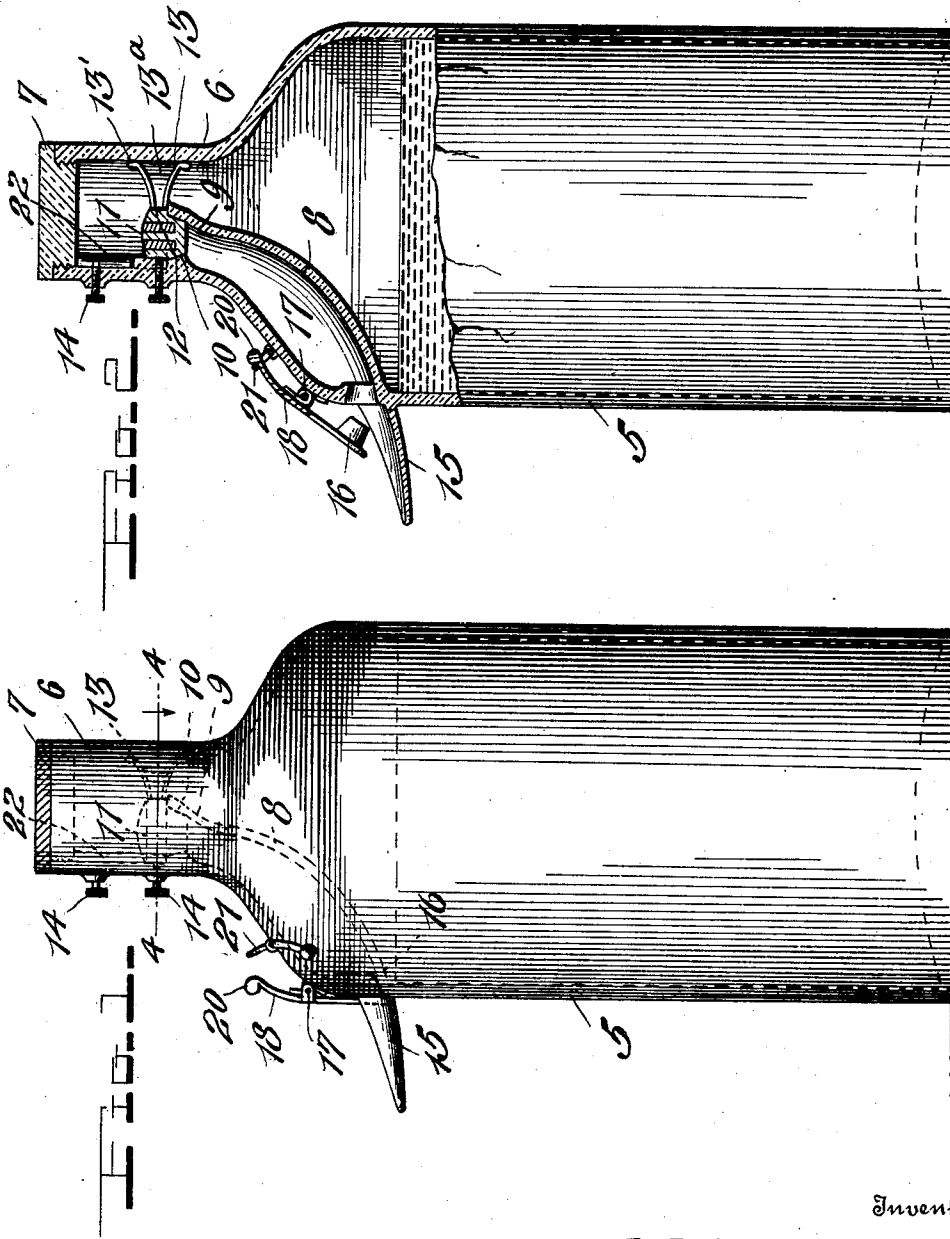


M. CUNNINGHAM.
 MEDICINE DOSE DROPPER.
 APPLICATION FILED APR. 30, 1910

978,988.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.



