July 24, 1923. **1,462,954**

I. A. BURNETT

ALLOY AND MERCURY DISPENSER

Filed Dec. 23, 1921 **2 Sheets-Sheet 1**

Fig. 1.

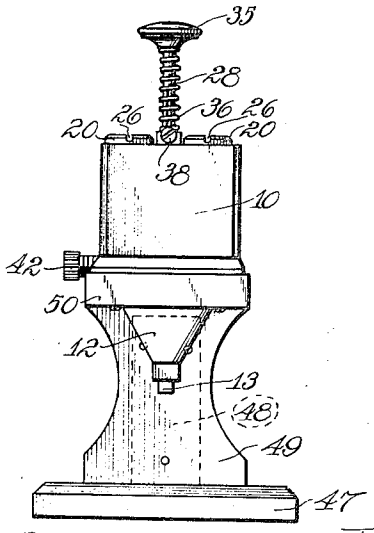


Fig. 2.

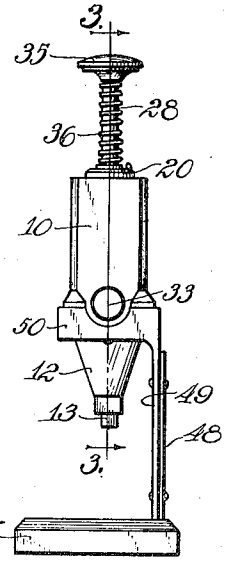


Fig. 3.

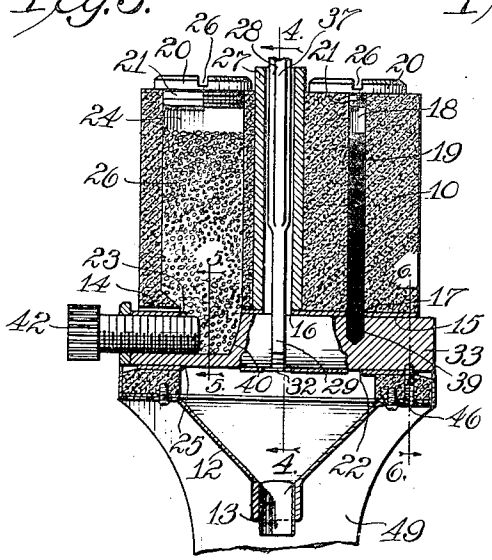
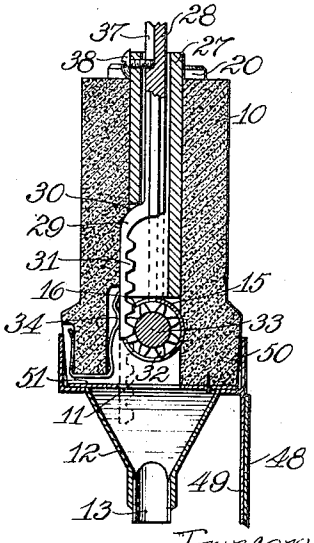


Fig. 4.



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Fig. 5.

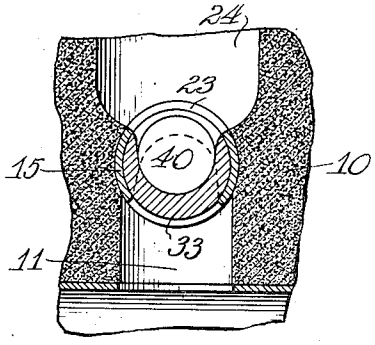


Fig. 6.

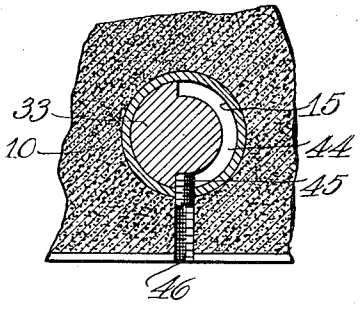


Fig. 7.

