Oct. 6, 1953

W A. ERNST

2,654,847

MOTORIZED DRINK MIXER

Filed Sept. 15, 1950

2 Sheets-Sheet 1

Fig. 2

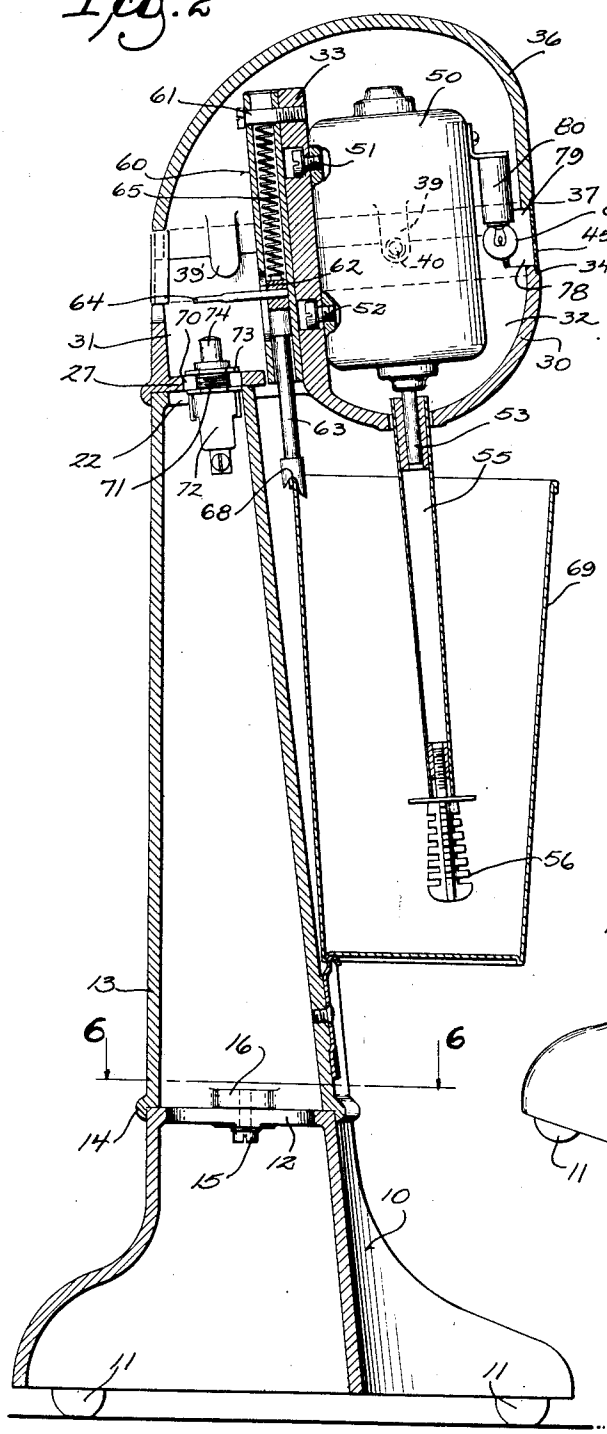
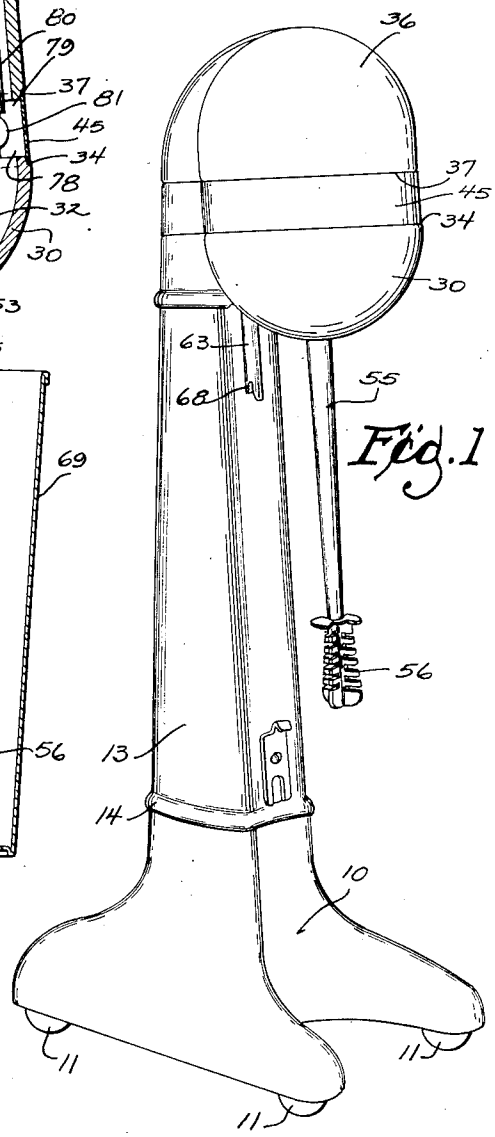


