(No Model.) 3 Sheets—Sheet 1.

J. M. DEMERATH.

CANDY MACHINE.

No. 583,035. Patented May 25, 1897.

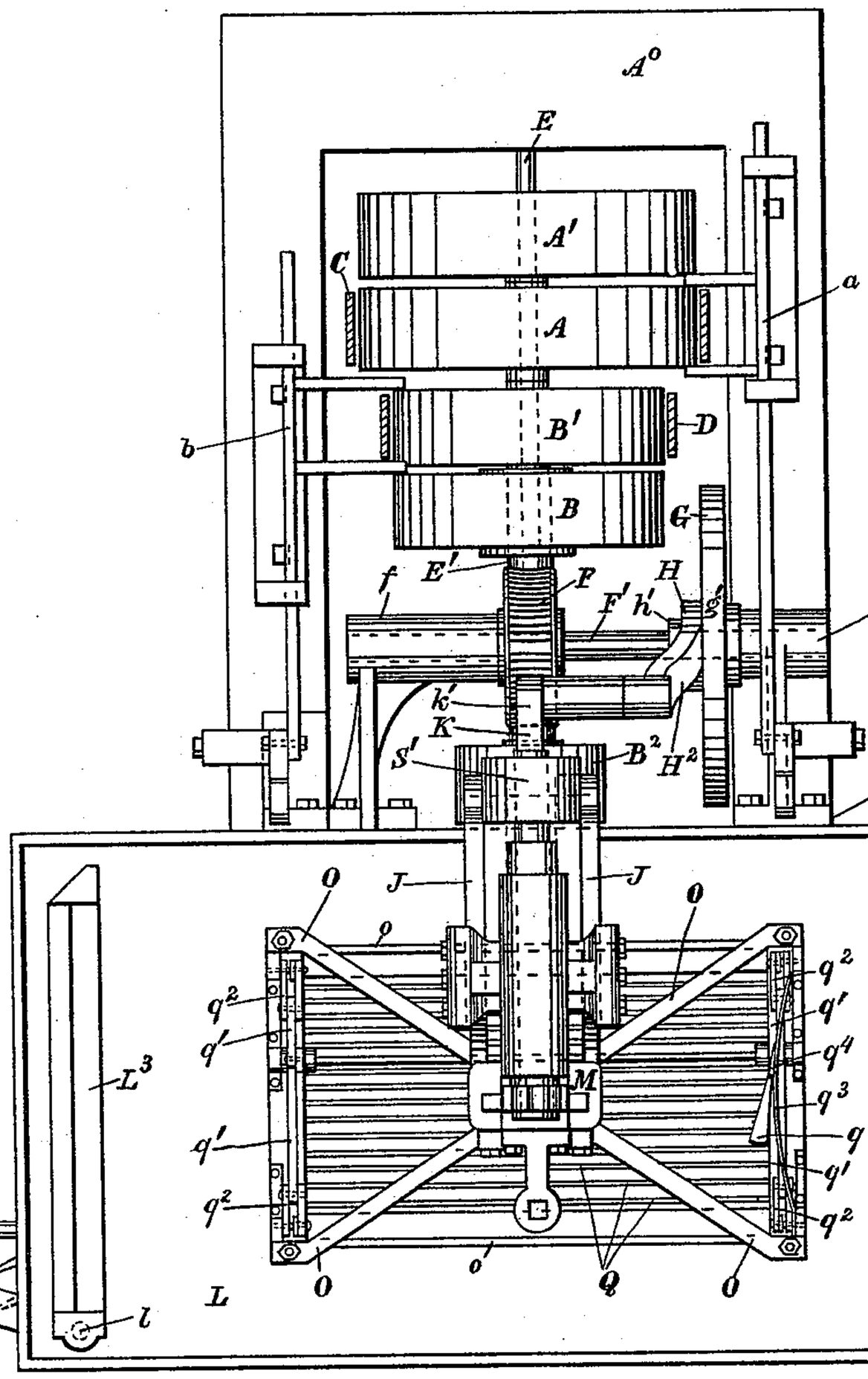
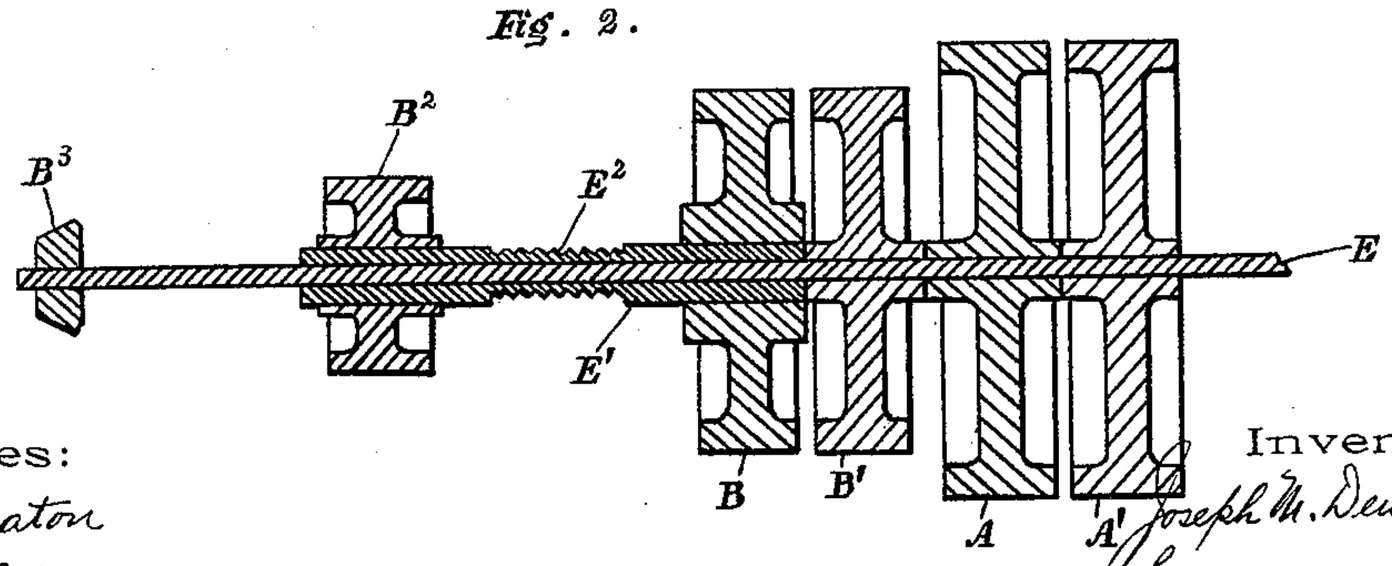


