

[54] ROTARY DISK COIN DISPENSER WITH
SPRING TABS

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[22] Filed: Aug. 5, 1971
[21] Appl. No.: 169,266

[52] U.S. Cl. 133/4 R, 221/182
[51] Int. Cl. G07d 1/02
[58] Field of Search 221/182; 133/2, 4 R, 3 R, 3 A,
133/3 B, 3 C, 3 D, 3 E, 3 G, 3 H, 8 R, 8 A, 8
B, 8 D, 8 E; 194/9 R

[56] References Cited
UNITED STATES PATENTS

3,187,760	6/1965	Simjian	133/4 R
2,987,160	6/1961	Antonoff et al.....	194/9 R
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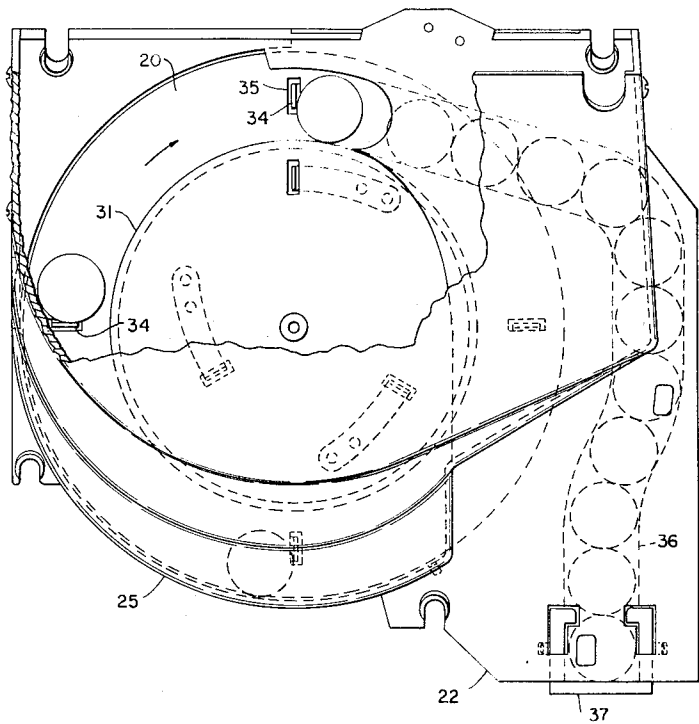
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[57] ABSTRACT

A coin dispenser which includes a rotating disc for transporting coins from the supply area to a stacking chute. The rotating disc includes a plurality of spring tabs which function to engage and hold the coins loosely on a ledge portion located on the rotating disc. As the coins are transported by the tabs to the stacking chute, the coins will roll off the ledge into the stacking chute. If the stacking chute is full, the coins upon engaging the coins in the chute, will deflect the tabs, thus releasing the coins so that they will fall back into the supply area. Thus the disc can be constantly rotated while the stacking chute is full.

