Oct. 3, 1950 B. A. JODY 2,524,628

SOFT DRINK MIXER

Filed June 16, 1948 3 Sheets-Sheet 1

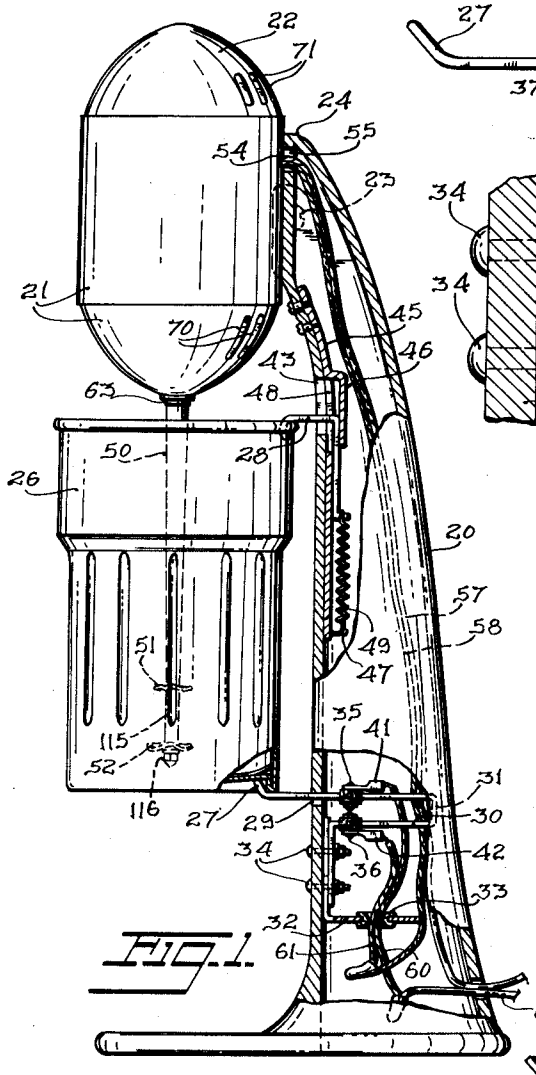


FIG. 1.

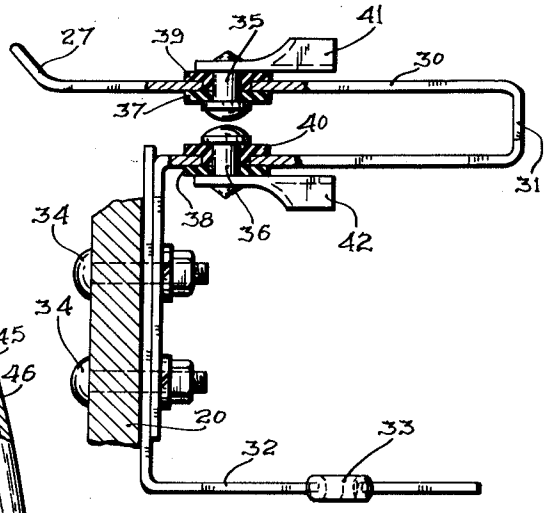


FIG. 4.

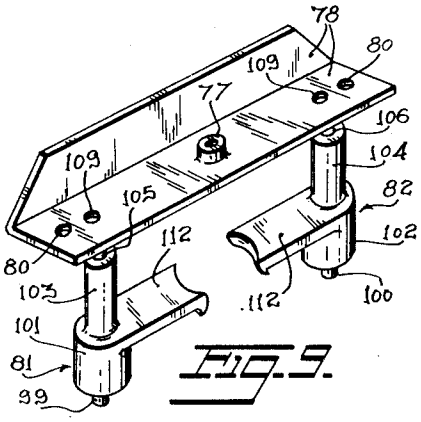


FIG. 9.

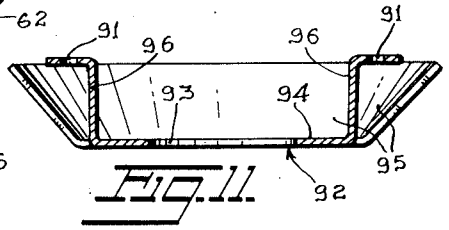


FIG. 11.

