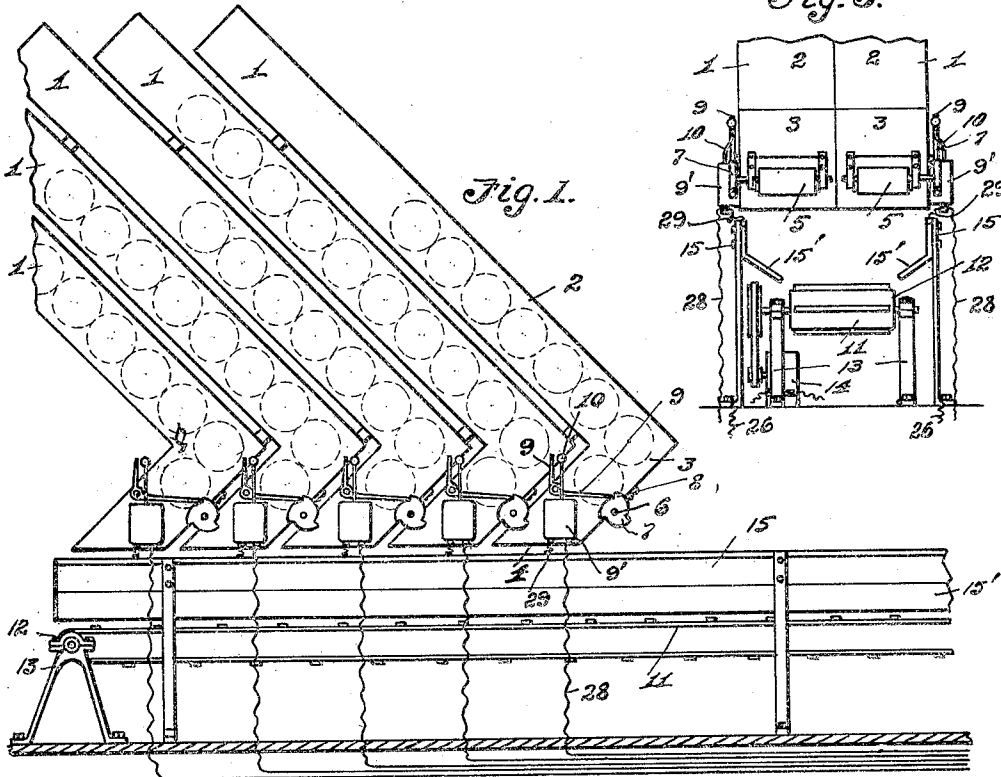


Fig. 3.

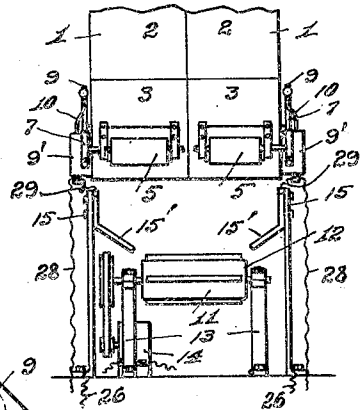


Fig. 4.

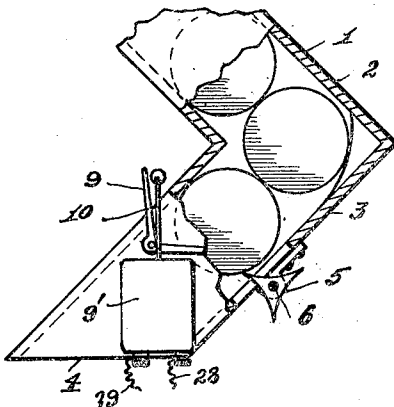
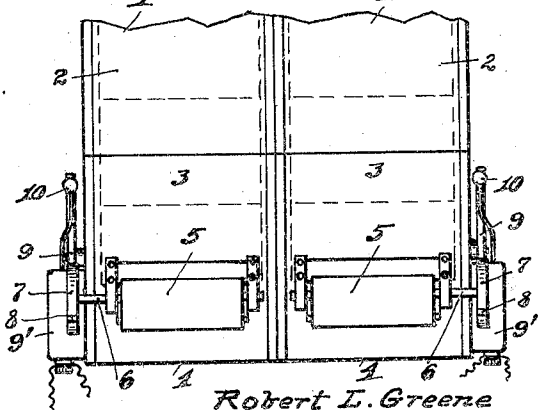


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

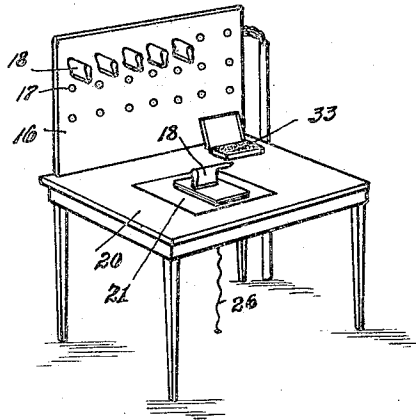


Fig. 7.