Fig. 1.

Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

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CANDY MACHINE.

No. 583,035. Patented May 25, 1897.

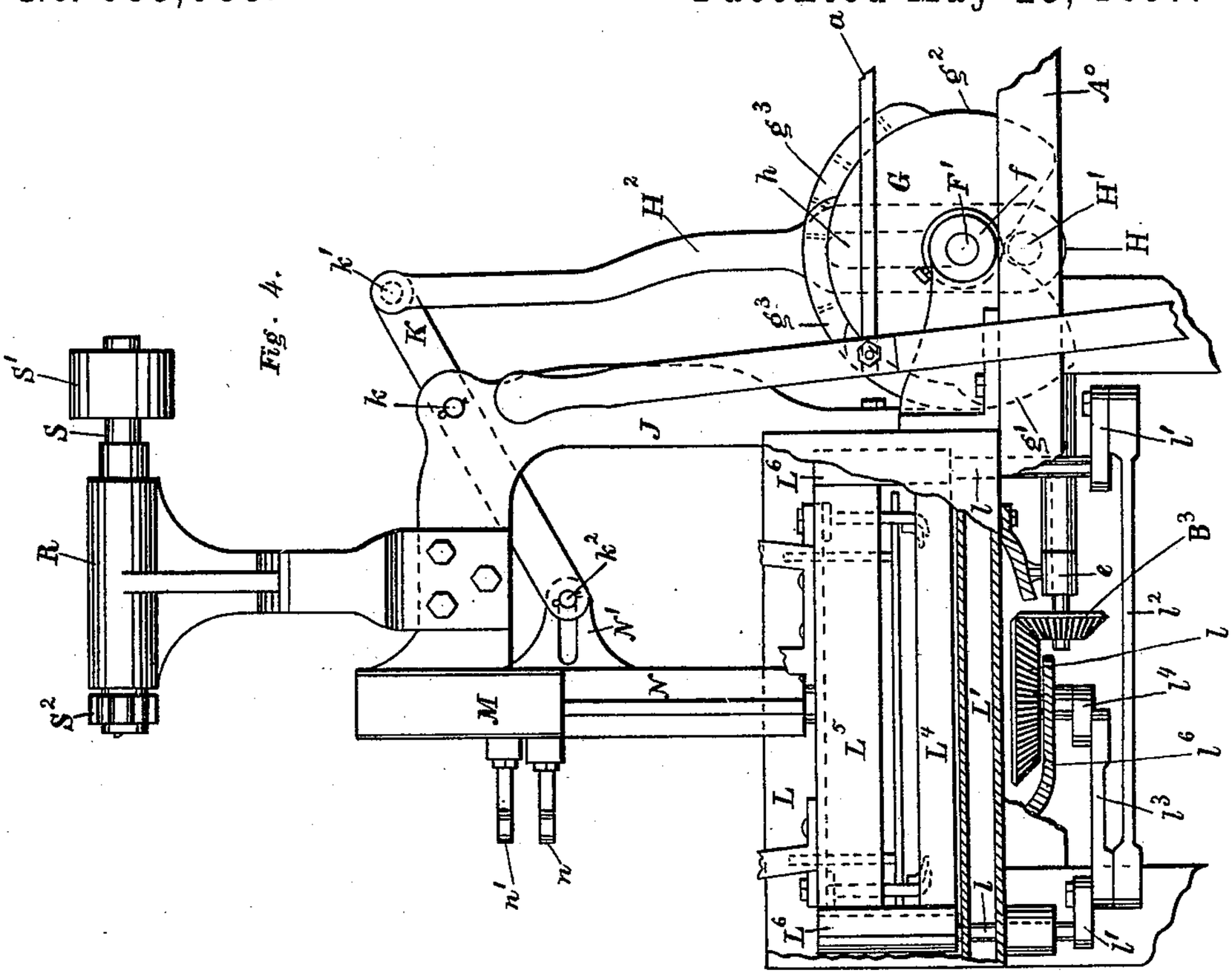

Fig. 4.

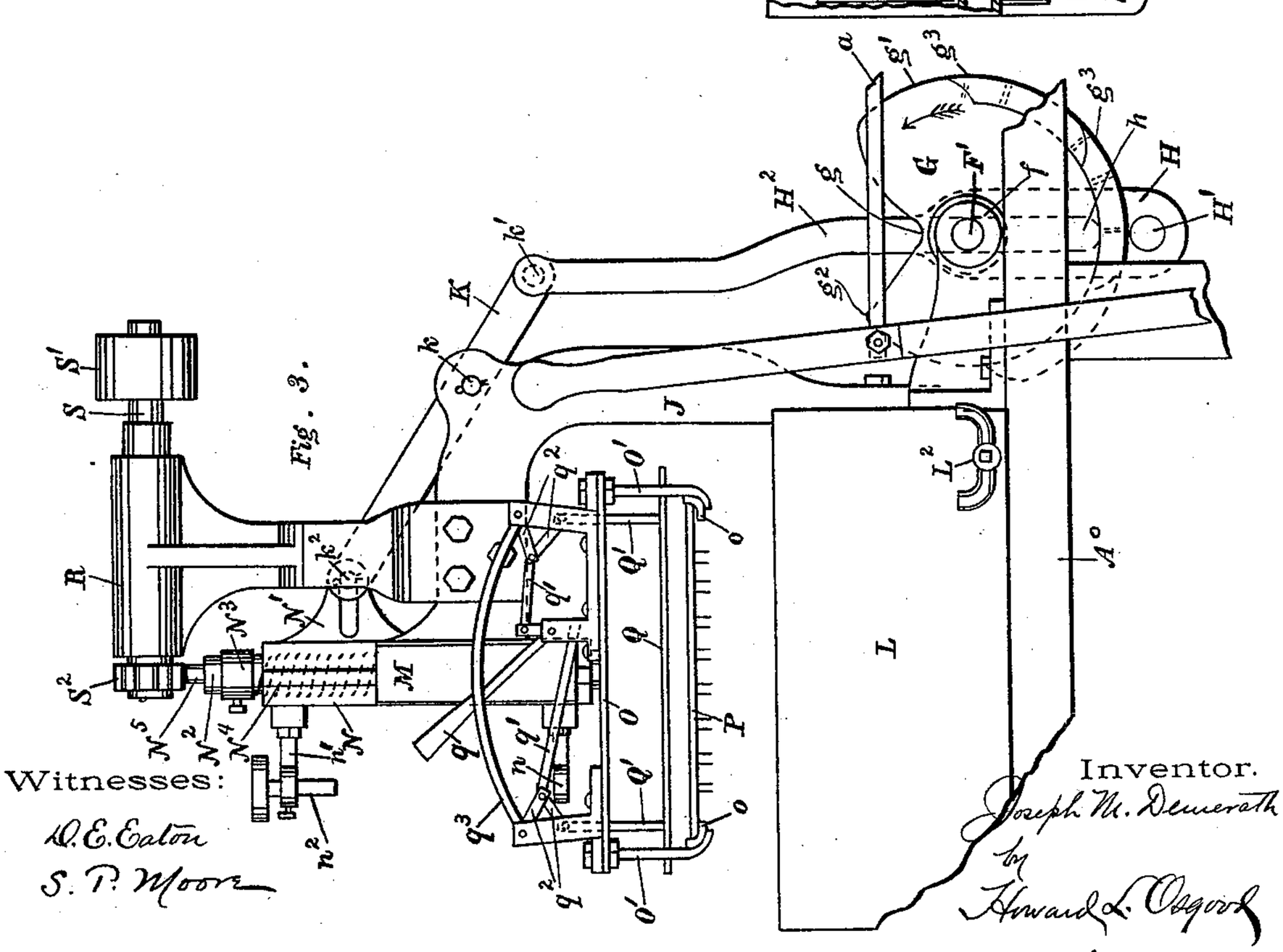

Fig. 3.

