C. W. LEVALLEY.

CONCRETE MIXER.

APPLICATION FILED MAR. 29, 1910.

1,067,042.

Patented July 8, 1913.

4 SHEETS—SHEET 1.

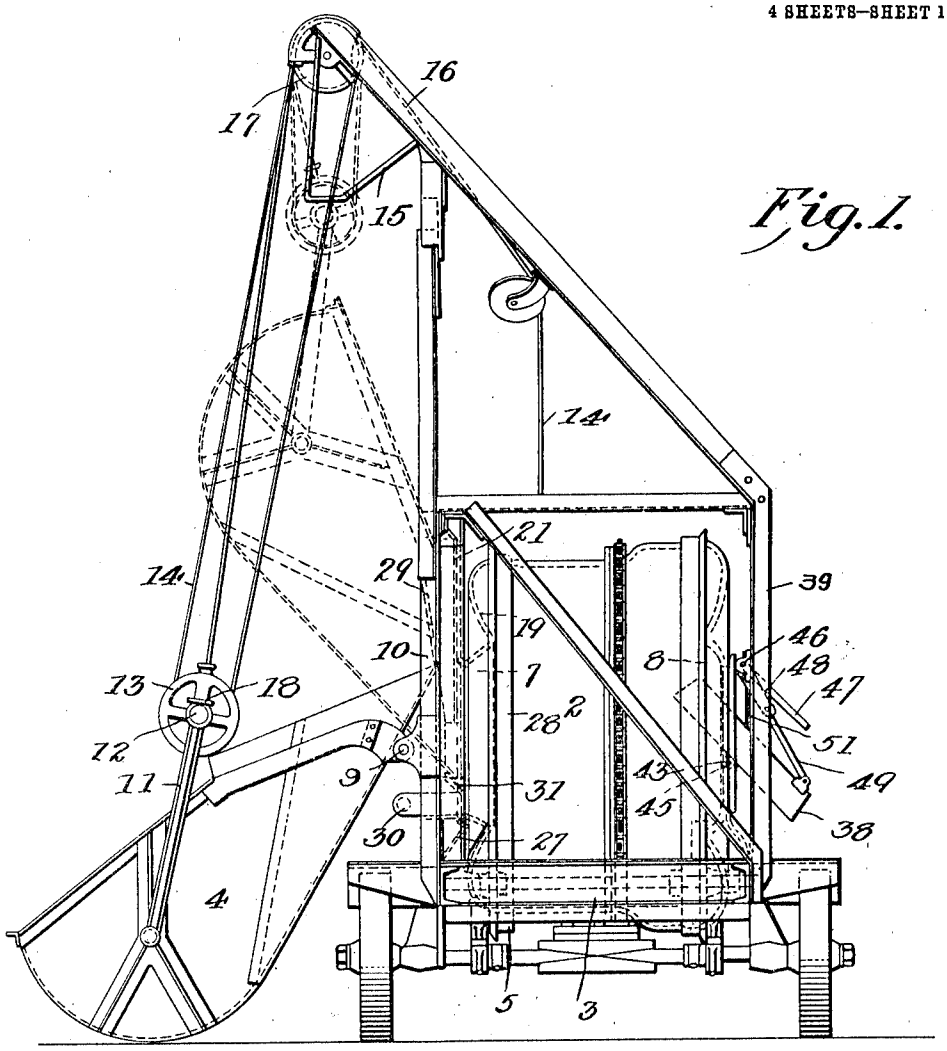


Fig. 1.

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4 SHEETS—SHEET 2.

Fig. 2.

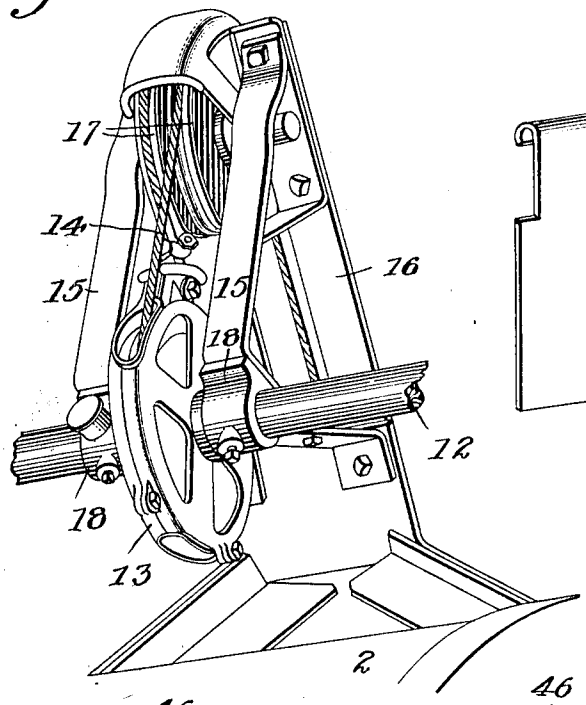


Fig. 8.

