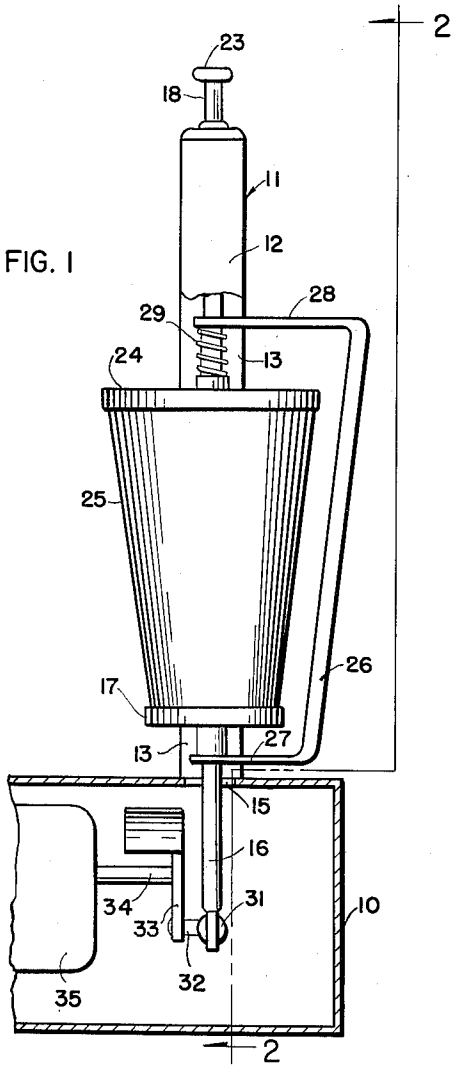
April 17, 1962 J. C. MATZEN ET AL 3,030,082

DRINK MIXING DEVICES

Filed Feb. 25, 1959

FIG. 1



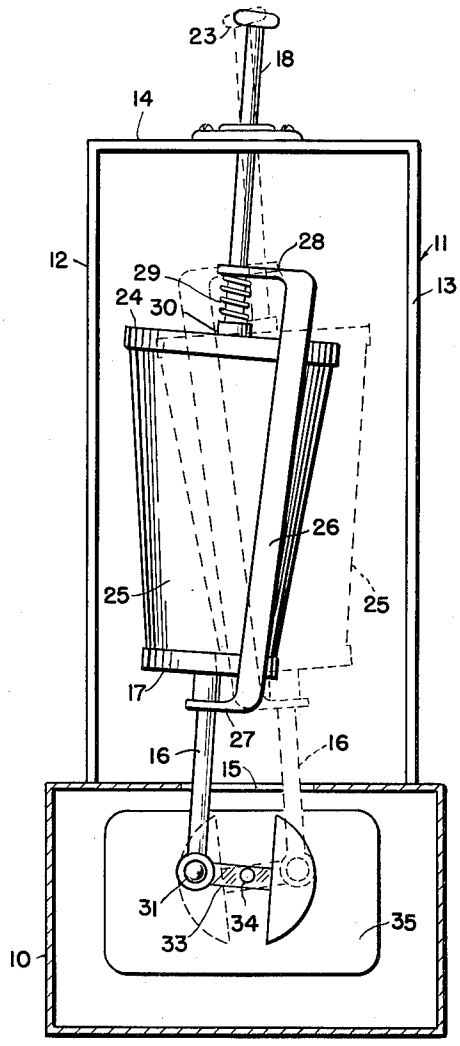


FIG. 2

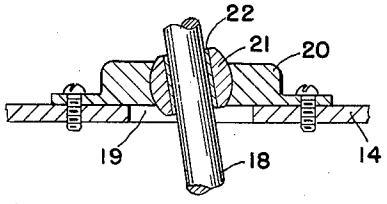


FIG. 3

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DRINK MIXING DEVICES

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The invention relates to drink mixing devices or shakers and has particular reference to motor-operated devices for mixing the ingredients in liquid concoctions such as cocktails, milkshakes and the like.

Hitherto, the most efficient method of mixing cocktails has embodied manual shaking procedures. Attempts to provide automatic or motor-operated devices for performing this function have generally been unsuccessful for any one or more of many reasons, primary among them being the fact that in some devices proper agitation could not be accomplished, in others inefficient mixing of the ingredients resulted, in others the mechanism involved internal agitators or beaters which ground up ice, lemon, or other particles in an undesirable manner, and still other devices were so structurally complicated, intricate or bulky as to involve considerable expense in manufacture.

The present invention overcomes all of the disadvantages of prior art types of automatic mixers by the provision of a simple and relatively small motor-operated device which is adapted to agitate a container of ingredients in a novel manner whereby proper mixing is accomplished without the use of internal agitators, stirrers or beaters.

It is, accordingly, a primary object of this invention to provide a novel, efficient, and relatively low cost automatic mixing device for cocktails and the like.

Another object is to provide a motor-operated mixing device which imparts to a container of ingredients a novel and unusual motion which results in improved mixing of the ingredients.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings, wherein

FIG. 1 is a side elevational view of a preferred embodiment of the invention showing the base housing partially removed;

FIG. 2 is a rear elevational view of the device shown in FIG. 1; and

FIG. 3 is an enlarged view of one of the universal bearing structures.

