H. B. COOLEY.

DISPENSING MACHINE.

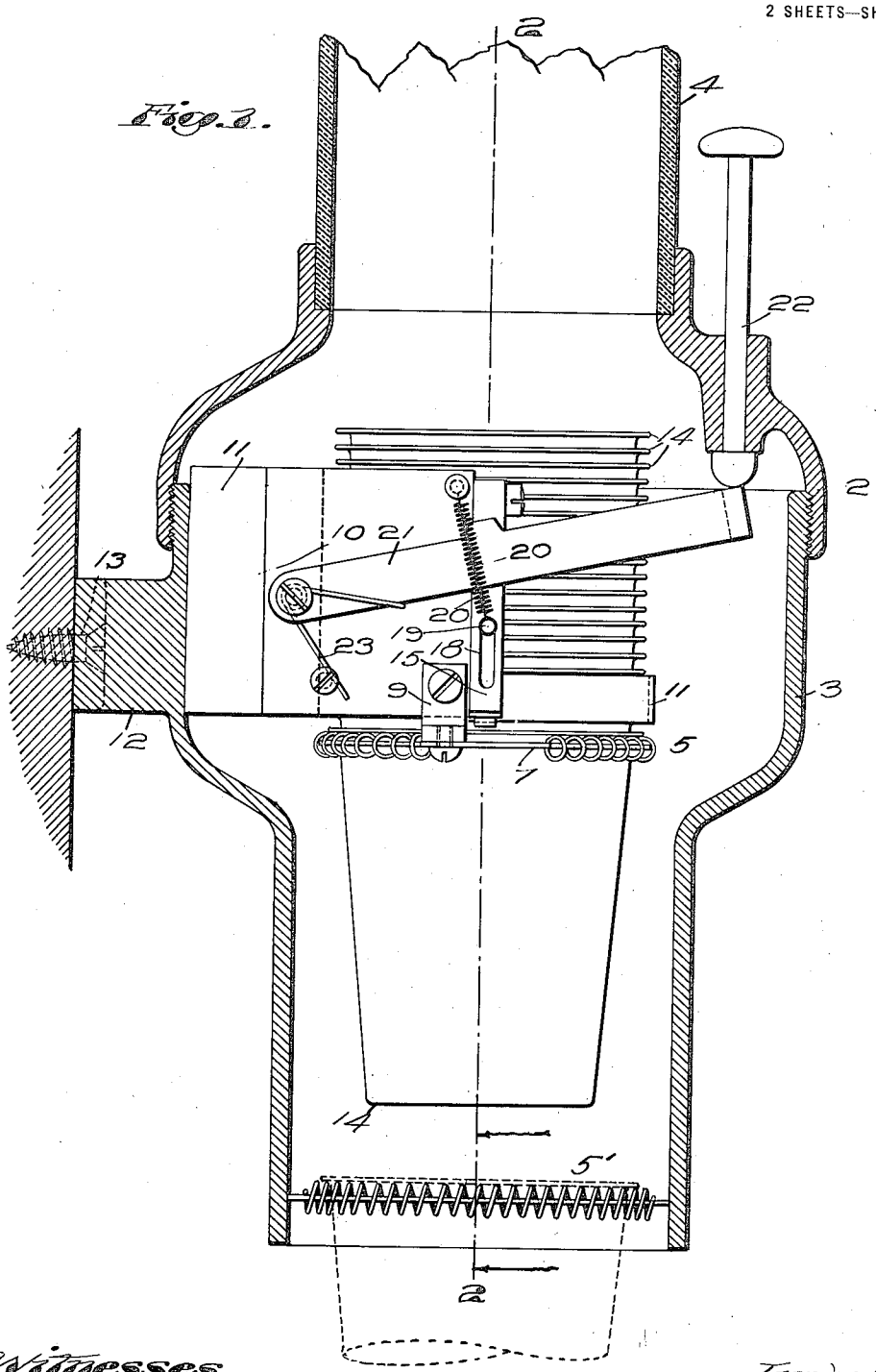
APPLICATION FILED MAR. 2, 1915.

1,173,648.