Fig. 1



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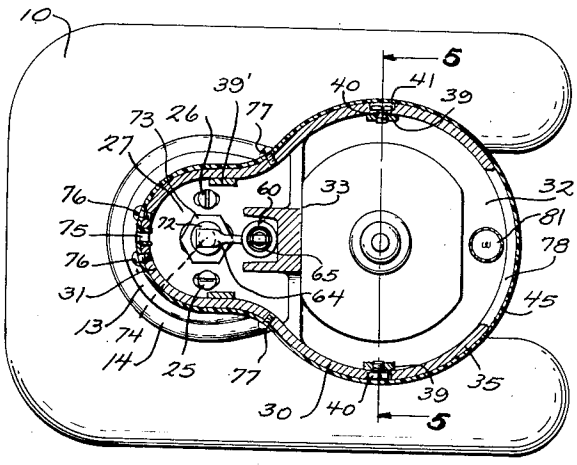


Fig. 4

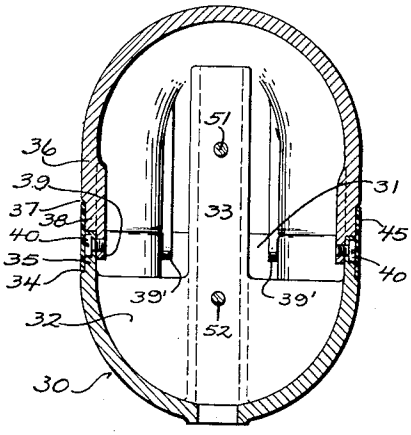
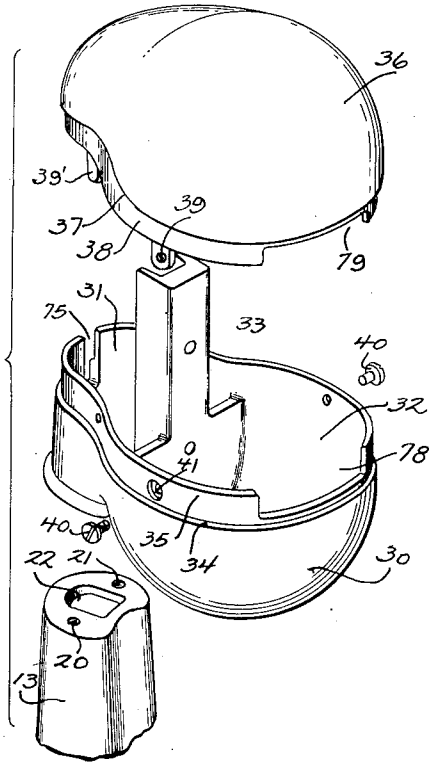