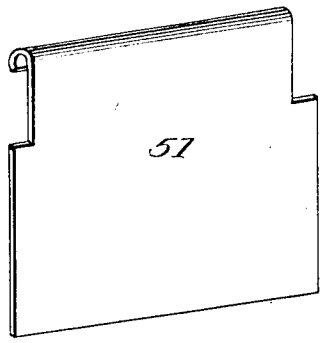
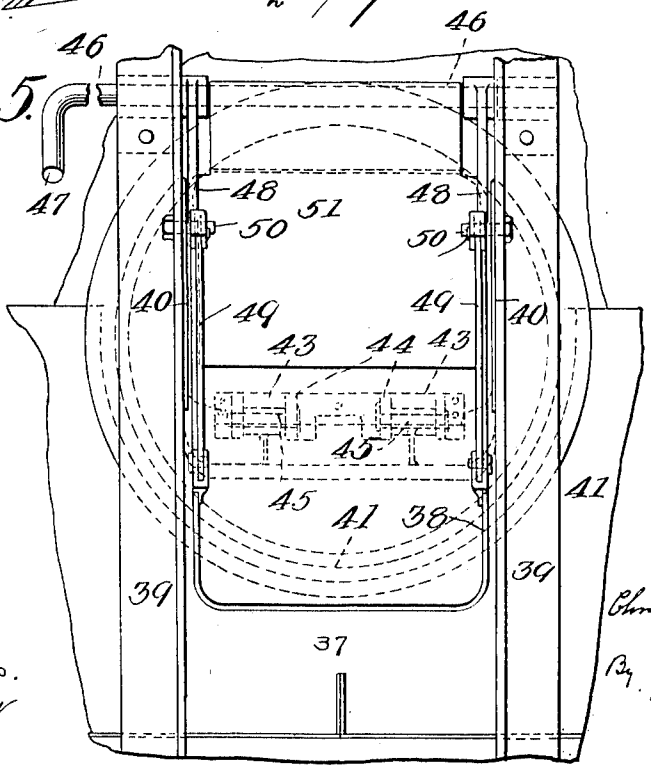


Fig. 5.



Witnesses

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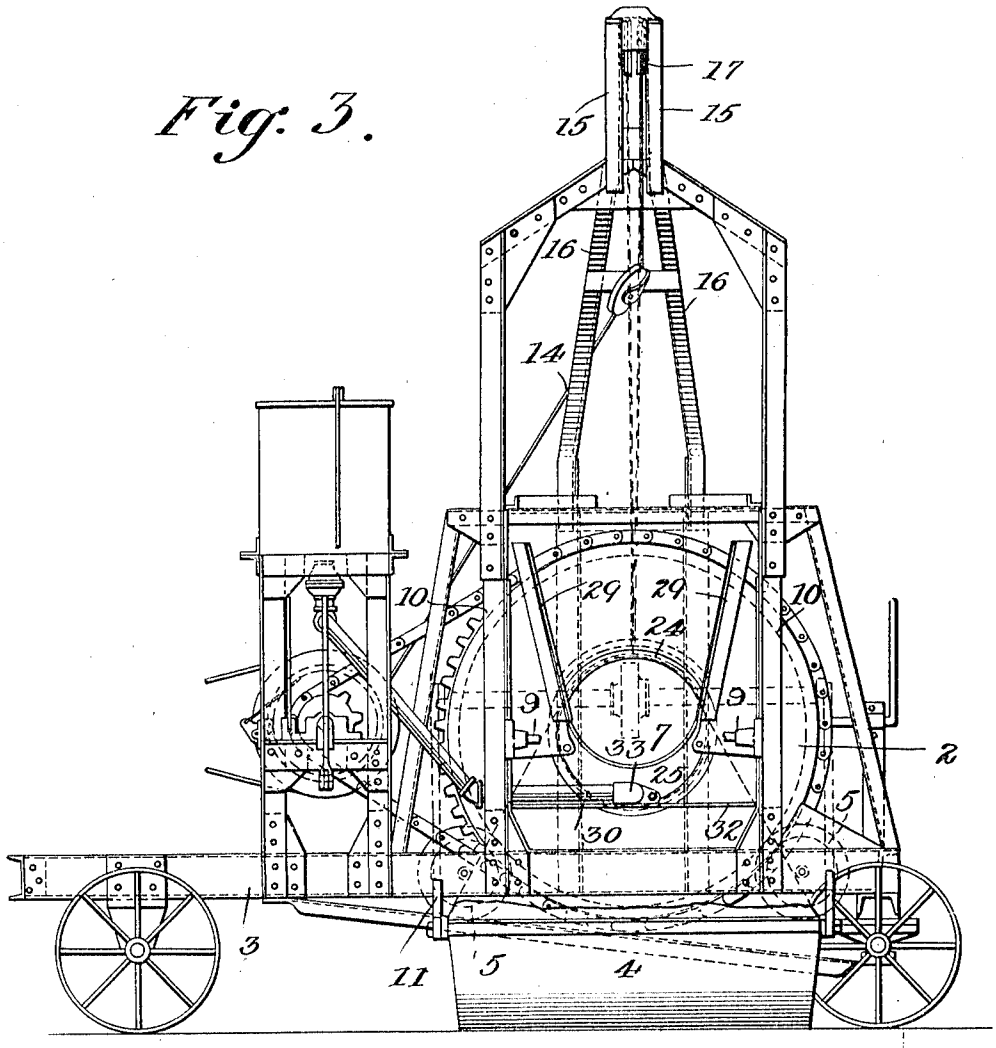
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses

