Feb. 22, 1927. 1,618,650

R. B. GILCHRIST

DRINK MIXER

Filed Dec. 18, 1922

Fig. 1.

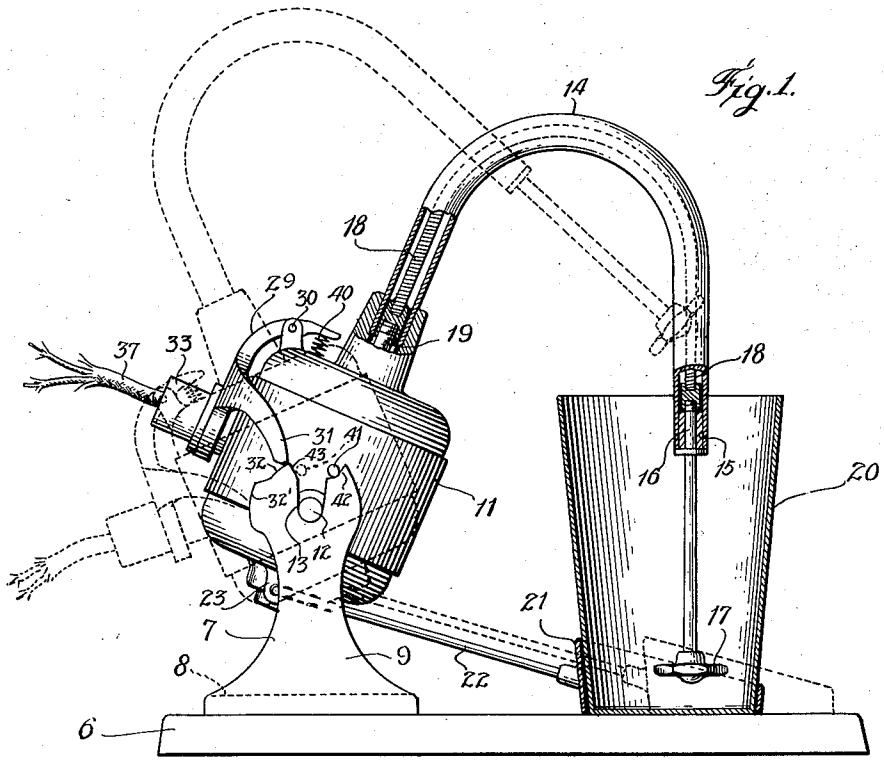


Fig. 2.

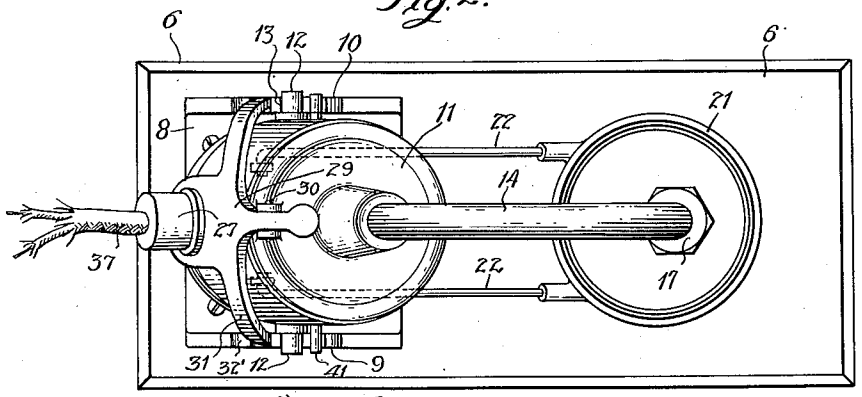
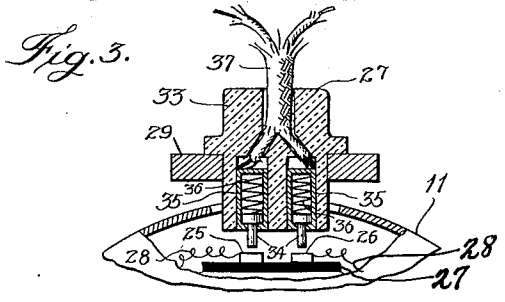


Fig. 3.



Inventor:
Raymond B. Gilchrist
By Fred Gerlach
his Atty.

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RAYMOND B. GILCHRIST, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE GILCHRIST COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

DRINK MIXER.

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The invention relates to motor-driven drink-mixers, and its primary object is to provide an improved mixer in which manual shift of the drink-receptacle or container brings the agitator and container into and out of proper operative relation. Another object is to provide improved automatic controlling mechanism for the electric motor.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Fig. 1 is a side elevation of a mixer embodying the invention, parts being shown in section. Fig. 2 is a plan. Fig. 3 is a section through the switch for controlling the motor and its connections.