3 Claims, 4 Drawing Figures



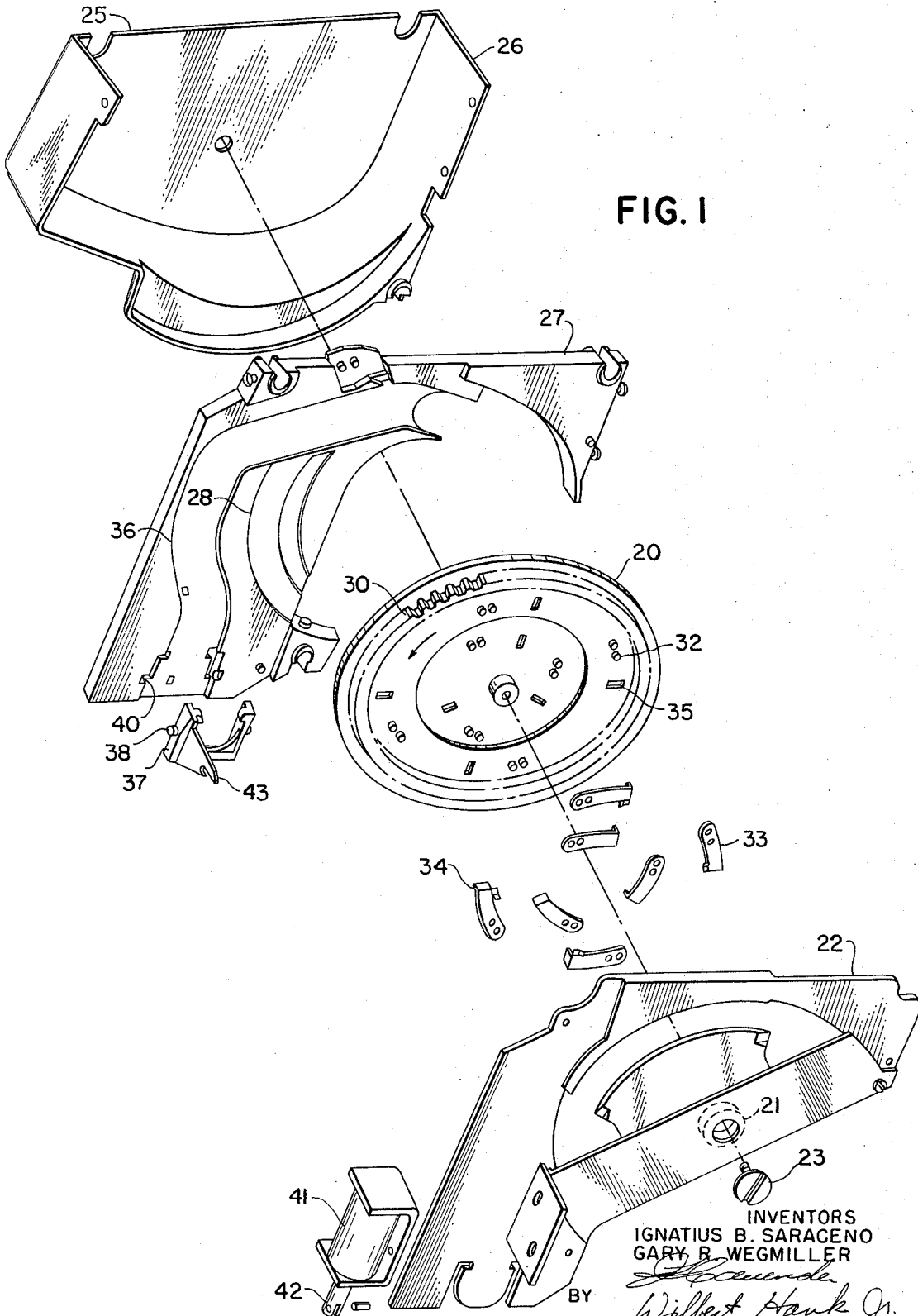
