

UNITED STATES PATENT OFFICE.

JOHN E. JAMES, OF BROOKLYN, NEW YORK.

AGITATOR.

SPECIFICATION forming part of Letters Patent No. 497,181, dated May 9, 1893.

Application filed June 30, 1888. Serial No. 278,675. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. JAMES, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Agitators; 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 appertains to make and use the same.

My invention relates more particularly to the process of sugar making although it will be found useful wherever the mixing of heavy with light masses of material in a fluid or semi fluid state, and its maintenance in such condition until used, is desired.

In the making of sugar, the boiled sirup, a thick stiff mass is drawn into large receivers or coolers from which as wanted it is fed into centrifugal machines which separate the crystals of sugar from the sirup. Standing as the sirup does in these coolers for a considerable length of time, all the sirup and water gathers on top, and is increased by drippings from above resulting from cleaning gutters, &c. It is highly desirable, if not necessary, to keep the thick sugar thoroughly and evenly incorporated with or in suspense in this sirup and water. To accomplish this I have invented an agitator or stirrer which will increase the amount of sugar produced and save the time, labor and expense of reworking the residuum.

In the following description reference is had to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of the agitator with the shaft and gearing shown. Fig. 2 is a top view of the same, and Fig. 3 a cross section thereof.

Similar letters of reference in the figures indicate identical parts.

A— is the cooler or receptacle which contains the material to be agitated, and which as shown has a cross section of the shape of a reversed sugar loaf, or a trough with inclined sides narrowing from the open top to the rounded bottom. In this cooler I suspend the agitators which consist of a central rod C— upon which are arranged at intervals at right angles or nearly so to it, a series of fingers or arms; those extending toward the inclined sides of the cooler becoming shorter as they approach the bottom. These agitators in the trough, as shown, are four in num-

ber, two of each being connected by cross bars and operating together. The number of them may vary from one upward, according to the length of the cooler or trough. As I show them in the drawings I find them to work to excellent advantage, and while it is not essential that any of them should be connected, yet where there are four or more, it will be found desirable to do so. These agitators reciprocate vertically in the cooler and have a rocking motion in addition imparted by rock shafts—*d*—*d'*— suspended in bearings above the cooler. Power is taken from a pulley —*E*— by a toothed pinion —*f*— which drives a spur wheel —*g*— to which is attached a crank —*r*—. Connected with this crank —*r*— is a rod —*h*— which is connected with a crank —*k*— on the rock shaft —*d*— and arranged to rock said shaft. To the other end of the rock shaft —*d*— is attached a similar crank which is connected by rod —*l*— to a like crank on the rock shaft —*d'*—. From these rock shafts at —*m*— and *n*— extend levers *o o o o* the other ends of which are attached to the central rods —*c c c c*.

It will be readily seen that as the shafts *80* rock, the levers *o o o o* will lift and plunge each of the agitators by reciprocal vertical movements, and also with such a rocking motion as must result from the arc of the circle described by the outer ends of those levers. *85*

Arranged as shown the connected agitators reciprocate alternately, such action increasing the agitation of the material.

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

In an apparatus for use in mixing material, a cooler or receptacle for containing such material, having inclined sides converging toward the bottom, in combination with an agitator consisting of a central rod and a series of fingers or arms arranged at intervals throughout the rod, the fingers which extend toward the inclined sides being made shorter as they approach the bottom of the receptacle, and mechanism for imparting motion to the rods substantially as described. *100*

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

JOHN E. JAMES.

Witnesses:

WILHELM BAUR,
C. L. OTT.