Fig. 5

Fig. 3



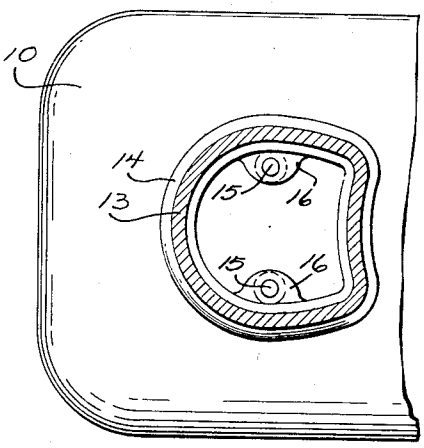


Fig. 6

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MOTORIZED DRINK MIXER

W. Arthur Ernst, Racine, Wis.

Application September 15, 1950, Serial No. 184,956

18 Claims. (Cl. 310—68)

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This invention relates to improvements in motorized drink mixers.

Conventionally, motorized drink mixers of the type with which this invention is concerned include a stable base and a column at the top of which a motor is supported. The shaft of this motor, or a shaft with which the motor is in driving connection is on a substantially vertical axis and its projected lower end is provided with an agitator receivable into a cup or container which is supported either on the base or upon some other support adjacent the column.

Among the problems, with the solution of which this invention is concerned, are those which arise because of the complicated assembly operations incident to the final assembly of heretofore conventional mixers; because of the difficulty of servicing previously known mixers when electrical or mechanical failures occur; and because materials and method of manufacture required by preferred materials have heretofore ruled out the kinds of materials upon which porcelainized surfaces could be provided. The objects of this invention are to meet these problems above set forth and others as will be apparent from the following description:

In the drawings:

Fig. 1 is a perspective of the complete beverage mixer embodying the invention.

Fig. 2 is a vertical section taken along a median vertical line through the mixer shown in Fig. 1, and showing a cup or a container for material to be mixed—said container being likewise shown in vertical section.

Fig. 3 is an "exploded" view in perspective showing a fragmentary portion of the top of the column, the complete motor mounting and control head for the column, and the hood for the head.

Fig. 4 is a section on a horizontal plane near the middle of the motor in Fig. 1.

Fig. 5 is a section on line 5—5 of Fig. 4.

Fig. 6 is a section on line 6—6 of Fig. 2.

Like parts are designated by the same reference characters throughout the several views.

In accord with this invention, a stable base constitutes a separate casting 10 shaped as shown clearly in Figs. 1 and 2, with provision at 11 for suitable rubber-like feet to protect the surface upon which the mixer is supported and to provide a certain amount of resilient cushioning to deaden vibration. The upper surface of the base 10 is provided with a web 12 marginally machined to receive the lower margins of column 13—said margins being exteriorly framed by

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rib 14 adapted to conceal the joint between the base and column and to provide means for excluding moisture from the joint. The column and the base are joined by screws 15 extending through the web into bosses 16 formed interiorly integral with the side walls of the column 13. The screws are thus readily accessible through the open base 10 and assembly is thus facilitated. Web 12 may be apertured to provide passage of electric wires not shown.

The top of the column 13 is shaped as shown most clearly in Figs. 2 and 3 and provides a substantially plane top surface with threaded screw holes 20 and 21 at either side of an aperture 22. This aperture is shaped to receive the control switch for the mixer as will be hereinafter described.

Mounted upon the top of the column by means of screws 25 and 26 extending through a web 27, is the head 30 with which said web 27 is integral. This will hereinafter be referred to as a head casting although obviously it may be stamped or otherwise fabricated. It is in this head casting, shaped as most clearly shown in Figs. 2 and 3 that the motor and motor controls for the mixer are assembled and mounted as a separate assembly operation. It will be noted that this head casting 30 is made up of three major structural portions: namely, a column attaching and switch housing portion 31 at the rearward end of the head, a motor housing portion 32 at the forward end, and a motor mounting and switch control mounting 33 shaped as a partition-like member between the portions 31 and 32. The portions 31 and 32 are somewhat cup-shaped and the upper rim is shouldered at 34 to provide a flange 35 comprising an upper lip.