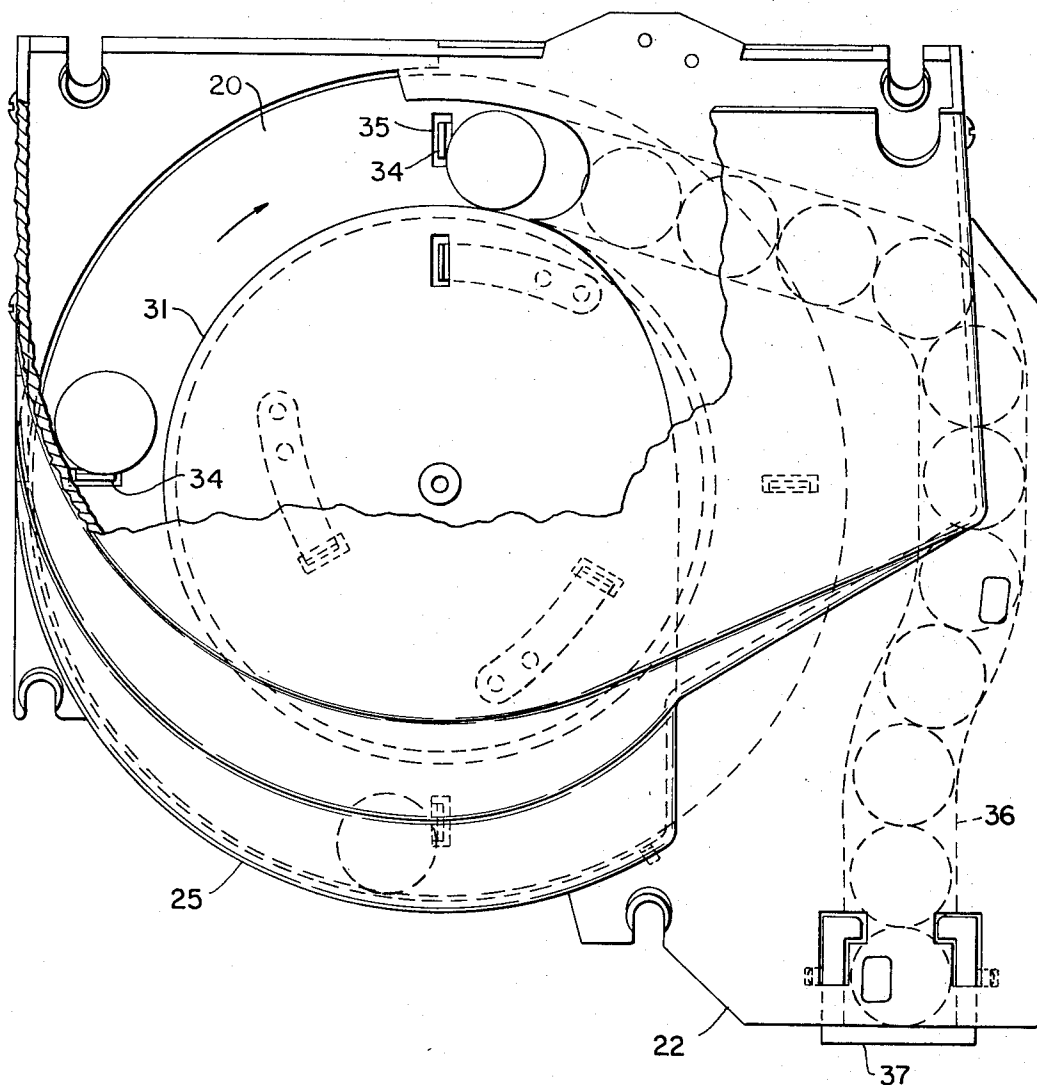


