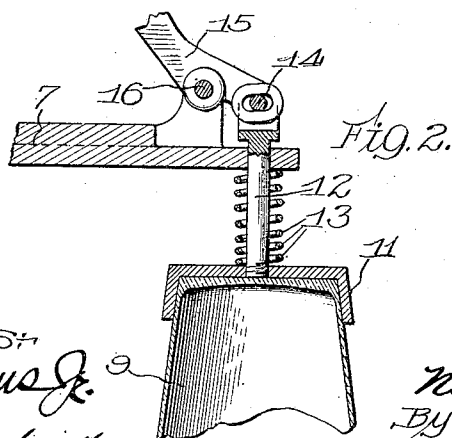
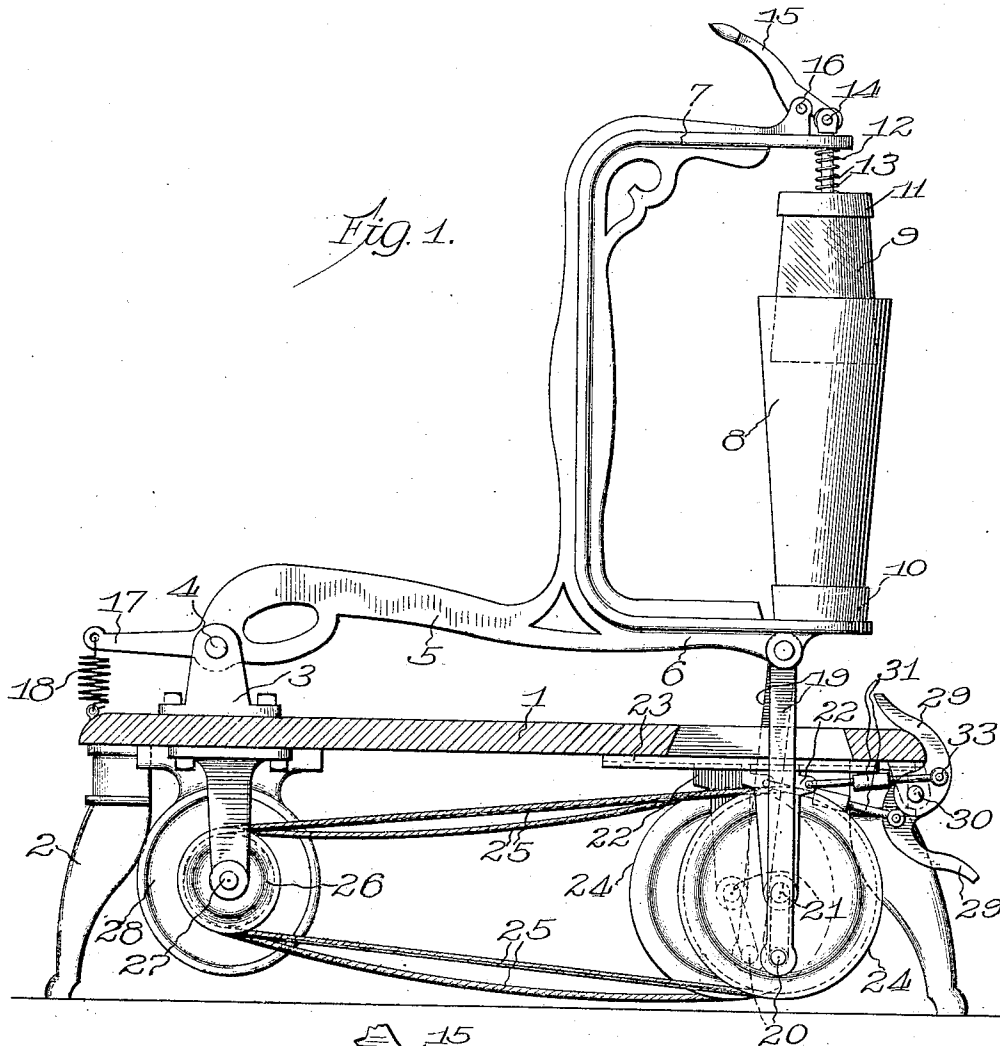


N. CHRISTENSEN.
LIQUID SHAKER.
APPLICATION FILED SEPT. 12, 1910.

977,165.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.