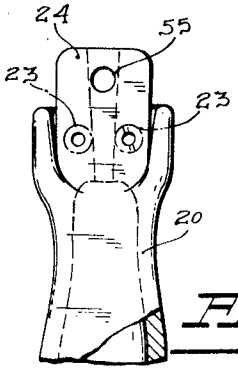


FIG. 2.

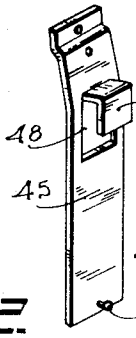


FIG. 3.

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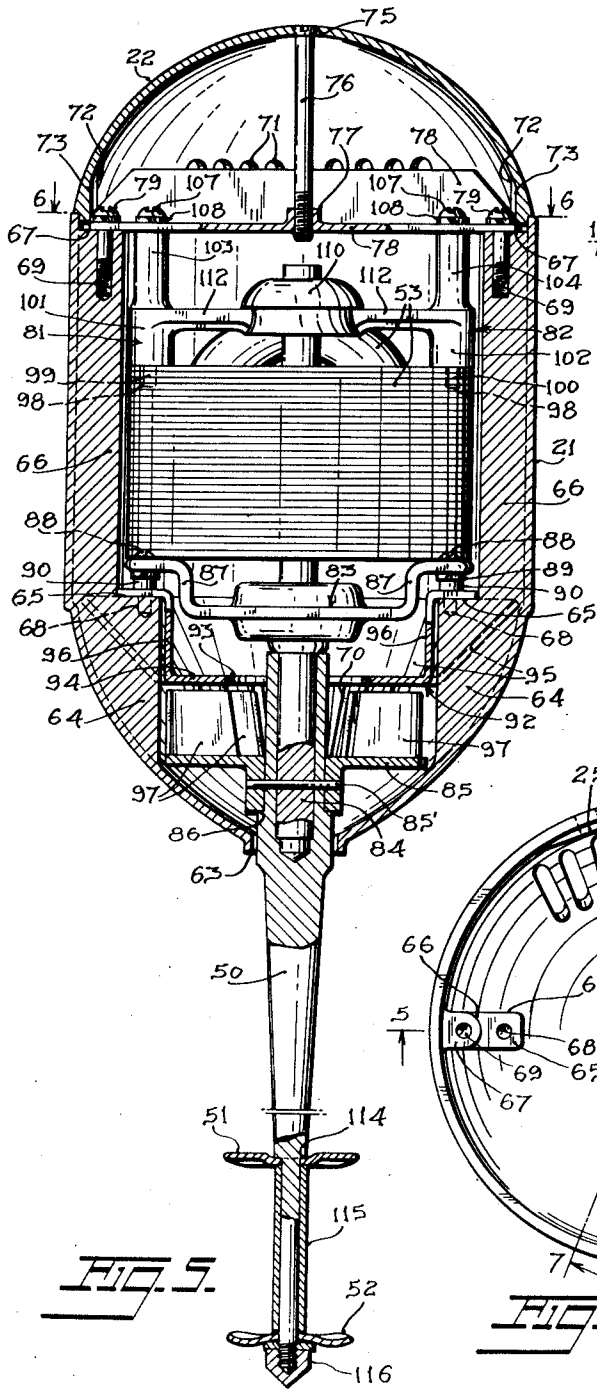


FIG. 5.

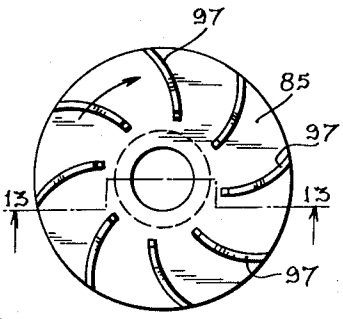


FIG. 12.

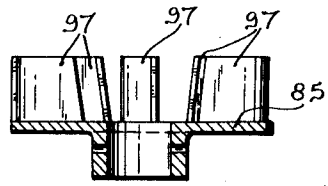


FIG. 13.