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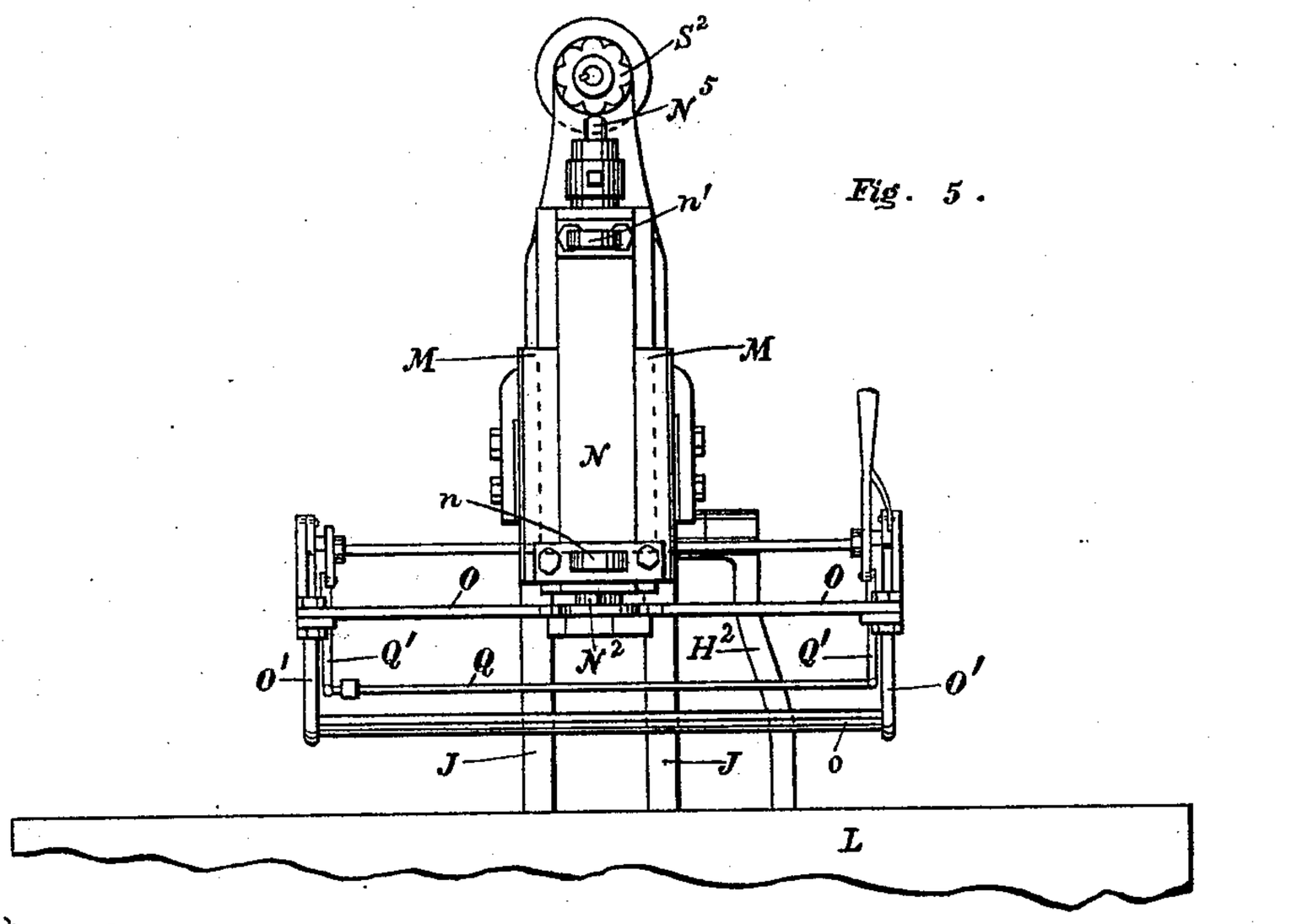

Fig. 5.

