H. E. ERWIN.

DISPENSING MACHINE.

APPLICATION FILED NOV. 20, 1912.

1,095,319.

Patented May 5, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

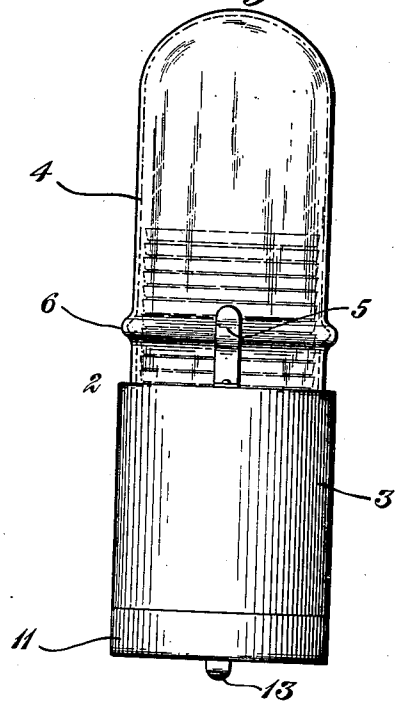


Fig. 2.

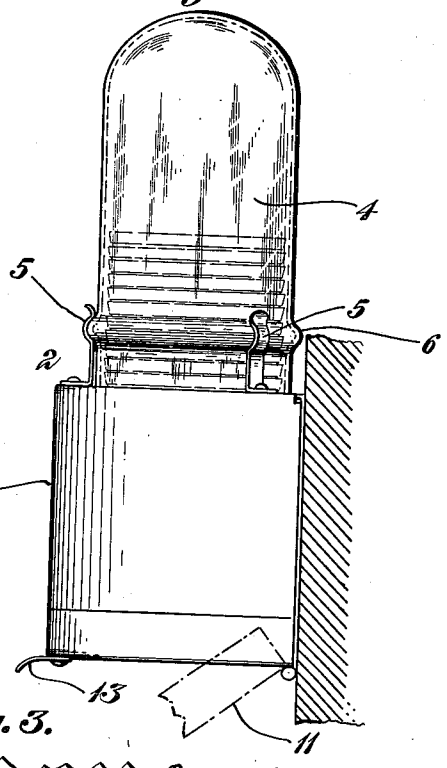
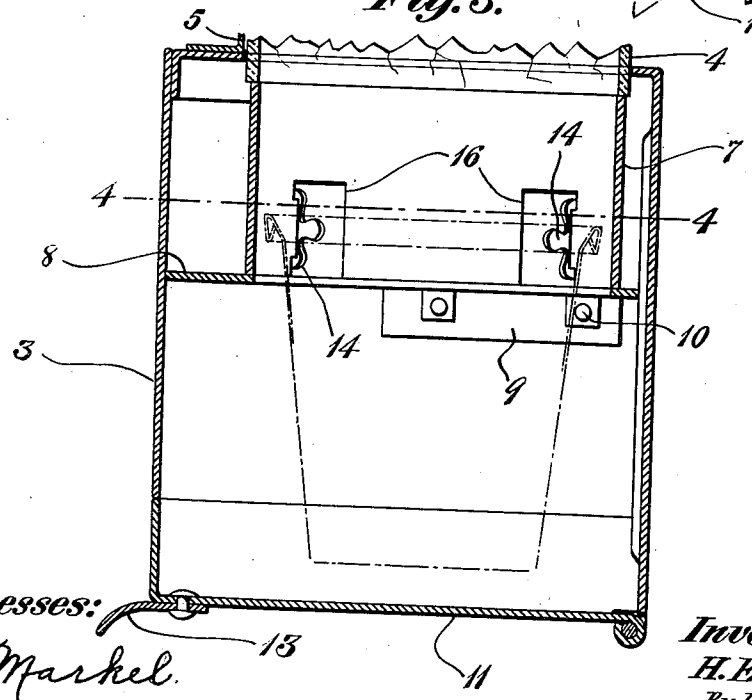


Fig. 3.



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3 SHEETS—SHEET 2.

Fig. 4.