Patented Feb. 29, 1916.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

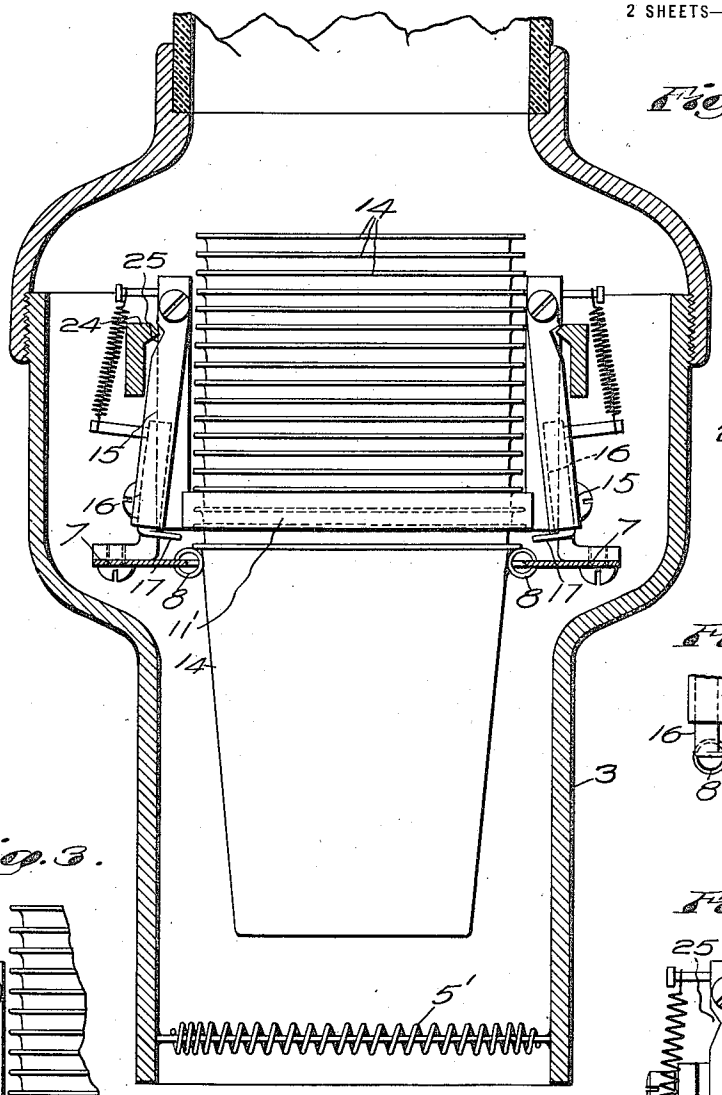


Fig. 6.

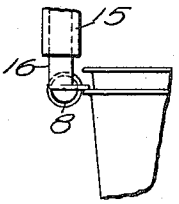


Fig. 3.

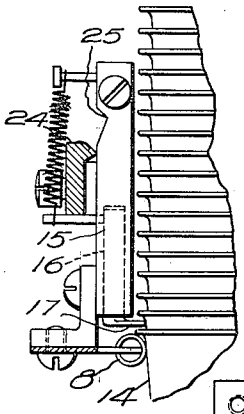


Fig. 4.

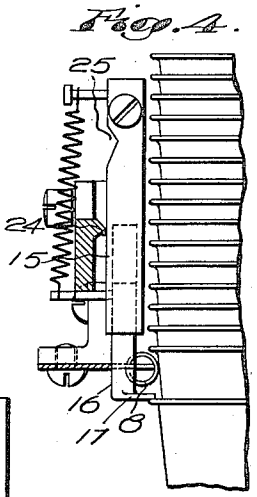
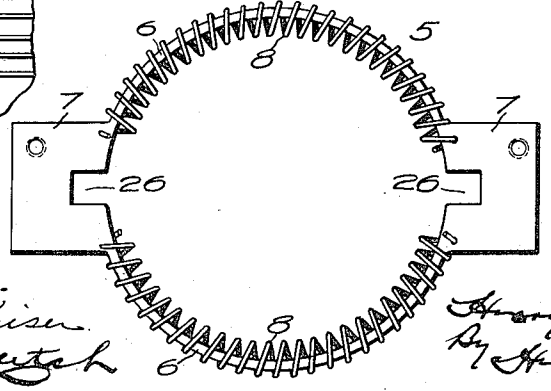


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY B. COOLEY, OF KENSINGTON, CONNECTICUT, ASSIGNOR TO THE AMERICAN PAPER GOODS COMPANY, OF KENSINGTON, CONNECTICUT, A CORPORATION OF NEW JERSEY.