Witnesses

Chas. L. Griebauer.
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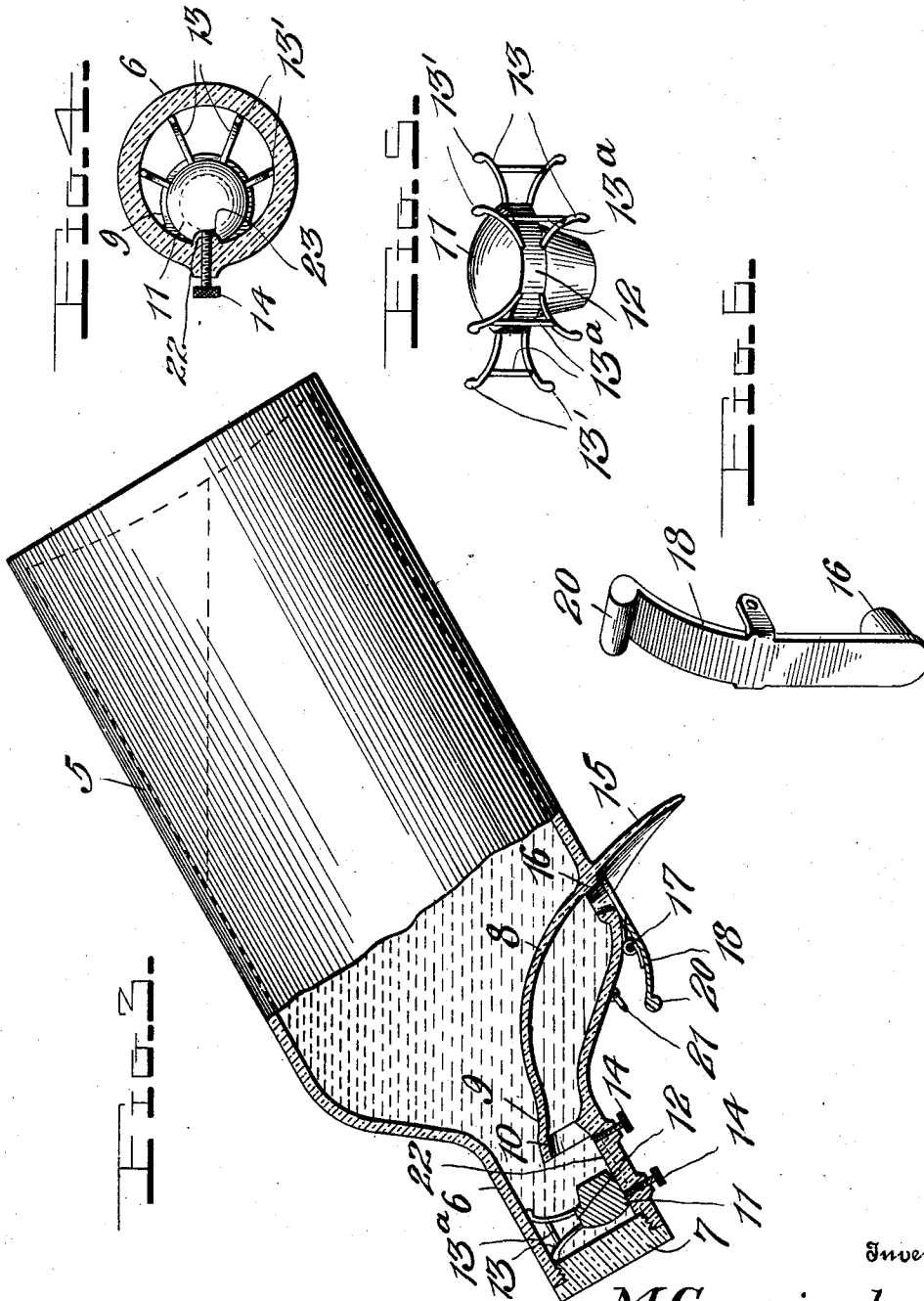
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UNITED STATES PATENT OFFICE.