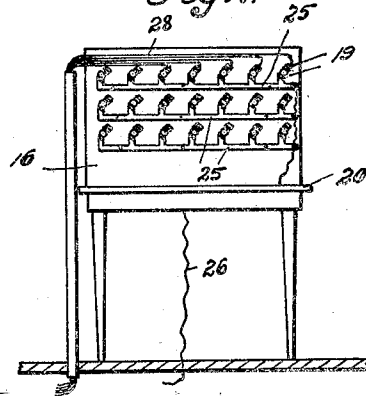


Fig. 2.

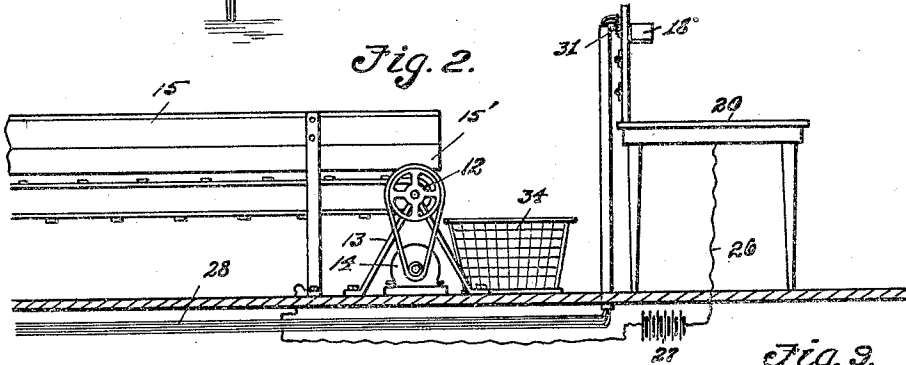


Fig. 8.

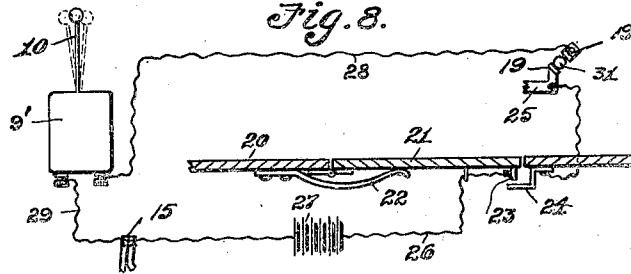


Fig. 9.

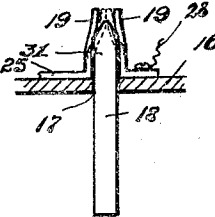


Fig. 10.

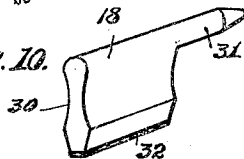
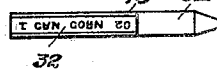


Fig. 11.



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UNITED STATES PATENT OFFICE.

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DISPENSING SYSTEM.

1,359,696.

Specification of Letters Patent.

Patented Nov. 23, 1920.

Application filed September 25, 1919. Serial No. 326,372.

To all whom it may concern:

Be it known that I, ROBERT L. GREENE, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Dispensing Systems, of which the following is a specification.

This invention relates to an improved dispensing system, designed particularly for the automatic and selective dispensing of goods usually handled by clerks, as in retail grocery stores, markets, and the like.

Ordinarily, the customer having selected the required article, it is taken from a shelf or other storage place for delivery to the customer. Frequently, in the buying of a number of articles, the clerk is compelled to travel over a considerable distance in selecting the different articles from the various shelves, and hence the aggregate cost to the store-keeper is proportionately increased. Many times the customer will require the inspection of several articles before making a selection, all of which tends to an aggregate increased overhead expense, and the necessity for a number of clerks for proper service.

