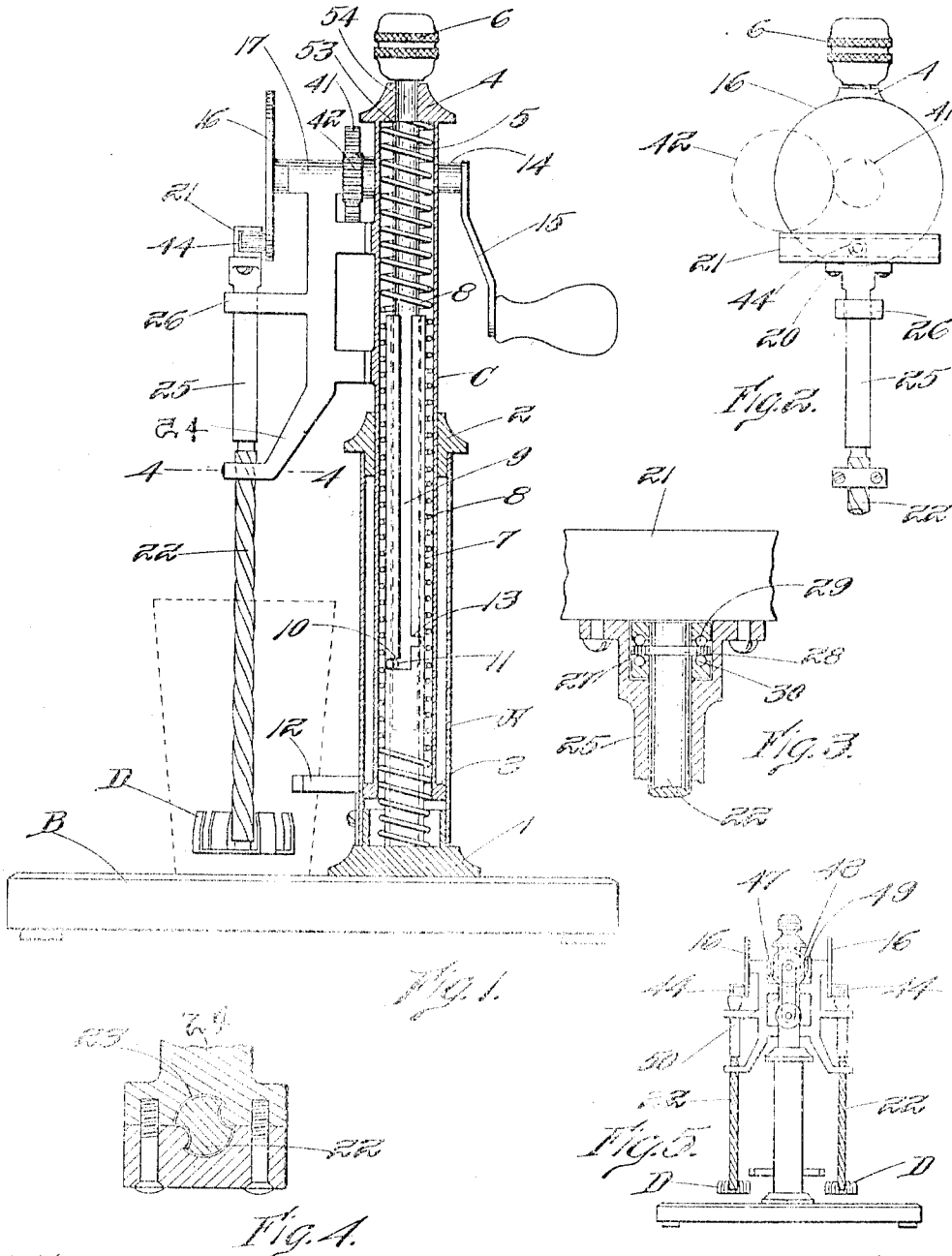


H. W. GIBBS.
BEATING AND MIXING DEVICE.
APPLICATION FILED FEB. 24, 1913.

1,064,070.

Patented June 10, 1913.



Witnesses:
John H. Parker
John M. Pinner

INVENTOR:
Howard W. Gibbs
by Mackay, Calver, Copeland & DeLong
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HOWARD W. GIBBS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO DORSEY MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

BEATING AND MIXING DEVICE.

1,064,070

Specification of Letters Patent. Patented June 10, 1913.

Application filed February 24, 1913. Serial No. 750,052.

To all whom it may concern:

Be it known that I, HOWARD W. GIBBS, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Beating and Mixing Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention relates to beaters of the class employed particularly to beat and mix beverages of various kinds, such as are commonly dispensed at soda fountains and the like, and is an improvement on the device shown and described in Letters Patent of the United States No. 1,046,648, dated December 10, 1912. In devices of this kind it is desirable that the beater operate as near the bottom of the glass as possible, and as 20 glasses very largely in the thickness of the bottom it is important that the operator be able to adjust the position of the beater with the least possible expenditure of time and without the use of tools.