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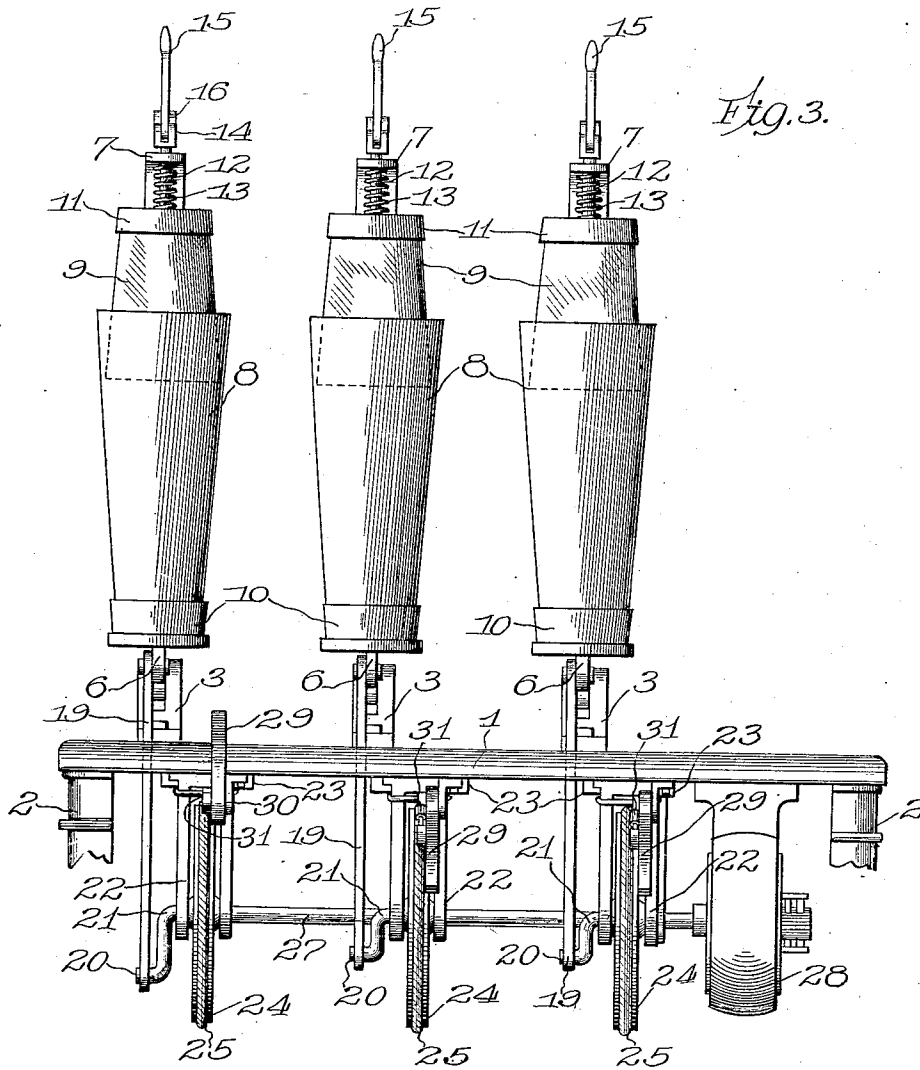
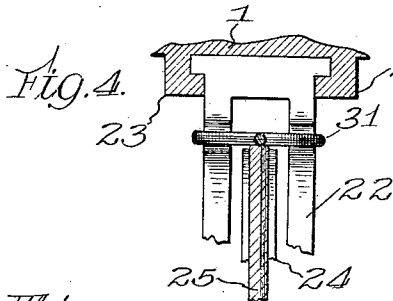


Fig. 3.