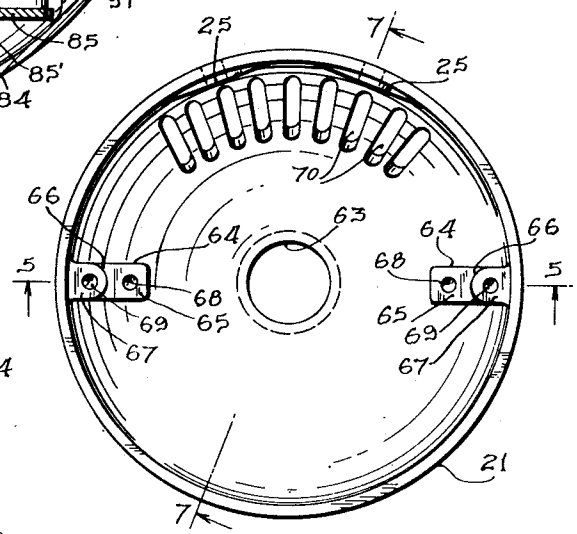


FIG. 6.

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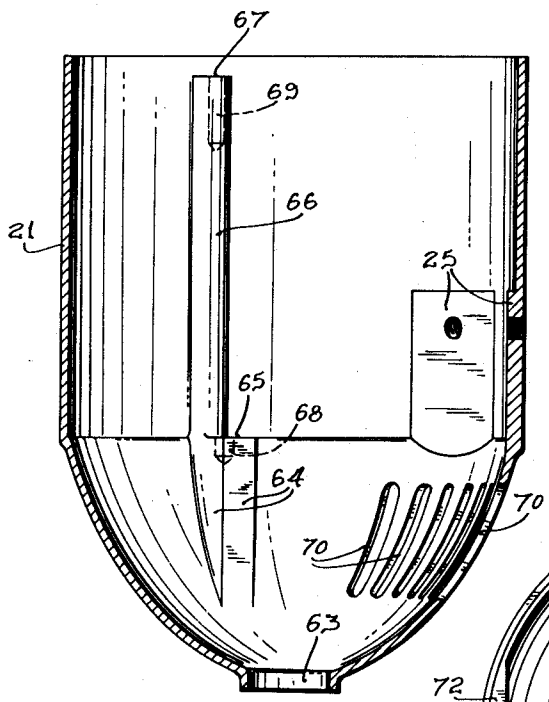


FIG. 7.

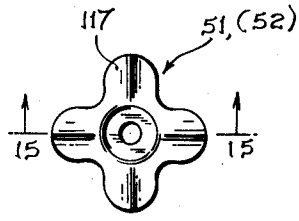


FIG. 14.

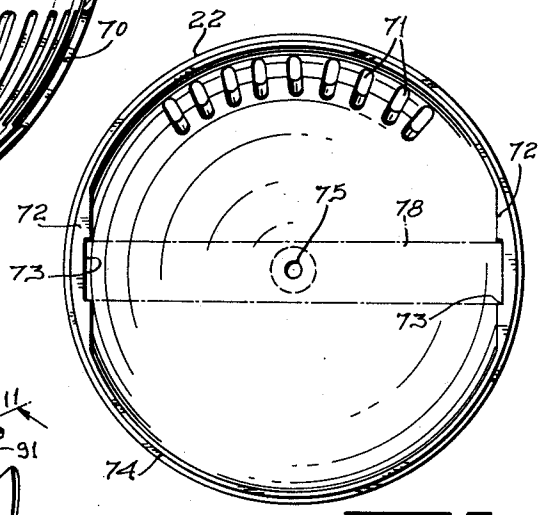


FIG. 8.

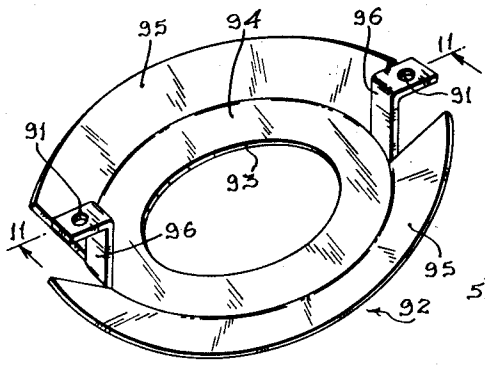


FIG. 10.