25 The object of my invention therefore is to produce a device which can be instantly adjusted by the operator.

Another object of the invention is to improve the mechanism for the operation of the beater member so that it will be more effective and smooth in its operation, and so that the mechanism will be more durable.

30 The invention consists in certain novel features of construction and operation, all as hereinafter more fully set forth in the following description of a machine embodying my invention, and illustrated in the accompanying drawings, forming a part hereof.

40 The novel features of my invention are clearly defined and pointed out in the claims at the close of the specification.

In the drawings, Figure 1 is a side elevation of a device embodying my invention. 45 Fig. 2 is a front view in detail of the beater member operating mechanism. Fig. 3 is a detail enlarged and partly in section of the beater shaft bearing and crosshead connecting means. Fig. 4 is a horizontal section on 50 line 4-4' of Fig. 1. Fig. 5 is a modified form of a machine embodying my invention.

Having reference to the drawings, the standard is shown at A mounted on a support B which may be of any suitable construction. The standard A is hollow and is

provided with a base 1 and a cap 2. Extending through the cap 2 is an aperture somewhat smaller in cross section than the inside hollow portion of the standard A into which fits a hollow plunger C. The plunger C is provided at its lower end with an outwardly extending flange 3, the sides of which are contiguous with the inner walls of the standard A, thereby acting together with the cap 2 as a guide whereby the plunger is maintained centrally of the standard and at the same time permitting it to be freely raised or lowered within the standard. I regard this construction as important, as it reduces the frictional surfaces to two points, namely, the cap 2 and the flange 3 thereby obviating all tendency to bind. Furthermore, the flange 3 acts as a stop by engaging the lower side of the cap 2 to prevent the plunger from being raised more than a predetermined distance.

The upper end of the plunger C is provided with a cap 4 having a round hole therethrough in which the adjustment rod 5 loosely fits so that it may be readily revolvable therein. In order to prevent the rod 5 from having longitudinal movement I provide a shoulder 53 below the journal portion 54 of the rod which abuts the lower side of the cap 4 and I also secure a handle 6 to the upper end of the rod which contacts with the upper surface of the cap 4 as is distinctly shown in Fig. 1. By means of the handle 6 the rod 5 may be turned for reasons hereinafter to be explained.

90 The adjustment rod 5 extends from the cap 4 centrally of the plunger C to a point slightly above the lower end of the plunger, as is clearly shown in Fig. 1. It fits loosely into a tubular member 7 which is secured to the base 1 of the standard A and which extends upwardly centrally of the standard and plunger sufficiently to prevent the rod 5 from being disengaged with it when the plunger is raised as high as it will go. 95 When the beater is not in use, the plunger C remains in raised position which is at a sufficient height to enable a glass or cup to be placed beneath the beater member D. The plunger is lifted to this position by means of a long helical push spring 8 which is located within the plunger and standard outside of the rod 5 and the tubular member 7 having its ends in contact with the base 1 and the cap 4 respectively. It will 110

be seen that by the use of a long spring practically the same lifting pressure against the plunger in its raised position is obtained as in its lowered position, and it is much more durable than a short spring. I regard this as important for in order to get the most effective service it is desirable that the spring compress uniformly so that the operator will not be obliged to exert an increased force at any point in the movement of the plunger. In order that the plunger may be retained in its lowest position against the pressure exerted by the spring, I provide a longitudinal slot 9 in the tubular member 7 and a notch 10 in the side of the slot at the lower end thereof, as shown in Fig. 1. A pin 11 is secured to the rod 5 and is movable in the longitudinal slot 9. When the plunger C is pressed down until the pin reaches the lower end of the slot a short right-hand turn of the knob will then cause the pin 11 to engage the notch 10. This effectively retains the plunger in lowered position against the pressure of the spring.

In order to provide for containers having bottoms of various thicknesses, a notch 13 is located on the opposite side of the longitudinal slot 9 and a sufficient distance above its lower end. Therefore when a cup or a glass with a thick bottom is used the machine may be readily adjusted to it by causing the pin 11 to engage the notch 13. Therefore by turning the rod one way or the other, the desired adjustment can be obtained and the use of adjusting tools of any kind, which are most inconvenient to the operator, is entirely done away with. A forked bracket 12 extends outwardly from the standard A and serves to position the glass relatively to the beater member D.

