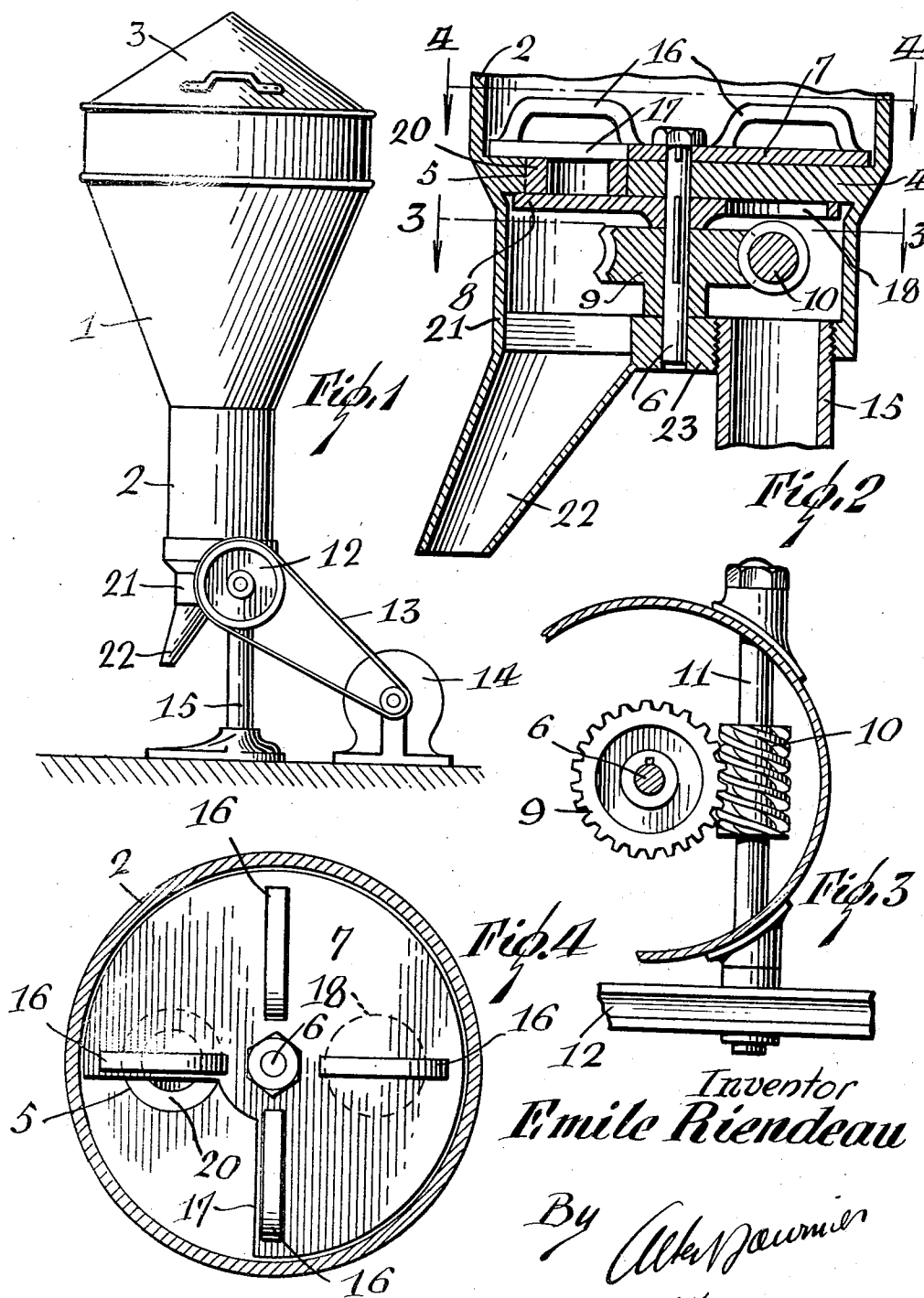


July 29, 1941.

E. RIENDEAU
MEASURING DEVICE

2,250,968

Filed Nov. 17, 1939



Inventor
Emile Riendeau

By *Alfred J. ...*
Attorney

UNITED STATES PATENT OFFICE

2,250,968

MEASURING DEVICE

Emile Riendeau, Montreal, Quebec, Canada

Application November 17, 1939, Serial No. 364,980

1 Claim. (Cl. 221-116)

The present invention pertains to a measuring device for delivering predetermined quantities of a dry substance such as tea or coffee.

It is a well known practice to supply tea leaves in muslin or similar bags, with the proper quantity in each bag for one cup of tea. Obviously, the same principle may be extended to other beverages extracted from a dry substance. The object of the present invention is to provide a simple device for accurately measuring and discharging the quantity to be delivered into each bag.

