

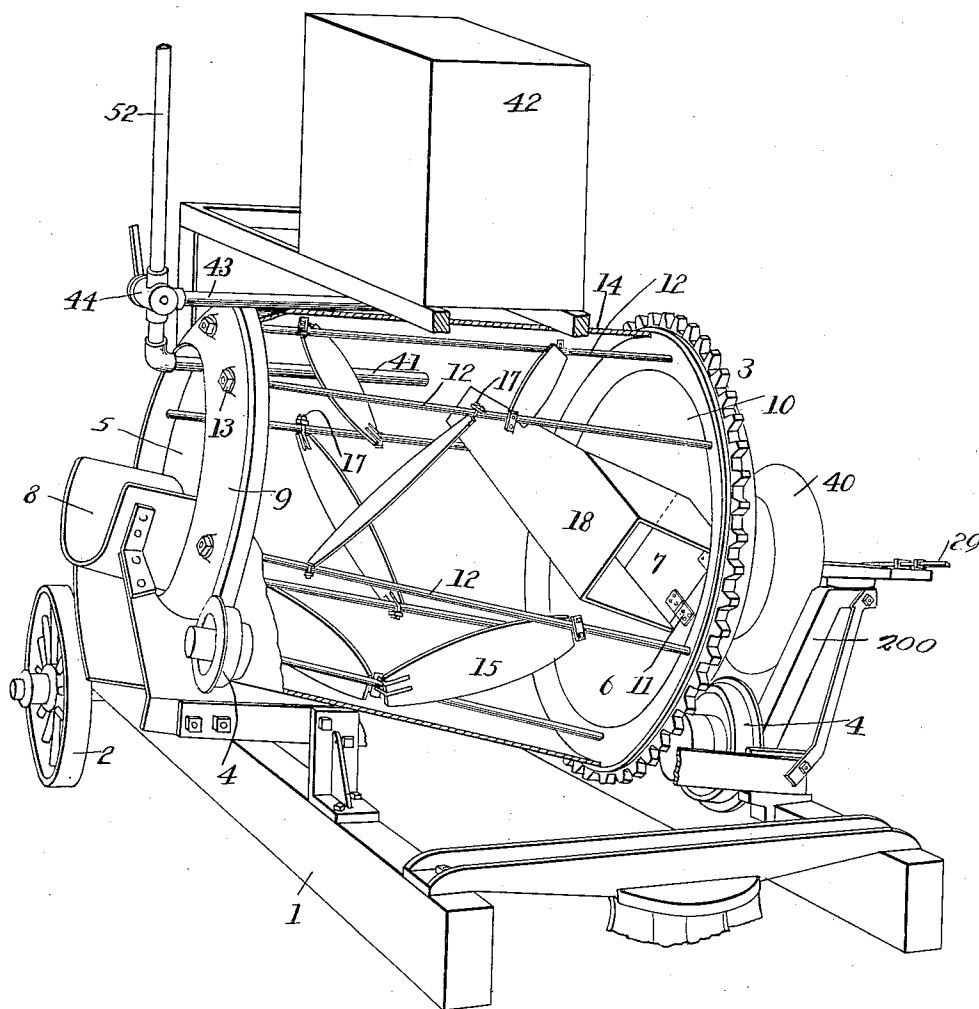
K. ROSHOLT.
MIXING MACHINE.
APPLICATION FILED NOV. 8, 1912.

1,065,275.

Patented June 17, 1913.

3 SHEETS—SHEET 1.

Fig. 1



WITNESSES

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3 SHEETS-SHEET 2.