Referring more particularly to the drawings wherein like characters of reference designate like parts throughout the several views, the device comprises a hollow base or housing 10 on which is fixedly mounted an inverted U-shaped frame or support 11 having two spaced upright portions 12—13 and an upper transversely extending portion or arm 14.

The upper side or cover of the base 10 is provided with a slot 15 through which extends a first support in the form of a vertical rod or shaft 16 to the upper end of which is fixed a flanged shelf or seat 17. A second support or rod 18 extends downwardly through the cross member 14 and is journaled to member 14 by the universal bearing structure shown in FIG. 3. Member 14 is apertured at 19 and over the aperture is mounted a bearing race or retainer 20 in which is located a swivel or ball bearing 21. Rod 18 extends vertically through ball 21 and is longitudinally slidable in a bushing 22 carried by the ball. Thus, the rod is free to rotate, to slide, or to tilt in any direction.

The upper end of rod 18 may carry a suitable knob 23 and the lower end is provided with suitable engaging means adapted to engage a cover 24 carried by a suitable

container 25 such as a cocktail shaker or the like which is positioned upon shelf or seat 17.

Connecting the two rods 16 and 18 is a relatively heavy C-shaped connecting member 26, the lower arm 27 of which is fixed adjacent its end to rod 16 below the shelf 17. The upper arm 28 of member 26 has an opening near its end through which freely extends rod 18, the arm being spaced somewhat above the end of rod 18 so that a spring 29 may be inserted over the rod between arm 28 and a collar 30 provided near the lower end of the rod. Thus rod 18 may be pulled upwardly against the tension exerted by spring 29 to disengage the lower end of the rod from the cover 24, enabling the container 25 to be removed. When a container is placed in the device, the spring 29 will urge rod 18 downwardly into engagement with the cover of the container.

Rod 16 extends downwardly through slot 15 in the base 10 and is journaled by a universal connection comprising a ball joint connection 31 and short spindle 32 (FIG. 1) to one end of a weighted arm 33. Midway of its length arm 33 is fixed to a spindle 34 which is rotatably mounted in a suitable motor 35. Operation of motor 35 and subsequent rotation of shaft 34 will cause arm 33 to revolve about the axis of shaft 34. This causes the ball joint connection 31 and lower end of rod 16 to move in a circular path, as shown in dotted outline in FIG. 2, the diameter of the circular path being controlled by the distance between connection 33 and the axis of shaft 34.

Such movement of rod 16 causes consequent motion of the container 25 through a circular or orbital path lying in a vertical plane which may be defined by an axis extending through the seat and adjacent end of rod 18. Thus, the container is subjected to simultaneous vertical and sideways movements and also sidewise tilting movements as indicated by the dotted lines in FIG. 2, in said plane which also passes through its own axis in the preferred embodiment of the invention.

While such agitation of the container results in some degree of mixture of the contents of the container, thorough mixing is accomplished by a third motion which is imparted to the container by applicants' device. This third motion is the abrupt and limited rotation of the container about its own axis which is brought about by the swinging from side to side of the C-shaped member 26.

This can be readily understood from FIG. 2 wherein it will be seen that clockwise rotation of motor shaft 34 and similar movement of the lower end of rod 16 through its path will cause the lower end of the container 25 to be positioned farther to the left, on the upward stroke, than is the top of the container. The member 26, being relatively heavy and with substantially its entire bulk being off-set with the respect to the axis of the rods, will swing to the right under its own weight, as shown in full lines, to the limit permitted by the ball connection 31. On the downward stroke, the bottom of the container will move out to the right, causing the weight of the member 26 to swing it to the left as shown by dotted lines.

Such a third motion has been found to result in more thorough and efficient mixing of ingredients in the container. The extent of swinging movement of the C-shaped member and the abruptness of the discontinuance of such motion can be controlled by variations in the structure of the ball joint connection 31 or by special designing of the shape, size or weight of the member 26 and of its method of mounting.

Accordingly, the present invention is intended to encompass all such modifications which are within the scope of one skilled in the art.

We claim:

A motor-operated drink mixing device comprising a base, an upright mounted on the base, a pair of coaxially located rods having their adjacent ends in spaced relation from each other, a substantially C-shaped member having its ends fixed respectively to and connecting said rods, an end of one of said rods having a seat thereon, a container between said adjacent ends of the rods with one end engaging said seat, the second rod having one end adapted to engage the other end of said container, a motor on the base having a drive shaft extending in a direction normal to the axis of the rods, and an arm fixed to and extending radially from said drive shaft, the end of said first rod opposite the seat being journaled to the arm at a point spaced a predetermined distance from the drive shaft whereby upon rotation of the drive shaft

the adjacent end of the rod will be moved in an orbital path about the axis of the drive shaft, the second rod being journaled in said upright and movable in response to movement of the first rod, said C-shaped member being movable from side to side under gravitational force for effecting relatively short and abrupt rotary movements of the rods, seat and container alternately in opposite directions about the axis of the rods.

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