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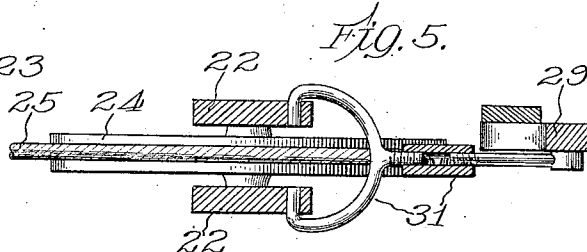


Fig. 5.

Inventor:
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UNITED STATES PATENT OFFICE.

NIELS CHRISTENSEN, OF CHICAGO, ILLINOIS.

LIQUID-SHAKER.

977,165.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Application filed September 12, 1910. Serial No. 581,545.

To all whom it may concern:

Be it known that I, NIELS CHRISTENSEN, a citizen of the United States of America, and a resident of Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Liquid-Shakers, of which the following is a specification.

The main objects of this invention are to provide an improved form of machine for shaking milk, liquids, or other ingredients of a beverage; to provide an improved apparatus of this character which is simple in construction and is of such arrangement that a plurality of the shaking devices may be arranged in a battery driven by a motor common to all, and so arranged that either of the shaking devices may be started or stopped independently of the others without stopping the motor; to provide improved means for controlling the operating mechanism, and improved means for readily releasing the receptacle to permit its removal from the machine.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which:—

Figure 1 is a side elevation of a milk or beverage shaking device in which there is a battery of shaking machines arranged to be operated by one motor. Fig. 2 is a sectional detail of the upper clamping jaw which engages the glass tumbler which forms the upper part of the liquid receptacle. Fig. 3 is a front elevation of the complete machine. Figs. 4 and 5 are details of the mechanism for starting and stopping the individual shaking machines.

In the construction shown in the drawings, there is a stationary supporting frame which comprises a horizontal table 1, having legs 2. Mounted above the table 1 is a series of up-standing brackets 3, in each of which there is pivoted at 4 a horizontally extending beam 5, having a pair of arms 6 and 7 located one above the other, and arranged to support between them the receptacle which contains the beverage which is to be mixed. In the form shown, this receptacle comprises the usual tumbler-shaped metal vessel 8, adapted to fit a glass tumbler 9 in the manner shown in Fig. 1, so that the glass tumbler will serve as a closure for the metal tumbler and prevent the escape of the liquid while it is being shaken. The lower arm 6 has a cup-shaped clamp jaw 10 serving as a seat for the metal tumbler 8, and the upper arm car-

ries a cup-shaped clamp jaw 11, shaped to fit the base of the tumbler 9. The jaw 11 is carried by a shank 12, which extends through and is vertically slidable in the arm 7. A spring 13 surrounding the stem 12 urges the jaw 11 downwardly so that the receptacle is firmly held between the two jaws 10 and 11. The upper end of the stem 12 is forked, and has a pivot 14 extending through a slot in the lever 15, which is in turn pivoted at 16 on the arm 7, as may be best seen from Fig. 2. The beam 5 has a rearwardly extending arm 17, which is connected by a spring 18 with the table 1 to counterbalance the weight of the liquid receptacle and the parts which are at the front of the pivot 4.

The mechanism for oscillating the beam 5, to shake the contents of the receptacle, comprises a pitman or link 19 having its upper end pivotally connected to the beam 5 near its front end, and having its lower end journaled on a crank 20 carried by the shaft 21, which is journaled in a hanger or support 22 mounted to slide in guides 23 on the under side of the table 1.

A pulley 24 on the shaft 21 is connected by a belt 25 with a pulley 26 on the shaft 27, which is also journaled in brackets on the under side of the table 1. There is an individual pulley 26 for each shaking machine, and these pulleys are all mounted on the same shaft 27, which is driven by a motor 28, or other suitable source of power.