Fig. 2

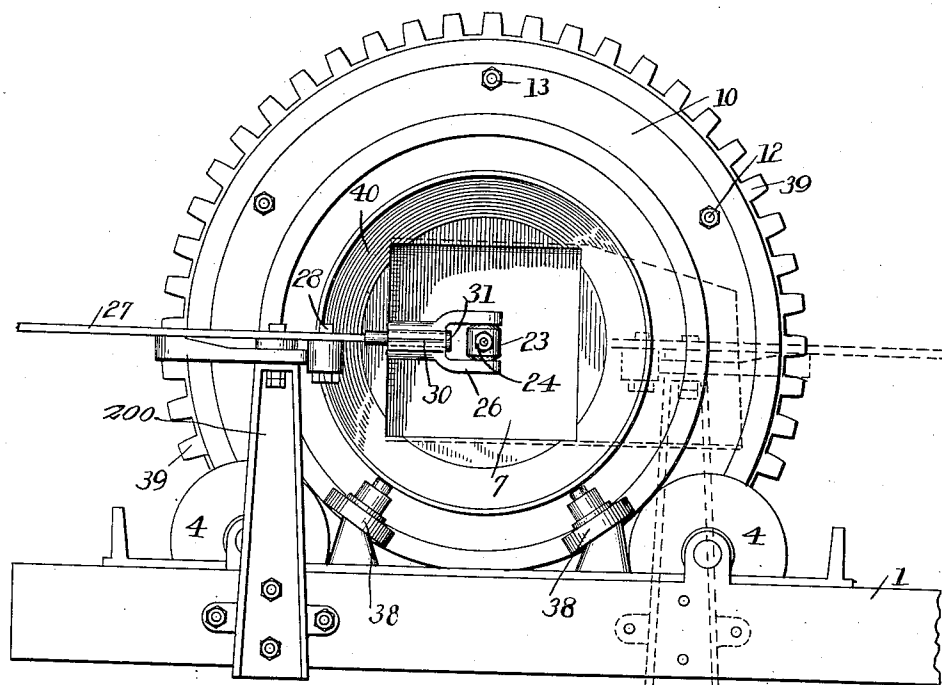
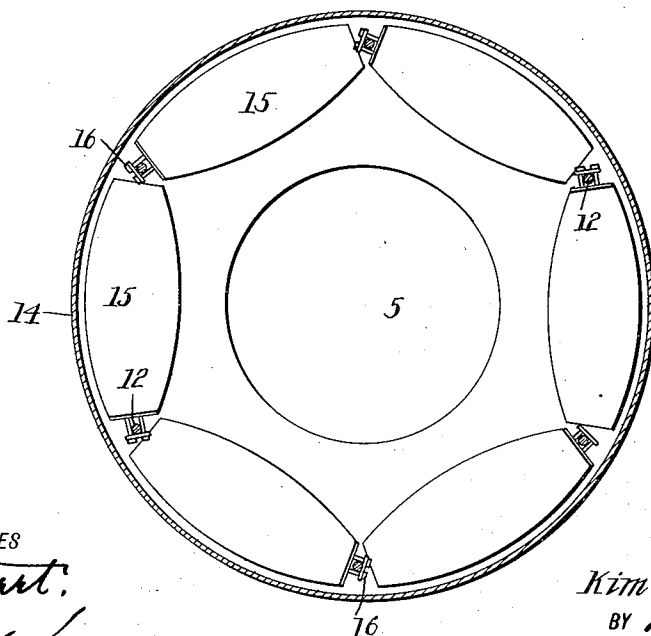


Fig. 3



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3 SHEETS—SHEET 3.

