

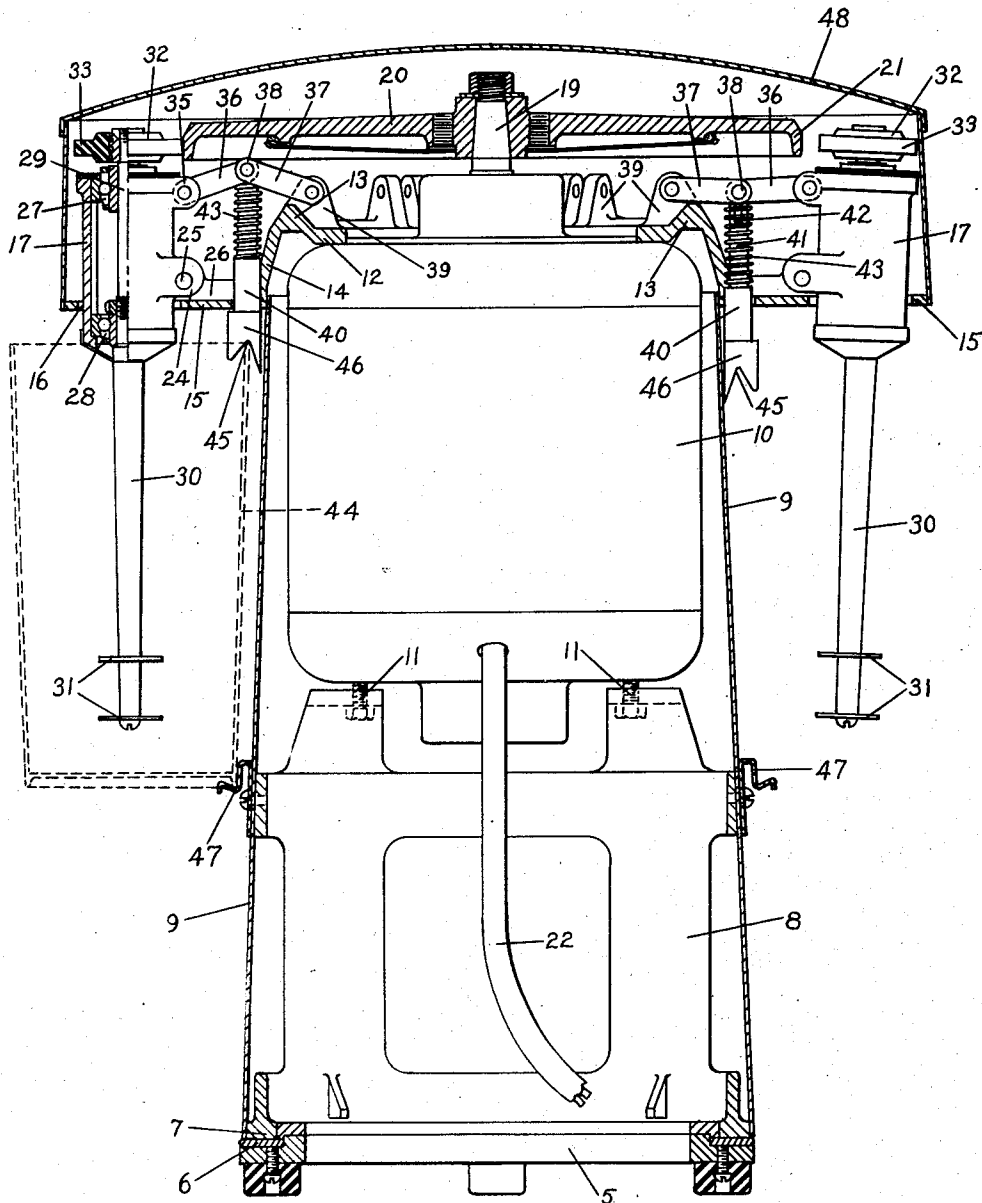
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MULTIPLE DRINK MIXING MACHINE

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MULTIPLE DRINK MIXING MACHINE

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My invention has reference to a multiple mixing machine, of that type for which an application for Letters Patent of the United States was filed by myself, Earl S. Prince, and Robert MacDougall on the twenty-first day of September, 1938, Serial No. 230,976, now Patent No. 2,172,593 of Sept. 12, 1939. The general construction of the present machine is similar to the one set forth in said former application, i. e., what may be called the turntable type with a base, a column supported on the base for rotatable movement and carrying a plurality of mixing devices, and an electrical motor concealed within the column.

