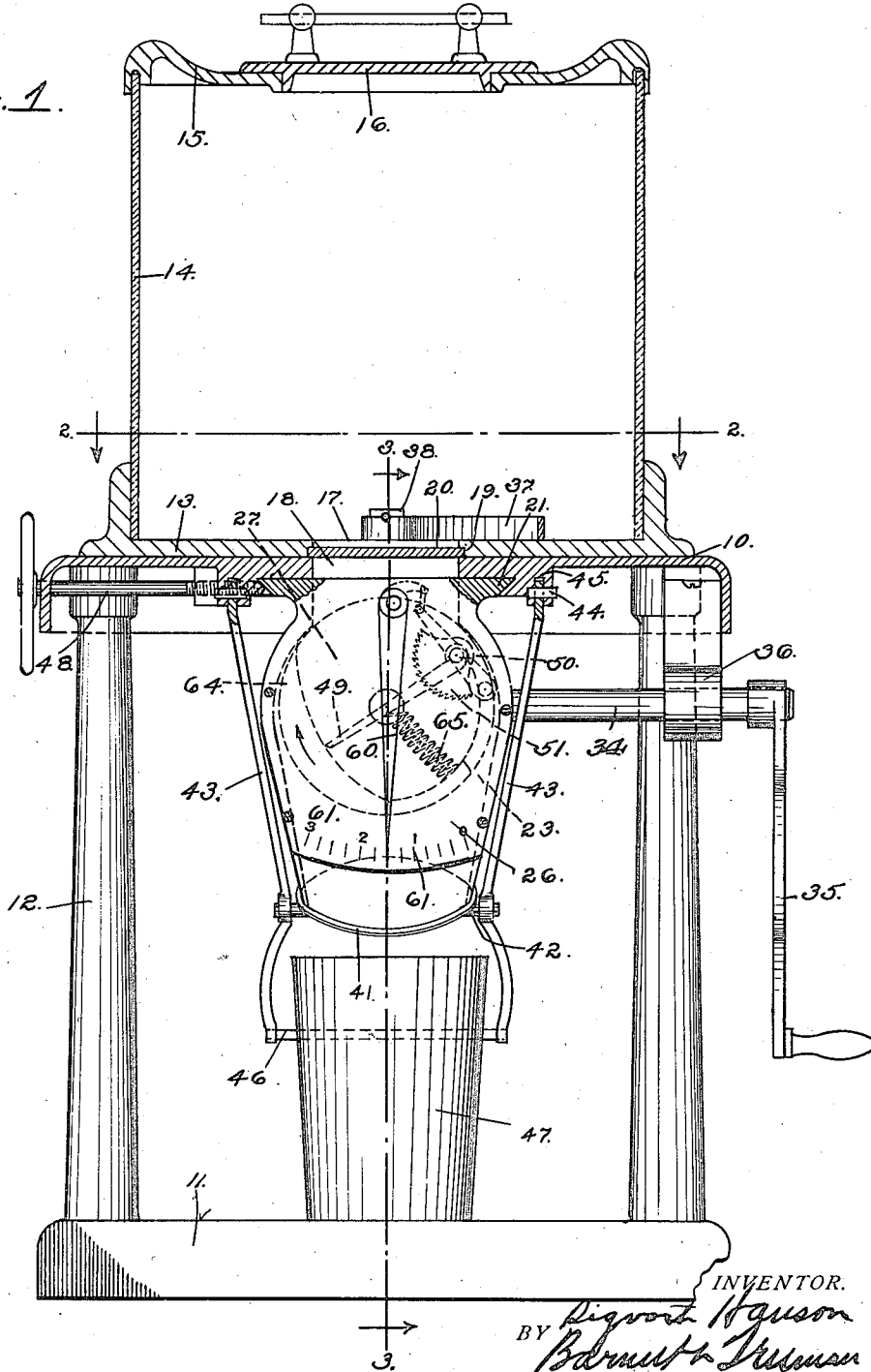


S. HANSON.
DISPENSING MACHINE.
APPLICATION FILED AUG. 27, 1915.

1,211,577.

Patented Jan. 9, 1917.
3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 3.

Fig. 4.