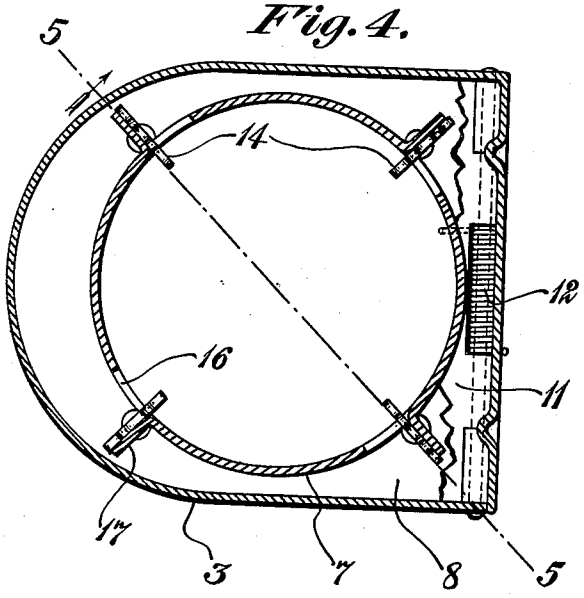


Fig. 6.

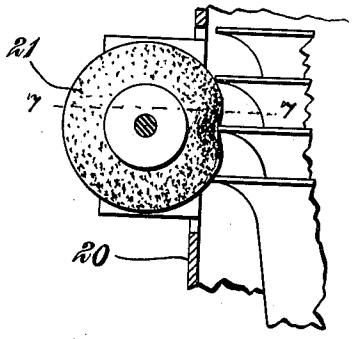


Fig. 7.

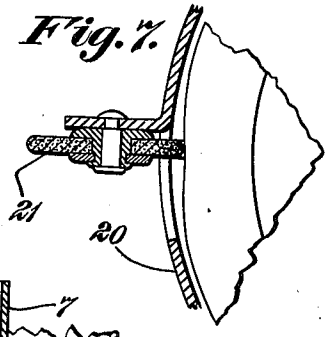
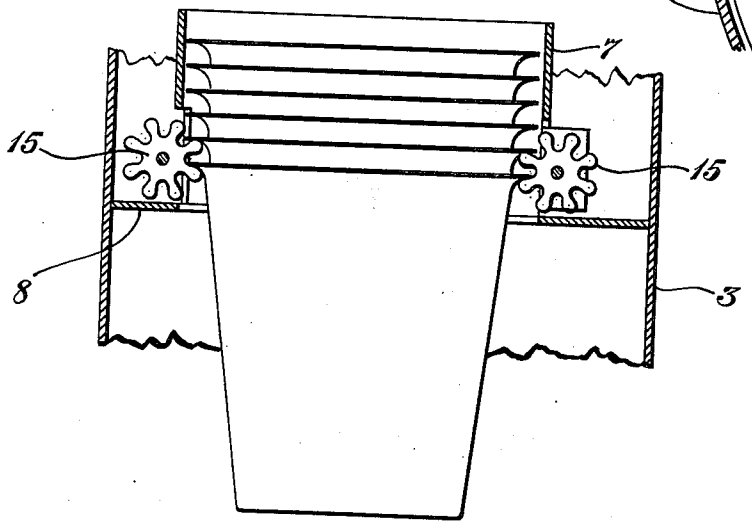


Fig. 5.



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3 SHEETS-SHEET 3.

Fig. 8.

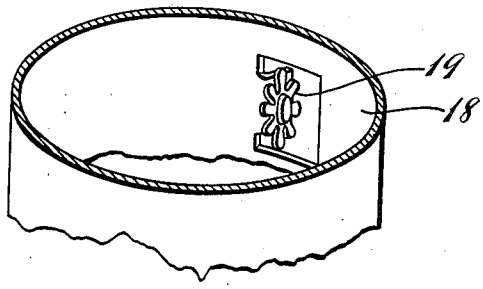
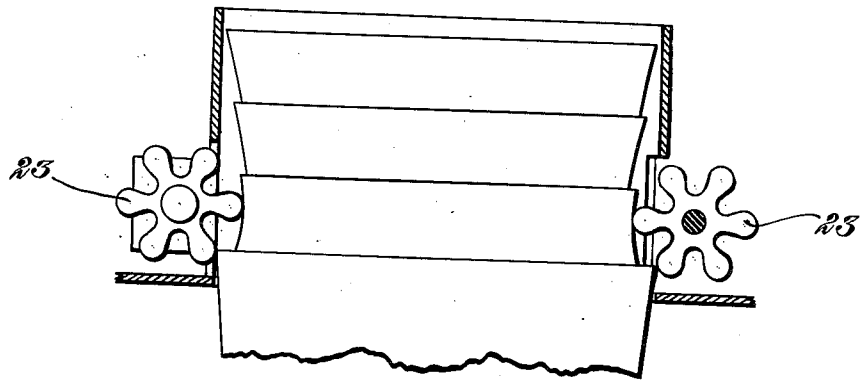


