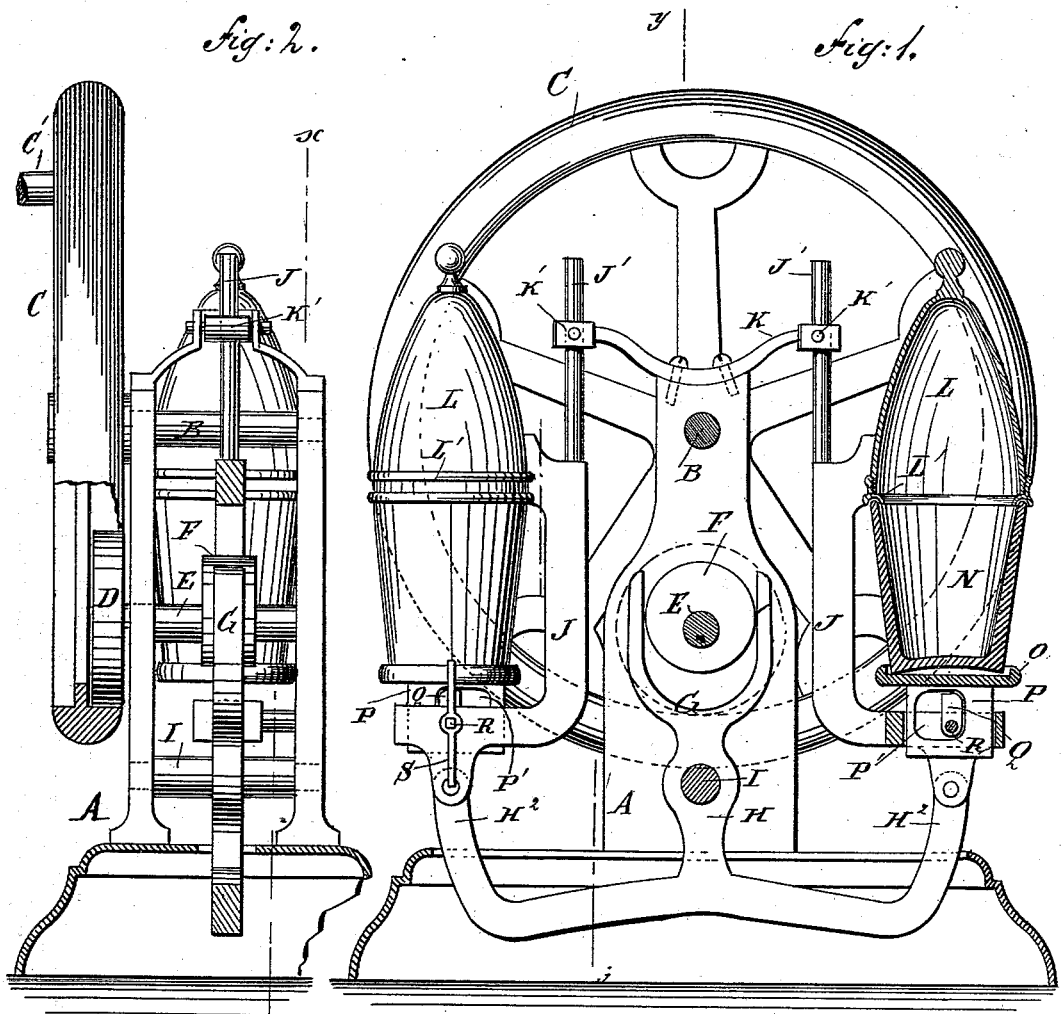
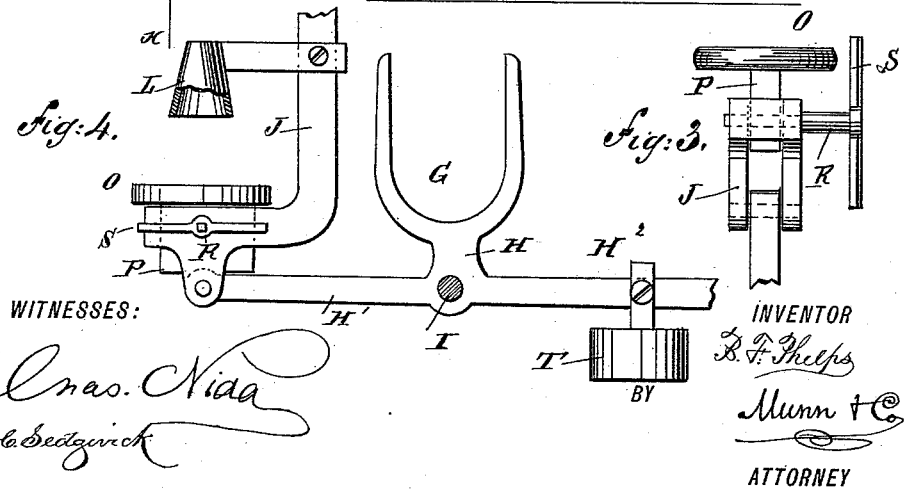
(No Model.)