FIG. 15.



FIG. 16.

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UNITED STATES PATENT OFFICE

2,524,628

SOFT DRINK MIXER

Boris A. Jody, New York, N. Y.

Application June 16, 1948, Serial No. 33,427

8 Claims. (Cl. 172—36)

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This invention relates to new and useful improvements in power-driven mixers or beaters of the type including a portable standard adapted to be rested on a store counter or on any shelf, table or other surface anywhere, said standard mounting at its top an electric motor for whirling a spindle dependent therefrom and carrying a beater or beaters, and said standard also having an element on which the bottom of a container may rest and also means for temporarily holding said container in fixed position with the beater or beaters immersed in the liquid within the container.

A feature of the invention is an improved electric switch contained in a cavity within the standard, such switch normally open, but automatically closed by the weight of the container and its contents with the container temporarily attached to the standard as above.

Another feature of the invention is an improved combination of motor, baffle and cooling fan, all in the motor housing, and, in association therewith, improved means in part carried by the baffle, in part carried by the interior of the casing and in part incorporating inexpensive, rugged and easily assemblable and disassemblable members; one of such members being a special truss, this overlying the motor, and another of said members being a special bridge, this underlying the motor and overlying the baffle, with the latter interposed between said bridge and the fan and with the fan below the baffle.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevation, showing a container attached to the standard, with the beater means in the container as in readiness to perform a mixing operation; the standard being partially broken away and partially in section to show various parts therein.

Fig. 2 is a fragmentary rear elevation of the standard, showing the upper portion thereof.

Fig. 3 is a perspective view of one of the parts in the standard.

Fig. 4 is an enlarged showing of other parts in the standard, these parts incorporating the automatic switch aforesaid.

Fig. 5 is mainly an axial sectional view through the motor housing, with its cap in place and with

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its equipment therein; the section plane being substantially that indicated by the line 5—5 of Fig. 6.

Fig. 6 is a top plan view of the housing, with the cap removed, and omitting said equipment.

Fig. 7 is a vertical section, taken on the line 7—7 of Fig. 6.

Fig. 8 is a bottom plan view of the housing cap.

Fig. 9 is an exploded view, showing the truss in perspective and also a pair of motor steadying auxiliary members interposed between the truss and the top of the motor.

Fig. 10 is a perspective view of the baffle.

Fig. 11 is a vertical section, taken on the line 11—11 of Fig. 10.

Fig. 12 is a top plan view of the fan.

Fig. 13 is a section taken on the line 13—13 of Fig. 12.

Fig. 14 is a top plan view of a beater.

Fig. 15 is a section taken on the line 15—15 of Fig. 14.

Fig. 16 is an edge elevation of said beater.

Referring to the drawings more in detail, in Fig. 1 a now preferred form of standard is indicated at 20, the same being largely hollow as shown in Figs. 1 and 2. The motor housing, marked 21, has a removable cap 22. The housing 21 is secured, as by two screws 23, to the standard 20 at a top plate portion 24 thereof, laterally arched to fit the external lateral rotundity of the housing 21 opposite apertured pad formations therein indicated at 25 in Figs. 6 and 7.

In Fig. 1 the container, 26, is shown as seated at its bottom on a rest 27, and temporarily held on the latter by a clip 28.

The rest 27 projects through an aperture 29 in the front wall of the standard and (see also Fig. 4) is part of a spring-strip member 30 bent to establish a U-loop as indicated at 31 to provide two horizontal and spaced stretches as shown, and so as also to include a downbent vertical terminal portion 32. The member 30, and also an L-shaped spring-strip member 32, carrying a grommet 33, are anchored to and within the standard 20 as by a pair of bolts 34 and attendant washers and nuts as illustrated. The member 30 is so resiliently biased that normally the said two horizontal stretches thereof are spaced as shown in Fig. 1, so that a pair of contacts 35 and 36 mounted thereon are normally out of engagement. Said contacts are insulated from the member 30, each by a flat washer 37 or 38 of insulating material and by a collar-including

washer 39 or 40 of insulating material. Each contact 35 and 36 has secured thereto a terminal 41 or 42 of familiar type.