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4 SHEETS—SHEET 4.

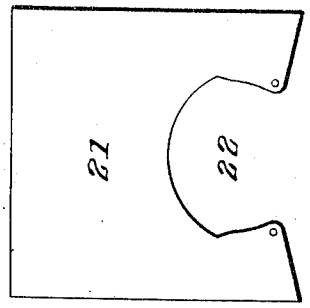


Fig. 6.

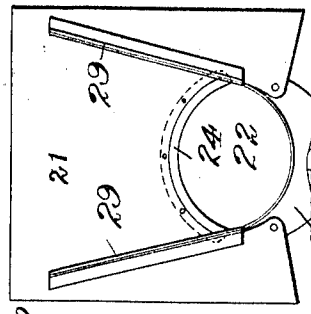


Fig. 7.

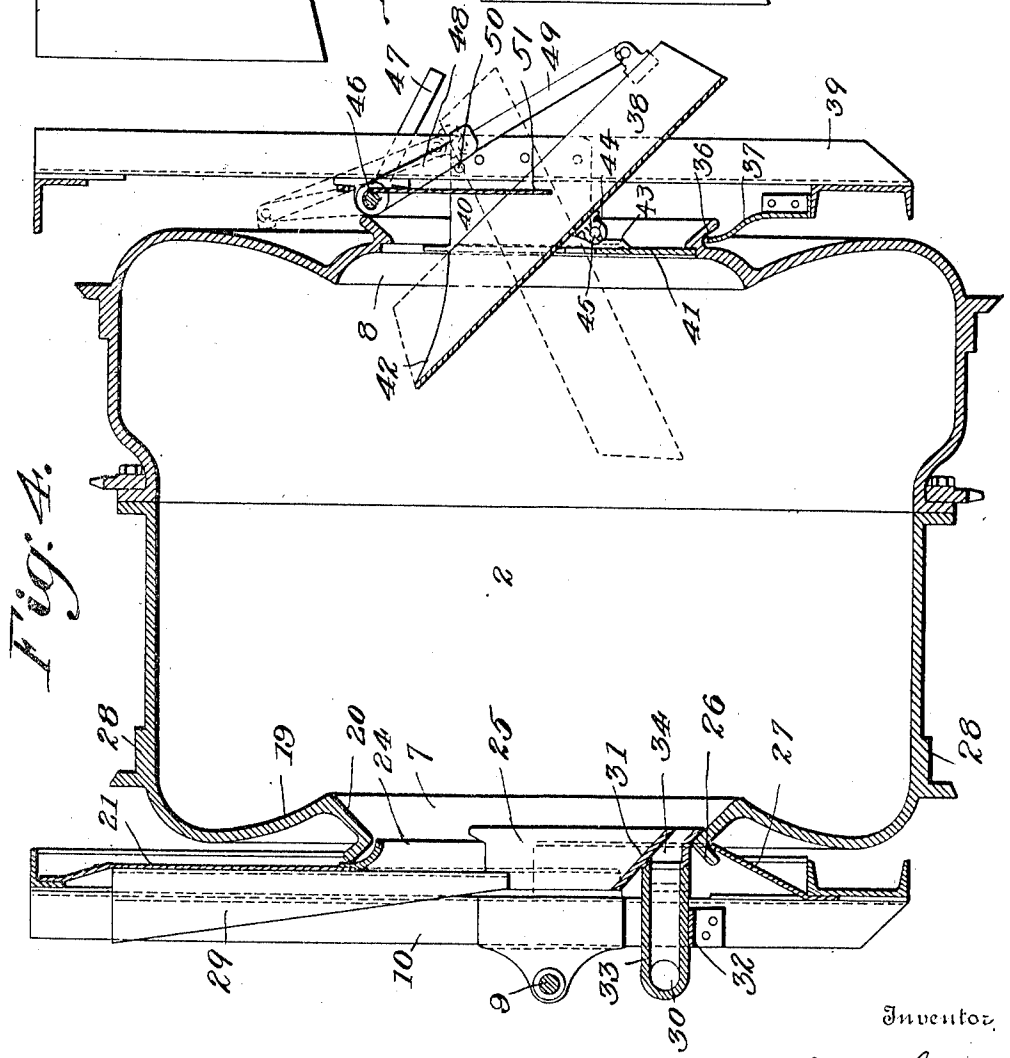


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

CHRISTOPHER W. LEVALLEY, OF MILWAUKEE, WISCONSIN.

CONCRETE-MIXER.

1,067,042. Specification of Letters Patent. Patented July 8, 1913.

Application filed March 29, 1910. Serial No. 552,128.

To all whom it may concern:

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Concrete-Mixers, of which the following is a specification.

My invention relates to mixing machines wherein are employed revolving drums in which the material to be operated upon is treated, and the improvements to be described have been devised with particular reference to their being applied to machines for mixing concrete.

It has for its object to improve mechanism of this character in the several particulars to be hereinafter pointed out, whereby the machines embodying such improvements are rendered exceedingly efficient in operation and simple in construction, and of such nature as to be produced at relatively low cost.

The improvements are shown as applied to a concrete mixing machine, similar in its general features to the machine forming the basis of my pending applications, Nos. 461,891 and 500,349, filed respectively, November 10, 1908, and June 5, 1909, though I do not wish to be understood as limiting my invention in its useful applications to machines for mixing concrete, as some, or all, of the features to be described are applicable to machines adapted to operate upon other material, as for instance to rumbles for cleaning or polishing small metallic articles.