B. F. PHELPS.

MACHINE FOR MIXING LIQUIDS.

No. 420,356. Patented Jan. 28, 1890.





UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN PHELPS, OF KANSAS CITY, KANSAS.

MACHINE FOR MIXING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 420,356, dated January 28, 1890.

Application filed April 17, 1888. Serial No. 270,927. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN FRANKLIN PHELPS, of Kansas City, in the county of Wyandotte and State of Kansas, have invented a new and Improved Machine for Mixing Liquids, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved machine for mixing and shaking liquids thoroughly and efficiently.

The invention consists of a rocking frame on which is pivoted an arm carrying a cup held on top of each glass containing the liquid and of a platform held vertically adjustable on the said arm and carrying the glass.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional front elevation of the improvement on the line *x x* of Fig. 2. Fig. 2 is a sectional end elevation of the same on the line *y y* of Fig. 1. Fig. 3 is an end elevation of the adjustable platform, and Fig. 4 is a front view of a modified form of the improvement as adapted to a single machine.

On a suitably-constructed frame A is mounted to turn the main shaft B, carrying the hand-wheel C, provided with a handle C′ for turning the said wheel C, and thus imparting motion to the machine. On the inside of the rim of the said wheel C is held in frictional contact the wheel D, secured to one end of the shaft E, mounted transversely in suitable bearings on the main frame A and carrying an eccentric F, operating on the forked end G of a rocking frame H, fulcrumed on the shaft I, mounted to oscillate in suitable bearings in the main frame A.

The rocking frame H is provided with two arms H′ and H², extending in opposite directions, and on each of which is fulcrumed a frame J, extending upward and provided with a rod J′, passing through a bearing K′, mounted to oscillate at the end of a bracket K, secured to the main frame A. On each frame J is also secured a metallic cup L, provided at its open end with a rubber gasket L′, fitting over the top edge of the receptacle N, and being thus held in an inverted position, as is plainly shown in Fig. 1.

The receptacle N, containing the liquid to be mixed and shaken, is supported on a platform O, provided with a downwardly-extending block P, having a slot P′, in which operates an arm Q, secured on a shaft R, mounted to turn in suitable bearings in the lower part of the frame J. The block P is mounted to slide vertically in suitable bearings on the said frame J, and is raised and lowered in its bearings by the action of the arm Q, turned by the shaft R, operated by a handle S, secured to one outer end of the shaft R.

The arrangement shown in Figs. 1 and 2 is for a double machine; but I may adapt the invention to a single apparatus, as shown in Fig. 4, in which I provide the rocking frame H on one arm with a weight T, and on the other arm is pivotally supported the frame J, carrying the metallic cup L and the vertically-sliding flanged platform O. The weight T counterbalances the frame J, the cup L, the receptacle N, and the flanged platform O.