DISPENSING-MACHINE.

1,173,648. Specification of Letters Patent. Patented Feb. 29, 1916.

Application filed March 2, 1915. Serial No. 11,552.

To all whom it may concern:

Be it known that I, HENRY B. COOLEY, a citizen of the United States, residing at Kensington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Dispensing-Machines, of which the following is a specification.

This invention relates to dispensing-machines, the object of the invention being to provide means simple in construction and effective in action for securing the delivery of an article.

A machine involving my invention can be employed with advantage in different connections, although it is of especial utility when the articles to be vended are in the form of nested receptacles, such for instance as individual drinking cups. When the machine is organized to receive and discharge such articles, it may be considered as a cup-dispenser.

In the drawings accompanying and forming part of the present specification I represent in detail one of the several convenient forms of embodiment of the invention which to enable those skilled in the art to practice the said invention will be set forth fully in the following description. I do not restrict myself to this disclosure; I may depart therefrom in radical respects within the scope of the invention defined by the claims following said description.

Referring to said drawings: Figure 1 is a vertical sectional view of a dispensing machine involving my invention, the upper part of the tube shown in said view being broken away and the section being from front to rear. Fig. 2 is a transverse vertical section on the line 2—2 of Fig. 1, of said machine with the terminal portions broken away. Figs. 3 and 4 are detail views of a carrier, an ejector, a holder and certain cooperating elements hereinafter more particularly described. Fig. 5 is a top plan view of said holder. Fig. 6 is a detail view hereinafter more particularly described.

Like characters refer to like parts throughout the several views.

A vending machine involving the invention comprises a holder for a stack of nested drinking cups and means to push the leading or advance cup free of the holder. This holder and the pushing means may be varied decidedly as to character. I do not restrict myself to the movement of the advance cup or the stack in any particular direction, although in the construction shown and hereinafter described, this movement is a downward one. The active or holding portion of the holder is preferably yieldable and in the present case is caused to yield to release the leading cup by thrust applied thereto, by the latter acted upon in turn by the pushing or equivalent means of whatever character the same may be. Drinking cups are generally arranged in a vending-machine, in the form of a stack, and I prefer to provide some positive means such as one or more ejectors or cup detachers by which the leading or advance cup can be pulled free of the next cup. Normally this ejector or ejectors are free of the stack, each ejector being supported by a carrier. I provide an actuator common to each carrier and its ejector which actuator first operates its coöperating carrier to move the ejector or detaching element into cup-detaching position and then move the ejector or detaching element mounted on said carrier, to free the leading cup of the holder to which I have alluded. This I might note is another one of the several important features of the invention.

With the foregoing general observations I will now describe in detail the structure shown in the drawings.

The different parts of the machine including the stack of cups or other articles to be vended, are inclosed in a suitable casing or housing such as that denoted in a general way by 2, this casing as shown comprising a main portion as 3 and an auxiliary portion as 4, the main portion as represented consisting of two sections connected in some suitable manner as by a screw threaded joint, and being enlarged between the ends, the upper section being rabbeted to receive the auxiliary member 4 of the casing which auxiliary member may consist of a tube of glass, the main member 3 being generally of metal. The shape of the casing and the kind of materials from which the parts thereof, are constructed may be greatly changed.

The casing 2 incloses a suitable stack holder, that denoted in a general way by 5 answering satisfactorily in this connection. As shown the stack-holder 5 has two dupli-