In the accompanying drawings—Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a perspective detail view illustrating the means employed for arresting the tilting loader in proper position to deliver to the drum. Fig. 3 is a front view of the machine, the tilting loader being removed. Fig. 4 is a longitudinal vertical section of the apparatus, parts being broken away. Fig. 5 is a rear end view of the apparatus. Fig. 6 is an elevation from the front of the guard plate located at the feed end of the machine. Fig. 7 is a view similar to Fig. 6 showing elements of the apparatus connected to or directly associated with the guard plate. Fig. 8 is a detail view of the cut-off or splash curtain employed at the discharge end of the machine.

In the drawings 2 designates a revolving drum or cylinder in which the materials to be operated upon are placed for mixing. As the invention is adapted to be applied to or used in connection with mixing machines intended to operate upon a wide variety of materials, the construction and character of the drum may be modified to suit the use to which it is put. For purposes of illustration I have chosen the revolving drum of a concrete mixing machine, which is supported and driven in any usual or preferred way. It is represented as being supported upon a portable truck 3 which also carries the framework for a tilting loader 4. The mixing drum is formed with axial openings in its ends, that at the feed end being designated 7 and that at the discharge end 8. The tilting loader 4 which receives the ingredients that are to enter into a batch of concrete and delivers them through the feed opening into the mixing drum, is supported upon a shaft 9 mounted in suitable brackets carried by the front upright pieces 10 of the framework surrounding the drum. The loader is provided with a pivoted bail 11, the cross bar 12 of which carries the sheave or pulley 13 around which passes the cable 14 by means of which the movements of the loader are controlled.