The operation is as follows: When the platform O is in its lowermost position, as shown in Fig. 4, it rests on the top of the lower part of the frame J and the arm Q is in a horizontal position. The operator now places the receptacle or glass N, containing the liquids and other substances to be mixed, on the top of the said platform O, and then turns the handle S so that the arm Q, acting on the block P, causes an upward sliding movement of the latter and the platform O, supported by the said block P. This upward sliding motion of the platform O raises the receptacle or glass N, so that the top edge of the same is thrown in contact with the rubber gasket L′ and pressed firmly against the same. The operator then takes hold of the handle C′ and turns the wheel C, whereby the friction-wheel D is set in motion, thus rotating the shaft E and the eccentric F, which latter imparts a rocking motion to the frame H, so that the frames J,

held on the said rocking frame H, are moved up and down and the liquids and other substances contained in the receptacles N are shaken and mixed.

It is understood that the receptacle N is held firmly in contact with the rubber gasket L′ of the metallic cup L by the action of the arm Q pressing the block P upward.

It is understood that by rotating the wheel C a very rapid motion is imparted to the eccentric F, and thereby a fast oscillating motion is given to the rocking frame H and the receptacles N, containing the liquids and other substances. Each frame J is nicely guided in its upward motion in the bearings K′, oscillating in the bracket K.

As soon as the substances and liquids are mixed the operator stops turning the wheel C and then turns the handle S in the opposite direction, so that the arm Q swings downward into a horizontal position, and the weight of the platform O and the receptacle N will cause a downward motion of the block P, carrying the said platform O, and the receptacle N. The latter is then removed from the flanged platform O, and the mixing is completed.

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

1. In a mixing-machine, the combination, with a rocking frame, of a frame pivotally connected with the said rocking frame, a cup secured rigidly to the said frame and adapted to fit at its mouth over the mouth of the receptacle containing the substances to be mixed, and a platform supporting the receptacle and held to slide vertically in the said frame, substantially as shown and described.

2. In a mixing-machine, the combination, with a rocking frame, of a frame pivotally connected with the said rocking frame, a platform adapted to carry the receptacle containing the liquids and other substances to be mixed, a block secured to the said platform and held to slide vertically in the said frame, and a cup secured to the said frame, its mouth being adapted to fit over the mouth of the said receptacle, substantially as shown and described.

3. In a mixing-machine, the combination, with an eccentric secured to a shaft having a rotary motion, of a rocking frame provided with one forked end engaging the said eccentric, a frame pivotally connected with the said rocking frame and provided with a rod sliding in pivotal bearings, a shaft mounted to turn in the said frame, an arm secured to the said shaft, a block having a recess in which said arm operates, and a platform secured on the said block and adapted to support the receptacle containing the liquid and substances to be mixed, substantially as shown and described.

4. In a mixing-machine, the combination, with an eccentric secured to a shaft having a rotary motion, of a rocking frame provided with one forked end engaging the said eccentric, a frame pivotally connected with the said rocking frame and provided with a rod sliding in pivotal bearings, a shaft mounted to turn in the said frame, an arm secured to the said shaft, a block having a recess in which operates said arm, a platform secured on the said block and adapted to support the receptacle containing the liquids and substances to be mixed, and a metallic cup secured to the said frame and provided at its mouth with a rubber gasket fitting over the mouth of the said receptacle, substantially as shown and described.

5. In a mixing-machine, a main frame, a shaft mounted on the said frame, a hand-wheel secured to the said shaft, a friction-wheel engaging the inside of the rim of the said wheel, a shaft carrying the said friction-wheel, and an eccentric secured on the said shaft, in combination with a rocking frame fulcrumed on the said main frame and provided with a forked arm engaging the said eccentric frames pivoted on the said rocking frame, a rod extending upward from each of the said frames, pivotal bearings in which the said rods are guided, a shaft mounted to turn in the lower end of each frame, an arm secured to the said shaft, a block held to slide vertically in the said frame and operated on by the said arm, a flanged platform secured to the upper end of the said block and adapted to receive the receptacle containing the substances to be mixed, and a cup secured to each of the said frames and provided with an eccentric gasket at its mouth which is adapted to fit on the mouth of the receptacle, substantially as shown and described.

BENJAMIN FRANKLIN PHELPS.

Witnesses:
L. G. KEYES,
THOMAS HUDSON.