The device of the invention comprises a receptacle for containing a substantial quantity of the material to be measured. In the bottom of the receptacle is a fixed transverse plate having an opening therethrough equal in volume to the predetermined volume to be measured. A shaft passing through the plate carries valve plates respectively engaging the upper and lower surfaces of the transverse plate. Each of the valve plates has an opening adapted to register with the measuring opening. The opening in the upper plate permits the measuring opening to be filled, while the opening in the lower plate is for discharge. However, the openings in the valve plates are spaced circumferentially from one another so that they cannot be simultaneously in communication with the measuring opening and with the body of the receptacle. In other words, the measuring opening is covered at the bottom while filling and covered at the top while discharging. This arrangement of the valve openings also provides the time interval between discharges for the removal of the filled bag and the placing of an empty bag at the outlet of the device.

The invention also provides a means for agitating the contents of the receptacle to assure complete filling of the measuring opening and to prevent blocking of the material above the measuring opening. This means consists preferably of members mounted on the upper valve plate and extending upwardly into the receptacle.

The invention is fully disclosed by way of example in the following description and in the accompanying drawing in which:

Figure 1 is a vertical elevation of the device;

Figure 2 is a vertical section of the lower portion;

Figure 3 is a section on the line 3-3 of Fig. 2, and

Figure 4 is a section on the line 4-4 of Fig. 2.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

The device embodies a conical receptacle 1 having a cylindrical lower portion 2 and a cover 3 on its top. Across the bottom of the portion 2 is a fixed plate 4 having therethrough an opening 5 for a purpose that will presently appear. A rotatable vertical shaft 6 is passed through the plate 4 and has fixed thereto a valve plate 7 resting upon the plate 4 and a release plate 8 engaging the lower surface of the plate 4.

To the shaft 6 is also secured a worm gear 9 driven by a worm 10 on a horizontal shaft 11 journaled in the portion 2. The shaft may be driven in any suitable manner, for example, through a pulley 12 mounted thereon and connected by a suitable belt 13 to an electric motor 14. The receptacle 1, 2, and 3 is supported vertically in any suitable manner, as on a pedestal 15.

The receptacle 1, 2 is designed to hold the material to be measured, which is loaded on removing the cover 3. At suitable points upon the plate 7 are mounted suitable agitating members such as yokes or elevated bars 16.

The valve plate 7 has a suitable opening 17 therethrough in the form of a sector, as shown more clearly in Fig. 4. This opening is of such size as to cover and overlap the opening 5 in the plate 4. The plate 8 is also formed with an opening 18 also adapted to register with the opening 5 but diametrically opposite the opening 17. It will be recalled in this connection that both plates 7 and 8 are secured to the shaft 6, so that the relative position of the openings 17 and 18 remains unchanged.

The size of the opening 5 determines the charge to be measured, as will presently be described. The effective size of the opening 5 may be reduced by inserting graduated rings therein, one of which is illustrated in Figs. 2 and 4 and designated by the numeral 20.

In the operation of the device, the plates 7 and 8 turn with the shaft 6, and the contents of the receptacle portion 2 are effectively stirred by agitator 16. The opening 5, or ring 20 therein, is filled when the opening 17 of plate 7 passes over it. The charge in opening or ring is levelled off as the solid part of the plate 7 passes over the recess. The charge is however held by the plate 8 since the release opening thereof is at this time at some distance from the charge. As rotation continues, the charge becomes fully covered by the plate 7, and the opening 18 comes into a position directly beneath the measured charge, permitting the latter to fall through.

Beneath the cylindrical portion 2, the receptacle

cle has a slightly reduced cylindrical portion 21, into which the measured material falls after passing through the opening 18. From the bottom of the portion 21, and directly beneath the opening 5, extends a discharge spout 22. The lower end of the portion 21 is closed by a bottom piece or plate 23 having an opening 24 at the spout 21 and also receiving the upper end of the pedestal 15.

As previously indicated, the device is designed particularly to deliver measured quantities of tea or coffee into muslin bags. These bags are applied manually or mechanically to the lower end of the spout 22. Due to the construction of the plates 7 and 8, it will be seen that the charges are delivered at time intervals depending on the speed of the machine, and these intervals are sufficient for removal of the filled bags and the positioning of the empty bags.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing

from the scope of the invention, as indicated by the appended claim.

What I claim is:

5 A measuring device comprising a receptacle having an outlet in its bottom, a transverse plate in said receptacle and having a measuring opening therethrough over said outlet, a rotatable shaft passing through said plate, a valve plate secured to said shaft and resting upon said transverse plate, said valve plate having an opening adapted to register with said measuring opening, a release plate fixed to said shaft and engaging the bottom of said transverse plate, said release plate having a release opening therethrough adapted to register with said measuring opening, 15 the openings in the valve and release plates being spaced from each other at least the circumferential extent of said measuring opening, gearing in said receptacle for rotating said shaft, said gearing being disposed below and laterally of 20 said measuring opening.

EMILE RIENDEAU.