FIG. 1

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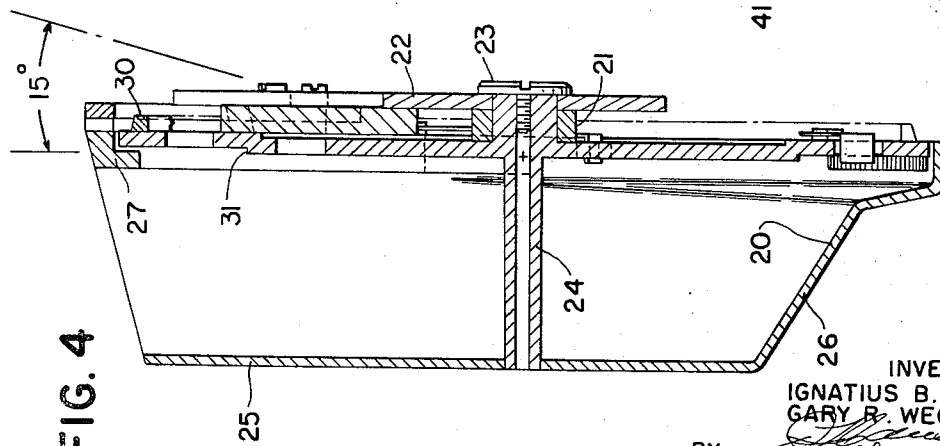
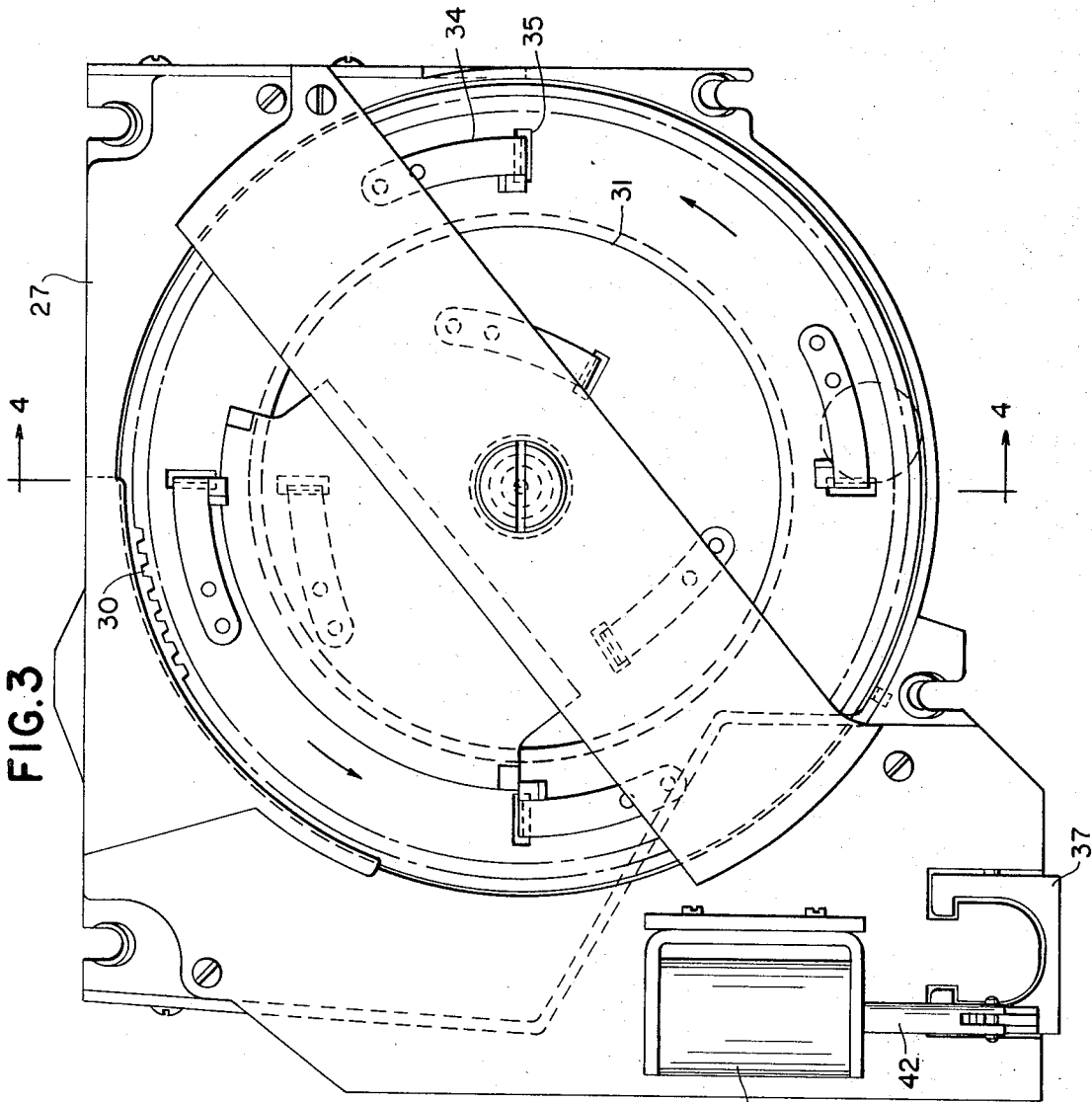
FIG. 2



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ROTARY DISK COIN DISPENSER WITH SPRING TABS

BACKGROUND OF THE INVENTION

Change dispensers found in the prior art are usually of a complex construction and, therefore, very costly. One of the reasons for this complex construction is the result of providing a mechanism in which the coins will not jam during its operation. This jamming of coins usually occurs when the coin chute is full and the transport mechanism continues to feed coins into the chute. In order to eliminate this problem, elaborate and costly sensing means are provided to sense when the coin chute is full and to then stop the operation of the transport means. An example of this construction is the U.S. Pat. No. 3,187,760 issued to L. G. Simjian on June 8, 1965.

