(No Model.) 2 Sheets—Sheet 1.

R. D. SCHROEDER.

MACHINE FOR SHAKING LIQUIDS.

No. 457,938. Patented Aug. 18, 1891.

Fig. 1.

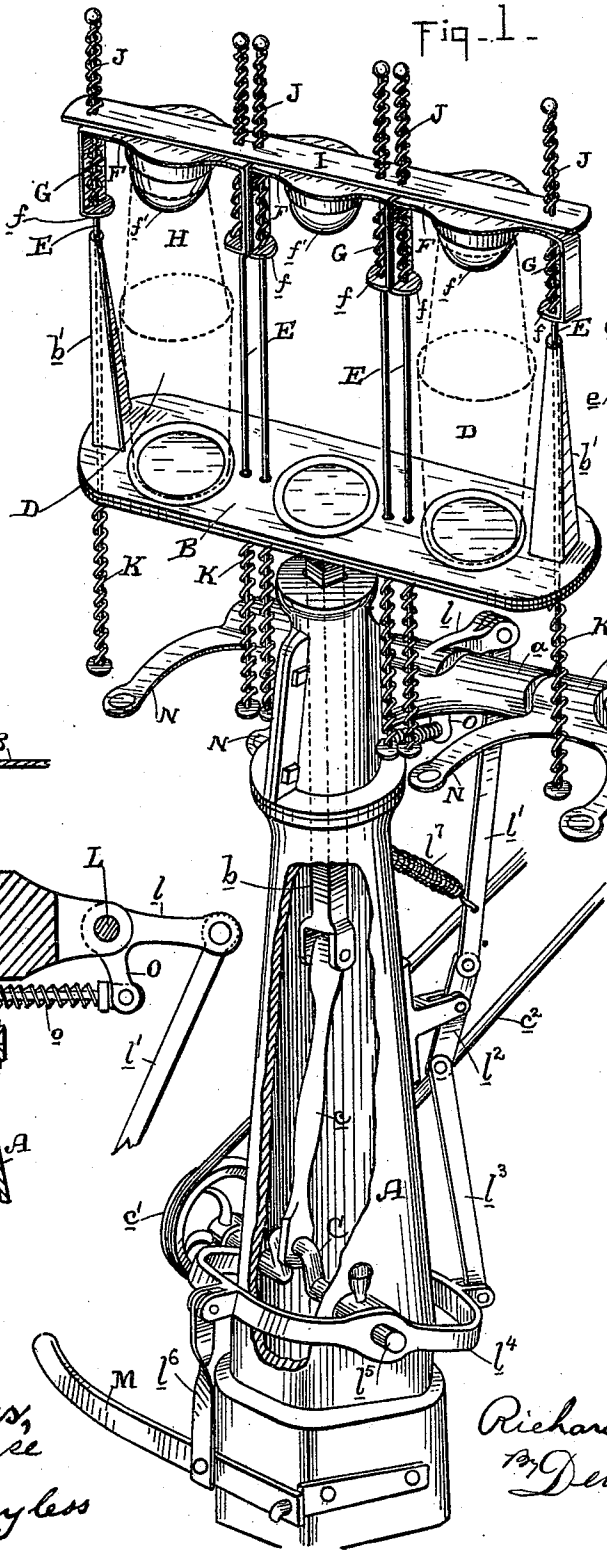


Fig. 2.