In Fig. 1 the loader is represented in full lines in the position it occupies when receiving a charge of material, it resting firmly upon the ground. When it is desired to discharge the contents of the loader into the drum, draft is applied to the cable and the loader lifted into the position indicated in dotted lines in Fig. 1, when the materials will freely pass through the feed opening into the mixing drum. In order to arrest the loader in the proper position for discharging I provide the upper end of the framework with a pair of stops 15 supported by the frame pieces 16 and arranged to lie one on either side of and adjacent to the head sheaves or pulleys 17. With these stop bars there engage blocks or contact pieces 18 mounted upon the cross bar 12 of the bail of the loader. These parts are shown in engagement in Fig. 2, the loader being then elevated into discharging position.

The front end wall 19 of the mixing drum is provided with an outward extending flange 20 flaring toward the interior of the drum and surrounding the feed opening 7. A guard plate 21 is interposed between the mixing drum and the loader, being secured

to the uprights 10 of the frame with its lower edge preferably a little below a horizontal line bisecting the feed opening 7. A section of the lower portion of this guard plate is removed, forming a recess 22 which is located opposite to the feed opening, and along the upper edge of this recess and carried by the guard plate is a section 24 of a stationary flange which extends into the feed opening and lies close to the revolving flange 20 carried by the drum. The stationary flange, is completed by a lower segmental section 25 secured to the plate 21 and shaped to close the recess 22 on its lower side. It constitutes a short chute 31 into which the loader discharges when lifted into dumping position. The flange 20 of the drum is provided with a lip 26 which flares outward and constitutes a drip ring at the feed end of the drum. A shield or apron 27 supported by the framework is arranged with its curved upper edge below the lower segment of the lip 26, being located in the exterior angle or groove between the said lip and the flange which carries it, so that any overflow from the drum at its feed end, or any drip from the lip 26, is caught by the said shield or apron and carried thereby away from the drum, thus preventing concrete from running down the end and accumulating upon the track 28, with which engage the drum-supporting wheels 5 at the front end of the machine.

There are secured to the front face of the plate 21 a pair of flanges 29, arranged upon either side of the opening 22 and flaring in an upward direction. The spout section of the loader fits between these flanges when turned up into the discharging position, as indicated in dotted lines in Fig. 1, and they operate to prevent the spilling or waste of material when the loader is being emptied into the drum.

The water supply pipe 30 extends under the loader and discharges into the drum below the stationary feed chute 31. There are several advantages incident to this arrangement which are fully set forth in my aforesaid application, No. 500,349.

32 designates a cross piece preferably extending between the frame pieces 10 and serving as a support or rest for a connection or coupling 33 which is interposed between the end of the water pipe 30 and the discharge nozzle 34, which is secured to or formed integral with the lower section 25 of the stationary flange. The connecting piece 33 is secured to this lower section of the stationary flange, or, preferably, to both it and the cross piece 32, so that the guard plate 21, the stationary flange carried thereby, and the water connection 33, are all fastened together, and may be assembled in the shop in complete form ready for application to a machine. By making the parts of the form and construction illustrated in Figs. 6 and 7, the parts assembled as just described can be easily applied to the drum or removed therefrom without taking them apart.

A flange 36 surrounds the discharge opening 8 of the drum and constitutes a drip ring which may be either integral with the end wall or separate and secured thereto. A stationary shield 37 attached to the framework near the rear end of the drum is arranged to catch and conduct away from the drum any drip or overflow which may take place at this end of the machine. A discharge chute 38 is arranged to extend through the axial opening 8 in the end wall of the drum, being preferably mounted so as to lie partly within and partly without the drum, and is made adjustable, so that when occupying one position—that represented in full lines in Fig. 4—it serves to catch and deliver out of the drum the material which has been acted upon and mixed, and which is by the revolution of the drum elevated and delivered into the chute. When adjusted to another position—that represented in dotted lines, Fig. 4, the material elevated and delivered to the chute is conducted by the latter back toward the center of the drum, instead of being carried out of the machine, the inclination of the chute then being inward, that is to say, its lower end is the one within the drum, whereas when adjusted to discharge, its lower end is the one outside.

