

H. S. MILLS.  
VENDING MACHINE.

APPLICATION FILED MAY 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

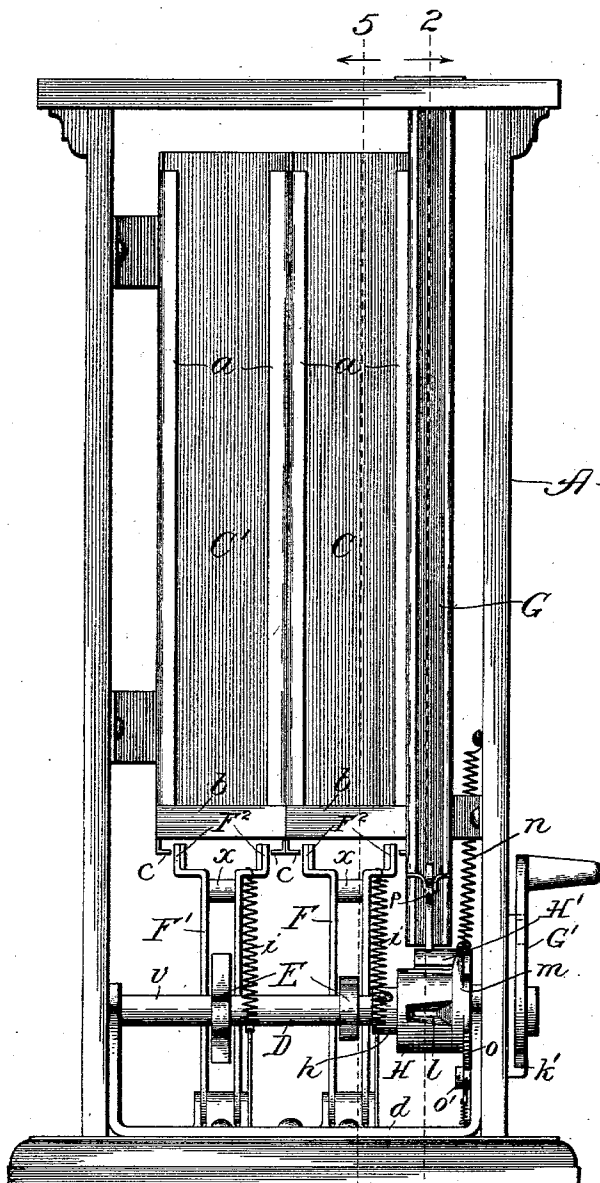
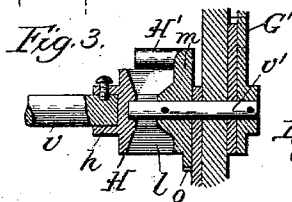
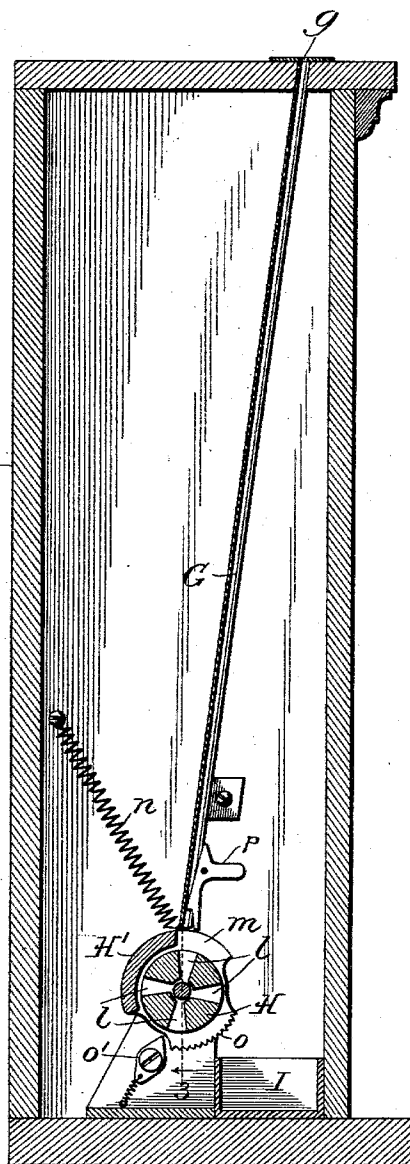


Fig. 2.



Witnesses:  
Ed. C. Davis  
John Enders Jr.

Inventor:  
Herbert S. Mills,  
By *Dymally, Dymally & Lee,*  
Att'ys.

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2 SHEETS—SHEET 2.

Fig. 4.