The invention is exemplified in a structure comprising a base 6 adapted to rest on a table or counter; a bracket 7 provided with a member 8 suitably secured to said base and integral standards 9 and 10; an electric motor 11 provided with fixed trunnions 12 which are pivotally held in open-topped pockets 13 formed in standards 9 and 10 and which pivotally support the motor; an arched tubular support 14 which has one of its ends fixed in the motor-casing and carries a bearing 15 at its other end; a shaft 16 mounted in said bearing and having a drink-agitator 17 fixed to its lower end; and a flexible shaft 18 which extends through tube 14 and has its ends secured to the shaft 19 of the motor and the agitator-shaft 16 respectively. The pivotal point around which the agitator and motor swing is disposed so the agitator will swing vertically into and out of a tapered open-topped tumbler 20 or a receptacle containing the constituents of the drink to be mixed. This pivotal point is disposed so the center of gravity of motor-casing, tube 14 and shaft 18 will swing across the dead-center so their weight will alternately be applied to hold the motor in its alternative positions, the trunnions 12 being disposed below the vertical center of the motor-casing so its upper portion will be of preponderant weight and will, when swung to either side of the dead-center, assist in holding the motor in its alternative positions. A receptacle-holder 21 is movable horizontally over the base and to and from bracket 7 in which the motor is hung and is pivotally connected by wire-arms 22 to lugs 23 on the motor-casing. This holder is annular or ring-like to extend around the tumbler 20, so that the holder may be shifted backwardly and forwardly by the manual shift of a tumbler held therein, thus making it possible to shift the motor and agitator together to positively raise and lower the latter into and out of its operative position in the tumbler, by the manual manipulation of the tumbler.

The automatic controlling means for the motor, whereby it will be caused to start while the agitator is being shifted to its operative position in the tumbler and to stop during its withdrawal, comprises a pair of spring-contacts 25, 26 secured to a block of insulation 27 and respectively connected in suitable manner by conductors 28 to the motor; a lever 29 pivoted to the motor-casing at 30; arms 31 on lever 29 adapted to ride on stationary cams 32 on standards 9 and 10; a socket 33 of insulating material fixed to lever 29; and pins 34 adapted to engage contacts 25, 26 respectively and having a limited movement in sleeves 35 which are fixed in socket 33. While two arms 31 are shown for the purpose of shifting lever 29, it will be understood that one may be dispensed with. These pins are pressed in one direction by springs 36 held in said sleeves. The conductors in a flexible cord 37 are connected to the sleeves 35 respectively, each of which is in electrical contact with one of the pins 34. A spring 40 is applied to press lever 29 so its arm 31 will be held against the cam 32. An inclined portion 32′ of said cam is arranged to shift lever 29 and cause the motor-switch to be closed during the lowering of the agitator after it has entered the tumbler and before it enters the material in the tumbler or receptacle, and to stop the motor during withdrawal of the agitator from the receptacle after it leaves the liquid and before it passes out of the receptacle. This turning causes the agitator to start before it enters the material in the receptacle, so it will bore its way through any hard chunks of ice-cream and to cleanse itself of adherent material by centrifugal force during its withdrawal. A stop-pin 41 on the motor-casing engages abutments 42 and 43 on standard 9 to limit the movement of the motor and the agitator and to properly position them in their alternative positions.

Normally, the agitator is positioned as shown by dotted lines in Fig. 1, so that there is sufficient clearance above the holder 21 to permit a receptacle of the proper size to be placed into the holder. The operator will place the receptacle containing the materials to be mixed on base 6 and into the holder, and then push it backwardly. This is the only movement necessary to establish operative relationship between the container and the agitator and to start the motor. The backward shift of the holder will swing the motor in bracket 7 and cause the agitator, which is movable with the motor, to be lowered into its operative position in the receptacle. During this movement of the motor, arms 31, as they ride down inclines 32′ of cams 32, will permit lever 29, under the force of spring 40, to swing around its pivot 30, and relatively to the motor-casing so the contact-pins 34 will engage contacts 25, 26 and close the circuit for the operation of, and start, the motor. During the backward shift of the holder, the motor will tilt across its dead center so it will be automatically and self-retained in its operative position. When the drink has been mixed, it is only necessary for the operator to manually shift the receptacle forwardly on the base and then lift it out of the holder. During this forward movement, the holder, as it is shifted by the receptacle, will swing the motor to raise the agitator out of the receptacle and provide the necessary clearance for the easy removal of the receptacle with the drink, from the holder and base 6. During this movement, lever 29 will be automatically operated by incline 32′ on cam 32 to separate pins 34 from contacts 25, 26, and interrupt the motor-circuit so the motor will stop, and the motor will pass across its dead-center, so it will be automatically held in its inoperative position.