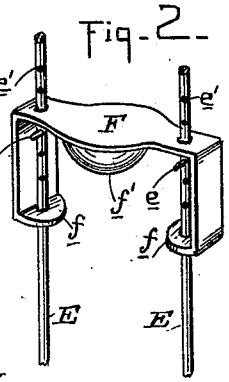


Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

R. D. SCHROEDER.

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Fig - 4 -

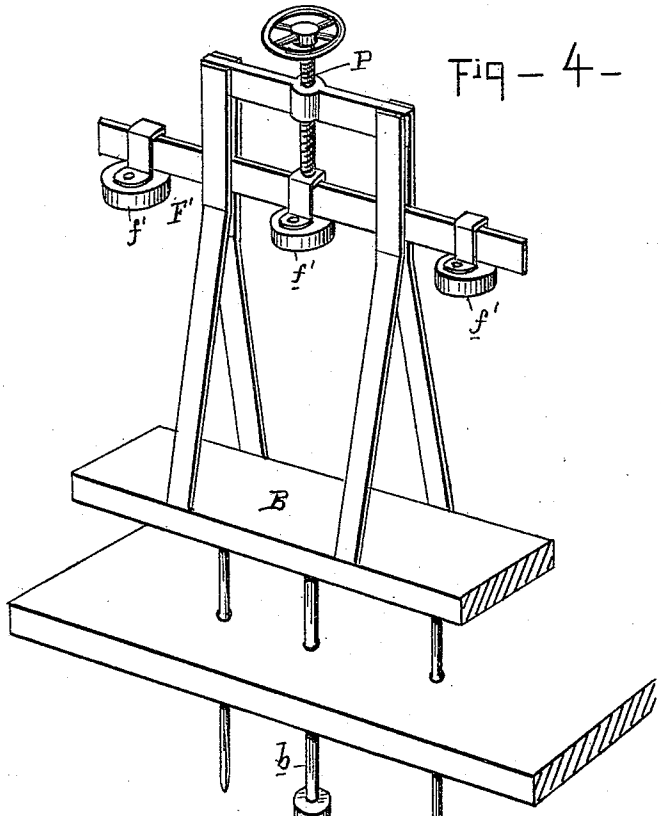
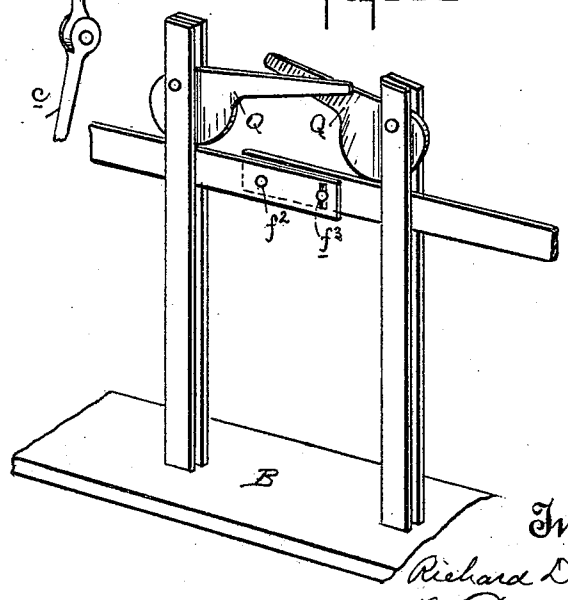


Fig - 5 -



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UNITED STATES PATENT OFFICE.

RICHARD D. SCHROEDER, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR SHAKING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 457,938, dated August 18, 1891.

Application filed March 11, 1891. Serial No. 384,602. (No model.)

To all whom it may concern:

Be it known that I, RICHARD D. SCHROEDER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Machines for Shaking Liquids; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of machines which are used for holding and shaking a receptacle in order to thoroughly agitate and mingle the ingredients of beverages and other liquid compounds.

My invention consists in the novel construction and arrangement of parts, hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a simple and effective machine of this character, adapted to readily receive the shaker and tumbler, and to hold them tightly while being vigorously vibrated.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my machine, a portion of the hollow standard being broken away to show the interior crank and pitman. Fig. 2 is a perspective view of one of the tumbler-holders. Fig. 3 is a sectional view of the upper portion of the standard, showing the means for locking the rod or stem of the shaking platform. Fig. 4 is a view showing a modification of my machine. Fig. 5 is a view showing a modification of the means of holding the presser frame or bar.

A is a hollow standard forming the support of the machine. Above this is the shaking platform B, having a stem *b*, which passes down into the hollow standard, and is connected by a pitman *c* with a crank-shaft C, to which rotation is imparted by means of a pulley c' and belt c^2. The shaker-platform is provided with recesses in any suitable number, and into which the lower ends of the shakers D are fitted. Passing through the shaker-platform and through suitable braces b' thereon are rods E, here shown as six in number, forming three pairs. On the upper ends of these rods are fitted loosely the frames which form the tumbler-holders F, one of which is shown fully in Fig. 2. These holders consist of three side frames, which are supported on the rods E by means of pins *e* passing through the rods, and said pins may be adjusted up or down by fitting in any of a series of holes e' made in the rods, whereby the position of the holders F may be varied to suit the different sizes of tumblers. Between the feet *f* of these holders and the supporting-pins *e* are springs G.

The holders F carry on the under surface of their tops the holding-cushions f', which are adapted to fit into the base of the tumblers H, the lower ends of said tumblers resting in the mouths of the shakers D. These cushions are of any suitable material, such as rubber.

Fitted freely upon the upper ends of the rods E and extending across the entire top of the machine is an equalizer-bar I, which bears on the top of all the tumbler-holders F. Between this bar I and the upper ends of the rods E are the springs J, and between the under side of the shaking platform B and the lower ends of the rods are the springs K.