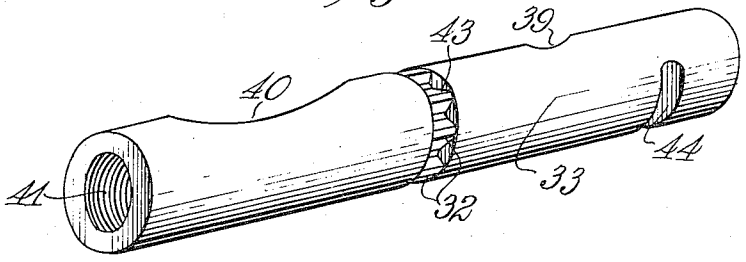
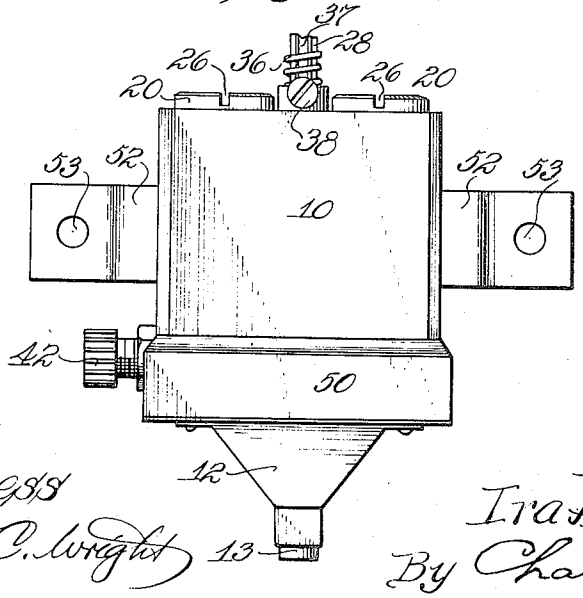


Fig. 8.



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UNITED STATES PATENT OFFICE.

IRA A. BURNETT, OF CHICAGO, ILLINOIS.

ALLOY AND MERCURY DISPENSER.

Application filed December 23, 1921. Serial No. 524,440.

To all whom it may concern:

Be it known that I, IRA A. BURNETT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Alloy and Mercury Dispensers, of which the following is a specification.

This invention relates, generally, to improvements in dispensing devices, and particularly to that type of such devices wherein means are provided for measuring thereby predetermined quantities of a plurality of ingredients in the act of discharging the same from the device, and while it is more especially intended for use by dentists in the preparation of dental amalgam, and will be hereinafter described as being for the dispensation of alloy and mercury, yet I desire it to be understood, that I do not wish to be limited in its application to any specific use, or in the kind or number of different ingredients which it may be constructed to dispense, as it will become obvious from the following explanation, that I may increase or diminish the number of receptacles and measuring means for the ingredients without departing from the spirit of the invention as defined in the appended claims.

The principal object of the invention is, the provision of a dispenser of the above mentioned general character which shall be simple and inexpensive in construction, strong, durable and efficient in operation, with its parts so made, arranged and cooperating one with another, that the ingredients held by the device may be dispensed thereby at any time in the proper proportion, or ratios into a container in which they may be mixed in any suitable way.

Another object is to provide adjustable means co-operating with one or more of the ingredient holding compartments and the controlling valve therefor, whereby the predetermined quantity of such ingredient or ingredients can be varied to suit the physical conditions thereof in order to produce the proper mixture.

A further object is to provide means whereby the measuring of the ingredients will be automatically performed in the act of discharging them from the device.

Still another object is to furnish a dispenser of compact and attractive form which can be conveniently mounted on a table or wall and will be ever ready for use.

Other objects and advantages of the invention will be disclosed in the following description and explanation.

In the accompanying drawings, which serve to illustrate an embodiment of the invention—

Fig. 1 is a view in front elevation of a dispenser embodying my improvements.

Fig. 2 is a side view thereof.

Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 2 looking in the direction indicated by the arrows.

Fig. 4 is a vertical sectional view taken on line 4—4 of Fig. 3.

