(No Model.)

A. C. McEWEN.

MIXING AND AGITATING MACHINE.

No. 342,116. Patented May 18, 1886.

Fig. 1.

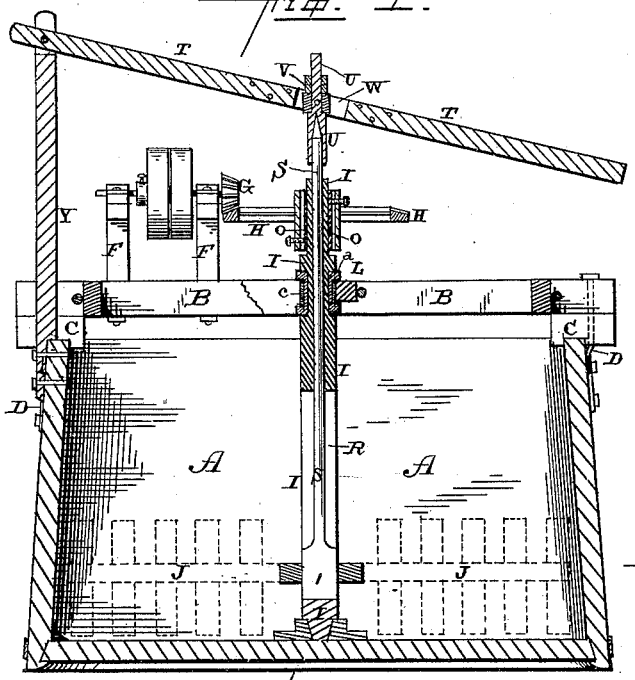


Fig. 4.

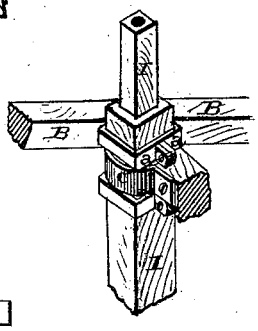


Fig. 2.

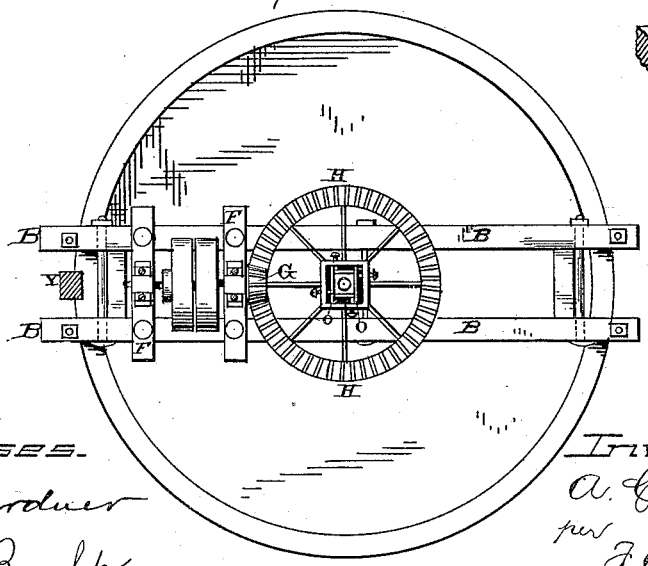
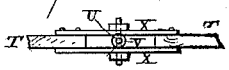


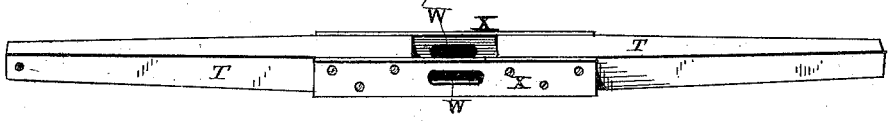
Fig. 5



Witnesses.
L. D. Gardner
A. W. Brecht

Inventor.
A. C. McEwen,
per J. A. Lehmann,
Atty.

Fig. 3.



UNITED STATES PATENT OFFICE.

ADDISON C. MCEWEN, OF JERSEY CITY, NEW JERSEY.

MIXING AND AGITATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 342,116, dated May 18, 1886.

Application filed February 16, 1886. Serial No. 192,165. (No model.)

To all whom it may concern:

Be it known that I, ADDISON C. MCEWEN, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Mixing and Agitating Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in mixing and agitating machines; and it consists in the combination of a tub or vat, a suitable frame-work secured across its top, a driving-shaft provided with a pulley at one end, a gear upon the vertical shaft which carries the agitating arms or mixers, and a lever connected by means of a rod with the arms, whereby the arms can be raised and lowered at will, as will be more fully described hereinafter.

The object of my invention is to provide a machine for mixing or agitating substances of any kind, and in which the mixing and stirring devices can be moved vertically at the will of the operator, so as to agitate all parts of the mixture alike, or so that the devices can be raised above the mixture while they continue to revolve.

Figure 1 is a vertical section of a machine embodying my invention. Fig. 2 is a plan view of the same, the operating-lever being removed. Fig. 3 is a detail view of the lever. Figs. 4, 5 are detail views.