Fig. 4

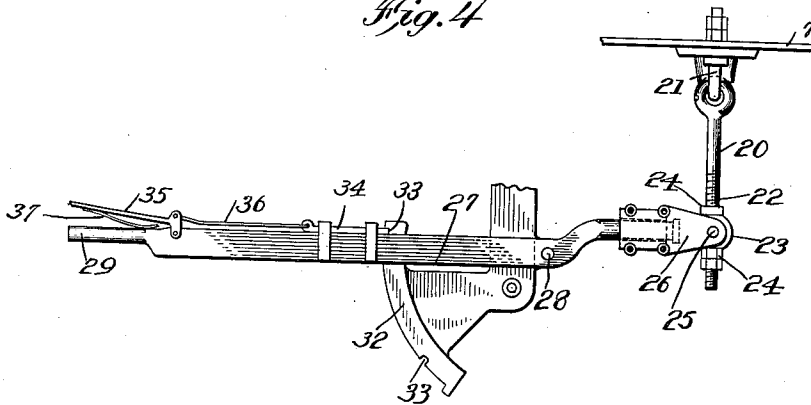
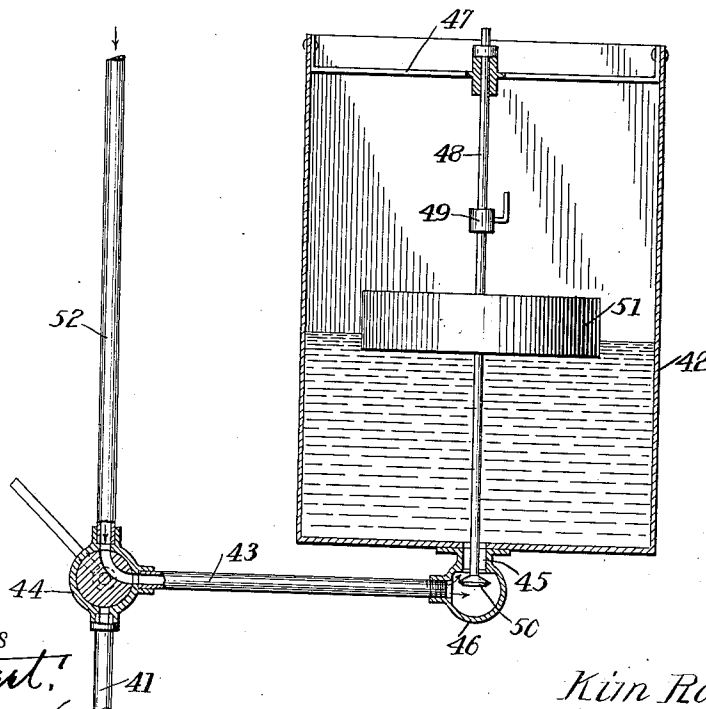


Fig. 5



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UNITED STATES PATENT OFFICE.

KIM ROSHOLT, OF EAU CLAIRE, WISCONSIN, ASSIGNOR TO NORTHWESTERN STEEL & IRON WORKS, OF EAU CLAIRE, WISCONSIN.

MIXING-MACHINE.

1,065,275.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, KIM ROSHOLT, a citizen of the United States, and a resident of Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented a new and Improved Mixing-Machine, of which the following is a full, clear, and exact description.

The subject matter of this application relates generally to concrete mixing machines, and more particularly is directed to a new and improved structure characterized by improved means for discharging the mixture from the machine. The construction specifically shown is also provided with an improved means for furnishing the requisite amount of water or other liquid to the material within the machine. The particular form of the mixer also embodies new and improved means of mounting the paddles which perform the mixing operation; the mixer as a whole being characterized by a co-relation of parts which are easily separable in order that some elements more liable to wear than others may be speedily and easily replaced.

Many advantages following the use of the mixer herein described and claimed will appear as the detailed description of the preferred embodiment proceeds, the spirit of the invention exemplified in such preferred embodiment being included within the scope of the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a perspective view, partly sectional, of the mixer; Fig. 2 is a view of the discharge end; Fig. 3 is a vertical sectional view of the mixer, showing the blades or paddles; Fig. 4 is a side view of the door operating mechanism; while Fig. 5 is a vertical sectional view of the means for controlling the desired amount of water necessary for each batch.

Generally speaking, the outfit comprises a base 1 of any desirable and suitable construction, preferably mounted on wheels 2 in order to facilitate transportation, the mixer 3 being mounted on the base and in revoluble relation by means of suitable rollers 4 for engagement with the ends of the mixer, one end thereof being provided with

an opening 5 and termed the feeding end, the other end 6 being entirely closed by means of a door 7 when the machine is operating and not discharging, material being fed to the mixer through a suitable chute 8 mounted on the base 1 and closely adjacent the open feeding end. The mixer itself comprises end pieces 9—10, preferably circular in outline, the end piece 9 being substantially annular due to the provision of the said opening 5, the other end piece 10 being provided with a substantially rectangular opening adapted to be closed by means of the door 7 before-mentioned, which is preferably mounted in position on hinges 11. The diameter of the end piece 9 is substantially less than that of the end 10, and extending between the end pieces, and in engagement with each of them, are a number of rods 12, being secured in position to the said pieces by means of nuts 13, the assembled construction being substantially frusto-conical. Inclosing the said rods 12, and held in engagement with the end pieces 9—10 is a shell 14 preferably made of sheet metal, tightening of the said bolt 13 drawing the ends 9—10 together and securely holding the said shell in position. Of course, it is clear that the sizes of all the parts mentioned may be widely varied in order to provide a mixer capable of taking care of batches of varying amounts. The particular form described is of advantage in operation in that the materials to be mixed are fed into the smaller end and discharged through the larger; the transfer of the materials within the mixer is thus facilitated, even without the use of the paddles to be presently described. Secured to the said rods 12, and located within the mixer and remote from the inside of the covering 14, (as shown particularly in Fig. 3), are a number of paddles or blades 15, each of which is provided with end portions in the nature of straps 16 which pass around the said rods 12, any suitable form of device, such as nuts or screws 17, engaging the straps in order to hold the paddles or blades fixed in position. Referring particularly to Fig. 1, it will be obvious that these paddles or blades are independently movable along the said rods; the particular shape of the paddles may, of course, vary, the preferred embodiment, however, having these paddles or blades remote from the inside of the covering 14, whereby pockets are avoided, with