The starting and stopping of each individual machine is accomplished by toggle mechanism which comprises a lever 29, pivoted on a bracket 30 near the front edge of the table, and connected by a link 31 with the slide 22, so that by moving the link between the two limiting positions indicated in Fig. 1, the pulley 24 may be shifted into and out of driving relation with the belt 25. To compensate for stretching of the belt, the link 31 is made adjustable. When the lever 29 is in the position shown by full lines in Fig. 1, the pulley 24 will be in driving relation with its belt, and as the pivot 33 of the link will have passed the pivot 30 of the lever, the strain on the belt will hold the lever 29 in this position, and insure the continuation of the operation until the lever 29 is thrown down by the operator to the position shown by dotted lines, in which case, the weight of the lever 29 will hold the parts in such position that the pulley 24 will be out of driving engagement with the belt 25.

The link 31 is made adjustable so as to compensate for stretching of the belt 25.

The operation of the device shown is as follows:—The operator starts the motor, and then, after placing each pair of tumblers 8 and 9 in their interfitting position with the liquid in the metal tumbler 8, the tumblers are placed on one of the machines in the position indicated in Fig. 1, while the lever 15 is depressed so as to lift the jaw 11. As soon as the tumblers are in position, the lever 15 is released, and the spring 13 urges the upper jaw 11 downwardly, so as to securely hold the tumblers in position. The operator then lifts the respective lever 29 to the position shown by full lines, and the shaking operation commences. While this machine is in operation, the operator successively loads the different machines, and by the time they are all loaded, the first machine will have thoroughly mixed its charge and will be ready to be reloaded. In this manner, a battery of three or four of the machines is capable of mixing the drinks as rapidly as they can be prepared by the operator.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention, as defined by the following claims.

I claim:—

1. A machine for mixing liquids, comprising a receptacle, an oscillatory frame for supporting said receptacle, pitman mechanism for shaking the receptacle and comprising a pulley, a crank shaft connected therewith, a movable support for said pulley and crank shaft, a belt passing around said pulley, and means for shifting said support to move said pulley into and out of driving relation with said belt.

2. A device of the class described, comprising a receptacle, an oscillatory frame for supporting said receptacle, mechanism for oscillating said frame to shake the receptacle and comprising a pair of pulleys and a belt connecting them, a support for one of said pulleys movable toward and away from the other pulley for shifting said one pulley into and out of driving engagement with said belt, a lever, and a link connecting said

lever and movable support, whereby the operation of said oscillatory frame may be started and stopped by the movement of said lever.

3. A machine for mixing liquids, comprising a receptacle, an oscillatory frame for removably supporting said receptacle, a crank shaft, a pitman connecting said shaft and frame for oscillating said frame, mechanism for rotating said shaft, a movable support for said shaft adapted to shift it into and out of operative relation with said mechanism, and toggle mechanism for shifting said support.

4. In a device of the class described, the combination of a supporting frame, a horizontal driving shaft journaled therein, a plurality of liquid shaking machines mounted on said frame and each having an individual crank shaft for operating it, belts connecting said crank shafts with said driving shaft, individual movable supports for said crank shafts and adapted to allow said crank shafts to be individually shifted into and out of driving relation with their belts, and means for individually shifting said crank shaft supports.

5. In a device of the class described, the combination of a supporting frame, a horizontal driving shaft journaled therein, a plurality of liquid shaking machines mounted on said frame and each having an individual crank shaft for operating it, belts connecting said crank shafts with said driving shaft, individual movable supports for said crank shafts and adapted to allow said crank shafts to be individually shifted into and out of driving relation with their belts, means for individually shifting said crank shaft supports, and pitman connections between said crank shafts and their respective machines, the movement of each of said supports being in the plane of operative movement of its respective pitman, whereby the pitman will at all times remain in operative relation to its crank and machine.

Signed at Chicago this 9th day of September 1910.

NIELS CHRISTENSEN.

Witnesses:

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