The operating mechanism consists of a shaft 14 equipped with a crank 15 and supported on a bearing located on the side of the plunger C. This shaft is connected with another shaft by means of gears 41 and 42 on the free end of which is a crank disk 16 the shaft being supported on a bearing 17, secured to one side of the plunger C by means of a bracket 19. The crank disk 16 is provided with a crank pin 20 (see Fig. 2) on its outer face near the periphery thereof. The crank pin 20 is provided with a roll 44 which engages a horizontal groove in a cross head 21, thereby connecting the crank disk 16 to a beater shaft 22 which is revolvably secured to the cross-head 21. The beater shaft is spiral for part of its length and is provided at its lower end with a beater member D of common form and ordinary construction. The spiral portion of the beater shaft passes through a controlling aperture 23 in the lower bracket extension 24, the aperture being so shaped (see Fig. 4) that the vertical reciprocation of the

rod therethrough causes the latter to revolve alternately in opposite directions as the beater shaft is moved up and down. The cylindrical upper end of the rod 22 fits loosely into a sleeve 25 to be readily revolvable therein. The sleeve 25 in turn loosely fits a guiding aperture in the upper bracket extension 26 and at its upper end has an enlarged portion wherein is a thrust bearing pocket 27, as is shown in Fig. 3. Near the upper end of the beater shaft 22 is a flange 28 which is supported above and below by ball bearings 29 and 30, as shown in Fig. 3, so as to effectively prevent longitudinal movement of the rod 22 and at the same time permit it to revolve freely. The roll 44 travels back and forth in the horizontal crosshead 21 to which the sleeve 25 is secured, causing the rod 22 to be reciprocated when the disk 16 is rotated.

The machine hereinabove described is capable of mixing the contents of one glass at a time only. In Fig. 5 is shown a device equipped with two beater members located on opposite sides of the standard and plunger. This enables the contents of two glasses to be mixed at the same time. In order to reciprocate the beater shafts 22 to which the beater members D are secured I provide two crank disks 16. The disks 16 are connected by means of bevel gears 47 and 49 to a central bevel gear 48 to which a crank 50 is secured.

From the description hereinabove set forth, it will be seen that the device embodying my invention comprises few moving parts, that the reciprocating oscillating beater shaft is supported on a bearing designed particularly to withstand the strain to which it is subjected, and is therefore very durable. Furthermore the device is readily adjustable and the adjusting mechanism and means for terminating the plunger movement are wholly inclosed and therefore freed from dust and dirt.

What I claim is:

1. A beater comprising a hollow standard, a hollow plunger slidable with relation to said standard, a spring for sliding said plunger, a rod in said plunger secured thereto, a member within said standard and secured thereto, and releasable engaging means to cause one of said members to engage the other.
2. A beater comprising a hollow standard, a hollow plunger slidable with relation to said standard, a spring for sliding said plunger, a rod in said plunger secured thereto, a member within the said standard and secured thereto, one of said members being provided with a notch and the other being provided with a projection to engage said notch.
3. A beater comprising a hollow standard, a hollow plunger slidable with relation to

said standard, a spring for sliding said plunger, an oscillatable rod secured in said plunger, a tubular upwardly extending member within said standard and secured thereto, said tubular member having a longitudinal slot with a notch in the side thereof and a pin in said rod slidable in said slot to engage the said notch.

4. A beater comprising a hollow standard, a tubular upwardly extending member within said standard and secured thereto, a hollow plunger slidable in said standard, a rod within said hollow plunger and secured thereto, a helical spring in said hollow plunger and surrounding said rod and tubular member, said tubular member having a longitudinal slot therein with a notch in the side thereof and a projection on said rod to engage said notch.

5. A beater comprising a hollow standard, a hollow plunger slidable with relation to said standard, a spring for sliding said plunger, an oscillatable rod secured to said plunger, said rod projecting above the top of said plunger and having a knob thereon by means of which the rod may be turned, a tubular upwardly extending member within said standard and secured thereto, said tubular member having a longitudinal slot with a notch in the side thereof and a pin in said rod slidable in said slot to engage the said notch.

6. A beater comprising a standard, a tubular upwardly extending member within said standard and secured thereto, a hollow plunger slidable in said standard, a rod

within said hollow plunger slidable in said tubular member and a helical spring in said hollow plunger and surrounding said rod and tubular member and extending from the bottom of said standard to the top of said plunger.

7. A beater comprising a hollow standard, a cap on said standard having an aperture therein smaller in cross section than the inside portion of the standard, a plunger fitting through said aperture and having an outwardly extending flange thereon, an upwardly extending member within the standard and secured thereto, a downwardly extending rod within the plunger and secured thereto, a spring for sliding said plunger, and reversible engaging means to cause one of said members to engage the other.

8. A beater comprising a shaft having a spiral portion and a cylindrical portion, a guide having a hole therein corresponding in shape to the cross section of the spiral portion, a sleeve fitting said cylindrical portion, a guide having a hole therein fitting the sleeve, a pocket in said sleeve, a flange on said shaft located intermediate bearings in the pocket, a cross head attached to said sleeve and a crank reciprocating said cross head.

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

HOWARD W. GIBBS.

Witnesses:

CAMERON MACLEOD,
ALICE H. MORRISON.