Fig. 9.



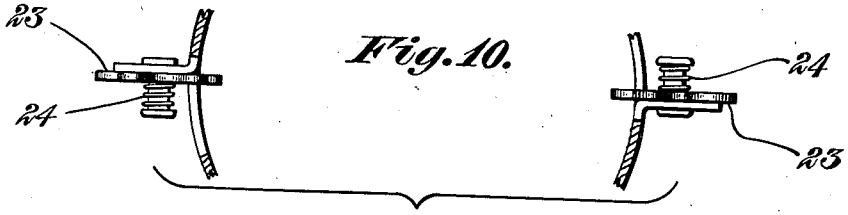
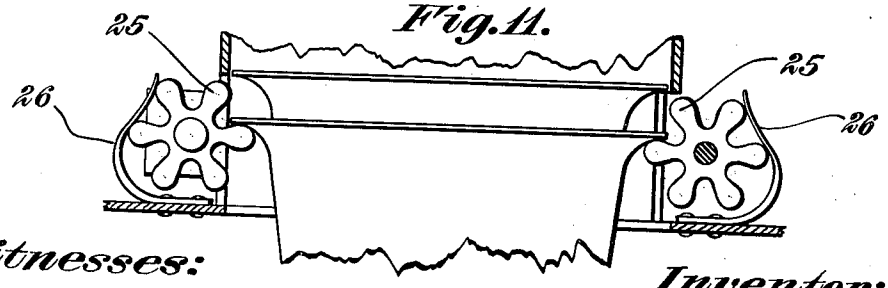


Fig. 10.

Fig. 11.



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UNITED STATES PATENT OFFICE.

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DISPENSING-MACHINE.

1,095,319. Specification of Letters Patent. Patented May 5, 1914.

Application filed November 20, 1912. Serial No. 732,443.

To all whom it may concern:

Be it known that I, HERBERT E. ERWIN, a citizen of the United States, residing at New Britain, 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.

A dispensing machine involving my invention can be employed with advantage for holding and delivering preferably at will, various kinds of articles, although those forms of embodiment of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification, are primarily adapted for the reception and discharge of paper drinking cups.

One of the principal objects of the invention is the provision of simple and effective means for sustaining a stack of the articles to be vended and for securing their proper delivery one at a time or in other desired order.

As already intimated I have shown several of the many convenient forms of embodiment of the invention in said drawings, and I will describe these several forms in detail in the following description, so that those skilled in the art can practise the invention. I do not restrict myself to this showing, however, as I may depart therefrom in several respects within the scope of the invention defined by the claims following said description. As will be inferred therefore, the invention resides rather in certain broad relations whereby a stack of cups or other articles can be adequately supported and removed. Although the machine is preferably organized for delivering one cup or other object at a time, this in all cases may not be essential, as there may be instances where I should desire to dispense simultanously two, three or more cups on each action of the machine. In any event, however, the construction is such that accurate action follows.

Referring to said drawings: Figure 1 is a front elevation of a dispensing machine involving my invention. Fig. 2 is a side elevation of the same showing by dotted lines the door or flap as open. Fig. 3 is a vertical section from front to rear of the lower part of the machine. Fig. 4 is a horizontal section on the line 4—4 of Fig. 3. Fig. 5 is a sectional view of a slightly different form of the machine, the section being taken on a line corresponding with the line 5—5 of Fig. 4. Fig. 6 is a similar view of a still further form. Fig. 7 is a horizontal section on the line 7—7 of Fig. 6. Fig. 8 is a detailed view of a further form. Figs. 9 and 10 are detail views at right angles to each other of another form, and, Fig. 11 is a view corresponding practically with Fig. 9 of another form.