MALCOLM CUNNINGHAM, OF SAVANNAH, GEORGIA.

MEDICINE-DOSE DROPPER.

978,988.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MALCOLM CUNNINGHAM, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented certain new and useful Improvements in Medicine-Dose Droppers, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to certain new and useful improvements in self-measuring receptacles, and has for its object to provide a simple and inexpensive device of this character which is extremely convenient in use and may be easily and quickly operated.

15 Another object resides in the provision of a medicine vial or bottle formed with an interior measuring chamber, and means for closing said chamber after the same has been filled with the liquid.

20 A still further object is to provide means for releasing the liquid from the measuring chamber, without necessitating the manipulation of a complicated arrangement of parts, whereby the device may be operated in the dark.

25 With these and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which:

30 Figure 1 is a side elevation of a medicine vial embodying my invention; Fig. 2 is a vertical longitudinal section thereof; Fig. 3 is a view similar to Fig. 2 illustrating the position of parts when the liquid is entering the measuring chamber; Fig. 4 is a section taken on the line 4-4 of Fig. 1; Fig. 5 is a detail perspective view of the stopper for closing the inlet mouth of the measuring chamber, and Fig. 6 is a similar view of the stopper which closes the outlet mouth of the measuring chamber.

35 Referring more particularly to the drawings, 5 indicates a bottle or other liquid receptacle. This bottle may be of any convenient form, and, as shown in the drawings, it is provided with a neck 6, which is closed by a screw cap 7. At the upper end of the bottle, where the same merges into the neck 6, a measuring chamber 8 is formed. The walls of this chamber are formed of glass, the bottom wall thereof extending upwardly and inwardly from the body of the bottle, as shown at 9. The upper end of the measur-

ing chamber is formed with an interior frusto-conical depending wall 10, which provides a contracted entrance opening to the chamber. This mouth is normally closed by the stopper or valve 11. This valve is formed with an annular wall or flange 12, upon one end, which is adapted to be seated upon the top of the entrance mouth or opening of the measuring chamber, the remaining portion of said valve being of conical form, and adapted to closely engage with the frusto-conical wall 10 in the mouth of said neck. A plurality of radially extending guide rods 13 are arranged in pairs and are secured in the flange 12 of the valve, the outer ends of said rods being provided with flattened heads 13' for engagement with the inner wall of the bottle neck. These rods are connected and braced by means of the vertical rods 13^a. The rods 13 extend around approximately two thirds of the circumferential extent of the flange, and are adapted to maintain the valve in its proper position above the measuring chamber for engagement in the mouth thereof. This valve is adapted to be securely locked in either its open or closed position by means of the set screws 14, which are threaded through the bottle neck and are adapted to bind against the flange of the valve. In order to prevent deflection of the valve in the bottle neck which might be caused by careless tilting or knocking of the bottle, I provide the inner wall of the bottle neck with a longitudinal rib 22, the lower end of which is curved and merges into the valve seat 10 formed in the upper end of the measuring chamber. The annular flange 12 of the valve 11 is formed with a notch or recess 23 which receives the rib 22. The valve member is thus guided in its longitudinal movement in the bottle neck and all possibility of its deflection or rotative movement eliminated. The constant shifting of the valve places considerable strain upon the arms 13 and their frictional engagement with the bottle neck would soon become insufficient to prevent the displacement of the valve so that it would not return to its seat in the measuring chamber. By means of the additional guide means above described all movement of the valve member except in a longitudinal direction is effectually prevented.