A dome-like cover 36 for the head casting 30 is shouldered around its lower margins at 37 to provide a flange 38 adapted to be marginally juxtaposed with the flange 35 of the head casting, but the two flanges 35 and 38 are held in their assembled relationship by ears 39 formed integrally with the cover 36 and so shaped as to be received within flange 35. Screws 40 in countersunk position in holes 41 may hold the cover in assembled relationship to the head casting 30. Other ears 39^1 are positioned at either side of the portion 31 of the head casting but they need not be provided with screw fastenings. When so assembled as shown in Fig. 3, a finish band 45 is receivable against the flanges 35 and 38 and wrapped around the head casting and cover as will be described below.

Referring now to the head casting and the

assembly of motor and control devices in it, it will be seen that the partition 33 is positioned and so shaped as to provide a mounting for motor 50 secured by the screws 51 and 52. The motor shaft 53 is pointed downwardly and extended through an opening in the head casting. Any form of mixer shaft 55 is attachable upon the motor shaft 53—the particular mixer shaft and mixer element 56 being no part of the present invention but constituting the subject of a separate patent application copending herewith.

On the back side of the partition 33 I mount a control device comprising floating switch actuator device 60. The back face of the partition 33 is vertically channelled, as shown most clearly in Figs. 3 and 4. Into this channel the floating switch control device 60 is received and held by screw 61 at the extreme top portion thereof, the side margins of the channel-shaped partition being shaped to hold the device in alignment for its functional operation now to be described.

The switch actuator device 60 has a tube with a slotted rear wall at 62. A plunger 63 to be actuated by the lip of a container is shaped to move freely up and down in the tubular device. It has a switch actuating arm 64 secured to the plunger and extending through the slot 62 rearwardly into the chamber provided by the portion 31 of the head casting. Within the tube of the device 60 and between the screw 61 and the plunger 63 is a compression spring 65 which is thus positioned to bias the plunger 63 to the extreme of its downward position. This is determined by the lower margin of the slot 62 which acts as a stop for the switch actuating arm 64. The lower end of the plunger 63 extends through an opening at 66 in the web 27 forming the floor of the chamber 31, and the lower end 68 of the plunger 63 is so shaped as to be engaged by the lip of a container such as the container 69 shown in Fig. 2. Thus when the container 69 is moved to the position shown in Fig. 2, the plunger is thrust upwardly against the base of spring 65 and switch actuating arm 64 is raised from its extreme lower position to the position shown in Fig. 2.

An aperture at 70 in the floor 27 is shaped to receive a mounting sleeve 71 of switch 72 and the switch body bearing against the underside of the floor 27 is held in mounted position against the floor by a lock nut 73 in a manner well known in this art. Thus the switch 72 which is of the push button variety has its actuating button 74 disposed in the path of movement of the switch actuation arm 64 as will be apparent from an examination of Figs. 2 and 4. This switch 72 has its push button 74 biased upwardly to switch closed position by an interior spring (not shown) which is too weak to overcome the weight of the plunger 63, switch actuating arm 64 and the bias of the spring 65. Thus when the switch actuating arm 64 is thrust upwardly as shown in Fig. 2, the switch automatically closes and the electrical connections can energize motor 50, but when the cup or container 69 is removed from the position shown in Fig. 2 and the plunger 63 with its switch actuating arm 64 descends under the bias of spring 65, the switch button 74 is pushed downwardly and the switch is opened.

As indicated above, the finishing band 45, which is shaped to be received against the flanges 35 and 38, closes the gap between the head casting 30 and the cover 36. This finishing band, when wrapped about the joint between the head casting and the cover has its ends "tucked" into a slot 75 in the rear wall of the portion of the head casting (see Fig. 4), and screws 76 are used to secure the band in this position. Other screws at 77 may be used to hold the finish band in conformity with the contours of the outside of the head casting and cover.