39, 39 represent stationary upright frame pieces supported adjacent to the rear end of the drum. To these are attached bracket pieces 40 from which is supported a plate 41 that is set into the discharge opening 8 of the drum and operates to close the lower segment thereof. The plate is preferably shaped to leave unclosed the upper part of the opening 8 and to permit the passage through it of the discharge chute 38. This chute preferably has one of its side walls—the one next the material-lifting side of the drum, cut away at its inner end as indicated at 42, Fig. 4, for the purpose of permitting the more ready delivery to the chute of the material being treated within the drum. The wall opposite this cut away section is however of full size and dimensions to retain and guide the material. The chute is preferably hinged directly to the closing plate 41 which is provided with lugs 43, registering with lugs 44 carried by the chute, and through which lugs pass the pivot pins 45. The mechanism for adjusting the discharge chute consists preferably of a shaft 46 mounted in brackets carried by the upright pieces 39 and provided with a handle 47 or equivalent means for operating it, and with cranks 48 which are connected by links 49 with the chute. A pin or pins 50 located

in the frame pieces 39, 39 serve as stops for arresting the movements of the discharge chute in its two positions of use. These pins are so located that when the chute is turned into the discharging position the cranks 48 come into engagement with the pins and are arrested thereby, holding the parts in proper position for discharging. When the chute is adjusted to the dotted line position of Fig. 4—that for turning the material back toward the center of the drum for further mixing,—the pins engage with the upper edges of the side walls of the chute and thus arrest and hold it.

In order to prevent the material being operated upon from escaping through the segment of the discharge opening above the chute, the portion left open by the closing plate 41, I employ a splash curtain 51 formed preferably of metal and hung upon the shaft 46 with its end extending downward into the chute 38. It will be seen by reference to the drawings, that material which may escape through the upper part of the discharge opening 8 will be caught by the apron or curtain 51 and by it directed downward into the chute whether the latter be adjusted to one or the other of its two operative positions.

I do not in this case claim the loading mechanism and the stop for arresting it in discharging position which are herein illustrated, because I have made these features the subject-matter of a separate application filed November 12, 1912, and bearing Serial No. 735,958, such application being a division of this case. Nor do I herein claim the stationary guard plate located adjacent to the feed end of the drum provided with a flange surrounding the opening therethrough and entering the opening in the drum, and inclined inwardly and downwardly toward the interior of the drum, thus forming with the feed opening into the drum a close running joint; nor the combination with such guard plate of a short downwardly and inwardly inclined chute carried by the plate and located in the lower segment of the opening therethrough, and serving as a rest for the edge of a tilting loader for the drum; nor the combination with the drum of the stationary guard plate carrying a chute that enters the drum, a movable loader arranged to charge the drum and adapted to have its edge rest upon the said chute, and a feed water pipe arranged to deliver into the drum below the chute, the chute extending inwardly beyond the end of the water pipe; as such features are made the subjects-matter of and are claimed in my co-pending application No. 500,349, filed June 5, 1909.

What I claim is:

1. In combination with a revolving drum having an axial feed opening at one end, a stationary guard plate substantially vertically disposed and located close to the feed end of the drum, a section of the plate opposite the feed opening and extending from its lower edge upwardly being removed, and a short segmental chute secured to the plate and closing the opening in the guard plate produced by removing the aforesaid section thereof, the chute extending into the drum.

2. In combination with a revolving drum having a feed opening, a stationary plate located close to the feed end of the drum and with its lower edge opposite the feed opening, a section of the lower part of the plate being removed to constitute a recess opposite the feed opening, a flange carried by the plate surrounding the upper edge of the said recess, a segmental flange section secured to the plate and arranged to close the said recess on its lower side, the said segmental flange section carrying a short chute for directing material into the drum, and being provided also with a water nozzle below the said chute, adapted to receive a water pipe connection.

3. In combination with a revolving drum having a feed opening at one end, of a stationary guard plate substantially vertically disposed and located close to the feed end of the drum, the plate having an opening through it registering with the feed opening into the drum, and a pair of flanges on the outer face of the plate arranged at the opposite sides of the opening therein and extending upward from said opening and arranged to receive between them and fit the spout end of a loader when it is moved into discharging position.

4. The combination with a mixing drum, having an axial opening in its end wall, of an adjustable chute extending through the said opening arranged when occupying one position to receive material lifted by the drum and deliver it out of the machine and when adjusted to another position to receive material lifted by the drum and convey it back toward the central portion thereof, and a splash curtain setting opposite the said opening into the drum and pivotally supported above the chute into which its lower edge extends and arranged to intercept material which may be thrown out of the drum and direct it into the discharge chute to whichever position the latter may be adjusted.

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Witnesses:
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