110 The body of the bottle is formed with a downwardly inclined concavo-convex lip 15, which extends from the discharge opening

of the measuring chamber 8. This outlet neck is adapted to be closed by means of a stopper 16 fixed upon the bottle 5 by means of a spring hinge 17, which normally holds the stopper in the discharge opening and closes the measuring chamber. An arm 18 is integrally formed with the stopper and is adapted to be engaged by the finger of the operator to overcome the spring hinge 17 and release the liquid in the chamber. The outer end of the arm 18 is formed with an enlarged end as shown at 20, to receive a pivoted hook 21, mounted upon the body of the bottle. In the operation of the device, the measuring chamber is adapted to contain a single dose of the medicine contained in the bottle. When the same is to be administered to the patient, the bottle is turned to the position shown in Fig. 3. The valve 11 is provided with weights sufficiently heavy to cause the same to move outwardly in the neck of the bottle, and open the mouth of the measuring chamber. The liquid will thus flow into the chamber 8, which, it will be noted, extends outwardly and downwardly at an incline to the longitudinal axis of the bottle when the same is tipped. The bottle is then turned to its normal position and the stopper 16 being positioned in the discharge opening of the chamber 8 will close the outer end of the measuring chamber, and prevent the escape of the liquid therein. The pressure on the arm 18 will raise the stopper 16, thus permitting the liquid to escape from the measuring chamber 8. In this manner, the necessity for pouring the liquid into a spoon and the liability of spilling and wasting the same is entirely eliminated. In carrying out my invention, the bottles or receptacles are adapted to be formed with measuring chambers of varying sizes so that they can contain different quantities of the liquid. Some medicines are administered in doses of a table-spoon full, and others of a tea-spoon full. Thus, by manufacturing the bottles with the proper sized chamber for the particular medicine which they are to contain, the exact quantity of liquid for one dose will be discharged from the chamber with each operation of the device. If desired, the valve member 11 may be eliminated, and an ordinary cork provided. The cork will have to be placed in the mouth of the chamber by hand, while the valve, as shown in the preferred construction of the invention, is automatically seated, and unseated.

From the foregoing it is believed that the construction and operation of my improved self-measuring vessel will be readily understood. The device is extremely simple and efficient in use. All danger of an overdose of the medicine which might seriously affect the convalescence of a patient is overcome. When the measure has once been filled, the

liquid may be retained therein for any length of time by simply locking the valve 11 in its seat by means of the set screw 14. The bottle may then be handled in any manner without danger of unseating the valve and releasing the liquid. Owing to the simple construction of the device and the ease with which the same may be operated, a patient in a weakened condition may take the proper dose at the prescribed time without having to hold the bottle in an elevated position to pour the medicine into a spoon, which would probably be beyond his strength. Also, when whisky is prescribed in small doses, the invention provides a safe-guard for a patient and obviates the possibility of his taking too large a dose. The device may be manufactured at a low cost, and it is extremely durable and very efficient in operation.

While I have shown and described the preferred embodiment of my improved measuring receptacle, it will be understood that the same may be variously modified without materially departing from the essential features or sacrificing any of the advantages thereof.

Having described my device, what I claim is:

1. In a device of the character described, the combination of a vessel having a measuring chamber formed therein, a valve seat formed in one end of said chamber, a valve member normally disposed in said seat to close the measuring chamber, the tilting of said vessel being adapted to unseat the valve, said valve moving by gravity into its seat when the vessel is returned to an upright position to close the chamber and means for closing the other end of the measuring chamber adapted to be manually operated to release the contents thereof.

2. In a device of the character described, the combination of a vessel having a measuring chamber formed therein provided with an entrance and a discharge opening, a valve seat formed in the entrance opening of the chamber, a valve movable in the vessel above said chamber normally disposed in said seat, the tilting movement of the vessel being adapted to unseat the valve, screws adapted to engage said valve to secure the same in its seated or unseated positions and a closure for the discharge opening of said measuring chamber.

3. In a device of the character described, the combination of a bottle having a measuring chamber formed therein adjacent to its neck, said chamber having an entrance and a discharge opening, said entrance opening being disposed in the neck of the bottle and in eccentric relation thereto, a valve movable in the bottle neck and normally seated in the entrance opening to close the same, means for preventing the rotative

movement of the valve in the bottle neck, said valve being unseated by the tilting of the bottle and movable into its seat by gravity, means for locking the valve against movement in its seated or unseated positions and a closure for the discharge opening of the measuring chamber.