The present invention is designed particularly to reduce these particular items of overhead expense to a minimum, both by reducing the number of clerks required for the customers, and by enabling the clerk to select the desired article and have the same delivered conveniently for handing to the customer. The operation is automatic following the selective actuation by the clerk, and includes, as a part of the selective actuation, a means whereby a permanent record of the sale is simultaneously perfected.

The invention, considered more specifically, consists in a series of article chutes, in which the articles are arranged in separate containers, and delivered singly through the control of suitable trip mechanism. The trip mechanism is electrically operated, and selectively governed from a switch board, located at a conveniently accessible part of the store. The circuits for the respective trip mechanisms include two normally open points, one of which is controlled by a plug and adapted to close on the withdrawal of the plug. The other open point in a circuit is closed through depression of a desk or table section on which is arranged a record pad. The plug is marked to indicate the

specific article and the price therefor, so that on withdrawing the plug to close one break in a particular circuit, the marked portion of the plug may be pressed on the pad to close the other break in the circuit. This records the sale on the pad, and operates the selected trip mechanism to deliver the desired article from the particular chute. An endless carrier receives the articles from the chutes, and delivers the same to a point convenient to the operating clerk, for delivery to the customer.

In the drawings:—

Figure 1 is a view in broken elevation, illustrating the invention, the delivery end of the conveyer and the switch-board being omitted.

Fig. 2 is a similar view, showing the delivery end of the conveyer and the switch-board.

Fig. 3 is an end view, showing the chutes and conveyer.

Fig. 4 is a sectional view, partly in elevation, showing the chute and associated trip mechanism.

Fig. 5 is an enlarged end elevation of the chutes and trip mechanism.

Fig. 6 is a perspective view of the switch-board.

Fig. 7 is a rear view of the same.

Fig. 8 is a diagrammatic view of the trip-mechanism control circuit.

Fig. 9 is an enlarged sectional view showing the plug in position in the switch-board to maintain one break in the control circuit.

Fig. 10 is a perspective view of the plug.

Fig. 11 is a bottom edge view of the plug.

The improved dispensing system comprises a series of chutes 1, arranged preferably in pairs and in longitudinal rows, as shown. These chutes, of which there may be any number, in accordance with the demands of the particular system, are identical in construction, and a description of one will cover all. Each chute comprises an elongated section 2, in which the articles to be dispensed are arranged in superimposed relation, and a short delivery section 3, preferably turned at a sharp inward angle to the section 2, and terminating in a delivery opening or discharge 4. As stated, the chutes are arranged in pairs, and the discharge ends of all chutes terminate on the same plane.

On the forward wall of each chute is mounted a retaining member 5, preferably

of approximately triangular shape in cross-section, and mounted for rotation, so that one of the points of such member will project through an opening in the chute wall and into the path of the articles in the delivery portion of the chute. The shaft 6 on which the member 5 is fixed is provided beyond and adjacent the relatively outer side wall of the chute with a disk 7, formed with edge shoulders or stops 8. A trip lever 9 is pivotally supported on the chute wall, so that the long arm thereof may engage one of the stops 8 on the disk, and thus secure the retaining member in position to prevent discharge movement of the articles within the chute. Adjacent the trip lever, is arranged a buzzer-type of actuating member, as 9', the operating arm 10 of which is positioned to engage the short arm of the trip lever, and operate said lever to release the disk, and thereby permit the weight of the articles in the chute to move the retaining member for the discharge of the lowermost article.

Arranged beneath the discharge ends of the chutes is an endless conveyer, as a belt 11, operating over rollers 12, supported on bearing standards 13, a motor 14 providing the operating power. A framework 15, preferably of metal, is provided with side plates 15', shaped to direct the articles from the chutes onto the conveyer, as shown in Fig. 3.

A switch-board 16 is provided, formed with openings 17 to receive plugs 18. In rear of each opening 17 is arranged a switch, in the form of spring plates 19, designed to normally contact under their inherent resiliency when free to act, but held spaced by the introduction of the plugs 18 through the openings 17. The switch-board has a desk section 20, having a movable or hinged portion 21, spring pressed, as at 22, to hold such portion in alinement with the desk. The desk proper and movable portion are fitted to provide a contact making construction, through the members 23, 24, secured to the respective parts. These switch members 23, 24, are normally open, that is when the desk portion 21 is free of pressure, but under pressure on such portion the members are moved into contact, and the switch is closed.

