R. W. PORTMANN.

DRINK MIXING MACHINE.

APPLICATION FILED DEC. 21, 1914.

1,141,358.

Patented June 1, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

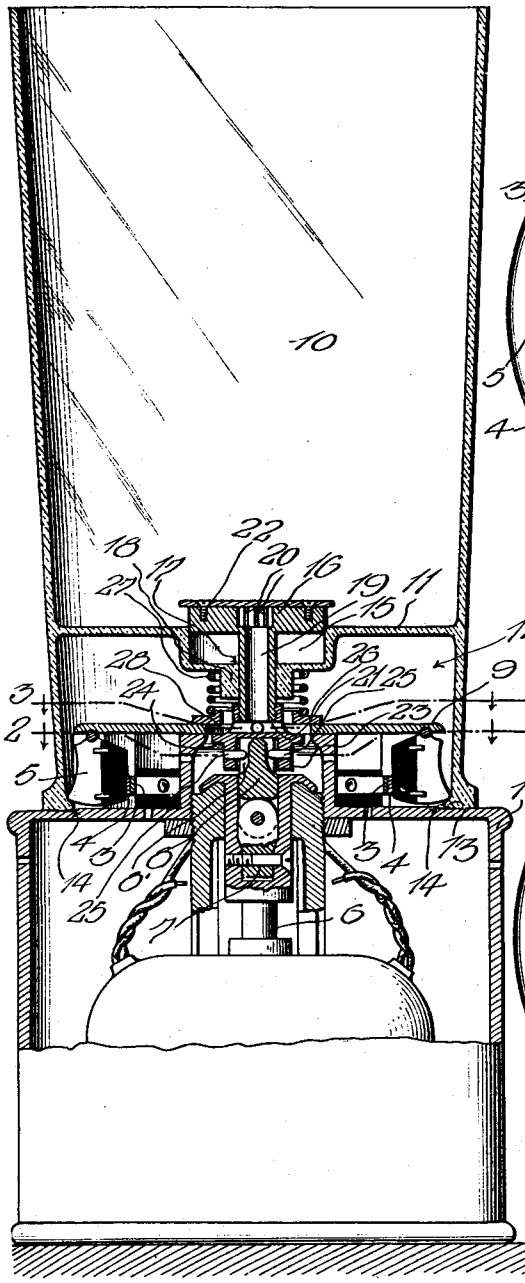


FIG. 2.

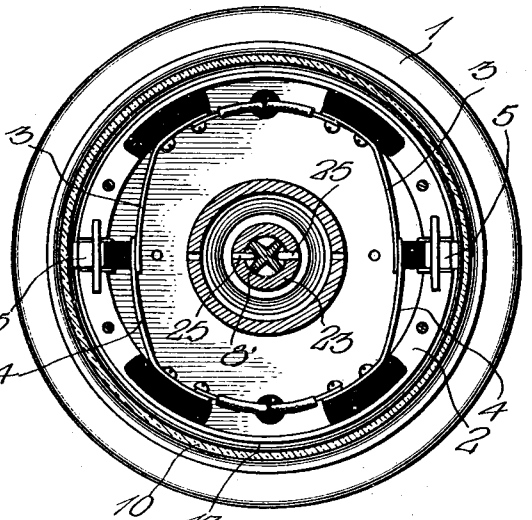
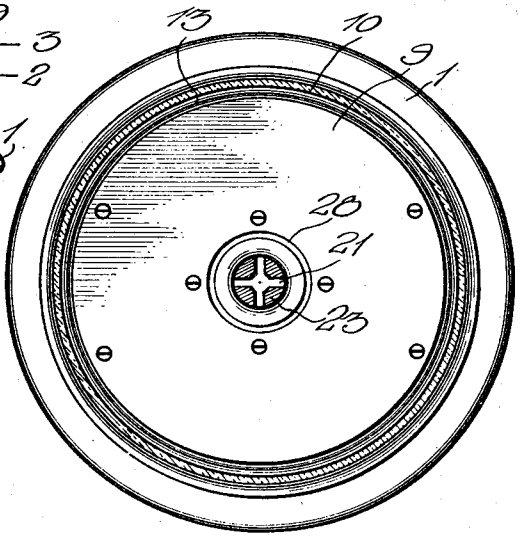


FIG. 3.



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2 SHEETS—SHEET 2.