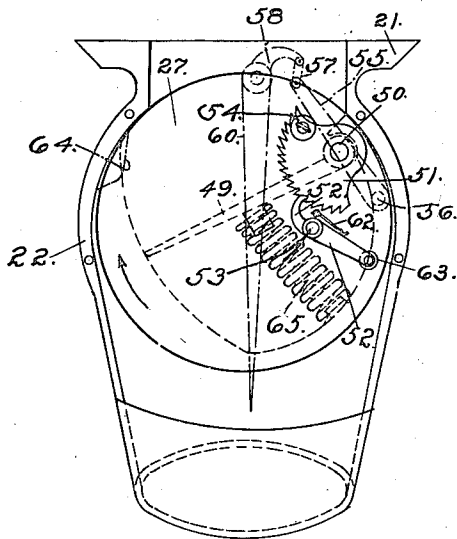


Fig. 5.

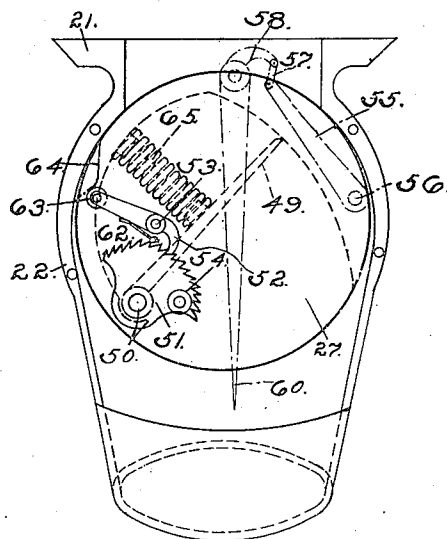


Fig. 6.

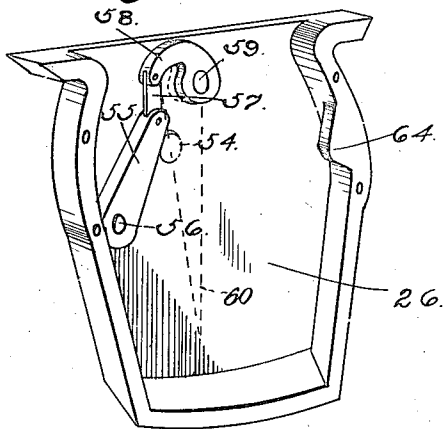
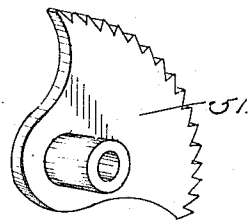


Fig. 7.



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DISPENSING-MACHINE.

1,211,577.

Specification of Letters Patent.

Patented Jan. 9, 1917.

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To all whom it may concern:

Be it known that I, SIGVORT HANSON, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Dispensing-Machines, of which the following is a specification.

My invention relates to a machine for dispensing materials in measured quantities, particularly for dispensing pulverulent material, such as malted milk powder, for example, which is hygroscopic and somewhat sticky in its character.

One of the objects of the invention is to provide in a machine of this type a novel mechanism for positively ejecting material from the part of the machine which receives the measured charge from the storage vessel, such positive ejection being necessary in the handling of material like malted milk powder which is likely to stick, clog or cake.

In the preferred form of my invention the ejection of the material is accomplished by a hinged, spring pressed bottom having an angular movement in the measuring pocket.

A further object of the invention is to provide a mechanism by means of which the angular position which the hinged bottom assumes when the pocket is in filling position may be varied so as to vary the amount of the material dispensed by the machine at one operation thereof.

A further object is to provide in a machine of this character a valve for closing the bottom of the discharge chute which is opened by the glass, or other vessel, intended to receive material from the machine when such glass or vessel is put in place under the discharge chute.

A further object is to provide a machine in which the operative parts may be readily removed in order that they may be cleaned.

The invention has for further objects such other new and improved constructions, arrangements and devices relating to dispensing machines as will be hereinafter described and claimed.

The invention is illustrated, in a preferred embodiment, in the accompanying drawings wherein—

Figure 1 is a longitudinal sectional view taken on line 1—1 of Fig. 2 with certain

parts of the machine shown in elevation. Fig. 2 is a sectional plan taken on line 2—2 of Fig. 1. Fig. 3 is a fragmentary, longitudinal, sectional view on line 3—3 of Fig. 1. Figs. 4 and 5 are detail views, in elevation, of the discharge chute with the front plate removed but with the parts attached to the front plate shown in broken lines to show the revoluble measuring drum and the mechanism for adjusting the position and effecting the movements of the hinged bottom; Fig. 4 showing the parts in the position which they assume just before the measuring element reaches the filling position, and Fig. 5, the position of the parts during the discharge of the material. Fig. 6 is a view, in perspective, of the inside of the front or cover plate, and Fig. 7 is a similar view of the sector rack forming part of the mechanism for effecting the movements of the hinged bottom.