It will be noted that the flanges 35 and 38 are relieved at 78 and 79, respectively, and immediately interiorly of the relieved portions of the flanges at the front of the motor 50 there is mounted a light socket 80 and light bulb 81 to illuminate the portion of the finished band exposed to the light by these relieved portions of the flanges. Thus if the name of the mixer, or the name of the proprietor of the store where the mixer is used is inscribed upon a transparent or translucent finish band 45, the legend will be illuminated and strikingly displayed when the light bulb 81 is energized simultaneously with the energization of the motor 50 during the operation of the mixer.

From the above description it will be seen that as a result of this invention the manufacture and assembly of these mixers is markedly simplified and expedited. I have not shown the precise wiring of the electrical units pertaining to the mechanism since the wiring is quite conventional, and the wires themselves have ample room within the column and within the portions 31 and 32 under the cover 36. However, attention is called to the fact that the motor, switch and light with the actuating parts for the control thereof are all assembled to a single unitary member—namely, the head casting 30, and it is possible in the assembly operations to bring to a final assembly station all of the motor and control devices attached to the head casting 30 in readiness for assembly with the base 10, column 13 and cover 36.

Final assembly involves merely placement of the column 13 upon the base, and insertion of the screws 15, the application of the head casting upon the column and the insertion and tightening of screws 25 and 26, and finally the application of the cover 36 and the finishing band with their respective screws 39, 76 and 77.

As to each of the several castings involved they are admirably shaped and contoured for easy casting operations, simplified machining operations, and completely satisfactory sanitary condition in final assembled relationship, as will be readily apparent now that the invention is disclosed. Even if the entire group of members comprising the "frame" and cover are made of such material as cast iron, which is preferred where the surface is to be porcelainized, the shape of the parts is such as to facilitate the casting operations; as will be clear to those skilled in this art.

I claim:

1. In a motor driven mixer, the combination with a stand comprising a generally upright column, of a head member comprising integrally a relatively narrow column cap portion, and a wider upwardly opening motor housing portion offset from the column and having an opening in its bottom, means connecting the cap portion to the column, a motor mounted on said member and disposed in the motor housing portion and projecting thereabove, said motor having a mixer-carrying drive shaft extension projecting downwardly through said opening and dependent on said motor for position, and a convex closure for said head member detachably connected thereto and covering said wider portion and enclosing the upper portion of the motor.

2. The device of claim 1 in which the head member and closure have parts in bearing engagement and respectively have shoulders above and below said parts, together with a band encircling said parts between said shoulders and concealing the joint between said parts.

3. The device of claim 1 in further combination with transverse web means spanning said head member and having means fixing said motor to it.

4. The device of claim 3 in further combination with a switch mounted in said head member, said switch and motor being wired in series in said member independently of said column and closure.

5. The device of claim 3 in further combination with a switch mounted on said head member in wired connection with said motor, and a switch actuator comprising a reciprocable part depending beside said cloumn and for which said head member is provided with guide means and an opening.

6. In a motorized mixer, a head unit comprising a housing wall, a web dividing the housing into a motor chamber and a control chamber, a motor mounted on said web and a control mounted on the other side of said web in said motor chamber and control chamber respectively, a switch having an actuating button in said control chamber, said control comprising a plunger projecting downwardly from said housing and adapted to be engaged by a receptacle beneath said head, and means actuated by said plunger to actuate the button.

7. The device of claim 6 in further combination with a column having means for mounting the head unit thereto, said column and head unit being provided with registering apertures and means for mounting said switch on one of said units in said apertures.

8. The mixer of claim 1 having a severable cover for the head unit, said head unit and cover being severable along a line providing a mounting for a light transmitting finish band and a light mounted in said head unit and connected with the motor in said head unit for simultaneous energization therewith.