FIG. 4

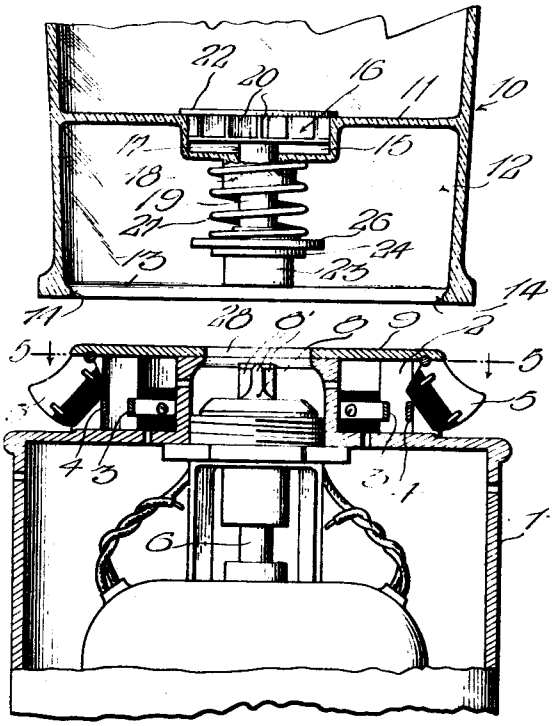


FIG. 6

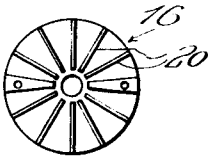


FIG. 7

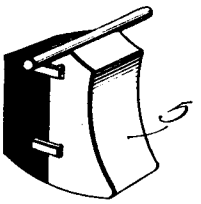
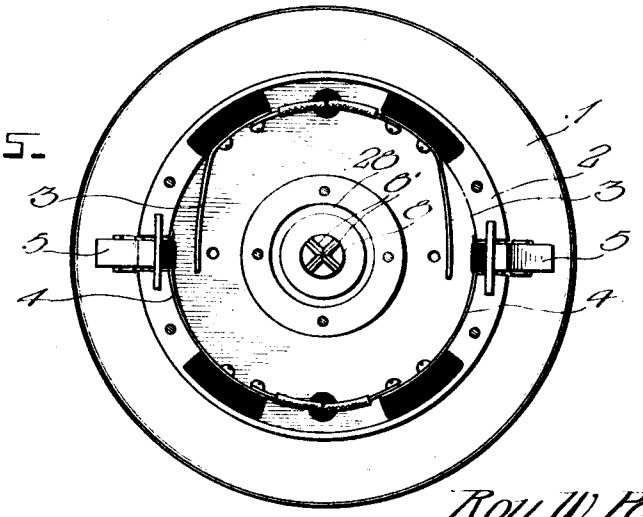


FIG. 5



Witnesses

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DRINK-MIXING MACHINE.

1,141,358. Specification of Letters Patent. Patented June 1, 1915.

Application filed December 21, 1914. Serial No. 878,334.

To all whom it may concern:

Be it known that I, ROY W. PORTMANN, a citizen of the United States, residing at Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Drink-Mixing Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to agitators and more especially to aerating and mixing machines for beverages such as are served at soda fountains and similar places.

The main object of the invention is to provide a simple device of this class in which liquid may be quickly aerated and caused to foam without necessitating any exertion on the part of the operator.

Another object of the invention is to provide a device of this character in which the container itself carries the mixing propeller and which is readily detachable from the motor stem or shaft and may be cleaned after each use thereof.

Another object is to provide in such a device a novel connection between the motor shaft and the propeller stem.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 represents a side elevation partly in section showing this improved agitator in operative position; Fig. 2 is a horizontal section taken on line 2—2 of Fig. 1; Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 1. Fig. 4 is a detail sectional view of the lower portion of the container and the upper part of the motor, with the container disconnected from the motor and arranged in juxtaposition ready for connection with the motor; Fig. 5 is a horizontal section taken on line 5—5 of Fig. 4; Fig. 6 is a detail plan view of the fan; Fig. 7 is a detail perspective view of one of the catches.

In the embodiment illustrated a motor casing 1 is shown having a motor housed therein. This casing is provided at its upper end with a reduced extension 2 to the opposite sides of the inner face of which are secured two electric switches for conducting current to the motor and which are here shown in the form of spring arms 3 and 4 secured at one end to the inner wall of the extension 2 of the casing with their free ends disposed in overlapping planes and which are designed to be forced into contact when the container to be described is applied by means of pivoted catches 5 mounted on the sides of the extension. When the device is not in use these catches swing outwardly under the action of springs 4 into the position shown in Figs. 4 and 5 and thus cause the arms 3 and 4 to separate, the resiliency of the arm 4 causing it to move away from arm 3 and thus disconnect the current from the motor. The motor shaft 6 has a universal joint 7 which connects said shaft 6 with another shaft 8 mounted in the extension 2 and with which the agitator stem of the container is adapted to abut when the container is placed in operative position on the motor.