Like characters of reference designate like parts in the several figures of the drawings.

Referring to the drawings, 10 is a table supported on a base 11 by legs 12. On the table 10 is a storage receptacle consisting preferably of a bottom plate 13, a glass cylinder 14 and a top plate 15 having a filling opening closed by a cover 16. The bottom plate has an opening 17 therein registering with an opening 18 in the table. The bottom plate 13 is formed with a slot 19 for a slide 20 adapted to close the opening 17. The under side of the table 10 is formed with an undercut slideway adapted to receive a dovetailed slide 21 formed on the upper end of the discharge chute 22. The latter contains a revoluble drum or measuring element 23 having a hub 24 extending through a boss 25 on the rear wall of the chute. The front of the chute is closed by a cover plate 26 (Fig. 6). The measuring element 23 is formed with a pocket 27 adapted to receive material from the storage receptacle through openings 17 and 18. When the measuring element is inverted the measured quantity of material in the pocket is discharged.

The measuring element is revolved by any suitable mechanism. In the preferred embodiment of the invention shown in the drawings, 28 is a shaft supported on one end by a bracket 29. The other extremity of the shaft projects into an opening in the

hub 24 of the measuring element and is provided with a stud 31 adapted to engage the hub 24. A bevel gear 32, rigidly connected with shaft 28, is meshed by a bevel gear 33 on a shaft 34 provided with a handle 35 and supported in brackets 36, 36^a on the under side of the table. Within the storage receptacle is a finger 37 attached to a shaft 38 which extends through the bottom plate of the receptacle and through the table and is provided on its lower end with a bevel gear 39 meshing with a bevel gear 40 on shaft 28.

The lower end of the discharge chute 22 is normally closed by a valve 41 supported on a cross piece 42 connecting a pair of arms 43 which are suspended from the under side of the table by means of pins 44, the upper ends of the arms extending into slots 45 in the table. The lower extremities of the arms 43 are connected by a cross piece 46 against which the glass 47, or other vessel intended to receive material from the machine, is pushed when the glass is placed under the discharge chute. In this way the valve is moved to its open position, as indicated in the dotted lines, Fig. 3, and forms a guide plate for directing the material from the chute into the glass. The chute is held in proper place on the under side of the table by any suitable means, for example, by set screw 48 which passes through a threaded perforation in the table and bears against the slide 21.

The pocket 27 of the measuring element is provided with a hinged bottom 49 rigidly attached to a shaft 50 revolvably mounted in the measuring element 23. Fixed to the outer end of the shaft 50, which extends through the front wall of the measuring element, is a sector rack 51. The sector rack is engaged by a dog 52 mounted on a stud 53 on the front face of the measuring element 23. The sector rack carries on its outer face an anti-friction roller 54 adapted to meet a contact member 55 which is pivoted at 56 to the inside of the cover plate 26 and at the other end is connected by a link 57 to an arm 58. The arm 58 is rigidly connected to a short shaft 59 which is revolvably mounted in the cover plate 26, and carries on its outer end a pointer 60. The roller 54 comes against the contact member 55 just before the opening in the measuring element registers with the openings 17, 18. The further rotation of the measuring element rocks the sector rack thereby depressing the hinged bottom 49. The amount of movement thus imparted to the hinged bottom is determined by the angular position of the contact member 55. The position of the bottom, of course, fixes the volumetric capacity of the measuring pocket. The contact member 55 is set by moving the pointer 60. Preferably the cover plate 26 is provided with a scale 61 graduated, for example, for fractions of an

ounce. The dog 52 is held in engagement with the sector rack by a leaf spring 62. The dog carries on its outer end an anti-friction roller 63 which is adapted to engage with a cam 64 formed on the inside of the cover plate 26. This engagement takes place just before the measuring element has been turned far enough to completely invert the pocket. The dog is thereby rocked so as to be freed from the sector rack. A coiled spring 65, of proper length interposed between the inner wall of the pocket and the hinged bottom 49, and having frictional engagement with studs on these members forces the bottom outwardly of the pocket as soon as the dog 52 releases the sector rack 51. This movement of the hinged bottom effects a forcible and positive ejection of the material in the pocket. Because of its angular movement during the ejecting operation, the bottom is much less likely to become clogged than if it were moved bodily forward and back as a plunger. The length of the spring 65 and its frictional engagement with the studs on the hinged bottom and the inner wall of the pocket limits the outward movement so as to prevent it from being forced beyond the outer edge of the opening of the pocket.