The invention exemplifies a drink-mixer, in which the manual shift of the receptacle shifts the agitator into and out of its operative position; in which such shift conjointly moves the motor and the agitator so a permanent driving connection between them can be used; which requires very little working space above the receptacle; which is operable by the manual shift of the receptacle and in which the motor is automatically started and stopped; in which the swinging motor and parts are pivoted so as to be automatically held in their alternative positions; which is simple in construction; and in which the weight of the parts is utilized to retain them in their alternative positions.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a drink mixer, the combination of a support, an electric motor mounted on said support, means to support a receptacle in operative position, an agitator driven by said motor and movable into and out of operative position in the receptacle, and means to shift the agitator into its operative position, operated entirely by the manipulation of the receptacle itself.

2. In a drink mixer, the combination of a support, means to support a receptacle in operative position, an agitator driven by said motor and pivotally movable to swing into and out of the receptacle, and means to swing the agitator into its operative position in the receptacle, operated entirely by the manual manipulation of the receptacle itself.

3. In a drink mixer, the combination of a support, an electric motor mounted on said support, an agitator driven by said motor and movable into and out of the receptacle, and means to shift the agitator into and out of its operative position in the receptacle operated positively by the manual manipulation of the receptacle itself.

4. In a drink mixer, the combination of a support, an electric motor movably mounted on said support, means to hold a receptacle in operative position, an agitator supported to move with and driven by said motor and movable into and out of the receptacle, and means to shift the motor and agitator to bring the latter into its operative position in the receptacle, operated entirely by placement of the receptacle into its operative position.

5. In a drink mixer, the combination of a support, an electric motor pivotally mounted on said support, an agitator supported to swing with and driven by said motor and movable into and out of the receptacle, and means to shift the agitator to its operative position in the receptacle operated by the manual manipulation of the receptacle itself.

6. In a drink mixer, the combination of a support, an electric motor movably mounted on said support, an agitator supported to move with and driven by said motor and movable into and out of the receptacle, and means to shift the agitator into and out of its operative position in the receptacle operated positively by the manual manipulation of the receptacle itself.

7. In a drink mixer, the combination of a support, an electric motor mounted on said support, a movable holder for a receptacle, an agitator connected to be driven by the motor and movable into and out of the receptacle, and means between the holder and the agitator to shift the latter into its oper-

ative position in the receptacle, operated by the manual shift of the receptacle itself.

8. In a drink mixer, the combination of a support, an electric motor mounted on said support, a movable holder for a receptacle, an agitator connected to be driven by the motor and pivoted to swing into and out of the receptacle, and means between the holder and the agitator to shift the latter into its operative position in the receptacle, operated by the manual shift of the receptacle itself.

9. In a drink mixer, the combination of a support, an electric motor mounted on said support, an agitator connected to be driven by said motor and movable into and out of the receptacle, and a movable receptacle holder operable entirely by the manual manipulation of the receptacle and connected to positively shift the agitator into and out of its operative position in the receptacle itself.

10. In a drink mixer, the combination of a support, an electric motor movably mounted on said support, an agitator supported to move with and driven by said motor and movable into and out of the receptacle, and a movable receptacle-holder operable by the manual manipulation of the receptacle itself and connected to shift the motor to bring the agitator into and out of the receptacle.

11. In a drink mixer, the combination of a support, an electric motor pivotally mounted on said support, an agitator driven by said motor and supported to swing with the motor and into and out of the receptacle, and a movable receptacle-holder operable by the manual manipulation of the receptacle itself and connected to shift the motor to bring the agitator into and out of the receptacle.

12. In a drink mixer, the combination of a support, an electric motor movably mounted on said support, an agitator supported to move with and driven by said motor and movable into and out of the receptacle, and a movable receptacle holder operable by the manual manipulation of the receptacle itself and connected to positively shift the motor to bring the agitator into and out of the receptacle.

13. In a drink mixer, the combination of a support, an electric motor pivoted on said support, an agitator movable with and driven by the motor and movable into and out of the receptacle, means to shift the agitator to its operative position in the receptacle operated by the manual manipulation of the receptacle itself, and means to automatically hold the motor in alternative positions to retain the agitator in its operative and inoperative positions respectively.

14. In a drink mixer, the combination of a support, an electric motor pivoted on said support, an agitator movable with and driven by the motor and movable into and out of the receptacle, and means to shift the agitator into its operative position in the receptacle operated by the manual manipulation of the receptacle itself, the motor being pivoted to automatically and alternately retain the agitator in its operative and inoperative positions respectively.