The formation of the reduced extension 2 of the motor provides a platform or base 9 to support the lower end of the container 10 when placed in operative position. This container 10 may be constructed of any suitable material preferably glass and the bottom 11 thereof is disposed some distance from the lower end of the container the side walls of which below said bottom form an inclosing hood 12 for encircling the extension 2 of the motor when the device is in operative position as shown in Fig. 1. The lower edge of this hood 12 is provided on its inner face with an inwardly projecting rib 13 which is preferably beveled on its lower face as shown at 14 to facilitate its engagement with the catches 5 when the container is placed over the extension 2 of the motor and which thus forces said catches 5 inward, thereby causing the spring arms 4 of the switches to contact with the arms 3 for closing the circuit and supplying current to the motor.

The bottom 11 of the container 10 is provided with a central depression 15 which forms a chamber for housing the agitating element or fan 16 when the container is disconnected from the motor as will be hereinafter more fully described. This housing or chamber 15 has a centrally disposed opening 17 therein and is preferably provided with a depending collar 18 for a purpose to be described. Slidably mounted in the open-

ing 17 in the bottom of the chamber 15 is a hollow stem or shank 19 to the upper end of which is fixed the agitating element herein shown in the form of a fan 16 the blades 20 of which are made integral with said shaft 19 and between which the air is designed to be discharged from the shaft 19 when the fan is in motion, said air being drawn up into the shaft through openings 21 adjacent the lower end of said shaft.

Fixed to the fan 16 over the blades thereof is a disk 22 which projects at its periphery beyond the fan blades and is designed to seat over the chamber 15 when the fan is lowered into said chamber for completely closing the chamber and preventing entrance of liquid contained in the container from entering said chamber.

A sleeve 23 is secured to the lower end of the shaft 19 and is provided with a collar 24 and with two laterally extending pins 25 disposed on opposite sides of the sleeve and which are adapted to extend between the wings 8′ of the shaft 8 of the motor whereby said agitator is connected with said shaft and is adapted to be rotated thereby when the motor is set in operation. A collar 26 encircles the shaft 19 and is spaced therefrom being adapted to rest on the collar or flange 24 carried by the sleeve 23 and against which one end of a coiled spring 27, which encircles the shaft and collar 18, abuts. This coiled spring 27 thus exerts its tension normally to force the shaft 19 and the agitator carried thereby downwardly thereby causing the disk 22 to seat over the chamber 15 and securely close said chamber against the entrance of liquid.

The top of the extension 2 on the motor casing 1 has an opening 28 therein directly below which is disposed the winged end 8′ of the shaft 8 of the motor, and the lower end of the shaft 19 of the agitator is designed to abut against this winged end or motor shaft 8 when the container 10 is placed over the extension 2 and thus force said shaft 19 upwardly to project the fan 16 beyond the bottom 11 of the container into the position shown in Fig. 1. When this container is inserted over the motor extension 2 the sleeve 23 and collar 24 will pass through the opening 28 into the extension 2 and the pins 25 carried by said sleeve will enter between the wings 8′ of the shaft 8 and thus operatively connect the shaft 19 with the motor shaft to provide for the rotation of said shaft 19 by the motor when the latter is operated. When the shaft 19 is engaged with the shaft 8 the tension of the spring 27 will be transferred from the collar 24 of the sleeve 23 to collar 26 which rests on the upper face of the extension 2 as shown in Fig. 1 and when thus relieved of the spring tension said shaft 19 may be readily projected by its engagement with shaft 8 to position the fan above the bottom 11 as above described. When the fan is in this position air entering through the openings 21 will pass upwardly through shaft 19 and the rotation of the fan will draw the air up and discharge it into the container 10 and the air so inserted will pass through the contents of the container, thoroughly aerating it and causing it to foam.

The blades 20 of the fan radiate from the center thereof thus producing a multiplicity of air outlets which flare from the center of the mechanism or agitator 16 outward so as to produce the greatest amount of vacuum or suction in the hollow shaft 19 with the result that a great amount of air is forced through the contents of the container thereby thoroughly mixing said contents and aerating it.

From the above description it will be obvious that the insertion of the container 10 over the motor extension 2 will simultaneously connect the shafts 19 and 8 of the container and motor respectively and by forcing in the catches 5 supply current to the motor whereby the connected shafts 8 and 19 will be rotated thereby rotating the mixer or fan 16 and discharging air in all directions therefrom into the container. When the catches 5 are forced in the springs 3 and 4 bearing against each other at their inner ends will cause said catches to frictionally engage the container 10 and hold it in position while the machine is in operation. When the container is removed the springs 3 and 4 force the catches 5 outwardly to the position shown in Figs. 4 and 5 and contact between said springs is disconnected thereby stopping the motor. At the same instant the spring 27 on the container forces the collar 26 into engagement with the collar 24 on the sleeve 23 and thus retracts the agitator and the disk secured to it.