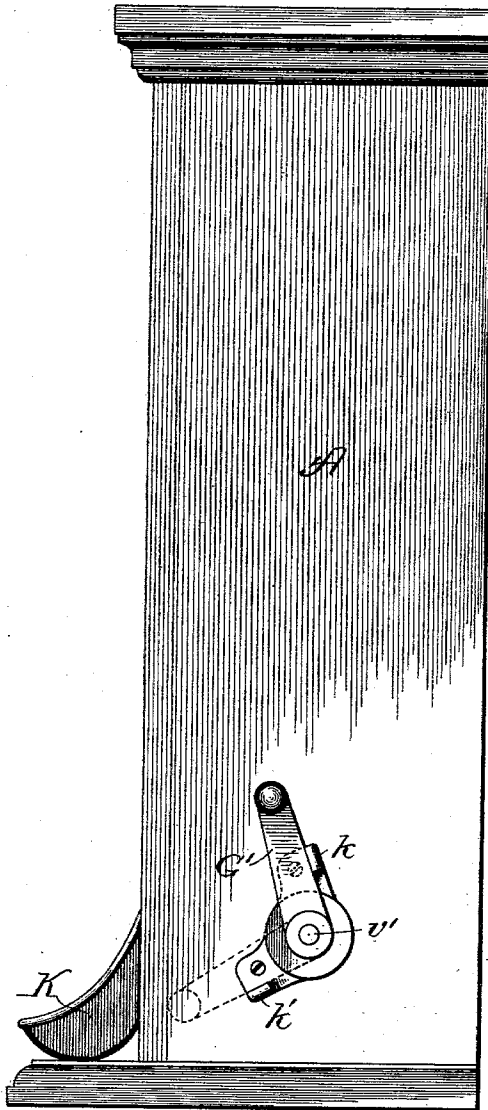
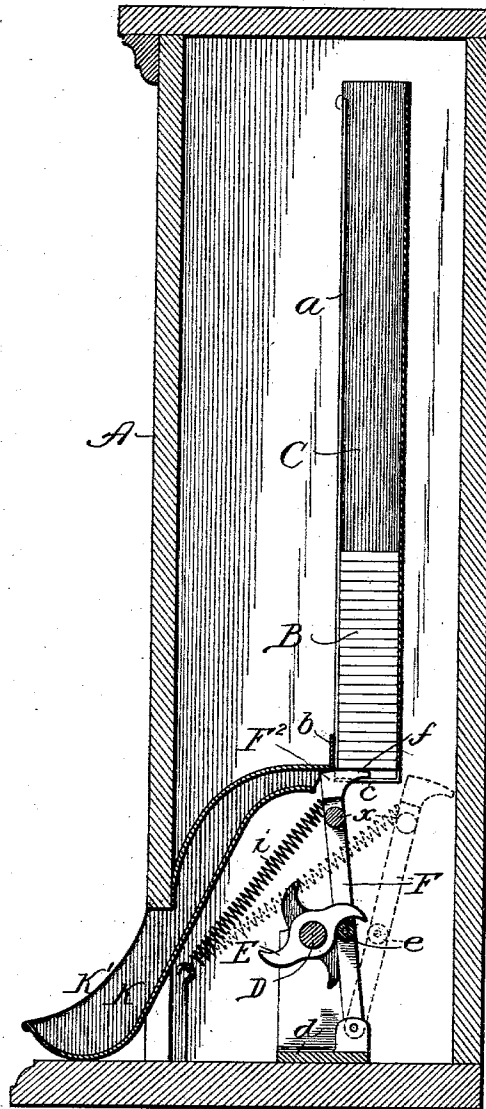


Fig. 5.



Witnesses:

Geo. C. Dawson.  
John Enders Jr.

Inventor:

Herbert S. Mills,  
By Dyumfries, Dyumfries & Co.,  
Att'ys.

## UNITED STATES PATENT OFFICE.

HERBERT S. MILLS, OF CHICAGO, ILLINOIS.

## VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,159, dated September 29, 1903.

Application filed May 23, 1903. Serial No. 158,445. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT S. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Vending-Machines, of which the following is a specification.

My invention relates, primarily, to an improvement in the delivery mechanism in a coin-operated vending-machine, my objects being to provide a novel and comparatively simple and positively and reliably operating construction of that mechanism and to adapt it to produce the delivery of the article to be vended in succession from each of a plurality of holders for the article, so as to deplete them uniformly.

Referring to the accompanying drawings, Figure 1 is a view in front elevation of the machine with the front of the casing removed; Fig. 2, a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow; Fig. 3, a section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow; Fig. 4, a view of the machine in side elevation, and Fig. 5 a section taken at the line 5 on Fig. 1 and viewed in the direction of the arrow.