cate portions 6 of bowed or segmental form, the terminals of which are connected to lugs or ears as 7, the lugs and segmental portions 6 being generally made integral, although this is merely a detail. The two bowed or segmental portions 6 present approximately a circular structure, the internal diameter of which is slightly greater than the maximum transverse diameter of the cups. Each segmental portion is surrounded by a coiled spring as 8 longitudinally bowed to conform to the curve of the respective segmental portions 6, said springs preferably held against movement bodily for instance by having their terminals being passed through perforations in the lugs 7. The circle which said springs practically jointly make is of less internal diameter than the maximum diameter of the cups, the outer portions of the coils of the two springs by the resiliency thereof tending constantly to engage the outer sides of the two bowed portions 6, the springs constituting as illustrated, active portion of the cup holder and being yieldable as will hereinafter more particularly appear, to free the advance of leading cup of the stack from the one next to it, this whether the cups are moved downward, upward or otherwise, although in the form of the embodiment shown, the cups move down. This holder acts, therefore, not only as a support but as a cup-separator. That is to say when it has freed the leading cup of the stack, it is automatically positioned to hold the next cup of the stack or the stack itself from advancing movement, in this way separating the two cups in question. This cup holder 5 may be mounted in any desirable manner. As shown the diametrically opposite lugs or ears 7 are connected to brackets as 9 fastened to the outer surfaces of the channel-like frame member 10, the back wall of which is suitably attached to a block as 11 attached to the lower section of the body or main member 3 of the casing, this lower member being provided with a projection as 12 adapted to be secured by one or more screws as 13 or otherwise to a suitable support.

Several cups as 14 are shown nested to produce a stack, these cups having flanges at their open ends. The flange of the lowermost cup in Figs. 1 and 2 is shown supported by the springs 8. It will be assumed that the stack is advanced or that the leading or foremost cup thereof is pushed forwardly. On this action the advance cup will cause the recession or outward movement of the coils of the two springs 8, so that the leading cup can be freed by the springs and as soon as the leading cup is thus released, the two springs by their resiliency can engage under the flange of the second cup (the stack having in the meantime descended), to prevent further movement of the stack or to positively separate the first and second cups. To aid in steadying the stack the frame member 11 may be provided with a segment 11′ suitably connected therewith.

Drinking cups are generally paraffined or otherwise coated with waterproofing material which causes the cups to adhere or stick together. I, therefore, provide means of a positive nature for effecting the separation or detachment of the leading cup from those back of it, and as will be inferred, I may provide one or more ejectors or detaching elements for this purpose. In the construction shown I have shown two of such ejectors or detaching elements, and when I utilize two I provide a suitable carrier for each. While it is conceivable that I might provide but one ejecting or detaching element, the cup can I find be better removed by providing two or more. These ejectors and their carriers may differ, although those shown and now to be described meet the desired conditions. Pivoted on the front edges of the side walls of the frame member 10 near the top thereof are two swinging members 15 which are bored to receive for sliding movement the shanks 16 provided at their lower ends, with inwardly-extending feet 17, each shank and foot constituting a cup-ejector.

The carriers 16 are longitudinally slotted as at 18 on their outer sides to receive the pins as 19 projecting from the respective shanks 16, coiled springs as 20 being connected to the outer ends of said pins and also to the upper portion of the frame member 10, the purpose of the springs being normally to hold the carriers 15 elevated and the shanks 16 up. The branches of a bail-like member 21 are pivoted to the frame member 10, this bail-like member or yoke 21 constituting a suitable actuator for the two carriers 16 and the ejectors sustained thereby, straddling the frame member 10 and the stack of cups 14. This actuator can be operated in any desirable manner, for instance by the plunger 22 extending through a suitably-placed perforation in the casing 2, and the lower rounded end of which is adapted to engage the bail or actuator 21. The acutator 21 and therefore the plunger 22 are normally upheld in some suitable manner, such for instance as by one or more springs as 23 bearing against the actuator. The branches or sides of the actuator 21 are provided with cam portions 24 of practically wedge shape form to enter notches 25 in the adjacent carriers 15, the lower walls of the notches being beveled upon a rather steep pitch. The two carriers 15 are shown as being out in Fig. 2 and the shanks 16 and feet 17 up, the carriers and the feet being wholly out of contact with the stack. It will be assumed that a cup is desired. In this event the actuator or bail 21 is lowered by pushing down on the plunger 22. On