It will be understood that slide 20 is ordinarily kept open. When it is found necessary to clean out the measuring and ejecting mechanism the slide 20 is closed, the set screw 48 loosened, and the chute 22 removed. The loose or detachable connection of shaft 28 with the hub 24 of the measuring drum 23 makes this possible. The measuring drum may be taken from the chute by removing the cover plate 26 from the latter.

The operation of the machine above described is as follows: The attendant takes a glass 47 and slides it backwardly across the base plate against the cross piece 46. This moves the valve 41 to its open position in which position it forms a deflecting plate for guiding the material from the chute into the glass. The attendant gives the handle 35 a complete revolution. The pocket in the measuring drum is brought into register with the openings 17, 18 and the bottom 49 is depressed by contact of the roller 54 on the sector rack with contact member 55. The amount that the bottom is rocked or depressed will depend upon the adjustment of the contact member 55 effected by means of pointer 60 on the scale 61. The body of material in the receptacle is broken up by the revolving finger 37 which, operating over openings 17, 18, sweeps the material into the pocket, insuring the filling of the pocket in case the supply in the receptacle should be low. When the measuring drum reaches its inverted position the roller 63 on dog 52 comes into contact with cam 64, causing

the dog to release the sector rack 51. The spring 65 thereupon forces the hinged bottom downwardly, ejecting the material through the chute into the glass 47.

5 It will be seen that the pointer 60 constitutes the manually operated setting member of a quantity setting device. When a discharge of material into the tumbler 47 is desired, the amount to be discharged is indicated by moving the pointer 60 to the proper graduation 61. Considering the parts as in the position shown in Figs. 1 and 4, let it be assumed that the operator desires a larger discharge of material. To accomplish this he moves the pointer 60 to the left, as viewed in these figures. This moves member 55 about its pivot 56 toward the axis of the revoluble measuring element 23, thereby moving the sector rack 51 downwardly about pivot 50 because of contact between member 55 and roller 54. The downward movement of the sector rack causes a downward movement of the hinged bottom 49 of the measuring element, this downward movement occurring as the handle 35 is turned subsequent to the setting of the pointer 60. When the bottom 49 has reached its inward limit of movement, as determined by the position of member 55, the dog 52 will engage with that tooth of the sector rack 51 which is adjacent it, and will hold the bottom in that lowest position. The parts will remain in this relative position during rotation of the measuring element until roller 63 engages cam 64. This engagement will throw dog 52 out of engagement with the sector rack, allowing spring 65 to expand and throw bottom 49 outwardly, thus forcing the material in the measuring element outwardly toward the now invented opening of the measuring element. This movement of the bottom forces the hygroscopic material out of the measuring element into the tumbler 47 or other receptacle provided. Considering the parts as positioned in Figs. 1 and 4 again, it is obvious that a movement of the pointer 60 to the right will move member 55 clockwise about its pivot 56 and reduce the distance of inward travel of bottom 49 as the measuring element is rotated, thereby reducing the amount of material which the measuring element will receive and subsequently discharge. After disengagement of the dog 52 from the sector rack by contact between roller 63 and cam 64, the bottom is again set in any desired position, first, by predetermining the amount desired to be discharged through movement of the pointer 60, and then by manipulation of crank 35, which results in rotation of the measuring element until roller 54 has engaged member 55 and forced the bottom down as far as the position of member 55 determines.

While I have described my invention in a preferred embodiment, it will be understood that modifications might be made without departing from the principles of the invention. Therefore I do not wish to be considered as limiting the invention to the particular constructions, arrangements and devices shown and described except so far as the claims hereto appended are expressly so limited.

I claim:

1. In a dispensing machine, a revoluble measuring element having a hinged bottom, and means for imparting an ejecting movement to said bottom when said measuring element is in discharging position.