In a casing A of any suitable general form, I provide one or more upright receptacles for holding the article to be vended in a stack of pieces or packages. The shape of the receptacle, which should be open along its face, preferably conforms in cross-section to the shape of the article it is designed to hold. Thus, as shown, the receptacle is rectangular in cross-section, with its upper end open and flanges *a a* projecting toward each other from its opposite sides to leave a longitudinal opening in its face except for a cross-piece *b* near its lower end, which is open, but provided with inturned flanges *c c* to form a seat for the stack of articles it is designed to hold. As represented, the receptacle is adapted for holding a stack of chewing-gum B in wrapped pieces or packages, though it is also adapted for containing other articles—such as chocolate, confections, and the like—and I desire to be understood as intending my improvement for use in vending any kind of article adapted to be contained within it and to be delivered by the delivery mechanism hereinafter described. Two of the receptacles

are shown side by side in the drawings, denoted as C and C', respectively, though it is within my invention to provide only one or more than two in series.

A rotary shaft D (shown to be formed of two longitudinal sections *v* and *v'*) is journaled at its opposite ends to extend below and slightly forward of the open bases of the receptacles in the vertical sides of a casing, and it carries on the section *v* one or more cam-fingers E, each shown to be of general S shape and mounted at its center on the shaft to extend transversely thereof and render it a duplex cam. Two of these cam-fingers are shown, one for each receptacle. Back of the cam are provided levers F and F', each fulcrumed at its lower end on the base of the frame *d* to extend upward crosswise of the shaft and across the path of its respective cam, which engages with its lever at a roller-bearing *e*, journaled between the parallel arms of which the lever is shown to be formed and which are shown braced near their upper ends at *x* and expanded above the brace into a two-armed head *F<sup>2</sup>*, extending between the inturned flanges *c c* and reaching above them to or about to the extent of the thickness of an article in the receptacle, and on the sides of the head are provided backward extensions *f f*, which should curve slightly, as represented, in a backward and downward direction along their upper edges. Each lever is resiliently held normally by a spring *i* in a vertical position, with its head forming the base of the respective receptacle for supporting the stack of the latter's contents. When a lever is turned backward against the resistance of its controlling-spring, as hereinafter described, to withdraw its head behind the plane of the receptacle with which it coöperates, the stack of the contents thereof or remaining piece or package in the receptacle drops to rest upon the flanges *c c*, and is thus brought into the return-path of the lever-head, which on being released is suddenly retracted by the recoil force of its spring against the article to be delivered and sweeps it out from underneath the stack, in doing which the lever resumes its normal vertical position, with its head again forming the withdrawable support for the contents of the receptacle. The backward sweep of a lever is effected by turning

the section of the shaft D to cause a cam thereon to act against the respective bearing *e*, and this is accomplished by any suitable coin-controlled mechanism.

5 The particular mechanism illustrated for the purpose is provided directly underneath a vertical coin-chute G, leading from a coin-insertion slot *g* in the top of the casing. This mechanism operates on the principle of that  
10 shown and described in Letters Patent of the United States No. 591,559, issued October 12, 1897, to M. B. Mills, and it involves the following-described construction: H is a drum having on one end a collar *h*, at which it is  
15 rigidly fastened on an end of the shaft-section *v* to receive and afford a bearing for the adjacent end of the shaft-section *v'*, which passes through a side of the casing A, beyond which it carries, for operating it, a crank-handle G', the extent of turning which is  
20 limited by stops *k* and *k'* at the opposite ends of its throw. In the perimeter of the drum are provided a circumferential series of coin-pockets *l*, of which four are shown and one  
25 of which always registers with the lower end of the coin-chute owing to the extent of throw of the operating-lever. On the shaft-section *v'* is rigidly fastened, to turn with it, a disk-shaped head *m*, carrying on its face a hood H' (shown of semicylindrical form) to overlap  
30 and cover a corresponding portion of the surface of the drum, leaving an intervening space between them for freedom of movement of the hood over the drum. The hood is retractively  
35 held by a spring *n*, and on the edge of its head *m* is provided an arc-shaped series of teeth, forming a ratchet *o* for engagement by a pivotal spring-controlled pawl *o'* of well-known construction and operation in apparatus of  
40 the present kind for preventing the hood from being retracted by its controlling-spring until the complete throw of the operating-lever in the forward direction has carried the ratchet beyond the pawl, (meantime being  
45 held thereby at any intermediate position between the ends of the throw of the lever,) when the controlling-spring of the pawl turns it to permit the ratchet to slide freely over it.