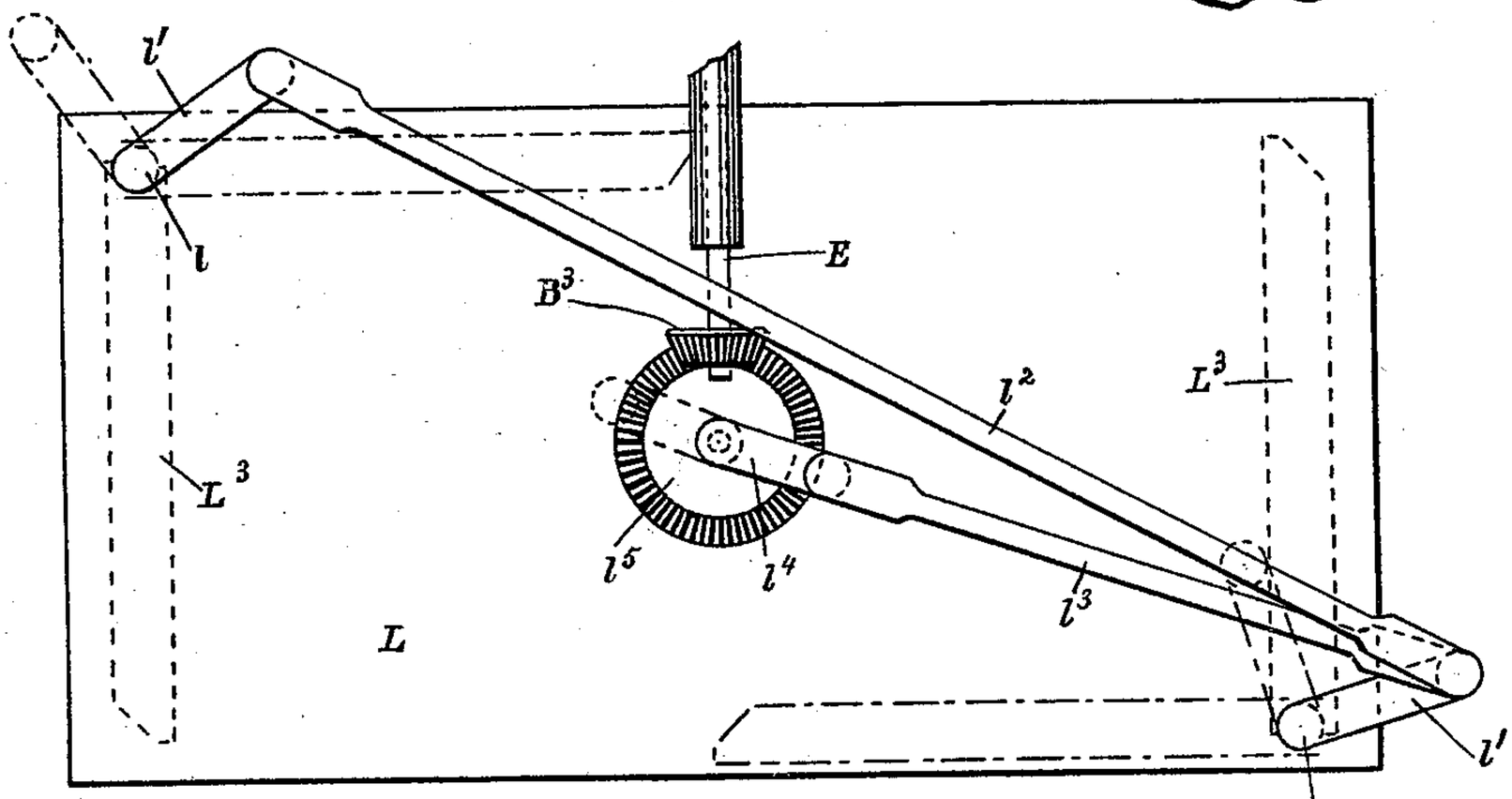

Fig. 6.

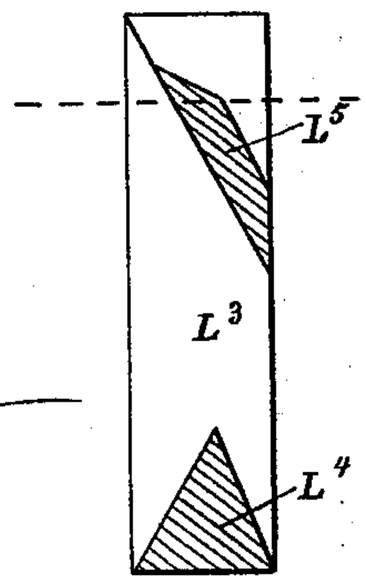

Fig. 7.

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UNITED STATES PATENT OFFICE.

JOSEPH M. DEMERATH, OF ROCHESTER, NEW YORK.

CANDY-MACHINE.

SPECIFICATION forming part of Letters Patent No. 583,035, dated May 25, 1897.

Application filed August 8, 1895. Serial No. 558,692. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. DEMERATH, a citizen of the United States, and a resident of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Candy-Machine, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of one of my machines. Fig. 2 is a longitudinal section of the driving-pulleys and their connections. Figs. 3 and 4 are side elevations of the dipping devices, parts being removed in Fig. 4 to exhibit construction. Fig. 5 is a front elevation of a portion of the dipping devices. Fig. 6 is a bottom view of the tank, showing the operating mechanism for the stirring devices; and Fig. 7 is a cross-section of one of the stirring-paddles.

