

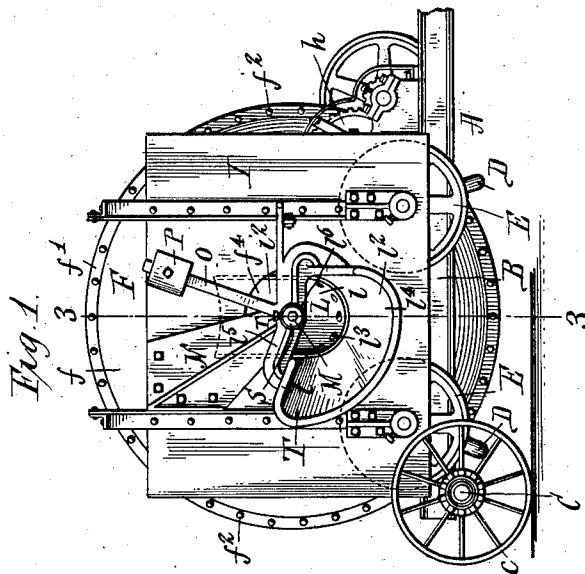
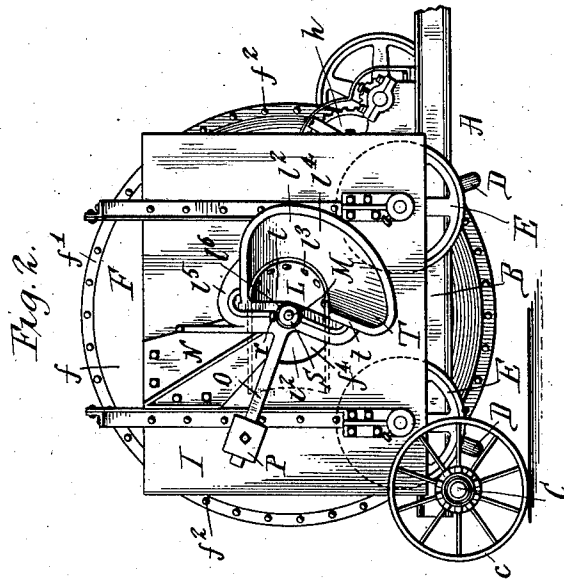
C. T. FOOTE.
MIXING MACHINE.

APPLICATION FILED FEB. 1, 1909.

1,025,907.

Patented May 7, 1912.