The circuits are illustrated diagrammatically in Fig. 8, wherein a conductor 25, leads from one plate, 19, of each switch of the switch board to a common wire connected to one of the desk-switch members, as 24. A conductor 28 leads from the other desk-switch member 23, through a battery 27, to the metallic framework 15 of the conveyer. The other switch plate 19 of each pair is connected by a conductor 28 to the buzzer 9' of the particular chute designed to be controlled by the switch 19, the return 29 from each buzzer being connected to the frame-

work 15. Each buzzer is thus controlled by two switches, one of which, that is 23, 24, is common to all buzzers, and the other of which, 19, controls a particular buzzer only.

The plugs 18 are illustrated in Figs. 10 and 11, and comprise flat body portions 30, with plug extensions 31, the latter being adapted to fit within and open the switches 19. The lower edge of the body portion of each plug is designed for printing, as at 32, through the use of a suitable inking pad 33, the printing of the particular plug being here shown as indicating the particular character of the articles in the chute controlled by such plug, and the price of such article.

In carrying out the system, it is contemplated that display cases will be arranged in the store, from which the customer can inspect and make up a list of desired articles. With this list given the clerk at the switch-board desk, the plugs 18 corresponding to the desired articles will be successively withdrawn. The withdrawal of the first plug, closes the switch 19 controlling a particular chute, and the clerk will depress the movable section of the desk, by pressing the printing edge of the same plug on the pad on such portion. This closes the circuit to the particular chute, operating the buzzer, and releasing the retaining member, to permit the discharge of the lowermost article on the conveyer, for delivery into a receptacle, as a basket 34, within reach of the clerk. The article may be delivered to the customer, and the operation repeated until the selected articles have been delivered. The printed list on the pad, may be duplicated by carbon impression, and thus an accurate list of articles sold and price obtained will be at all times available.

The system is preferably designed for handling articles capable of being packed in can-like retainers, as shown, though with other articles, changes in the form of the retaining means and of the chutes, are contemplated.

In the use of the system, a single clerk may devote his time to the actual delivery of the goods to the customer, and the accounting, though the latter is practically performed in the necessary switch-closing operation. The time heretofore required to display the goods to the customer, and to obtain desired goods from distant parts of the store is entirely eliminated, materially reducing the overhead cost of operation.

Having thus described the invention, what is claimed as new, is:—

1. A dispensing system including a plurality of article chutes, electrically controlled article holding means on each chute operable to discharge a single article, a circuit for each holding means including a switch for selectively bringing a particular holding means in circuit, and a second

switch common to all circuits for completing the selected circuit.

2. A dispensing system including a plurality of article chutes, article holding means on each chute operable to permit the discharge of a single article, a circuit for controlling said holding means, a switch in said circuit, a plug for controlling said switch, a second switch in said circuit, and pressure operated means for actuating said second switch.

3. A dispensing system including a plurality of article chutes, article holding means on each chute, a circuit to operate said holding means, a switch-board having a switch for each circuit, a plug for each of said switches operable on withdrawal to permit the switch to close, the plugs having a printing surface, a second switch common to all circuits, and means operated in a printing operation of the plug to actuate said second switch.

4. A dispensing system including a plurality of article chutes, electrically controlled article holding means on each chute operable to discharge a single article, a circuit for each holding means including a switch for selectively bringing a particular holding means in circuit, and a pressure operated switch common to all circuits for completing the selected circuit.

5. A dispensing system including an article chute, an article holding member rotatively mounted on the chute, a disk having stops fixed with relation to such member, a trip lever to engage said stops and hold

said member in article-retaining relation, a buzzer-type actuator including a hammer adapted by a series of taps to trip said lever, and an electrical circuit for controlling said buzzer.

6. A dispensing system including an article chute having a deflected delivery portion, an article holding member arranged in the deflected portion of the chute, and electrically-operated means for releasing said member, said means including two independently-operated switches adapted to be operated through use of the same element.

7. A dispensing system including an article chute, an article holding member operating in the chute, electrically-operated means for releasing said member, a plug adapted for printing for controlling said electrically-operated means in part, the printing operation of said plug completing the control of said means.

8. A dispensing system including a plurality of article chutes, a conveyer arranged beneath said chutes, an article holding member for each chute, releasing means for said member, an electrical circuit for controlling each releasing means, a switch in each of said circuits, a second switch common to all circuits, a plug for normally holding each first-mentioned switch open, said plug being adapted for a printing operation, and means operable under the printing operation of the plug for actuating the second switch.

In testimony whereof I affix my signature.
ROBERT L. GREENE.