SUMMARY OF THE INVENTION

It is therefore an object of this invention to provide a coin dispenser whose construction will prevent misoperation due to jamming of the coins in the coin chute by the transport means. It is another object of this invention to provide a coin dispenser having a coin reservoir which is easily accessible for replenishing when empty. It is a further object of this invention to provide a coin dispenser which is simple in operation and construction and, therefore, low in cost. In order to carry out these objects, there is provided a coin dispenser which includes an inclined rotating disc member having a plurality of spring-actuated support members for transporting coins to a coin chute and which also includes a ledge portion located on the rotating disc for supporting the coins that are being transported to the coin chute. Upon engaging a coin in the coin chute, the spring-actuated support member will be actuated to release the coins which then fall off the ledge portion back into the coin reservoir.

BRIEF DESCRIPTION OF THE DRAWINGS:

FIG. 1 is an exploded oblique view of the coin dispenser.

FIG. 2 is a front view of the coin dispenser with a portion of the coin hopper broken away.

FIG. 3 is a rear view of the coin dispenser.

FIG. 4 is a sectional view of the coin dispenser taken on lines 4—4 of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT:

Referring to FIG. 1, there is shown an exploded view of one of a number of coin dispensers which make up the change dispenser. Each coin dispenser unit will dispense a coin of one denomination. Since each coin dispenser is of the same construction, only one will be disclosed herein. Included in each of the coin dispensers is a disc member 20 rotatably supported within a hub portion 21 of a support plate 22 by means of a screw 23. The disc 20 has a center extension portion 24 (FIG. 4) which is rotatably supported by a back wall portion 25 of a coin hopper 26 secured to a chute member 27. The disc 20 is positioned within a cut-out proportion 28 of the chute member 27 to which is also secured the support plate 22. Thus the disc 20 is enclosed by the coin hopper 26 on one side and the support member 22 on the other.

Secured to one side of the disc 20 is a plurality of gear teeth 30 which is engaged by a drive gear (not shown) for rotating the disc 20. On the opposite side of the disc 20, there is a raised lip portion 31 (FIGS. 3 and 4) which, as will be described more fully hereinafter, functions as a ledge which supports coins during the operation of the dispenser. Mounted on studs 32 (FIG. 1), secured to the disc 20, are two sets of spring tabs 33 having a lip extension 34 which is positioned within a slot 35 located in the disc 20. The lip extension 34 protrudes through the slot 35 and out of the other side of the disc. There are a set of four tabs positioned along the outer perimeter of the disc and a set of three tabs around the inner perimeter of the disc. As will be described more fully hereinafter, the inner tabs 33 are utilized to agitate the coins in a coin hopper while the outer tabs 33 are used for transporting coins from the coin hopper to the coin chute.

As shown in FIG. 1, located in the chute member 27 is a coin chute 36 at the bottom of which is located a gate 37, which, in turn, is rotatively mounted by means of studs 38 within slots 40 located in the member 27. A solenoid 41 mounted on the support plate 22 has an armature 42 which engages an arm portion 43 of the gate 37. Energizing of the solenoid 41 will result in the rotation of the gate 37, thereby allowing the coins in a coin chute 36 to drop into a receptacle (not shown).