The object of my invention is to produce a machine for coating candies in quantity with any suitable coating material, such as chocolate; and my invention consists in the devices and combinations hereinafter described and claimed.

In the figures, A^0 is a suitable framework or stand to support the mechanism.

A A′ and B B′ are respectively fast and loose pulleys for the driving-belts C D. The pulley A is fast upon a shaft E, while the pulleys A′ and B′ are loose thereon. The pulley B is fast upon one end of a sleeve E′, which bears a worm E^2 and at the other end a pulley B^2. Shifters *a b* are provided, which move the belts C and D, respectively, from the fast pulleys A and B to the loose pulleys A′ and B′, and vice versa. A worm-wheel F on a transverse shaft F′, supported in suitable bearings *f f*, meshes with the worm E^2. On the shaft F is a cam G, substantially of the form shown in Figs. 3 and 4, having the deep notch *g*, the elevated portion *g′* of the rim, and the lower portion g^2 of said rim. A yoke H surrounds the shaft F by the long slot *h*, and at the end of the yoke is the stud H′, which bears against the rim of the cam G, and the stud is moved by the revolution of the cam to operate the shank H^2 of the yoke. The yoke is held in place on the shaft F′ by the collar *h′*, Fig. 1. A bracket J, supported on the frame A^0, supports a lever K, pivoted to the bracket at *k* and to the end of the shank H^2 of the yoke at *k′*. As the cam G revolves it will cause the lever K to oscillate and to take different positions, according as the stud H′ rests in the notch *g* or against the portions *g′* or g^2 of the rim of the cam.

Upon the frame A^0 rests a tank L for the coating material having a double bottom L′ for the introduction of steam or hot water by means of the inlet and drain pipes L^2. (See Figs. 1 and 3.) The tank has a stirring device attached to it for mixing and stirring the coating material in order that it may be kept at a uniform consistency. Vertically through the bottom of the tank and in diagonal corners thereof are two rock-shafts *l*. To the lower end of these shafts are attached links *l′*, which are connected together by the link l^2, (see Figs. 4 and 6,) and one of said links *l′* is also attached to a pitman l^3, which is connected to a crank l^4, which is driven by a beveled gear-wheel l^5, which last is supported by a bracket l^6 underneath the tank. The gear l^5 is driven by a beveled gear B^3 on the end of the shaft E. (See Fig. 2.) The shaft E is supported at its end by the bracket and bearing *e*. (See Fig. 4.)

Inside the tank and upon each shaft *l* is a stirrer L^3, which, as shown in Fig. 7, has a lower blade L^4, triangular in cross-section and with a base parallel and close to the bottom of the tank, and an upper blade L^5, which is in cross-section, a truncated triangle having its base at an angle of about sixty degrees to the base of the tank, a side parallel to said base side, and two other sides, one of which is at right angles to the base of the tank and the other of which is at an angle of about thirty degrees to said base.

The operation of the gears beneath the tank driven by the shaft E causes the stirrer to vibrate between the positions shown in dotted lines in Fig. 6, and whichever may be the direction of motion of the stirrer the coating material is forced upward by the blade L^4 from the bottom of the tank. When the movement of the stirrer is in one direction, the coating material is forced downward by the blade L^5 from the top of the mass of the coating material, which should be substantially at the dotted lines in Fig. 7, and when the stirrer moves in the other direction the

coating material is moved upward by the blade L^5 from the center of the mass to the top. These currents of coating material will thoroughly mix the whole mass and will keep the same at a uniform consistency. The blades L^4 and L^5 are fastened together by uprights L^6, Fig. 4, at the ends of the stirrer in a manner which is so obvious as to need no further description.

The bracket J bears the dipping apparatus, which I now describe. Upon the end of the bracket is a vertical guideway M, in which reciprocates a slide N, which bears a slotted bracket N'. A pin k^2 connects the lever K with the bracket, so that as the lever K oscillates the slide N will move up and down in the guideways M. Stops n n', one fixed to the guideway and the other to the slide, serve to limit the motion of the slide by means of the stem n^2, adjustable in one or the other of said stops. Supported by the slide N is a supporting-frame O for the dipping device. This has the supporting-arms O' pending therefrom, having their lower ends fastened to supporting-bars o, which extend longitudinally from one end of the dipping device to the other. Upon these supporting-bars o rests the independent and insertable dipping-frame P, which is arranged to support and retain the candies while being coated in the tank, and may be of any suitable form. The coating material in the tank is usually very thick and viscous, and consequently is apt to move the frame P, when the same is dipped into the coating material, unless the frame is properly held down. For this purpose I provide a clamping-frame, composed of the longitudinal bars Q, which are fastened to end supports Q', and these end supports reciprocate vertically in guides attached to the frame O. The lever q operates links q', which are pivoted to and straighten a pair of toggle-links q^2, attached to the ends of the supporting-bars Q', so that when the lever is in the position shown in Fig. 3 the clamping-bars Q are raised from the frame P, and when the lever is thrown from the position just described to its extreme other position the links q^2, being toggles, straighten and force the frame Q down upon the frame P and hold it securely in position. A spring-bar q^3 is provided with a lug q^4, which catches the handle q and holds it firmly in the clamping position.