Like characters refer to like parts throughout the several views, which it will be observed are on different scales.

As will be assumed from what has already been said a dispensing machine comprising my invention, can be utilized in several different ways, although it is of prime utility when employed for receiving and delivering drinking cups which are ordinarily placed within the machine in the form of a stack and which are as a matter of preference, taken away as occasion requires, one at a time from the bottom or lower end of the stack. The machine is shown as being of that type known as "free"; that is to say no coin is necessary to obtain a cup. It is a simple matter to provide coin controlled mechanism for governing the action of the dispensing mechanism or equivalent part as is now done in other dispensing machines.

The different parts of the machine as well as the stack, are inclosed or housed in any suitable container such as that denoted in a general way by 2, said container including in its make-up the shell or casing 3 made in the form of a box, and a tube 4 of glass or other transparent material, the top of the casing or boxing 3 having an opening to comparatively closely receive the tube 4 which is thereby steadied in a simple manner, accidental vertical movement of the tube being prevented by the spring fingers or latches 5 of which there may be any suitable number, fastened to the top of the casing or boxing 3 and engaging the annular bead 6 on the circumference of said tube. This glass tube as will hereinafter appear partially contains the stack of cups, the lower end of the stack extending into the casing or boxing 3 and preferably being supported therein. When the cups have all been removed the tube or cap 4 is lifted from

place and when a new stack is introduced the said tube or cap 4 will be applied.

To steady the stack of cups in the container any suitable means may be provided, the band or ring 7 being shown for this purpose and being inclosed in the casing or boxing 3 the two parts being spaced from each other a short distance as shown in Fig. 3 and the steadying member or band 7 having a base flange 8 extending outward therefrom and in turn having one or more pendent flanges 9 secured by screws as 10 or otherwise to the body of the boxing or casing 3 which is shown as having a drop down hinged door 11 by opening which access may be had to the stack of nested cups in order to reach the lowermost one thereof. The door or flap 11 is normally held closed by a spring 12 and is equipped at its front end with a finger or thumb piece 13 to facilitate its operation.

The means for supporting the stack of cups may vary decidedly as to character, although the same preferably involves one or more stack-supporting devices movable by a pull on the stack to release the lowermost cup from engagement by said stack supporting device. When there are several of said devices, they are preferably arranged in annular order or approximately annular relation. One or more wheels constitutes a satisfactory means for supporting the stack, and when used it or they will be operative by a pull on the lowermost cup of the stack to permit the separation of said cup from said stack, the wheel means being then adapted to uphold the stack when the lowermost cup is withdrawn therefrom. As a means for supporting the stack the wheels 14 can be advantageously employed, four of such wheels being shown and being of toothed form. Although this type of wheel is of advantage, it is not essential that it be employed as I will hereinafter describe a wheel which will perform the same functions and which is not toothed. In like manner the number of teeth in the wheel when this type is provided, is not so important, depending somewhat upon the nature of the cup. In the form of the invention shown in Figs. 1 to 4 inclusive the wheels 14 have four teeth, thus adapting them to a cup having a rather deep circumferential brim, while the wheels 15 shown in Fig. 5 have eight teeth to thereby better conform to a brim of rather shallow depth. The only difference in construction therefore between the form of machine shown in Figs. 1 to 4 inclusive and that illustrated in Fig. 5 is in the wheels, and for this reason corresponding characters except as regards the wheels, will be used in these several views. The stack steadying band 7 receives the lower end of the stack, the lowermost cup of the stack extending below the band and also depending from the supporting wheels so as to easily be reached when the door or flap 11 is opened. The stack steadying band 7 is slotted at approximately equidistant points as at 16 to receive the stack supporting wheels 14, part of the stock cut from the band in forming the slots being extended outward as at 17 to provide bearings for the several wheels 14.