15. In a drink mixer, the combination of a support, an electric motor pivoted on said support, an agitator movable with and driven by the motor and movable into and out of the receptacle, and a holder connected to shift the agitator to and from its operative position in the receptacle, operated by the manual manipulation of the receptacle itself, said motor being connected to automatically retain the holder in its alternative positions.

16. In a drink mixer, the combination of a support, an electric motor mounted on said support, an agitator connected to be driven by said motor and movable into and out of the receptacle, means for shifting the agitator to its operative position in the receptacle operated entirely by the manual manipulation of the receptacle, a switch for controlling the motor, and means for automatically actuating the switch also operated by the manual shift of the receptacle.

17. In a drink mixer, the combination of a support, an electric motor mounted on said support, an agitator connected to be driven by said motor and movable into and out of the receptacle, a receptacle holder connected to shift the agitator to and from its operative position in the receptacle operated entirely by the manual manipulation of the receptacle itself, and a switch for controlling the motor actuated by the manual shift of the receptacle.

18. In a drink mixer, the combination of a support, an electric motor pivotally mounted on said support, an agitator movable with and driven by the motor and movable into and out of the receptacle, means to shift the motor to bring the agitator into and out of the receptacle, operated entirely by the manual shift of the receptacle, a switch for controlling the motor mounted thereon, and automatic controlling means for the switch comprising a stationary shifting element on the support.

19. In a drink mixer, the combination of a support, an electric motor mounted on said support, an agitator driven by the motor and movable into and out of a receptacle, a receptacle-holder movable horizontally over said support, and a connection to shift the agitator to and from its operative position operated entirely by manual shift of a receptacle in the holder.

20. In a drink mixer, the combination of a support, an electric motor mounted on said support, an agitator driven by the motor and pivotally movable into and out of the receptacle, a receptacle-holder movable hori-

zontally over said support, and a connection to swing the agitator to and from its operative position, operated entirely by manual shift of a receptacle in the holder.

21. In a drink mixer, the combination of a support, an electric-motor movably mounted on said support, an agitator movable with and driven by the motor, and movable into and out of a receptacle, a receptacle-holder movable horizontally over said support, and a connection to shift the motor to bring the agitator into and out of the receptacle, operated by manual shift of a receptacle in the holder.

22. In a drink mixer, the combination of a support, an electric motor pivotally mounted on said support, an agitator movable with and driven by the motor and movable into and out of a receptacle, a receptacle-holder movable horizontally over said support, and a connection to swing the motor to bring the agitator into and out of the receptacle, operated by manual shift of a receptacle in the holder.

23. In a drink mixer, the combination of a support, an electric motor pivotally mounted on said support, an agitator movable with and driven by the motor and movable into and out of a receptacle, a receptacle-holder movable horizontally over said support, a connection to swing the motor to bring the agitator into and out of the receptacle, operated by manual shift of a receptacle in the holder, a switch for controlling the motor mounted to move with the motor, and automatic actuating means for the switch comprising a stationary element on the support.

24. In a drink mixer, the combination of a support provided with bearings, an electric motor provided with trunnions pivotally held in and readily removable from said bearings, an agitator driven by the motor and movable into and out of the receptacle by the tilting of the motor.

25. In a drink mixer, the combination of a support provided with open sockets, an electric motor provided with trunnions held in and removable from said sockets, an agitator driven by the motor and movable into and out of a receptacle by the shift of the motor, and means for automatically controlling the motor comprising a switch mounted on and movable with the motor and a stationary element on the support.

26. In a drink mixer, the combination of a support provided with means for holding a receptacle, an electric motor provided with an upwardly extending shaft, a depending shaft having an agitator connected thereto, supporting means between the upper ends of the agitator and motor shafts whereby the agitator and shaft will be sustained to be shiftable with the motor, a driving connection between the upper end of the motor shaft and the upper end of the agitator shaft, and a pivotal supporting connection for the motor, the agitator, driving connection and motor being conjointly shiftable to bring the agitator into and out of the receptacle.

27. In a drink mixer, the combination of means to hold a receptacle, a motor pivotally supported near the back of the receptacle and having an upwardly extending shaft, a depending shaft having an agitator thereon supported to swing with the motor to bring it into and out of the receptacle, and a driving connection between the upper end of the agitator-shaft and the upper end of the motor shaft.

28. In a drink mixer, the combination of means to support a receptacle with an open top, of a motor, a pivotal support for the motor, an agitator, a fixed supporting connection between the agitator and the motor whereby the agitator will be shifted with the motor, a driving connection between the agitator and the motor consisting of a flexible shaft between the upper end of the motor-shaft and the upper end of the agitator-shaft, the agitator being movable into and out of the receptacle by the swinging of the motor.

In testimony whereof I affix my signature.

Signed at Newark, New Jersey, this 24th day of November, 1922.

RAYMOND B. GILCHRIST.