The chief purpose of the present invention is to improve and simplify the mechanical means for imparting the movement of the motor and rotor driven thereby to the several mixing devices, for the independent operation thereof. The rotor consists of a master wheel, with which each of the mixing mechanisms can be connected by means of drive pinions normally out of contact with the main drive wheel, and adapted for engagement therewith by the positioning of a drink mixing container in place in the machine. In the preferred form of the invention, this is done by a system of levers, or toggles, which normally hold the mixing devices out of operative position, but which positively enforce the engagement of the operative parts upon the insertion of a mixing receptacle in the machine, and complete positioning thereof. The force of said receptacle is applied indirectly to the toggles, and with a slidable connection, permitting an initial upward movement of the receptacle before the transmission parts are caused to contact. This enables the receptacle to be brought into a position for seating on a retaining part of the machine, and permits the spacing of the machine parts to conform to receptacles of slightly different heights. The yieldable means also permits of the quick and convenient removal of the receptacle following the mixing operation.

Another advantage of the invention arises from the fact that the several agitator spindles and associated parts can be readily cleaned without danger of the same being accidentally put in operation, with consequent injuries to the hands of the operator.

The machine is made throughout of metal, and with parts of comparatively light weight, so that the machine can be easily transported from one place to another. In the embodiment shown herein, it is provided with six mixing

units, operating independently of each other, but this number may be increased or diminished within reasonable bounds.

The above named, and other features and advantages of the invention will more fully appear from the following specification, reference being had to the accompanying drawing, in which the figure is a vertical medial section of a machine embodying the invention.

The machine as a whole, is rotatably mounted on a circular base 5, having preferably an annular shoulder on which is supported a device to reduce wear, in the form of a ring 6, upon which is slidable a wear iron 7, fixed on the lower end of a frame 8. Supported by the frame 8 is a column 9, consisting of a metal shell, the upper part of which forms a housing for an electric motor 10, the casing of which is secured to the frame 8 by means of bolts 11. Above the motor 10 and resting on it, is the supporting flange 12 of a cover or mounting plate 13, having a downwardly sloping wall 14, projected at its lower part into a horizontal, circular flange or plate 15. Said flange is provided with openings 16 to receive a plurality of cylindrical elements 17, equidistant from each other, and adapted for the support of agitating devices, in the manner hereinafter set forth.

The column 9 is capable of being rotated on the base 5, carrying with it the motor 10 and mounting plate 13 with its flange 15. The motor is provided at its upper end with a drive-shaft 19, to which is fixed a disk 20, so as to rotate therewith, and provided with a peripheral track or rim 21, for a frictional drive of elements connected with the drink mixing units. Electrical current can be supplied to the motor 10 through a cable shown at 22, and the rotary action is limited by a stop. The means of control thereof is similar to that set forth in said patent, and not shown herein.

Each of the elements 17 is rockingly mounted on the flange 15 by means of pairs of ears 24 projected from the outer wall of the cylinder, having a pivotal connection at 25 with brackets 26 on said flange. Said elements are provided in their upper ends with ball bearings 27, and in their lower ends with similar ball bearings 28, for the non-frictional rotation of a shaft 29 held therein. Said shaft extends downwardly as at 30, and is fitted at its lower end with agitating devices 31. Fixed to the upper end of said shaft is a relatively small wheel or disc 32, provided with a band 33 of rubber or other frictional

material for engagement with the rim 21 of the large driving disc 20.