In Fig. 3 teeth of the four wheels 14 are horizontally alined and extend under the outwardly projecting brim of the lowermost cup of the stack and also constrict or embrace the latter to thus support the same. To obtain a cup the door 11 will be opened and the lowermost cup will be grasped and the stack as an entirety will be drawn downward by such pull, thus rotating simultaneously the four wheels 14 and bringing what were the upwardly extending teeth of said wheels under the brim of the second cup and at the same time causing such teeth to bind around the second cup constituting a part of the stack. When what were the horizontally disposed teeth of the wheels 14 have nearly assumed a lower vertical position, the lowermost cup will be freed entirely from the holding or restraining action of the wheels so that it is only necessary to overcome the slight frictional hold which this cup has on the one immediately above it to wholly free it from the stack. This action can be repeated until the stack is entirely depleted and the cups will be by such construction dispensed only one at a time, although this condition can be varied by changing the relation of the teeth for there may be instances where it may be desired to dispense simultaneously two cups, while in others it may be required to deliver three or other number at the same time.

The only difference as already stated between what is shown in Fig. 5 and what is illustrated by Figs. 1 to 4 inclusive is that the wheels in Fig. 5 have a larger number of teeth than those shown in the preceding views. In Fig. 5 there are two sets of teeth coöperating to grip and support the stack. When the wheels 15 are turned one step as it might properly be considered to free the lowermost cup a second pair of teeth of each wheel will be brought into position to constrict and thereby uphold the stack.

In Figs. 6 and 7 the stack steadying band is denoted by 20 and the stack supporting and cup releasing wheels are denoted by 21. There may be any number of these wheels 21 each of them as shown consisting of two disks clamped together and between which is arranged a yieldable body or rim portion, any of the gelatin or soft rubber substances answers in this connection. The wheels 21 support the stack and their peripheries will be indented somewhat by the brims of the nested cups so as thus to uphold the stack

by a constricting action or embracing support. When the stack is drawn downward a sufficient extent to carry the lowermost cup entirely free from the holding effect of the wheels 21, the lowermost cup can be readily pulled from place, although the remaining cups constituting the stack proper will be effectually upheld by the wheels 21.

In Fig. 8 the numeral 18 denotes the stack steadying band associated with which is a single wheel 19. It is conceivable that the stack can be supported and its lowermost cup released by the single wheel 19, but I prefer to employ a plurality of such wheels.

In Figs. 9 and 10 is another form adapted especially for receiving and dispensing cups which have no external brims, flanges or any other means by which they can be upheld, the stack in this particular construction being held solely by the constricting, embracing or clamping action of the wheels 23. Except as to these wheels the construction of the device is exactly like that already described. In this particular form, means are provided for preventing overthrow or accidental motion of the wheels 23 and the coiled springs 24 on the shafts of said wheels answer satisfactorily in this connection. In all cases the wheels are preferably free or relatively so; that is to say they can be easily turned by a pull on the stack and in Figs. 9 and 10 I prefer that some means be provided as by said springs to prevent unnecessary movement of the wheels and also to prevent the weight of the stack forcing the same downward.

In all the forms thus far described the stack has been upheld primarily by being embraced or pressed inward at different points or as I have termed it by a constricting action. In Fig. 11 I have shown a construction wherein there is no such action, the teeth of the wheels 25 upholding the stack by engaging under the circumferential beads of the cups. In this case means are necessary to insure regular or uniform step by step movement of the wheels 25 and the springs 26 can be very well utilized in this connection.

What I claim is:

1. A dispensing machine comprising a plurality of wheels in coöperative relation with each other, the peripheries thereof being soft, said wheels jointly constrictively embracing and thus supporting a stack of drinking cup and being rotative by force applied to the stack to release the lowermost cup from the holding effect of said wheels.

2. A dispensing machine comprising a relatively fixed band for the reception of a stack of drinking cups, and a plurality of wheels arranged in approximately annular order, the band being slotted for the passage of the wheels and said wheels jointly constrictively embracing and thus supporting said stack.

3. A dispensing machine comprising a band for the passage of a stack of nested drinking cups, and a plurality of toothed wheels supported exteriorly of the band, the band being slotted for the passage of the wheels and said wheels jointly constrictively embracing said stack.

4. A dispensing machine having rotary means for supporting a stack of nested drinking cups, with the lower portion of the stack extending below said rotary supporting means, said rotary supporting means being operable to release the lower portion of the stack, by a pull directly applied to said lower portion and being adapted to support the remainder of the stack when said lower portion has been removed.

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

HERBERT E. ERWIN.

Witnesses:
ROBERT S. BROWN,
H. H. PEARE.