Fig. 5 is an enlarged fragmental vertical sectional view taken on line 5—5 of Fig. 3.

Fig. 6 is a similar view taken on line 6—6 of Fig. 3.

Fig. 7 is a greatly enlarged detached perspective view of the rotary and measuring valve of the device, and

Fig. 8 is a front face view of the complete device showing a modified construction in the means for supporting the same.

Corresponding numerals of reference refer to like parts throughout the different views of the drawings.

The body of the device is designated as a whole by the reference numeral 10 and may be made of any suitable size, form and material, but by preference rectangular in shape as shown, and of fibre, a composition or other suitable material. The body 10 is provided in its lower portion with a discharge opening 11 around which opening is fitted and secured to the lower surface of the body, a hopper 12 which is equipped in its lower end with a nipple or short tube 13 on the outer end of which a capsule or other suitable receptacle can be temporarily fitted for receiving and holding the mixture discharged from the device. Just above the opening 11 therein the body 10 is provided with a transverse horizontally disposed opening 14 in which is located a tubular valve casing 15 which is provided at its middle portion in one of its side walls with a vertical opening 16 for the reception and operation of a vertically movable rack bar as will be presently explained.

On one side of the opening 16 of the valve casing 15 said casing is provided with a vertical opening 17 which is in register with

the lower end of a vertically disposed compartment or bore 18 formed in the body 10 and extended from the upper end thereof to its lower end. This compartment 18 is for the reception of a quantity of mercury 19 and the upper end of said compartment may be closed by means of a cap 20 having on its lower surface a centrally disposed screw-plug 21 to engage screw-threads in the upper end of the compartment or channel 18. The valve casing 15 is provided directly below the opening 17 therein with another opening 22 which communicates with the opening 11 in the bottom of the body 10 and also with the cavity of the depending hopper.

On the opposite side of the opening 16 in the valve casing 15 from that in which the opening 17 is formed, said valve casing is provided in its upper surface with an opening 23 which is considerably larger in area than the opening 17 and communicates with a vertically disposed compartment or bore 24 located in the body 10 and extended from its upper end to and terminating in the opening 23 above mentioned. Directly below the opening 23 of the valve casing 15, said casing is provided with another opening 25 which is of about the same size as the opening 23 and communicates through the opening 11 of the body 10 with the cavity of the hopper. The upper end of the compartment or container 24 which compartment is for the reception of an alloy 26, may be closed by a cap 20 having on its lower portion a screw-threaded plug 21 engaging screw-threads in the upper end of said compartment. Each of the caps 20 may be provided in its upper surface with a diametrically disposed groove 26 for the reception of an instrument or the edge of a coin used for unscrewing said caps so that they may be removed when it is desired to supply ingredients to the compartments 18 and 24 of the body of the device.

Centrally located in the body 10 and extending from the upper surface of the valve casing 15 vertically through said body, to a slight distance above the upper end thereof, is a hollow guide member 27 for a plunger rod 28 which is located in said guide for vertical movement therein. The lower end of the plunger 28 is provided with an offset and depending rack bar 29 which extends laterally through a vertical slot 30 in the guide 27 and from thence downwardly into the opening 16 of the valve casing. This rack bar is provided on its inner surface with teeth 31 to mesh with teeth 32 with which the rotary valve 33 is provided at its middle as shown in Figs. 3 and 7 of the drawings. The teeth of the rack bar 29 are constantly held in engagement with the teeth 32 on the valve 33 by means of a spring 34 interposed between the outer surface of the bar 29 and the wall of the opening in the body 10 in which the guide member 27 is located.