In the operation of the coin dispenser, coins will be loaded into the coin hopper 26 and the disc 20 will be rotated in a clockwise direction (FIG. 2) by the drive gear (not shown) which engages the gear teeth 30. Since the bottom of the coin hopper 26 is open to the bottom portion of the disc 20, coins deposited in the hopper will pile against the disc 20. As the disc rotates, the lip extensions 34 of the outer tabs 33 extending through the slots 35 in the disc 20 will engage and support a coin as it moves through the coin hopper. At this time, the coins will be supported by the extensions 34 and the disc 20 due to the fact that the disc 20 is positioned 15 degrees from its vertical position (FIG. 4). As the extensions 34 approach the top of their rotation, gravity will roll the coin against the lip 31 and the coin will then be supported by the extensions 34 and the lip 31 as it is transported into the coin chute 36. When the coin chute is full of coins, the next coin being transported by the tab extension 34 will engage the last coin in the chute. When this occurs, the coin will be halted, thus depressing the tab extension 34 through the slot 35 as the disc 20 continues its rotation. As the disc and the depressed tab extension move past the stopped coin, the end of the tab extension, being spring urged, will move from the slot 35 and knock off the coin from the lip 31 back into the hopper. As each succeeding coin being transported by a tab extension 34 engages the last coin in the chute 36, the coins will be displaced from the lip 31 and fall back into the hopper. It will be seen from this construction that despite the fact that the coin chute is full, the disc 20 can continue its rotation without the danger of jamming the coins in a coin chute.

The tab extensions 34 of the tabs 33, located on the inner circumference of the disc 20, will agitate the coins in the hopper, thus conditioning coins for engagement by the outer tab extensions 34 as they move through the coin hopper. Whenever a coin is to be dispensed, the solenoid 41 (FIG. 3) will be energized, thus rotating the gate 37 which allows coins to drop from

the chute 36. Depending on the number of coins to be dispensed, the solenoid will be re-energized until the required number of coins are dispensed. As the coins drop from the coin chute, new coins will be delivered to the coin chute by the tab extension 34 of the disc 2. 5 It will thus be seen that the coin chute will always be supplied with coins as long as there are coins in the hopper. This construction also eliminates any possibility of the jamming of the coins in the coin chute.

While the invention has been particularly shown and described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that the foregoing and other changes in the form and detail may be made therein without departing from the sphere and scope of the invention. 10 15

What is claimed is:

1. A coin dispensing apparatus comprising

- a. a coin hopper for storing coins deposited therein;
- b. a coin chute for receiving and accumulating a predetermined number of coins thereby establishing a full condition; 20
- c. means for transporting coins from said hopper to said coin chute including a disc member rotatably mounted in a slanted direction adjacent said coin hopper and the entrance of said coin chute, said disc member having a supporting surface and a plurality of spaced apertures located adjacent said supporting surface; 25
- d. a plurality of resilient support members each mounted on the underside of said disc member and adjacent one of said apertures, each of said support members having a bent over end portion extending through one of said apertures to a coin supporting 30

position with the upper surface of the disc member and said supporting surface;

- e. and drive means engaging said disc member for continuously rotating said disc member through said coin hopper whereby coins deposited on the upper surface of the disc member are engaged and freely supported on the disc member by the bent over end portion of said support member and said supporting surface, the coins being transported by the disc member from the coin hopper to said coin chute, said bent over end portion being deflected into its associated aperture by the supported coin upon engagement of the supported coin with the last coin in the coin chute when the coin chute is in a full condition, the supported coin being deflected from said supporting surface to the coin hopper by the end of the bent over end portion as it moves past the supported coin.

2. The coin dispensing apparatus of claim 1 in which said resilient support members each comprise a spring-mounted tab member whose bent over end portion is of a width sufficient to fully support a coin.

3. The coin dispensing apparatus of claim 2 in which said coin chute is positioned in an inclined plane whereby coins deposited in said coin chute by said disc member will move through the coin chute by gravity, and which includes a rotatably mounted gate member positioned at the end of said coin chute for normally blocking coins in said coin chute, said gate member adapted, when operated, to release a coin from said coin chute thereby allowing a coin transported by said disc member to be deposited in said coin chute.

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