Projected from the wall of each of the cylinders 17 is an additional pair of ears 35, above the ears 24, and in vertical alignment therewith. Between the ears 35 is pivoted one end of a toggle 36—37, pivotally united at 38, and having a pivotal connection at the end of the part 37 with a bracket 39 on the mounting 13. The toggle lever thus formed is held from movement below a horizontal line by the upper rim of said mounting plate, and when in this position there is a gap or clearance between the wheel 32 and the drive-wheel 20, as shown at the right in the drawing. At such time the motor does not rotate the shaft 29, and the agitating devices are idle.

By an upward movement of the central part of any one of the toggle-joints, the pivotal point at the outer end thereof is moved inwardly, and the cylinder 17 is rocked on its pivot 25, bringing the wheel 32 in to engagement with the drive-wheel 20, and causing the rotation of the mixing devices. This is shown at the left of the figure of the drawing. This movement is accomplished by means of the mechanism positioned just below the toggle joint, consisting of a plunger 40, having at its upper end a relatively thin plate 41, provided in its upper end with a slot 42 to receive the pivot 38, permitting a limited amount of vertical play of the plunger. Between the upper end of the plunger 40 and the toggle-lever 36—37 is a coiled spring 43, which is compressed by the upward movement of the plunger, and which exerts a yielding force upon the toggle joint sufficiently to cause the upward movement thereof, and consequent engagement of the pinion 32 with the master wheel 20. This is brought about by the insertion of the upper edge of a container, such as is shown at 44, into a recess 45 in a head 46 on the lower end of the plunger 40, and the forcing of the same upwardly. The inner face of the plunger and head are flattened for engagement with the slightly inclined wall of the column 9. When the parts are in the position just described with the spindle rotating, the operator moves inwardly the lower edge of the container and rests it upon a bracket 47, fixed to the wall of the column 9, in which position it remains during the mixing operation.

It will be understood that in the operation of the machine the container 44 will be provided with some kind of a drink, and that by the operation of the agitating devices the contents will be thoroughly mixed. The container and its contents are thereupon removed, by first lifting the container to release the lower edge thereof from the bracket 47, and then drawing the same outwardly and downwardly, in a manner common to such devices. The container 44 is held yieldably in the bracket 47 by the force of the spring 43 to prevent its accidental release therefrom. The power of the motor is sufficient to operate any number of the mixing devices at the same time, and as the operation is completed with one of them it can be removed, and another one put in its place. By giving the machine a partial rotation at each of these substitutions, the operator is permitted to remain at one side of the machine, which can be stationed at one side, out of the way.

It will be noted that each cylinder 17 is mounted on a pivot 25, which is at one side of said cylinder, between it and the motor, and hence being

off center, there is a tendency for each cylinder to tilt, as soon as the container is removed, and resume the position shown at the lower right hand side of the drawing. Also the weight of the plunger 40 and of the toggle members from which it is supported (even though these parts may weigh comparatively little) tends to straighten the toggle and hence augments said tilting tendency.

Thus when one of the agitating units is out of operation, the spindle 30 thereof will incline inwardly a little, so as not to interfere so much with placing a container in position in the machine or removing it therefrom.

As hereinbefore stated, the agitating parts can be readily cleaned when the container is not in place, and at this time the cylinder 17 is positively locked against rocking movement to its vertical position, by the straight line or dead center position of the toggle levers so that there can be no premature or unexpected engagement of the friction discs, to cause the spindle 30 and the agitating devices 31, to rotate.

The upper part of the machine is enclosed within a dome 48 of sheet metal. The tapering shell 9 fits at the top within the downwardly extending wall 14. The dome 48, wheel 20, plate 13, frame 8, and base 5 are preferably constructed of an aluminum alloy, reducing the weight of the machine, and helping in making it readily transportable. It is only by forcing the joint upwardly that a contact can be made between wheels 20 and 32.