A represents a tub or vat of suitable shape or size, and in which the fluid or other substance which is to be mixed or agitated is placed. Extending across the top of this tub are two horizontal beams, B, which are secured rigidly together by suitable cross-pieces and bolts, and which beams have their ends placed upon the blocks C, which are recessed on their under sides, so as to catch over the top edges of the tub. These beams and blocks are rigidly secured to the tub by means of the screw-bolts D, which have their lower ends flattened, and then bolted to the sides of the tub, as shown.

At any time that it is desired to remove the stirring or agitating mechanism from the tub it is only necessary to disconnect the flat lower ends of the bolts from the sides of the tub and loosen the lower end of the standard, to which the shaft or lever is connected, and then the whole apparatus can be taken away.

Mounted upon the two beams B are suitable bearings, F, upon the tops of which is journaled, in suitable boxes, the driving-shaft, which is provided with both a fast and loose pulley, in the usual manner. Upon the inner end of this driving-shaft is placed the pinion G, which meshes with the horizontal beveled gear H, which is secured to the upper end of the revolving shaft I, which carries the mixing or stirring devices or arms J. This shaft I has a suitable bearing upon the bottom of the tub at its lower end, and has a suitable bearing, L, near its upper end, in one of the cross-pieces which is used to tie the two beams B together. This bearing L consists of a sleeve, which is made of two parts, *a*, which are clamped together, and which revolve inside of the metallic bearing *c*, placed to receive them. The upper end of this shaft I is made angular, and preferably somewhat reduced in size, so that it will be smaller than the hub of the wheel H, through which it passes. The upper end of this shaft I is made smaller than the interior diameter of the hub, so that suitable bushing-plates, O, can be placed in the hub for the set-screws P to bear against. One of these plates is placed upon each side of the shaft, and the set-screws are then passed through the hub, so as to bear against the plates for the purpose of adjusting the hub in position. By tightening up upon the screws upon one or more sides and loosening the screws upon the other sides the wheel can be adjusted upon the shaft so as to mesh evenly with the pinion at all times, and thus cause the shaft I to revolve evenly and smoothly.

The shaft I is made hollow at its upper end, and has a suitable mortise, R, cut through its lower end. Passing through this shaft is the operating-rod S, which is moved vertically by means of the lever T, and which rod is connected to the agitating device at its lower end, so that this device or arm can be raised upward in the tub as far as the mortise or slot in the shaft I will allow. While the stirring devices or arms revolve with the shaft they have a free vertical movement of their own, so as

either to be raised entirely above the fluid or mixture which is being mixed or agitated, or to revolve in any part of it.

The stirring device may be of any desired construction, and will be made, together with the shaft I and the rod, of wood or metal, according to the use to which it is to be applied.

The upper end of the rod S has a metallic bearing, U, attached to it, and this bearing passes through the box or journal V, which is provided with projections to pass through the slots W in the plates X, which are secured to the lever T. This box or bearing allows the rod S to revolve freely with the shaft I, and the slots allow the box to accommodate itself to the position of the lever T in being raised or lowered. If these slots were not used, the rod S would be made to bind against the other parts in raising and lowering the stirring device. The lever T is made in two parts, and these two parts are connected together by means of the slotted plates, as shown in Fig. 3. The inner end of the lever T is pivoted to the top of the standard Y, which is rigidly secured to the side of the tub in between the ends of the two beams B.

Instead of passing the rod S down through the center of the shaft I, there may be two rods used, which will pass down through the wheel, and the boxing applied to the upper end of the shaft, and the upper ends of these two rods be connected together by a suitable T-shaped piece. The only difference between the two constructions is that in one but a single rod is used, which passes down through the shaft, and in the other two rods are used, which pass down upon opposite sides of the shaft.

Where machines constructed as above described are being used for stirring or agitating acids no metal parts will be used where the acids come in contact with them, for the reason that the acids would soon destroy them.

Having thus described my invention, I claim—

1. The combination of the tub A, the beams B, rigidly secured upon its top, the revolving shaft I, provided with slot R in its lower portion, a bearing for the shaft upon the bottom of the tub, a second bearing for the shaft upon the beams, and the wheel secured to the upper end of the shaft for causing the shaft to revolve, with the rod S, which passes down through the center of the shaft, and has the stirring device J secured thereto, and the lever for raising the rod and stirring device, substantially as shown.

2. The combination of the tub A, the beams B, secured upon the top of the tub, the metallic casting *a*, made in two parts and applied to the shaft, the wheel H, and the metallic bearings *c*, which receive the parts *a*, with the rod S, carrying the stirring device J, and the lever for raising and lowering the stirring device, substantially as described.

3. The combination of a stirring or agitating machine with the lever made in two parts, which are connected together by the slotted metallic plates, the box or bearing provided with projections to pass through the slots in the plates, and the rod which has its upper end to pass through the box or bearing, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ADDISON C. McEWEN.

Witnesses:
M. A. HENNESSEY,
S. M. VANDERBECK.