Extending upward from the bracket J is another bracket R, which at its upper end has a bearing containing a shaft S, bearing a pulley S', which is situated immediately above the pulley B^2, so that a belt may be run from one to the other, as shown in Fig. 1, the belt, however, being omitted in order that the parts may be more clearly seen. On the opposite end of the shaft S from the pulley S' is a wheel S^2, having a series of corrugations upon its periphery. The slide N contains a central shaft M^2, which is connected to the frame O. This shaft is supported upon the slide N by means of the collar N^3, which is adjustable on the shaft N^2, and a spring N^4. (Shown in dotted lines in Fig. 3.) The spring is supported at its lower end upon a fixed bearing in the slide N, so that the shaft N^2 may be pressed downward to compress the spring N^4 and may thus move the shaft longitudinally inside the slide N. The upper end of the shaft N^2 is rounded, as shown in Fig. 5. If now the slide N is raised to its highest point, the end N^5 of the shaft N^2 presses against the wheel S^2, and if the wheel S^2 is rotated, the slide N being held firmly by the cam G in the position shown in Fig. 3, the shaft N^2 is reciprocated by each corrugation of the wheel S^2 against the force of the spring N^4, and the result will be a rapid vertical shaking of the frame O and the candy-frame P supported thereby. The purpose of the shaker is to remove with the utmost rapidity the surplus coating material as soon as the candy-support P has been elevated out of the coating-tank L.

The operation of my device is as follows: A suitable number of candies are placed upon the frame P, which is slid into the machine upon the supporting-bars o. The handle q is turned to its clamping position and the frame Q clamps the frame P in position. If the coating material in the tank L needs stirring, the belt C is shifted by the pulley A and the shaft E is thereby rotated, turning the gear-wheels B^3 and L^5 and oscillating the stirrers L^3 through the coating material until it is thoroughly mixed, whereupon the belt is shifted to the loose pulley A'. The belt D is now shifted from the loose pulley B' to the tight pulley B upon the sleeve E'. This revolves the worm E^2 and the worm-wheel F, shaft F^2, and cam G. At starting the parts may be in the position of Fig. 3 for illustrating their action. The cam G revolves in the direction shown by the arrow. While the pin H' is upon the more elevated portion of the rim of the cam the corrugated wheel S^2 operates the shaker, but when the pin H' is on the less elevated portion g^2 of the rim of the cam the slide N is lowered and the wheel S^2 does not operate upon the end N^5. As soon, however, as the pin H' drops into the notch G the weight of the slide N and of the parts connected thereto oscillates the lever K and lifts the shaft H^2 of the yoke H and the dipping device will descend into the tank L and the frame P is immersed in the coating material. As the cam revolves further the pin H' is depressed by the approaching side of the notch g and oscillates the lever K rapidly to its extreme limit of motion, the pin H' resting on the more elevated portion of the rim of the cam g^2, and immediately brings the end N^5 in contact with the wheel S^2. Thereupon the frame P is rapidly shaken and the surplus coating material is so jarred that it will drop back from the candies into the tank L. As the cam progresses in its movement, the pin H' again meets the less elevated portion g^2 of the rim of the cam. The end N^5

is disconnected from the wheel S^2, and the parts may then be stopped for the removal of the tray P and for the insertion of another tray provided with its candies, whereupon the operation may be repeated. In order that the period of shaking may be increased or diminished, I provide a series of plates g^3, which are clamped upon the rim of the cam in order to increase the diameter thereof and hold the pin H′ down for variable periods, according to the time deemed necessary to shake off the surplus coating material from the candies carried by the frame P. These plates are bolted to the rim of the cam in any suitable manner. The dotted lines in Figs. 3 and 4 indicate the bolts passing through said plates.