Mounted in a bearing *a* on one side of the upper end of the hollow standard is a rock-shaft L, having a crank-arm *l*, from which extends downwardly a link l'. This link is connected with a pivoted link l^2, carried by the standard below, and the lower end of which is connected with the third link l^3. The lower end of the link l^3 is pivoted to a yoke l^4, the sides of which are pivoted at l^5. The other end of the yoke is connected by a link l^6 with a lever M. A spring controls link *l*.

The rock-shaft L is provided with arms N, adapted to bear up under the lower ends of the rods E. The rock-shaft L has also a downwardly-extending crank O, with which is connected a locking-pin *o*, extending inwardly through an aperture in the side of the hollow standard A and adapted to enter a groove or socket b^2 in the stem *b* of the shaking platform.

The operation of the machine is as follows: By pressing down with the foot upon the lever M power is transmitted through the several connections described to rock the shaft L. This rocking of the shaft accomplishes two results, first, forcing the locking-pin *o* (shown in Fig. 3) into the groove or notch b^2 of the shaking-platform stem, whereby the

platform is locked in position and will not be raised up and down, and, second, throwing its arms N up under the rods E and raising said rods. This raising of the rods compresses the main springs K and also raises, through the pins *e*, the tumbler-holders F. Sufficient space is thereby provided to permit the insertion of the tumblers H between the cushions *f'* of the holders F and the shakers D. The foot-lever M being now released, the locking-pin *o* is withdrawn from the stem *b* and the arms N are lowered away from the rods E. These rods are at once thrown down by their springs K, and the holders F, being relieved, are forced down by the springs G, so that their cushions *f'* bear tightly on the tumblers and hold them in place against the shakers. The springs J above hold the equalizer-bar I down firmly upon the holders F, so that they are all under the same pressure. The crank-shaft C at the same time raises and lowers rapidly the platform B and all its attached parts, whereby the liquid in the shakers D and tumblers H is vigorously shaken.

In Fig. 4 I show a slight modification, in which the tumbler-carrying holder is a single bar, and is designated by F'. It carries the cushions *f'*, and is forced down to place upon the tumblers by means of a screw P.

In Fig. 5 I show eccentric-levers Q for forcing the tumbler-holding bar down, and also show said bar as made in two sections connected adjustably by means of a pivot f^2 and an elongated slot and set-screw f^3. This connection is to provide for adjusting different portions of the bar to different heights to provide for different sizes of tumblers.

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

1. In a machine for shaking liquids, the combination of the vibrating platform for receiving the shaker, a holder for receiving the tumbler and holding it to the shaker, vertically-movable rods connected with and lifting the holder, and springs on the rods for returning the latter and causing it to bear on the tumbler, substantially as herein described.

2. In a machine for shaking liquids, the combination of the vibrating shaking platform, the holders F, with cushions for holding the tumblers to the shakers, the rods with pins for lifting the holders F, means for raising the rods, and springs on said rods for returning them and causing the holders to bear on the tumblers, substantially as herein described.

3. In a machine for shaking liquids, the combination of the shaking platform, the holders F, with cushions, the vertically-movable rods passing through the platform and holders and having pins for raising the latter, the springs G on said rods in the holders, and the springs K on the rods below the platform, substantially as herein described.

4. In a machine for shaking liquids, the combination of a vibrating shaking platform for receiving a series of shakers, the independent holders F for receiving a series of tumblers and holding them to the shakers, spring-controlled rods for lifting and returning the holders, and the spring-controlled equalizer-bar I, affecting all of the holders, substantially as herein described.

5. In a machine for shaking liquids, the combination of the vibrating platform B for receiving a series of shakers, the independent holders F, with cushions *f'*, for holding a series of tumblers to the shakers, the vertically-movable rods E, passing through the platform and holders, the equalizer-bar I above the holders and fitted on the rods, and the springs G, J, and K for controlling the rods, the holders, and the equalizer-bar, substantially as herein described.

6. In a machine for shaking liquids, the combination of the platform B, having the stem and means for vibrating it, the opposing tumbler-holders, the spring-controlled rods E for controlling said holders, the rock-shaft L, with arms for raising the rods, and the foot-lever M and connections for rocking the shaft, substantially as herein described.

7. In a machine for shaking liquids, the combination of the platform B, having the stem and means for vibrating it, the opposing tumbler-holders, the spring-controlled rods for controlling said holders, the rock-shaft L, with arms for raising the rods, and the foot-lever M and connections for rocking the shaft, the crank O of the shaft and the locking-pin *o*, engaging the stem of the platform, substantially as herein described.

In witness whereof I have hereunto set my hand.

RICHARD D. SCHROEDER.

Witnesses:
S. H. NOURSE,
J. A. BAYLESS.