The clip 28 projects through a vertically elongated slot 43 in the front wall of the standard 20, this clip being part of the horizontal limb of an L-shaped metal strip, the vertical limb of which depends within the standard. Secured with the standard as at 44 is a strip-metal member 45 having a tongue 46 struck out therefrom and carrying at its bottom a pin 47 (see Figs. 1 and 3). In said member, as a result of striking out said tongue, is an opening 48, this to line up with the slot 43. Between the pin 47 and the bottom of the clip is a retractile coil spring 49.

The motor-driven spindle 50, here shown as carrying at its lower end two beaters 51 and 52, is of such length, relative to the height of the container 26 and the placements of the rest 27 and clip 28, that the container filled with the liquid to be mixed may be quickly temporarily attached to the standard 20, by first moving the open top of the container upwardly around the spindle and so as to have the container mouth hook in under the clip 28, then further raising the container slightly to cause ascent of the clip against the spring 49, and then swinging in toward the standard the bottom of the container to hook the latter over the rest 27; whereupon the weight of the container and its contents elastically slightly collapses the horizontally extending portions of the member 30 to cause the contacts 35 and 36 to engage and so close the normally open motor circuit.

The two wires from the motor 53 (Fig. 5) passed outwardly through an opening 54 (Fig. 1) in the motor casing 21, and thence through an opening 55 in the top plate 24 of the standard, and thence through the hollow interior of the standard, are indicated at 57 and 58.

One of these wires issues from the standard near the bottom thereof, as by way of an opening 59; and the other of said wires is connected to a wire 60 extended to and soldered to the terminal 41, and passing through the grommet 33. From the terminal 42 extends a wire 61 which, passing through said grommet, is connected to a wire 62, this also issuing through said opening 59. The two wires thus issuing through said opening may be connected to a plug for insertion in a current supply wall receptacle or outlet.

The motor casing 21 (Fig. 5) is shown as in the form of a casting, as of bronze, cylindrical at its main upper portion and having a bottom portion of substantially hemispherical shape. At the bottom center of the latter is an opening 63 through which is extended the spindle 50.

At each of two diametrically opposite points in the casing 21 is an internal rib formation having a bottom portion 64 providing a shoulder 65 and an upper portion providing a shoulder 67. Downwardly extended from each of said shoulders 65 is a tapped hole 68, and downwardly extended from each of said shoulders 67 is a tapped hole 69.

Over a part of its circumference the lower portion of the casing 21 has a series of air-flow slots 70, and similar slots 71 are provided in the substantially hemispherical housing cap 22. The cap 22 has an annular shoulder 74 (Fig. 8) whereby the cap may be tightly fitted to the top of the casing as shown in Fig. 5. At the top center of the cap the same has a countersunk aperture 75 through which may be downwardly inserted a screw 76.

The threaded bottom end of this screw is for engaging a tapped hole in an upwardly extending neck portion 77 of the aforesaid special truss, 78 (Fig. 9), thereby securely to lock the cap 22 on the housing 21, due to the securement of the truss in the latter. Said truss, mounted so that its ends are receivable, as indicated in dot and dash lines in Fig. 8, in the grooves 73 in the cap when the latter is applied, is secured to the housing by a pair of screws 79, these received in the tapped holes 69 after being sent through apertures 80 (Fig. 9) in the truss; the truss being a strip of sheet metal L-shaped in cross-section.

The truss 78, by aid of a pair of auxiliary members 81 and 82, and in coaction with the aforesaid bridge member, this last marked 83, serves to mount the motor 53 securely in the housing, and in a way for special balancing and centralization of the motor shaft 84 and consequently of the spindle 50, with the latter, together with the fan, 85, secured to the lower end of the shaft 84 (Fig. 5) by a cross-pin 85' sent through the depending hub-portion of the fan and also through a tubular upper portion of the spindle which sleeves the bottom end of the shaft 84; it being noted that the spindle carries an annular shoulder 86 on which the bottom of the fan-hub rests.