9. A motorized mixer having a support for a head unit, a compartmented head unit therefor including a control chamber and a motor chamber with a motor support therebetween, a motor in the motor chamber and mounted upon the motor support, a control device in the control chamber and secured to the motor support, said control device including a floating switch control arm to float in a path of movement and a switch mounted to said head unit in said control chamber and having a switch button positioned in the path of movement of said switch control arm.

10. In a columnar supported motorized mixer mechanism, a head unit chambered for motor control devices and for a motor in separate chambers and having a motor mount therebetween, connections supporting the head unit upon the column with the motor control devices chambered above the column and the motor chamber offset therefrom, a motor mounted upon said motor mounting and having a shaft directed downwardly to perform a mixing operation, a switch control device mounted adjacent the motor upon the motor mounting and having a plunger extending downwardly between the motor shaft and the column, a switch control arm for the plunger extending into the control chamber for

movement in response to the movement of the plunger, and a switch mounted to the head unit and positioned between the head unit and the column with a switch button positioned to be acted upon by the switch actuating arm.

11. A motorized mixer including a base shaped to removably receive a columnar support upwardly extended therefrom, a head unit removably receivable upon the column and having a chamber for electrical controls aligned above the column, one wall of said control chamber being shaped to provide a motor mounting offset from the column and shaped to receive a motor control device having a plunger extended downwardly along the column, a walled motor chamber forming part of said head unit in offset overhanging relationship with respect to the column and having a motor therein mounted on the motor mounting with a shaft for said motor extending downwardly along and in spaced relation to the column and plunger, a switch for control of said motor mounted to said head unit and provided with an actuating button biased to close the switch, biasing means for said plunger and the switch actuating arm to overcome the bias of the switch plunger when the plunger is in an extreme of movement in one direction, and means upon the column to support a container for mixable material in position to abut the plunger and hold it in switch closed position.

12. In a motorized mixer, a head comprising a portion of a housing for motor devices, a mounting erect in said head and shaped on one side to receive a motor, the other side of said mounting being channel shaped, and a motor controlling slide reciprocably guided and mounted in said channel and having a projection extending below said head.

13. A head for a mixer of the character described said head having a bowl shaped housing with outstanding lipped margin, a cover for the head having a lipped margin juxtaposed to the margin of the cover, at least one of the said margins being relieved, and electrified mixer mechanism in said head including illumination means visible through said relieved portion of said margin.

14. The head of claim 13 wherein the lipped margins are further provided with opposed shoulders, the head being provided with a finish band having a seat between said shoulders to conceal said lipped margins, said finish band being formed of translucent material.

15. A stand for a motorized beverage mixer having a motor and motor control, said stand comprising a base, a separately fabricated column upstanding on the base and a separately fabricated head mounted on the column, said head having interiorly a motor compartment and a control compartment and a web defining said compartments and comprising a common mounting for said motor on side side of the web in the motor compartment and said motor control on the other side of the web in said control compartment, said head comprising a housing open at its top and being provided at its top with a shouldered flange, and a cover having a shouldered flange complementary with the head flange whereby said flanges are juxtaposed when the cover is positioned on the head to complete the enclosure, and a finishing band embracing said flanges and seated against said shoulders in the closed position of the head and cover.

16. The device of claim 15 wherein said web is provided with a channel opening into the con-

trol compartment, and in further combination with a motor control having a mounting portion seated in said channel.

17. In a device of the character described a mixer head having an integral dividing web defining compartments within said head, said web being provided with an integral mounting channel opening toward one of said compartments, said channel comprising a common mounting for a motor control within the channel in one of said compartments and a motor in the other of said compartments.

18. The device of claim 17 further provided with a cover member, said head and cover member being provided with complementary lipped

margins having opposed shoulders whereby upon juxtaposition of said margins said opposed shoulders define a seat, and a finishing band receivable into said seat.

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