4. In a device of the character described, the combination of a bottle having a measuring chamber formed therein adjacent to its neck and extending laterally therefrom, said chamber having a discharge opening at one end extending through the side of the bottle and an entrance opening at its other end disposed eccentrically within the bottle neck, a valve longitudinally movable in the bottle neck, a plurality of radiating arms carried by the valve and extending partially therearound, said arms engaging with the wall of the bottle neck to guide the valve in its movement, said valve being movable into its seat by gravity, the tilting movement of the bottle being adapted to unseat the same and a closure for the discharge opening of the measuring chamber.

5. In a device of the character described, the combination of a bottle having a measuring chamber formed therein adjacent to its neck and extending laterally therefrom, said chamber having a discharge opening at its outer end extending through the side of the bottle, the other end of said chamber having an entrance opening to receive the liquid contents of the bottle, said entrance opening being disposed in eccentric relation to the bottle neck, a weighted valve movable above the entrance opening and normally disposed in the same to close the measuring chamber, means formed on the bottle neck engaging with the valve to prevent its rotative movement, a plurality of arms carried by the valve engaging with the wall of the bottle neck to retain said valve in alignment with the entrance opening to the measuring chamber, means extending through the bottle neck for locking the valve in its seated or unseated positions, and a closure for the discharge opening of said measuring chamber.

6. In a device of the character described, the combination with a bottle having a measuring chamber formed therein, said chamber having an inlet opening and a discharge opening, a valve member vertically movable in the bottle neck above said inlet opening and normally closing the same, a plurality of guide rods carried by said valve and engaging with the wall of the bottle neck, means for locking the valve in its opened or closed positions, said bottle having a laterally extending inclined lip projecting from the discharge opening and manually actuated means yieldingly held in said discharge opening to close said measuring chamber.

7. In a device of the character described, the combination of a liquid containing vessel having an outlet neck formed thereon and said vessel having a liquid receiving measuring chamber formed therein adjacent to the neck, a frusto-conical valve seat formed in one end of the chamber, a valve member movable in the neck of the vessel normally closing said chamber and adapted to be unseated by the tilting of the vessel, means for guiding the valve member in its movement, a downwardly inclined discharge lip forming a continuation of the chamber extending from one side of the vessel, a stopper having an arm formed thereon normally closing said discharge opening, a spring hinge mounting for said arm upon the bottle, said hinge normally holding the stopper in the discharge opening, and means arranged on the vessel adapted to engage said arm and retain the stopper in spaced relation to the discharge opening, said spring being held under compression.

8. In a device of the character described, the combination of a bottle having a measuring chamber formed therein adjacent to its neck, said chamber having an entrance opening and a discharge opening, a valve longitudinally movable in the bottle neck, guide means carried by said valve engaging with the wall of the bottle neck, a longitudinal rib formed on the bottle neck, said valve having a recess to receive said rib, said rib and guide means being adapted to direct said valve in its longitudinal movement and seat the same in the entrance opening of the discharge chamber, and means arranged upon the bottle normally closing the discharge opening of said chamber.

9. In a device of the character described, the combination of a bottle having a measuring chamber formed therein adjacent to its neck, said chamber having an entrance opening and a discharge opening, a valve member longitudinally movable in the bottle neck formed with an annular flange, means carried by the valve engaging with the bottle neck to guide said valve in its movement, a longitudinal rib formed on the bottle neck having its lower end curved and extending into the entrance opening of said chamber, the flange of said valve being formed with a recess to receive said rib, said rib and guiding means being adapted to direct said valve member in its movement into the entrance opening of the discharge chamber to close the same, and manually operated means arranged upon the bottle normally closing the discharge opening in said chamber.

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

MALCOLM CUNNINGHAM.

Witnesses:

F. M. TRUSLOW,
W. S. WINN.