The bridge member 83 has a central hub-portion, this containing a suitable ball-bearing or the like surrounding the motor shaft 84, and a pair of diametrically offset arms 87, of lazy-S extension, each apertured near its outer end. The bridge member 83 is secured in place by screws 88 sent through said apertures and also through underlying lock washers 89 and short collars 90, and thence into the tapped holes 68 in the housing.

Between said collars 90 and the rib formations 64 in the housing which carry the tapped holes 68, said screws 88 pass through apertures (91, Figs. 10 and 11) in the baffle, 92; which latter is a sheet metal stamping having a central circular opening 93, a surrounding horizontal annular floor wall 94, and a twice interrupted conical side wall or skirt 95. At such interruptions, L-shaped legs 96 are formed, the top horizontal limbs of which carry the apertures 91. It is to be noted that the annular wall 94 of the baffle overlies the seven curved vanes 97 of the fan 85; while the conical skirt portions 95 fit along their tops against the internal surfaces of the housing beyond the rib formations 64—66.

The laminated outer body of the motor 53, comprised of a series of annular disks of magnetic metal, has upwardly extended recesses in its bottom within which the heads of the screws 88 are received. In line with the recesses last-mentioned, said body has a pair of downwardly extending recesses (98, Fig. 5). Referring at this point also to Fig. 9, each of the latter recesses is shaped so as snugly to have lowered into the same one of two pins 99 and 100 each dependent from a bottom boss 101 or 102 carried by the auxiliary members 81 and 82. Each of said members also includes, above its said bottom boss, an upstanding boss 103 or 104, each of these having at its upper end a downwardly extending tapped hole 105 or 106.

Each auxiliary member 81 and 82 is secured to the truss 78 by a screw 107 passed through a lock

washer 108 and thence through an aperture 109 in the truss, and thence into one of the two tapped holes 69. On the upper end of the motor shaft 84 is a collar structure externally circular in any horizontal cross-section thereof, and contoured as shown in Fig. 5 to include an upper mushroom like portion 110 and a lower downwardly outwardly flaring portion 111. This collar structure 110—111 contains therein a ball-bearing or the like surrounding the shaft 84. Each auxiliary member 81 and 82 also includes a bottom-ribbed arm 112, shaped at its outer end to a compound curvature as shown in Figs. 5 and 9 for engaging diametrically opposite arcuately extending portions of the collar structure 110—111.

By these arrangements, as will be noted, the housing cap 22 is simply but dependably anchored by aid of the truss, the latter through the auxiliary members 81 and 82 coacts with the bridge member 83 for simply yet dependably precisely mounting the motor 53, the improved baffle 92 is held in place by the same screws used for anchoring said bridge member, and the fan and baffle are arranged for optimum cooling by the shape and relationship of the baffle of the fan and the casing.

The spindle downwardly thereof gently tapers towdard an annular shoulder 114, below which the spindle has a reduced cylindrical portion for taking a sleeve 115, and the lower portion of which has a thread for taking a nut 116. This provides a simple and convenient way of mounting the two beaters 51 and 52, both alike. The special shape of such a beater is clearly shown in Figs. 14, 15 and 16, where the beater is shown as of quadrifoliate outline, with each of the four leaves 117 thereof having a convexly rounded outer end and a root portion concavely rounded at opposite sides. These leaves are in two sets with the two leaves of each set diametrically opposite each other. The leaves of one set are laterally downwardly arcuately arched, and the leaves of the other set are laterally upwardly arcuately arched. The action of such a beater is of marked efficiency for quick and thorough mixing without surface splashing.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming with the scope of the invention as defined in the appended claims.

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

1. A motor and mixing spindle arrangement for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor casing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, interengaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders.

2. A motor and mixing spindle arrangement for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the housing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, interengaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders, the housing cap being of shell type and shaped at its bottom to be there fittable on the top of the housing, said cap having at its top center an aperture and the truss near its center having a tapped hole, and there being a screw sent down through said aperture and into threaded engagement with said hole.