With the parts in the relative positions in  
50 which they are illustrated in Fig. 1 the operation of the machine is as follows: A suitable coin, such as a copper cent, is inserted into the slot *g* to descend in the chute G and enter edgewise a coincident pocket in the  
55 drum H, from which pocket, being shallower than the diameter of the coin, the latter will project into the path of the adjacent edge of the hood and present to it an abutment. Near the lower end of the chute there is shown  
60 loosely pivoted upon it a finger *p* to extend at its lower shouldered extremity, by gravity, into the path through the chute of the coin, which may freely pass it, but is prevented by the downward extension of the finger beyond  
65 the shoulder from rebounding out of the pocket after dropping into it. With a coin thus contained in a pocket on turning the

handle G' forward the resultant turning of the hood abuts it against the projecting portion of the coin, thereby turning the drum, 70 and with it the shaft D, until further turning is arrested by the stop *k*, when another pocket will register with the coin-chute for another operation of the machine. The operator then releases the handle, which thereupon flies 75 back and carries with the shaft-section *v'* the hood to its initial position, under the retractive force of the spring *n*, without disturbing the drum in the position to which it has been turned, and the coin, released from the hood, 80 drops out into a drawer or other suitable receptacle, (represented at I.) In thus turning the shaft-section *v* a cam thereon will have encountered and passed the lever-bearing *e* in its path, thereby forcing the lever, against the 85 resistance of its controlling-spring, backward on its fulcrum to withdraw accordingly its head from underneath the contents of the respective receptacle, whereupon they drop to rest on the flanges *c c*, thereby bringing the 90 lowermost piece or package in the return-path of the lever-head. As soon as the cam clears the lever-bearing the lever is free to be retracted by its spring *i*, and the retraction is sudden and causes the lever-head to sweep 95 the article in its path out of the receptacle upon an inclined chute K, on which it slides down to the base of the receptacle and may be taken out through an opening K' above the latter. The two cam devices E are shown 100 set on the shaft D at right angles to each other, and since each has a cam at each of its ends to engage with a lever in its path each device will actuate a lever twice in a rotation of the shaft, and the devices being 105 thus set at right angles to one another the levers will be actuated twice and successively by the complete rotation of the shaft. Of course where more than two of the cam devices are provided on the shaft D they will be 110 set at suitable relative angles to cause them to operate successively against the levers throughout the series thereof, then composed of a number corresponding with that of the cam devices, to withdraw the articles from 115 the receptacles in succession, and thereby deplete them accordingly, which is the object of the plural arrangement of the parts.

The details herein shown and described of my improved delivery mechanism may be 120 variously modified without departure from my invention. Hence I do not intend to be understood as limiting it to such details. Moreover, it would be within my invention to reverse the action of the delivery-levers by 125 causing their controlling-springs to hold them in the retracted position to be actuated to effect the delivery by the direct action of the cams.

What I claim as new, and desire to secure 130 by Letters Patent, is—

1. In a vending-machine, the combination of a receptacle for the article to be vended, having a seat therefor at its open base, a

spring-controlled lever extending into said receptacle through said seat to form thereon a seat for the article and retractable from beneath the article, a rotary shaft, and a cam on the shaft to engage with said lever, substantially as and for the purpose set forth.

2. In a vending machine, the combination of a receptacle for the article to be vended having a seat therefor at its open base, a spring-controlled lever having a head extending into said receptacle through said seat to form therein a seat for the article and retractable from beneath the article, a rotary shaft, and a cam device on the shaft having a plurality of cams to engage successively with said lever in the rotation of the shaft, substantially as and for the purpose set forth.

3. In a vending-machine, the combination of a plurality of receptacles for the article to be vended, each having a seat therefor at its open base, a spring-controlled lever for each receptacle extending into the same through said seat to form therein a seat for the article and retractable from beneath the article, a rotary shaft, and a plurality of cams relatively set on said shaft to engage in its rotation successively with said levers, substantially as and for the purpose set forth.

4. In a vending-machine, the combination

of a plurality of receptacles for the article to be vended, each having a seat therefor at its open base, a spring-controlled lever for each receptacle having a head extending therein through said seat to form a seat for the article and retractable from beneath the article, a rotary shaft, and a plurality of cam devices each having a plurality of cams and relatively set on said shaft to engage in its rotation successively with said levers, substantially as and for the purpose set forth.

5. In a vending-machine, the combination of a plurality of vertical receptacles for the article to be vended, each having a seat therefor at its open base, a plurality of spring-controlled levers, one for each receptacle, fulcrumed at its lower end and terminating at its upper end in a head to extend into its receptacle through said seat and form a seat for the article and retractable from beneath the article, a rotary shaft, and a plurality of duplex cam devices relatively set on said shaft to engage in its rotation successively with said levers, substantially as and for the purpose set forth.

HERBERT S. MILLS.

In presence of—  
WALTER N. WINBERG,  
W. B. DAVIES.