3 SHEETS—SHEET 1.



Witnesses:
Christ Pinke, Jr.,
Matilda C. Sticht

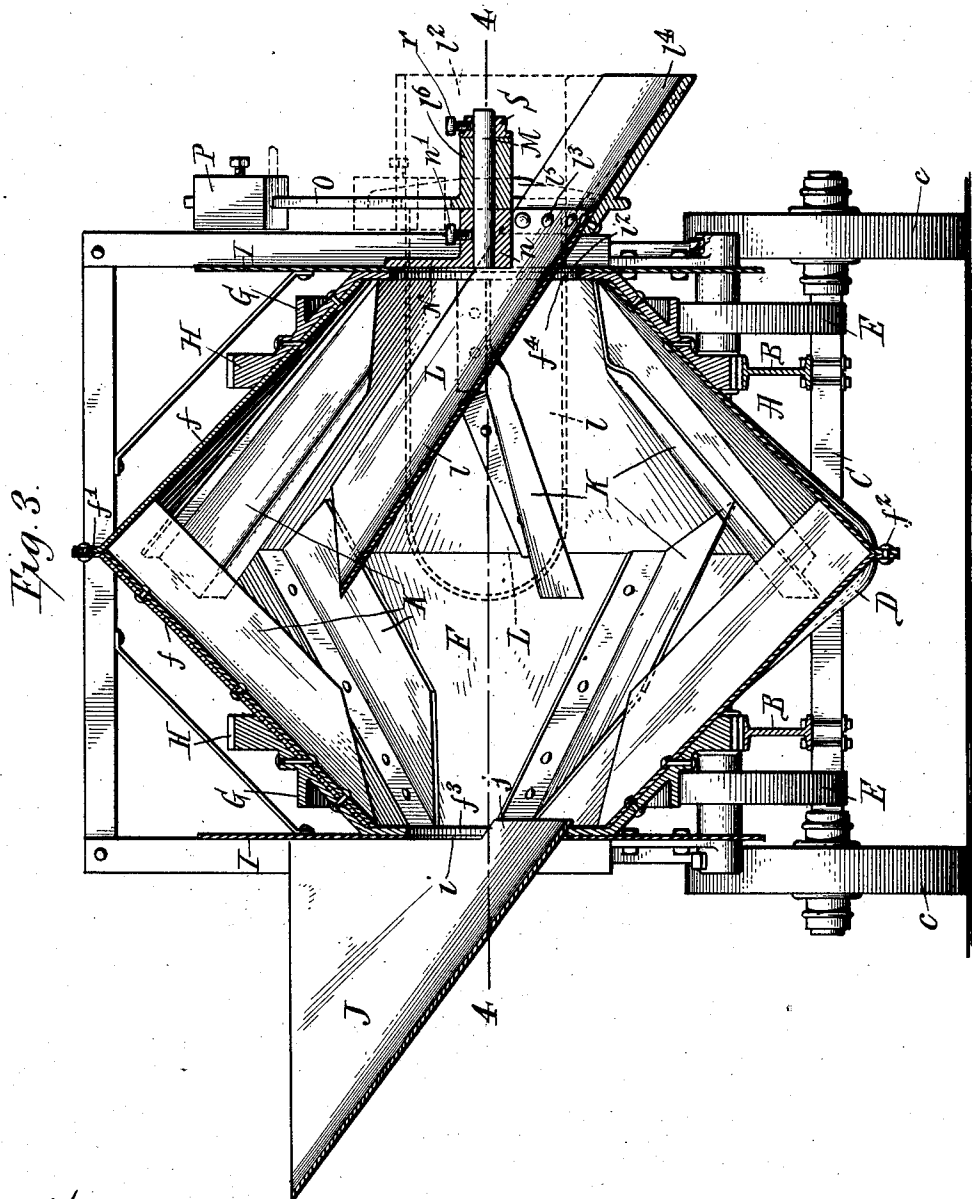
Chuter T. Foote, Inventor.
By Emil Neuhart,
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Christ Kink, Jr.,
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UNITED STATES PATENT OFFICE.

CHESTER T. FOOTE, OF NUNDA, NEW YORK, ASSIGNOR TO FOOTE MANUFACTURING COMPANY, OF NUNDA, NEW YORK, A COPARTNERSHIP.

MIXING-MACHINE.

1,025,907.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed February 1, 1909. Serial No. 475,453.

To all whom it may concern:

Be it known that I, CHESTER T. FOOTE, a citizen of the United States, residing at Nunda, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification.

My invention relates to improvements in mixing-machines for mixing materials to form concrete, and it especially relates to the mechanism for discharging the concrete from the mixing-drum.

In mixing-machines of the type herein shown and described and known as "batch-mixers," the materials are placed into the mixing-drum in "batches" or charges, suitable discharging means being employed to discharge the concrete in batches or charges, so that the mixing-drum may be continuously kept in motion; and it is the object of my invention to provide simple, durable and effective discharging-mechanism which can be easily and conveniently moved from operative to inoperative position, or vice versa; and means for discharging the concrete remaining on said discharging mechanism after the latter is returned to its inoperative position.

To these ends the invention consists in the construction, arrangement and combination of parts to be hereinafter described and particularly pointed out in the subjoined claims.

In the drawings Figures 1 and 2 are rear elevations of a mixing-machine equipped with my improved discharging-mechanism and showing the same in its two positions. Fig. 3 is an enlarged vertical section of the same, taken in line 3—3, Fig. 1. Fig. 4 is a horizontal section on a reduced scale taken on line 4—4, Fig. 3, the discharge-chute being shown complete. Fig. 5 is a perspective view of the inner portion of the discharge-chute. Fig. 6 is a perspective view of the outer portion of the discharge-chute.