By reference to Figs. 1, 2, and 3, of the drawings, it will be seen and understood that the plunger 28 extends considerably above the upper end of the guide 27 and is equipped at its upper end with a knob 35 on which the hand of the operator may rest when operating the device. In order to restrict the vertical movement of the plunger 28, which is actuated in one direction by a spring 36 coiled around the same and resting at one of its ends on the upper end of the guide 27 and at its other end against the knob 35, the plunger is provided with a vertical groove 37, see Fig. 4, into which is extended one end of a screw 38 which is seated in the upper portion of the guide 27. This groove is of sufficient length to permit the plunger and its rack bar to cause the rotary valve to make one-half of a revolution on the downward movement of the plunger, when it will be understood that the screw 38 will strike the upper end of the groove 37 and prevent further downward movement of the plunger and rack bar. When actuated by the spring 36 in the opposite direction, the screw 38 will engage the lower end of the groove 37 and prevent further upward movement of the plunger and its rack bar, as well as further movement of the rotary valve.

As is clearly shown in Figs. 3 to 7 inclusive, the valve 33 is provided with a recess or chamber 39 positioned to normally register with the lower end of the compartment 18 through the opening 17 in the valve casing, and it is also provided with a larger recess or chamber 40 adapted to normally register with the lower end of the compartment 24 through the opening 23 in the valve casing. Leading from the chamber 40 of the valve 33 through the end thereof adjacent said casing, is a screw-threaded opening 41 in which is threaded an adjusting screw 42 which is employed for regulating the size of the chamber 40 so as to adapt said chamber for holding more or less of the alloy deposited therein from the compartment 24, which can be done by turning the screw 42 in the proper direction.

It will be observed in Fig. 7 that the teeth 32 of the valve 38 are located in a circumferential groove 43 formed in said valve, which groove will assist in guiding the rack bar 29 in its movements. Near that end of the valve 33 opposite the adjusting screw 42 said valve is provided in its periphery with a groove 44 which extends transversely with respect to the valve and from diametrically disposed points as shown in Fig. 6 of the drawings. This groove co-operates with a screw 45 extended thereinto and seated in the valve casing 15 at a proper point thereon to engage said groove, for the purpose

of restricting the rotary movement of the valve 33 of, as well as to prevent any longitudinal movement thereof. The screw 45 can be reached for adjustment through an opening 46 formed in the bottom of the body 10 as is shown in Figs. 3 and 6 of the drawings.

In Figs. 1 to 4 inclusive, I have shown the body 10 as being mounted on an upright stand which consists of a base 47 from which is upwardly extended an upright 48 to the front surface of which is secured a plate 49 which depends from the rear side of a rectangular frame 50 of a size to receive the lower portion of the body 10 of the device. This frame 50 is provided at the lower edge of its perimeter with inwardly extended flanges 51 on which the lower end of the body 10 will rest, it being understood that the hopper 12 will extend through the opening formed by said flanges. Instead of using the above described stand or mount for the device, the body 10 may have transversely secured to its rear surface a plate 52 provided with openings 53 near its ends for the reception of screws or other devices employed for fastening it to a wall or other suitable support.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a device of the class described, the combination with a body having a plurality of longitudinally disposed compartments therein and a guideway between a pair of said compartments, said body also having a transversely disposed opening near one of its ends, the said opening having communication with the said compartments and provided with outlet openings, a valve rotatably mounted in said transverse opening and having a plurality of chambers adapted for alternate communication with said compartments and said outlet openings, radially disposed spaced teeth on the valve in register with said guideway, a spring actuated rack bar mounted in said guideway in engagement with the teeth of the valve and having an extension projecting through the guideway.

2. In a device of the class described, the combination with a body having a plurality of longitudinally disposed compartments therein and a guide-way between a pair of said compartments, said body also having a transversely disposed opening near one of its ends communicating with the said compartments and provided with discharge openings, a cylindrical valve rotatably mounted in said transverse openings and having a plurality of chambers adapted for alternate communication with said compartments and said discharge openings, said valve also having a groove transversely disposed in its periphery and terminating at diametrically disposed points on said valve, radially disposed spaced teeth on the valve in register with said guide-way, a spring-actuated rack bar mounted in said guide-way in engagement with the teeth of the valve and having an extension projecting through the guide-way, and a screw seated in the bottom of the body and extended into said groove of the valve to restrict its rotary movement and prevent longitudinal movement of said valve.

IRA A. BURNETT.