2. In a dispensing machine, a revoluble measuring element having a hinged, spring pressed bottom, means for holding the bottom in fixed position during the filling operation, and means for releasing the same when discharging so that the spring imparts an ejecting movement to the bottom.

3. In a dispensing machine, a revoluble measuring element having a hinged bottom, means for adjusting the angular position of the bottom to vary the capacity of said measuring element, and means for imparting an ejecting movement to the bottom when said measuring element is in its discharging position.

4. In a dispensing machine, a revoluble measuring element having a hinged spring pressed bottom, means for holding said bottom in fixed position during the filling operation, means for adjusting said position of the bottom to vary the capacity of said filling element, and means for releasing the bottom when said element is in discharging position so that the spring may impart an ejecting movement to the bottom.

5. In a dispensing machine, a revoluble measuring element having a hinged bottom, and means for adjusting the angular position of the bottom so as to vary the capacity of said element.

6. In a dispensing machine, a storage receptacle having an opening in the bottom, a continuously revoluble measuring element arranged under said opening, a sweeping device revolubly mounted in said receptacle and operating over said opening, and mechanism for revolving said measuring element and sweeping device.

7. In a dispensing machine, a storage receptacle having an opening in the bottom, a revoluble measuring element arranged under said opening having a spring pressed, hinged bottom plate, means for holding said bottom plate in fixed position during the filling operation, means for adjusting said position of the bottom plate so as to vary the capacity of said measuring element, means for releasing said bottom plate when the measuring element is in position to dis-

charge, a sweeping device revolubly mounted in said receptacle and operating over the opening therein, and mechanism for revolving said measuring element and sweeping device.

8. In a dispensing machine, a storage receptacle having an opening in the bottom, a revoluble measuring element arranged under said opening having a spring pressed, hinged bottom plate, means for holding said bottom plate in fixed position during the filling operation, means for adjusting said position of the bottom plate so as to vary the capacity of said filling element, means for releasing said bottom plate when the measuring element is in position to discharge, a sweeping device revolubly mounted in said receptacle and operating over the opening therein, mechanism for revolving said measuring element and sweeping device, a discharge chute in which the measuring element is arranged, and a valve to close the bottom of the chute adapted to be moved to an open position by means of the vessel intended to receive materials from said machine when said vessel is put in place under said chute.

9. In a dispensing machine, a storage receptacle having an opening in the bottom, a revoluble measuring element arranged under said opening and removably connected with the machine, a sweeping device revolubly mounted in said receptacle and operating over said opening, and a gear train for revolving the sweep and measuring element which has a detachable connection with the measuring element.

10. In a dispensing machine, the combination of a discharge chute and a pivotally mounted, gravity operated valve to close the lower end of said chute provided with a member against which the vessel intended to receive material from said machine is pushed so as to open the valve when said vessel is placed under said discharge chute.

11. In a dispensing machine, the combination of a discharge chute, a valve to close the lower end of the chute, a pair of pivoted arms between which the valve is arranged, and a cross piece at the lower extremities of said arms against which the vessel intended to receive material from said machine is pushed to open the valve when said vessel is placed under said discharge chute.

12. In a dispensing machine, the combination of a casing, a revoluble element having a measuring pocket in said casing, a hinged bottom for said pocket, a sector rack rigid with said bottom, a spring pressed dog pivoted on said revoluble element to engage said sector rack, a spring which tends to force the bottom toward the mouth of the pocket, a contact element on said casing engaged by said sector rack for moving the bottom inwardly of the pocket, and a cam

for releasing the sector rack from the dog when the revoluble element is in discharging position.

13. In a dispensing machine, the combination of a casing, a revoluble element having a measuring pocket in said casing, a hinged bottom for said pocket, a sector rack rigid with said bottom, a spring pressed dog pivoted on said revoluble element to engage said sector rack, a spring which tends to force the bottom toward the mouth of the pocket, a contact element on said casing engaged by said sector rack for moving the bottom inwardly of the pocket, a cam for releasing the sector rack from the dog when the revoluble element is in discharging position, and means for adjusting the position of said contact element.

14. In a dispensing machine, the combination of a casing, a revoluble element having a measuring pocket in said casing, a movable bottom for said pocket, a sector rack which is operated to move said bottom, a spring pressed dog to engage said sector rack, a spring which tends to move said bottom toward the mouth of the pocket, a contact element engaged by the sector rack for moving the bottom inwardly of the pocket, and a cam for releasing said sector rack from the dog when the revoluble element is in discharging position.