What I claim, and desire to secure by Letters Patent, is:

1. A multiple mixing machine of the type described, comprising a rotatably movable body member, an electric motor carried thereby, a master drive wheel, operatively connected with said motor, a mixing unit supporting plate mounted on said body member below said drive wheel, mixing units rockingly supported by said plate, including driving spindles and means thereon for engagement with said master drive wheel, toggle-joint, connections between said mixing units and said plate, holding said units normally in position with said means out of engagement with the master drive wheel, plungers having loose slidable connections with said levers, and operable by drink containers when being positioned in the machine, and compression devices between said plungers and said toggle-joint, adapted to move said units into positions to compel an engagement of said means with the master drive wheel.

2. In a machine of the class described, a support, an electric motor mounted therein, and a drive shaft therefor, a master drive wheel fixed to said shaft, a mixing unit supporting plate, a mixing unit rockingly mounted on said plate, forming one of a series of mixing units operable by said motor, and including means for engagement with said master drive wheel, a toggle-joint, connection between said mixing unit and said plate, holding said means normally out of engagement with said drive wheel, and a plunger yieldably connected with said toggle-joint, including a compression spring for exerting force against said toggle-joint to move the same, and capable of being operated by a drink container upon being moved upwardly into said machine, and releasable upon removal of said container.

3. In a machine of the class described, a frame, a master drive wheel supported in said frame, and means for giving rotation to said wheel, a 75

mixing unit rockingly mounted in the frame forming one of a series of mixing units, and including means for engagement with the master drive wheel, a toggle-joint connection between
5 said mixing unit and the frame, movable in one direction to cause a contact of said means with said drive wheel, and movable in the opposite direction into a position to prevent movement of
10 said unit and said means toward the master drive wheel, and means operable by a drink container on being placed in the machine for actuating said toggle joint to cause engagement of said means with the master drive wheel.

4. In a machine of the class described, a frame,
15 a master drive wheel supported in said frame, and means for rotating the same, a mixing unit rockingly mounted in the frame, and including means for engagement with the master drive wheel, a toggle joint connection between said
20 mixing unit and frame, movable in one direction to cause a connection of said means with said drive wheel, and movable in the opposite direction into position to lock the mixing unit and pinion in non-operative position, and means for
25 actuating said toggle joint by a drink-container being placed in the machine, to release the lock and cause operative contact of said means and drive wheel, and releasable upon removal of said drink container.

30 5. In a machine of the class described, a base having a peripheral track, a frame mounted to rotate thereon and be confined against lateral movement thereby, an electric motor above said frame having its armature shaft arranged vertically and mounted to turn with said frame, a
35 mounting plate on said motor having an opening through which said shaft projects, a master driving wheel fixed to said shaft, a mixing unit rockingly mounted on said mounting plate, forming
40 one of a series of mixing units operable by said

motor, and including a friction disc for engagement with said master drive wheel, a toggle joint connection between said mixing unit and said plate, holding said pinion normally out of engagement with said drive wheel, and a plunger yieldably connected with said toggle joint, including a
5 compression spring for exerting force against said toggle joint to move the same, and capable of being operated by a drink container upon being moved upwardly into the machine, and releasable
10 upon removal of said container.

6. A multiple mixing machine comprising a base, a frame supported thereby and a track between the two on which said frame rotates, a
15 motor positioned with its armature shaft aligned with the axis of rotation of said frame, a master friction wheel mounted on said shaft and secured thereto, a casing surrounding said motor and frame, secured thereto to rotate therewith and extending substantially to the bottom of said
20 frame, a mounting plate at the upper end of said motor, a plurality of bearing housings spaced around the periphery of said housing plate at a radius beyond the outside of said casing, an agitator spindle rotatably mounted in each of said
25 bearing housings and depending therefrom, each spindle having a friction disc at its upper end adjacent said master wheel, each bearing housing having a horizontal, pivotal support positioned inwardly of the corresponding agitator spindle so
30 that the weight of said spindle and its housing causes said spindle to incline inwardly toward the bottom, a series of toggle arms arranged radially on said mounting plate each with the outer arm pivoted to said bearing housing, and a slidable
35 member engaged by a drink container when being positioned in the machine, to actuate said toggle arms and rock said housing to cause said friction disc to engage said master friction wheel.

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