consequent disadvantage in the collection of concrete or cement within such pockets, which not only reduces the capacity of the mixer, but, after hardening, require considerable time and effort to be removed.

Each of the paddles or blades 15 may be moved into different positions relatively to the other paddles or blades and independently thereof, such construction providing for elasticity and ready removal of the parts.

Referring now particularly to Figs. 1 and 2, it will be noted that within the mixer 3, and secured in position in any desirable manner, is a trough 18 having open ends, the trough revolving with the mixer, and when the door 7 is closed the material being mixed freely passing through the trough as said turning progresses. It will be remembered that the end piece 10 is provided with an opening which is normally closed by the door 7 during mixing; as shown particularly in Fig. 2, it will be noted that this door lies substantially at the central portion of the end piece 10, the center of the door corresponding substantially with the longitudinal central axis of the mixer.

In order to open and close the door when so desired, suitable means are provided, shown particularly in Figs. 2 and 4. Fixed to the door 7 is an eye-bar 20, movable relatively thereto by means of a hook or staple or equivalent element 21, the outer end of the bar being threaded as at 22, the threaded end receiving a bearing 23 adjustable on the bar by means of the lock nuts 24, the said door and bar turning relatively to the bearing 23 as the machine operates. Extending in opposite directions from the said bearing 23, and at right angles to the said bar 20, are pins 25 with which the forked end 26 of a lever 27 engages, the said lever being pivotally mounted at 28 on a support 200, so that movement of the handled end 29 will open and close the said door 7 as the machine operates. The forked end of this lever is preferably made in two parts, one of which is provided with a recess 30 into which the cylindrical end 31 of the other part engages, so that relative movement is permitted, if such movement should be necessary. The structure as a whole, that is, the bar, the bearing, the pins and the forked end of the lever, form a universal coupling.

In order to maintain the door in either opened or closed position an arcuate element 32 is provided adjacent the said lever 26, being mounted on the said support 200, and provided with suitable notches 33 into which a pawl 34, slidably mounted upon the lever, is adapted to engage, the pawl being operated by means of a handle 35 and a link 36, the engagement of the pawl in either notch being maintained through the medium of a leaf spring 37 secured to the

handle 35 and bearing against the said lever. The door is kept closed, save when discharging, and such construction permits of greater amounts of material being entered into the mixer, thereby providing for larger batches, which means that the output of the machine is materially increased.

The mixer is positioned angularly with respect to the base 1, and in order to take care of the end thrust rollers 38 are provided on the base, bearing against the discharge end piece 10 of the mixer, as shown particularly in Fig. 2; since the mixer is to be driven by any suitable motive power the end member 10 is provided with teeth 39 whereby a chain or belt communicating with the source of power may perform the rotating motion.

In order to provide a convenient outlet whereby the material discharged from the mixer may be conveniently led to a barrow or other receptacle the discharge end is preferably provided with a substantially circular element 40 secured thereto and turning therewith, which performs the function of a chute.

Each batch of concrete mixed requires definite amounts of aggregate and matrix, as well as a stated amount of liquid. The aggregate and the matrix may be conveniently measured out and entered into the mixer through the open end 5, the proper amount of liquid for each batch being fed to the interior of the mixer through a pipe 41 entering therein, the said pipe communicating with a tank 42 through a pipe 43 and a valve 44, the particular construction of the parts being shown especially in Fig. 5.