15. In a dispensing machine, the combination of a casing, a revoluble element having a measuring pocket in said casing, a movable bottom for said pocket, a sector rack which is operated to move said bottom, a spring pressed dog to engage said sector rack, a spring which tends to move said bottom toward the mouth of the pocket, a contact element engaged by the sector rack for moving the bottom inwardly of the pocket, a cam for releasing said sector rack from the dog when the revoluble element is in discharging position, and means for adjusting the position of said contact element.

16. In a dispensing machine, the combination of a chute, a revoluble element in said chute formed with a pocket, a bottom hinged within said pocket, a sector rack rigid with said bottom, a spring pressed dog pivoted to said revoluble element and engaging said sector rack, a spring which tends to force the bottom toward the mouth of the pocket, a contact element pivoted at one end to said chute with which the sector gear is adapted to engage, a pointer on the outside of the chute, a link connecting the pointer with said contact element, and a cam on the chute which engages the dog so as to release said sector rack.

17. In a dispensing machine, the combination of a receptacle having an opening in the bottom and formed on the under side with a slideway, a discharge chute formed at the upper end with a slide adapted to

fit into said slideway, means for holding said chute in position under the receptacle, and a revoluble measuring element in said chute.

18. In a dispensing machine, the combination of a receptacle having an opening in the bottom and formed on the under side with a slideway, a discharge chute formed at the upper end with a slide adapted to fit into said slideway, means for holding said chute in position under the receptacle, a revoluble measuring element in said chute, and a gear train for revolving said measuring element which has a detachable connection with said element.

19. In a dispensing machine, the combination of a receptacle having an opening in the bottom, a sweeping device revolubly mounted in the receptacle so as to operate over said opening, a discharge chute arranged under said opening, a revoluble measuring element in said chute formed with a pocket, a hinged bottom in said pocket, a spring which tends to move said bottom toward the mouth of the pocket, mechanism for moving said bottom inwardly of the pocket and holding the same at an adjustable position therein, and means for releasing said last named mechanism when the revoluble element is in discharging position.

20. In a dispensing machine, the combination of a receptacle having an opening in the bottom, a sweeping device revolubly mounted in the receptacle so as to operate over said opening, a discharge chute arranged under said opening, a revoluble measuring element in said chute formed with a pocket, a hinged bottom in said pocket, a spring which tends to move said bottom toward the mouth of the pocket, mechanism for moving said bottom inwardly of the pocket and holding the same at an adjustable position therein, means for releasing said last named mechanism when the revoluble element is in discharging position, and a gravity operated, pivoted valve to close the lower end of the chute having a member against which the vessel intended to receive material from the machine is pushed to open the valve when said vessel is placed under said discharge chute.

21. In a dispensing machine, the combination of a receptacle having an opening in the bottom, a sweeping device revolubly mounted in the receptacle so as to operate over said opening, a discharge chute arranged under said opening, a revoluble measuring element in said chute formed with a pocket, a hinged bottom in said pocket, a spring which tends to move said bottom toward the mouth of the pocket, mechanism for moving said bottom inwardly of the pocket and holding the same at an adjustable position therein, means for releasing said last named mechanism when the revoluble element is in discharging position, a gravity operated, pivoted valve to close the lower end of the chute having a member against which the vessel intended to receive material from the machine is pushed to open the valve when said vessel is placed under the discharge chute, and a driving train for revolving said revoluble element and the sweeping device.

22. In a dispensing machine, the combination of a receptacle having an opening in the bottom, a sweeping device revolubly mounted in the receptacle so as to operate over said opening, a discharge chute arranged under said opening, a revoluble measuring element in said chute formed with a pocket, a hinged bottom in said pocket, a spring which tends to move said bottom toward the mouth of the pocket, mechanism for moving said bottom inwardly of the pocket and holding the same at an adjustable position therein, means for releasing said last named mechanism when the revoluble element is in discharging position, a gravity operated, pivoted valve to close the lower end of the chute having a member against which the vessel intended to receive material from the machine is pushed to open the valve when said vessel is placed under the discharge chute, and a driving train for revolving said revoluble element and the sweeping device, said revoluble element being removable from the machine and having a detachable connection with said driving train.

SIGVORT HANSON.

Witnesses:

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