3. A motor and mixing spindle arrangement for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor housing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, inter-engaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the

two higher shoulders, the housing cap being of shell type and shaped at its bottom to be there fittable on the top of the housing, said cap having at its top center an aperture and the truss near its center having a tapped hole, and there being a screw sent down through said aperture and into threaded engagement with said hole, the truss being a strip of sheet metal bent longitudinally to L-shaped cross-section, the vertical limb of said L extending up in to said cap when the latter is in place, there being formations in said cap for engaging end portions of the cap for preventing angular shift thereof relative to the housing.

4. A motor and mixing spindle for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor housing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, inter-engaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders, said securing means for the bridge member constituting a pair of downwardly extended screws, said baffle being formed of sheet metal to have an upwardly conically flaring skirt interrupted at two opposite points by strip-like portions each bent to L-shaped extension, each such L having an outwardly directed horizontal limb, said limbs being apertured, and said screws passing through said apertures to secure the baffle in place.

5. A motor and mixing spindle for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor housing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, interengaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders, said securing means for the bridge member constituting a pair of downwardly extended screws, said baffle being formed of sheet metal to have an upwardly conically flaring skirt interrupted at two opposite points by strip-like portions each bent to L-shaped extension, each such L having an outwardly directed horizontal limb, said limbs being apertured, and said screws passing through said apertures to secure the baffle in place, said securing means for the truss also constituting a pair of downwardly extended screws.

6. A motor and mixing spindle for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor housing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, interengaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders, said securing means for the bridge member constituting a pair of downwardly extended screws, said baffle being formed of sheet metal to have an upwardly conically flaring skirt interrupted at two opposite points by strip-like portions each bent to L-shaped extension, each such L having an outwardly directed horizontal limb, said limbs being apertured, and said screws passing through said apertures to secure the baffle in place, said securing means for the truss also constituting a pair of downwardly extended screws, said overlying structure including a pair of auxiliary members depending from and detachably secured to the truss, each of said auxiliary members having an arm, said arms oppositely extending and both directed inwardly toward the motor shaft, and there being a structure sleeving the motor shaft, the free ends of said arms being shaped to fit against said sleeving structure and in a manner to prevent vertical displacement of said sleeving structure.

7. A motor and mixing spindle arrangement for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor housing casing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, inter-engaging means partially carried by

the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders, said securing means for the bridge member constituting a pair of downwardly extended screws, said baffle being formed of sheet metal to have an upwardly conically flaring skirt interrupted at two opposite points by strip-like portions each bent to L-shaped extension, each such L having an outwardly directed horizontal limb, said limbs being apertured, and said screws passing through said apertures to secure the baffle in place, said fan having at its top generally radially extending vanes traversing an annular portion of the fan.

8. A motor and mixing spindle for a drink mixer comprising, a motor housing, a motor in the housing, a spindle driven by the motor for rotation coaxially with the motor shaft and depending below the housing, a removable cap for the motor housing, a bridge member in the housing below the motor, a baffle in the housing below the bridge member, a fan in the housing below the baffle and secured to the motor shaft, the casing interiorly having two oppositely located rib formations each having a shoulder at a lower level and each having a shoulder at a higher level, the bridge member having a pair of oppositely offset arms each overlying at its outer end one of the two lower shoulders, detachable means for securing said arm ends to said shoulders, said bridge member having a central portion sleeving the motor shaft, inter-engaging means partially carried by the motor and partially constituting the last-named securing means for preventing lateral shift of the motor, a removable structure overlying the motor, and inter-engaging means partially carried at the top of the motor and partially carried by said overlying structure also for preventing lateral shift of the motor, said overlying structure including a truss extended diametrically across the top of the housing and detachably anchored at its opposite ends to the two higher shoulders, said securing means for the bridge member constituting a pair of downwardly extended screws, said baffle being formed of sheet metal to have an upwardly conically flaring skirt interrupted at two opposite points by strip-like portions each bent to L-shaped extension, each such L having an outwardly directed horizontal limb, said limbs being apertured, and said screws passing through said apertures to secure the baffle in place, said fan having at its top generally radially extending vanes traversing an annular portion of the fan, and said baffle having an annular wall overlying said vanes, the portions of the baffle's conical skirt extending between the two skirt interruptions lying along their upper edges against the interior of the housing at surfaces thereof between said rib formations.

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