The bottom of the tank 42 is provided with an opening 45 which communicates with the said pipe 43 through a housing 46; within the tank 42 and slidably mounted in position in any suitable form of support 47, is a rod 48 having an adjustable stop 49 thereon, the lower end of the rod carrying a valve 50 adapted to close the said opening 45 and shut off the supply of water between the pipe and the tank. Within the tank and slidably along the said rod 48 is a float 51, rising and falling with the water, and when the water has reached a predetermined height engaging with the stop 49 on the rod 48 whereby the valve 50 closes. The particular use of the float 51 is to determine the amount of water which will enter into the tank 42; this is brought about through the medium of the pipe 43 and a pipe 52 communicating with the source of supply and adapted to be placed in communication with the pipe 43 by means of the said valve 44, which valve is, generally speaking, a 3-way structure. As shown particularly in Fig. 5, water will pass through the pipes 52 and 43 into the tank 42 until the valve 51 engages with the stop 49; after this en-

gagement has been brought about the valve 50 will close and the tank may then be placed in communication with the pipe 41 in order to discharge the water or liquid therein into the mixer 3 by turning the valve 44 through 90°, or in order to bring about communication between the pipes 41 and 43. The use of the tank and the mechanism cooperating therewith is particularly essential in connection with rapid work, since for each batch of concrete mixed the volume of water necessary is provided, which volume, together with the measured amount of aggregate and matrix, provide concrete of the proper consistency.

After the water and the other constituents of the concrete have been entered into the mixer as described, the mixing is brought about by turning of the mixer, a certain amount of the concrete passing into and through the said chute 18 during each revolution; it will be remembered that the ends of this chute are open so that free passage is provided for the concrete. When it is desired to take out the mixture the door 7 may be opened varying amounts, the door in various positions closing the opening different amounts, thereby providing for discharge of various amounts of concrete into the barrow or other receptacle.

It is clear that turning of the mixer may be continued indefinitely, the constituents of the concrete being entered therein as desired, and that after being entered varying numbers of revolutions of the mixer may be made without in any way impairing the operation of the machine, such continued turning being, perhaps, in some cases, advisable in order to obtain thorough mixing.

The particular shape of the mixer urges the materials toward the discharge end and thoroughly commingles them during such movement; finally, due to the provision of the door, which controls the amount discharged, the machine is adapted to handling larger quantities in a given time than other machines of equivalent size.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A substantially cylindrical mixer comprising end pieces, a shell engaging the pieces, longitudinally extending members engaging the pieces for holding the parts together, and a number of independently movable paddles carried by the said members, the ends of the paddles being connected to different members.

2. A substantially cylindrical mixer comprising ends, a shell, members engaging the ends for holding the parts secured together, and a plurality of independent paddles car-

ried by the said members the ends of each paddle being secured to different members, the paddles being provided with means whereby they may be secured in various positions on the said members.

3. A mixing machine, comprising a rotary drum provided with an open end, a transversely-extending trough fixed in position within the drum and turning therewith, the ends of the trough being open and both ends opening within the mixer, the trough communicating with the opening in the said end, receiving the mixture contained in the drum as the machine operates and serving to conduct the same to said opening.

4. A mixing machine, comprising a rotary drum provided with an end piece having a discharge opening, a trough fixed within the drum and turning therewith, the said trough having its ends opening within the drum, the trough being arranged transversely of the axis of the drum and having an opening in its side communicating with the discharge opening in the end piece, and a movable member for closing said discharge opening and the opening in the side of the trough to retain the material being mixed within the drum and cause the same to pass freely through the trough as the drum is turned, the said member being adapted to be brought to different positions in order to permit varying amounts of the mixture to pass from the trough through the said discharge opening.

5. A concrete mixer, comprising a rotary drum provided with an end piece having a rectangular discharge opening, a door for closing the opening, a trough fixed in position within the drum, the ends of the trough being open, the said trough communicating between its ends with the said opening in the end of the drum, and means connected with the door, whereby as the machine operates the door may be moved various distances, whereby various amounts of mixture may be permitted to leave the drum.

6. A mixer comprising end pieces, a shell engaging the end pieces, members connecting the said end pieces, means connected with the said members for drawing the end pieces together to hold the shell securely in position, and a number of independently movable paddles carried by the members, the ends of the paddles being connected to different members.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

KIM ROSHOLT.

Witnesses:

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