the downward movement of the actuator 21 the cams 24 ride along and then off the steep lower faces of the notches 25. As the cams travel along said faces the carriers are moved inward as shown in Fig. 3 and just about the time the cams pass out of the notches the branches of the actuator will be brought against the pins 19 and at the same time the feet 17 will be between the flanges of the leading and second cups. As the actuator continues its downward movement the cams 24 will ride along the outer straight faces of the carriers 15 without moving said carriers, but the pins 19 will be thrust downward as will the shanks 16 and feet 17 as shown in Fig. 4 so that the projections or feet 17 on such movement can force the first cup away from the second cup, the first cup on its downward movement causing outward movement of the coils of the springs so that said cup will be freed by the holder in the manner set forth and when the first cup is thus freed and altogether separated from the one next to it, the springs 8 will inherently assume their primary positions to engage under the flange of what was the second cup to uphold the stack which had in the interval descended onto said springs. The two lugs 7 are notched or slotted as at 26 on their inner sides to permit of the downward movement of the feet 17, the feet and shanks passing through said notches on cup-detaching and return movements thereof. When the actuator 21 is freed it will be returned to its initial position by the spring or springs 23 and the springs 20 will as the actuator rises swing the two carriers 15 outward to their primary positions and at the same time elevate the shanks 16 and feet 17 to their original relations.

From the foregoing description it will be clear that there is means for holding a group of cups whether arranged in a stack or otherwise, in conjunction with means for separating one of the cups from the group and means for holding the cup after it is separated and in position to be grasped. In the construction shown this is accomplished by separating the leading or advance cup from the stack, the cup thus freed gravitating away from the stack. At a predetermined point in its movement this individual cup is arrested in some suitable manner. The means shown for this purpose consists of an element as 5′ mounted in the casing 2 at or near the discharge opening in the lower end of said casing. When the freed cup falls away from the stack, it enters this auxiliary holder or stop 5′ and its flange rests upon the spring of said auxiliary holder or stop, a portion of said freed cup extending through the discharge opening of the casing, by virtue of which said individually separated cup can be readily grasped and manually pulled free of the auxiliary holder or stop 5′ which latter as will be inferred releasably arrests the individual cup.

What I claim is:

1. A holder of the class described comprising two bowed members, and coiled springs surrounding the bowed members, the outer sides of the spring engaging the bowed members.

2. A holder of the class described comprising two bowed members, and coiled springs surrounding the bowed members, the outer sides of the spring engaging the bowed members, said springs being held against movement bodily.

3. A holder of the class described comprising bowed members and outwardly extending lugs to which the bowed members are connected, and coiled springs surrounding the bowed members between the respective lugs.

4. A holder of the class described comprising bowed members and outwardly extending lugs to which the bowed members are connected, and coiled springs surrounding the bowed members between the respective lugs, the lugs being notched on their inner sides.

5. A dispensing machine comprising a holder for a stack of nested drinking cups, said holder having coiled spring means of approximately annular form to receive and hold the lowermost cup of the stack, and means for freeing the first cup from the said spring means, the latter when said first cup is free of said spring means automatically engaging the second cup of the stack to thereby hold the same.

6. A holder of the class described comprising longitudinally bowed coiled spring means to yieldingly grip an article, the spring means having an opening therethrough, and an ejector device movable through the opening.

7. A plurality of longitudinally bowed coiled springs positioned to jointly support a stack of nested articles, the ends of the springs being separated, and ejector means for the lowermost article movable through the spaces between the ends of the springs.

8. A holder of the class described comprising two bowed members, and coiled springs surrounding the bowed members and confined respectively at their ends.

9. The combination of means for holding a group of cups, means for separating one of the cups from the group, and bowed coiled spring means for yieldingly gripping the cup after it is separated.

10. The combination of means for holding a stack of nested drinking cups, movably mounted carriers at opposite sides of the stack, ejectors supported by said carriers, means for normally holding the carriers in their retracted positions, and means for ad-

vancing the carriers to cause the operative portions of the ejectors to assume cup detaching relation and for then operating the ejectors to detach the advance cup of the stack.

11. The combination of means for supporting a stack of nested drinking cups, a movably mounted carrier, and an ejector movably supported thereby, spring means connected to one of said two last mentioned parts for normally yieldingly holding the same in their retracted positions, and means for operating the carrier to move the ejector into cup detaching relation and for operating the ejector when in cup detaching relation to remove the advance cup of the stack.

12. The combination of means for supporting a stack of nested drinking cups, a pivotally mounted carrier, a cup ejector slidably supported by the carrier, a spring connected with the ejector for holding the carrier and the ejector normally in retracted positions, and means for operating the carrier to move the ejector to cup detaching relation and for then operating the ejector to effect the removal of the advance cup of the stack.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY B. COOLEY.

Witnesses:
L. L. MARKEL,
HEATH SUTHERLAND.