Referring now to the drawings in detail, like letters of reference refer to like parts in the several figures.

The reference letter A designates the frame of the machine constructed in any suitable manner, but herein shown as comprising longitudinal side beams B supported by an axle C at their rear ends, and by a similar axle at their front ends (not

shown), or in any other approved manner. Traction wheels *c* are mounted on the rear axle and similar wheels will be applied to the front-axle when used. Secured to the beams B are supporting-bars D which are bent into substantially V-shape with horizontal ends having supporting-wheels E rotatable thereon.

F designates the mixing-drum consisting of two truncated cones *f* whose larger diameters are provided with outstanding flanges *f*¹ through which rivets *f*² are passed to assure a secure and tight connection between said cones, thus forming a double-cone drum whose largest diameter is central. The outer or smaller ends of said cones have openings *f*³, *f*⁴; the opening *f*³ being a charging-opening through which the materials to be mixed are introduced and the opening *f*⁴ being the outlet or discharging-opening through which the concrete is discharged from the drum.

For the purpose of supporting the drum so that it can rotate, it is provided with circumferential tracks or flanges G which ride over the supporting-wheels E, and said drum has also gear-rims H into which mesh gear-wheels *h* driven by power in any approved manner to cause said drum to rotate. Supported on the extremities of the V-shaped supporting-bars D are side plates I which lie against the ends of the drum and have openings *i*, *i*², registering respectively with the charging-opening *f*³ and discharging-opening *f*⁴ of said drum, and forming part thereof.

The materials to be mixed are introduced into the mixing-drum through the charging-opening in any suitable manner, and the type of machines herein shown, a charging-hopper J is provided which is secured to the side plate at the charging side of the machine and which hopper has an extension *j* projecting through the charging opening *f*³. For the purpose of mixing the materials introduced into the drum, the latter has the tapering walls of the cone parts thereof equipped on its interior surface with mixing-blades or wings K which tend to carry the materials to the top of the drum and drop the same to the bottom, thus assuring a very rapid and effective mixing of the materials.

The detail description thus far given does not relate to any portion of my invention,

but merely describes one of many types of mixing-machines to which my invention can be practically applied.

I will now describe my improved discharging-mechanism and its operation. This mechanism comprises essentially a chute L which is held in either of two positions by a suitable counter-agent. This chute when in normal or inactive position assumes a horizontal or substantially horizontal position and is at an angle to the axis of the mixing-drum and when in its active position it assumes an inclined position in a vertical plane. These positions are obtained by reason of said chute being pivotally supported on a horizontal pivot-pin M fastened into the boss *n* of a bracket N secured to the side plate on the discharge side of the machine, said boss furnishing an extended support for said pin, as best shown in Fig. 3. I have shown a set-screw *n*¹ as the means for fastening the pin within its bearing, but any other practicable means may be employed for this purpose. Said pivot-pin extends out of the bracket N a considerable distance and mounted to swing thereon is the chute L. The latter comprises by preference, an inner section *l* formed of sheet metal and substantially of U-shape in cross-section to provide a concaved face or side and a convex face or side, and an outer section *l*² of cast metal and having the outer end of the inner member riveted or otherwise secured to the inner end thereof, as at *l*³. The inner member of the chute is supported entirely by the outer member thereof, which latter is pivotally mounted on the pivot-pin M in the manner to be presently described. Said outer member comprises a chute-portion *l*⁴, an integral yoke *l*⁵ having an outstanding hub *l*⁶ fitting loosely onto the pivot-pin M and an integral counter-balance arm O having a weight P lengthwise adjustable thereon; said arm O being adapted to assume positions on opposite sides of a vertical plane passing through the axis of the pivot-pin so that the chute will be maintained in its active or inactive position, as the case may be. For the purpose of conveniently swinging the chute from one position to the other, it has a handle or arm R to be taken hold of by the operator.