What I claim is—

1. In a machine for coating candies, the combination of a tank for coating material, an operating mechanism, as a cam device having three operative portions, a vertically-moving slide moving in guides supported upon the frame of the machine, an opening and closing frame carried by said slide and adapted to hold an independent and insertible tray for the candies to be coated, a clamping and locking mechanism for said opening and closing frame, lever mechanism connected with said slide and with said operating mechanism, a continuously-operating shaking mechanism, comprising the corrugated wheel S^2, operating upon said vertically-moving slide when the slide is brought into contact with said wheel, said three operative portions of said operating mechanism being adapted to produce three positions of said frame, one while said frame is in the tank, another while said frame is in contact with said shaking mechanism, and a third position intermediate between the two just mentioned.

2. In a machine for coating candies, the combination of a tank for coating material, a vertically-moving slide moving in guides supported upon the frame of the machine, an opening and closing frame carried by said slide and adapted to hold an independent and insertible tray for the candies to be coated, a clamping and locking mechanism for said opening and closing frame, a shaking mechanism, comprising the corrugated wheel S^2, operating upon said vertically-moving slide when the slide is brought into contact with said mechanism, and an operating mechanism, as a variable cam, adapted to actuate said slide to produce three positions of rest of said frame, one while said frame is in the tank, another while said slide is in contact with said shaking mechanism, and a third intermediate between the two just mentioned, whereby the relative times during which said frame is retained in the two last-named positions may be varied.

3. In a machine for coating candies, the combination with the supporting-frame O, the clamping-frame Q and locking mechanism for said clamping-frame, whereby an insertible tray for candies to be coated may be clamped, a slide N having a central and vertically-moving spindle N^2 in said slide N, the spring N^4 normally lifting said spindle N^2, the corrugated shaker-wheel S^2 adapted to operate said spindle, means for driving said wheel S^2 and means for reciprocating said slide N.

4. In a machine for coating candies, the combination with the supporting-frame O, the clamping-frame Q and locking mechanism for said clamping-frame, whereby an insertible tray for candies to be coated may be clamped, a slide N having a central and vertically-moving spindle N^2 in said slide N, the spring N^4 normally lifting said spindle N^2, the corrugated shaker-wheel S^2 adapted to operate said spindle, an oscillating lever K pivoted at one end to said slide and pivoted at another point to the frame of the machine, a cam G having a deep notch g, a higher peripheral portion g' and the lower peripheral portion g^2, the pitman pivoted to said lever K and having a pin, as H′ actuated by the revolution of said cam.

5. In a machine for coating candies, the combination with the supporting-frame O, the clamping-frame Q and locking mechanism for said clamping-frame, whereby an insertible tray for candies to be coated may be clamped, a slide N having a central and vertically-moving spindle N^2 in said slide N, the spring N^4 normally lifting said spindle N^2, the corrugated shaker-wheel S^2 adapted to operate said spindle, an oscillating lever K pivoted at one end to said slide and pivoted at another point to the frame of the machine, a cam G having a deep notch g, a higher peripheral portion g' and the lower peripheral portion g^2, the pitman pivoted to said lever K and having a pin, as H′ actuated by the revolution of said cam; the worm-wheel F adapted to operate said cam, the worm E^2 to operate said worm-wheel upon a sleeve E′, and means for operating said shaker-wheel S^2 from said sleeve.

6. In a candy-machine, a tank, a stirring device located in said tank having two blades placed one above the other, one of which is triangular in cross-section and has its base next to the bottom of the tank and the other of which has the form of a truncated triangle in cross-section and has its base parallel with one of the sides of the first-mentioned blade, whereby different currents are produced in the mass in said tank, from the top and bottom of the mass to the center thereof when said stirring device is moved in one direction, and from the bottom and center of the mass toward the top thereof when said device is moved in the other direction, in combination with mechanism for moving the blades through the mass.

7. In a candy-machine, a tank, a stirring device located in said tank having two blades placed one above the other, one of which is triangular in cross-section and has its base next to the bottom of the tank and the other

of which has the form of a truncated triangle in cross-section and has its base parallel with one of the sides of the first-mentioned blade, whereby different currents are produced in the mass in said tank, from the top and bottom of the mass to the center thereof when said stirring device is moved in one direction, and from the bottom and center of the mass toward the top thereof when said device is moved in the other direction, in combination with a vertical rock-shaft in the corner of the tank, mechanism for oscillating the rock-shaft to move the stirring device from a position of rest against the side of the tank, a dipping device and mechanism for inserting the dipping device into the tank when the stirring device is in position against the side of the tank.

8. In a candy-machine, the combination of a tank L, having the vertical rock-shafts $l\ l$ in the corners thereof, the stirring-paddles l^3 attached to said rock-shafts and each provided with the blades l^4 and l^5 adapted to produce different currents in the mass of the tank, according to the direction of motion of said paddles, the cranks l' attached to said rock-shafts, the connecting-link l^2 connecting said cranks, the revolving crank l^4 and the link l^3 connecting the crank l^4 with a crank l', whereby the paddles have motions in relatively opposite directions, and means for rotating the crank l^4.

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