I claim as my invention:

1. In a device of the class described the combination of a container having a bottom disposed inwardly some distance from its lower edge, said bottom having a recess therein with an opening through its lower wall, an agitator normally housed in said recess, and having a stem extending through the opening therein, a driving element and coöperating means on said stem and driving element for detachably connecting them, and means whereby when said stem and element are connected the agitator will be projected above said recess.

2. In a device of the class described the combination of a container having a bottom disposed inwardly some distance from its lower edge, said bottom having a recess therein with an opening through its lower wall, an agitator normally housed in said recess and having a stem extending through the opening therein, a driving element, and

coöperating means on said stem and driving element for detachably connecting them, and coöperating means carried by said container and driving element for connecting the latter with an electric current.

3. In a device of the class described the combination of a container having an opening in its bottom, an agitator mounted in said container and having a stem extending through said opening, a laterally extending collar carried by said stem, a coiled spring encircling said stem and bearing on said collar, a motor having a driving shaft and means for connecting said stem and shaft whereby the agitator is relieved from the tension of said spring.

4. In a device of the class described, a container having its bottom wall spaced inwardly from its lower edge, a depression in said bottom having an opening through its lower wall, a depending collar surrounding said opening, an agitator mounted in said container and having a stem extending through the opening in the bottom wall of said recess, said agitator being normally housed in said recess and provided with means for closing the recess when so housed, a driving element having an upwardly projected shaft, means for disengageably uniting said shaft and stem, a coiled spring encircling the collar around said opening, a vertically movable collar carried by said stem against which said spring bears which adapts it to retract the agitator within said recess, and means for relieving said stem from the tension of said spring operable on the connection of said stem and shaft.

5. In a device of the class described a container having its bottom wall spaced inwardly from its lower edge, a depression in said bottom having an opening through its lower wall, a depending collar surrounding said opening, an agitator mounted in said container and having a stem extending through the opening in the bottom wall of said recess, said agitator being normally housed in said recess and provided with means for closing the recess when so housed, a driving element having an upwardly projected shaft, means for disengageably uniting said shaft and stem, a coiled spring encircling the collar around said opening, a vertically movable collar carried by said stem against which said spring bears which adapts it to retract the agitator within said recess, a collar loosely carried by said stem and means for disengaging said collar from the stem when said stem and shaft are connected.

6. A device of the class described comprising a container having a recess in its bottom with an opening extending through the lower wall of said recess, an agitator normally mounted in said recess and having a disk secured to its upper face for closing said recess when said agitator is disposed therein, a stem extending from said agitator through the opening in said recess, a sleeve carried by said stem and having a laterally extending collar thereon, another collar loosely encircling said sleeve and normally resting on the collar thereof, a coiled spring encircling said stem and engaging the lower wall of said recess at one end and said movable collar at its other end, and means for detachably connecting said sleeve with the driven element.

7. A device of the class described comprising a container having a recess in its bottom with an opening extending through the lower wall of said recess, an agitator normally mounted in said recess and having a disk secured to its upper face for closing said recess when said agitator is disposed therein, a stem extending from said agitator through the opening in said recess, a sleeve carried by said stem and having a laterally extending collar thereon, another collar loosely encircling said sleeve and normally resting on the collar thereof, a coiled spring encircling said stem and engaging the lower wall of said recess at one end and said movable collar at its other end, a motor having a shaft for detachable engagement with said stem, an electric switch connected with said motor, a catch for closing said switch, and means carried by the container for actuating said catch.

8. A device of the class described comprising a container having a recess in its bottom with an opening extending through the lower wall of said recess, an agitator normally mounted in said recess and having a disk secured to its upper face for closing said recess when said agitator is disposed therein, a stem extending from said agitator through the opening in said recess, a sleeve carried by said stem and having a laterally extending collar thereon, another collar loosely encircling said sleeve and normally resting on the collar thereof, a coiled spring encircling said stem and engaging the lower wall of said recess at one end and said movable collar at its other end, a motor having a shaft for detachable engagement with said stem, an electric switch connected with said motor, a catch for closing said switch, said container having means for engaging said catch whereby the switch is closed and the container held in engagement with said motor.

9. In a device of the class described, the combination with a motor casing having a reduced extension on its upper end, a driving shaft extending through said extension and having its outer end winged; of a container having an agitator mounted therein and provided with a stem extending through the bottom of said container, said stem and motor shaft having coöperating means for

detachably connecting them, the stem of said agitator being hollow, means for supplying air to said hollow stem, and coöperating means carried by said extension and container for yieldably holding said container in operative position on said extension.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROY W. PORTMANN.

Witnesses:
ALBERT H. PETERS,
HENRY H. PORTMANN.