In Figs. 1, 3 and 4 of the drawings, the chute is shown in its active position in which position it is inclined in a vertical plane and the counter-balance arm O is inclined at a slight angle to the vertical, while in Fig. 2, also Fig. 3 and Fig. 4 in dotted lines, said chute is shown in its inactive or normal position having the counter-balance arm O at a slight angle to the horizontal. Owing to this arrangement, force need only be exerted during a small portion of the movement of the chute when causing the latter to be returned from its active posi-

tion to its inactive or normal position, since the weighted counter-balance arm O, immediately it is manually forced over the "dead-center," will gravitate and cause the chute to complete its movement to normal position automatically. In swinging the chute from inactive or normal position to active position, however, force must be applied throughout the greater portion of the movement of the chute or until the weighted counter-balance arm O passes the "dead-center," which it does as it approaches the end of its movement. The advantage of this arrangement is that it prevents the chute being accidentally swung into active position and cause unintentional discharge of the concrete from the drum, owing to the fact that the counter-balance arm must be lifted during such movement.

The chute is held upon the pivot-pin by means of a collar S fastened onto the outer end of said pin by a set-screw *r*. Said pivot-pin has its axis coincident with that of the drum and it so supports the chute that they are relatively at an angle to each other with the chute crossing the axis of the pin. The outer end of the chute, or more particularly, the outer end of the outer section of the chute is laterally extended, as at T, and recurved, as at *t*, to form a tailings-spout to discharge the tailings or concrete remaining in the chute when the latter is being returned or has been returned to normal position, said spout serving to discharge the tailings or concrete at the point of discharge of the chute when in active or discharging position.

With the supporting pivot-pin in a horizontal plane and the chute supported or hung thereon and at an angle thereto to cross the axis thereof, the chute assumes a horizontal position when inactive, with the concaved side facing laterally so that the materials carried upward in the drum and caused to drop to the bottom thereof, will not enter the chute; and when said chute is swung into active position, it is inclined with the concaved side facing upward to receive the concrete as it drops from the blades or wings approaching or reaching their highest points. Owing to the chute being inclined, the concrete will be delivered over the outer or lower end thereof and drop onto the floor or ground, or into a receptacle placed at such point to receive the same.

The construction of the discharging-mechanism herein shown and described is that now thought to be best adapted for the purpose intended, but it is clearly apparent that changes in construction would readily suggest themselves to one skilled in the art to which this invention appertains, without departing from the spirit or sacrificing any of the advantages thereof, and I therefore do not wish to limit myself to such particu-

lar construction, since it is fully within the scope of my invention to modify the same without changing its operation or functions.

5 Having thus described my invention, what I claim is,—

10 1. The combination with a rotatable mixing-drum having an opening at one end, of a chute having its inner portion within said drum and its outer portion extending out through said opening, said chute being pivotally supported to swing laterally and arranged to cross the axis of said drum at all times, a handle on said chute for swinging
15 the same, and a weighted counter-balance arm also secured to said chute and serving to retain it at the ends of its movements in opposite directions.

20 2. A drum-batch mixer with an opening in one of its heads, a discharge chute mounted to rotate independent of the drum on an axis substantially parallel with the axis of the said drum, said discharge chute having one of its terminals disposed within and the
25 other disposed without the drum, and a flange on one side of the outer terminal of the discharge chute, for conveying the material in the chute back into the drum when the said chute is revolved into inoperative
30 position.

3. A drum batch mixer with an opening

in one of its heads, a discharge chute mounted to rotate independent of the drum on an axis substantially parallel with the axis of the said drum, the discharge chute
35 being disposed at an angle to its axis, one of the terminals of the discharge chute being disposed within the drum and the other without, and a cone shaped flange secured to one side of the discharge chute. 40

4. In a drum batch mixer, the combination with a drum head having a discharge aperture, of a discharge chute extending at its inner end within said aperture, inclined
45 to the axial line of said head and mounted to rotate transversely of its length, independent of the drum, said chute being provided with a curved flange projecting from one side whereby when the chute is rotated into inoperative position the flange will be dis-
50 posed substantially in the position previously occupied by the discharge chute and the material contained in the chute conveyed back into the drum.

In testimony whereof, I have affixed my
55 signature in the presence of two subscribing witnesses.

CHESTER T. FOOTE.

Witnesses:

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WILLIAM H. NORTHWAY.