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F. D. ROBBINS

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CONCRETE MIXER

Filed July 5, 1928

Fig. 3

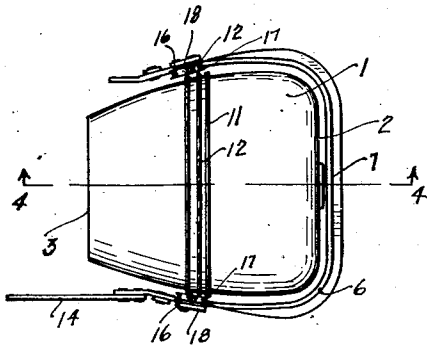


Fig. 5

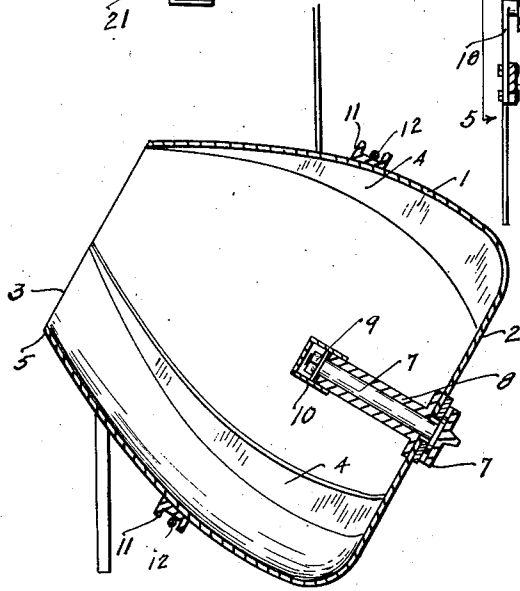
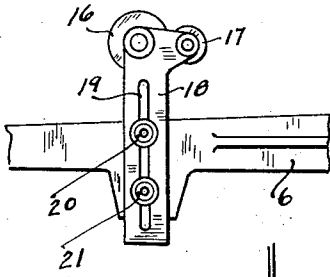


Fig. 4

Fig. 1

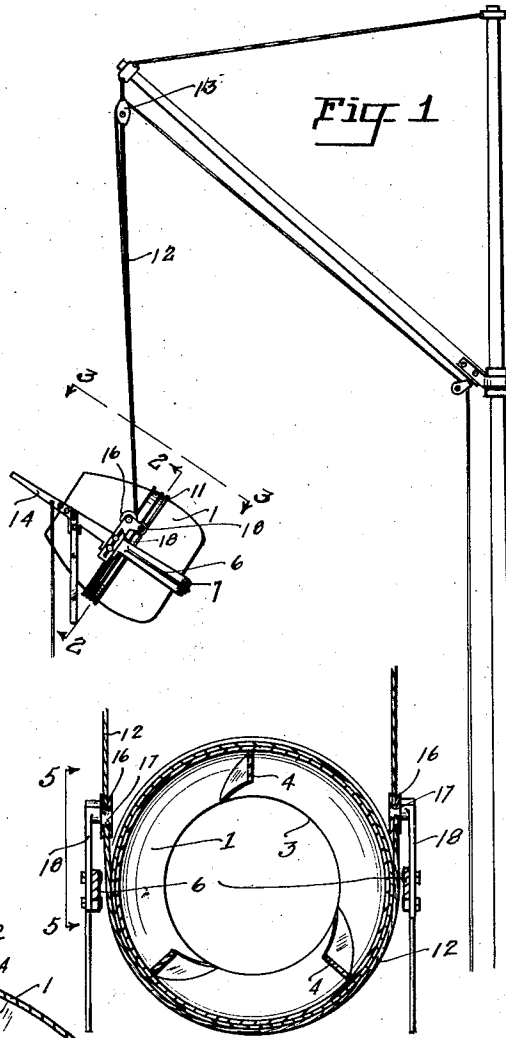


Fig. 2

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CONCRETE MIXER

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My invention relates to cement mixers of the batch type and has for its primary object the mixing of the batch while in transit from the delivery of the aggregates within the mixer to the point of discharge of the materials. The mixer and the batch are raised and revolved from the time the aggregates are delivered into the mixer until the point of discharge is reached.

A further object of my invention resides in a mixer that can be revolved and the aggregates disposed therein be mixed until the final discharge point is reached. This delivers a much more thoroughly mixed aggregate and at the same time is an economy in time as well.

Heretofore the mixer has been a stationary plant and the mixed aggregates have been discharged from the mixer into a hoist or car or barrow and the mixed aggregates carried therein to the point of application and use. In the carrying of the aggregate in this manner the aggregates have a tendency to set and separate, the heavier particles of the aggregate settling to the bottom. Where the point of use of the aggregate is a substantial distance from the central mixing plant this gives unsatisfactory results. In my new and improved mixer, means is provided for the raising and lowering or transporting of the mixer from the starting point to the point of use of the mixed aggregate, and to revolve the mixer while in transit thereby delivering a completely mixed aggregate to the precise point of use.

I accomplish this result by providing a mixing chamber that normally rests with the open end being inclined upward to prevent the spilling of the aggregate during mixing and further providing simple and efficient means for the raising and lowering of the mixer and the revolving of the same during transit. This may be accomplished by the passing of the hoisting line in a fixed path about the mixer, and providing adjusting arms that predetermine the tilt of the mixer. This is essential because batches of different quantities weigh different amounts.

With these and incidental objects in view, the invention consists in certain novel fea-

tures of construction and combination of parts, the essential elements of which are set forth in the appended claim, and a preferred form of embodiment of which is hereinafter shown with reference to the drawings which accompany and form a part of this specification.

In the drawings:

Fig. 1 is a side elevation of one of my new and improved mixers being raised by a line passing over suitable blocks supported by a boom or other outrigger mechanism.

Fig. 2 is a cross section view, taken on line 2—2 of Fig. 1, looking in the direction indicated.

Fig. 3 is a top, plan view of the mechanism illustrated in Fig. 1, the same being taken on line 3—3 of Fig. 1, looking in the direction indicated.

Fig. 4 is a cross section view, taken on line 4—4 of Fig. 3, looking in the direction indicated.

Fig. 5 is a fragmentary, side elevation, taken on line 5—5 of Fig. 2, looking in the direction indicated. The object and purpose of this view is to illustrate adjusting mechanisms for predetermining the normal angle at which the mixer will be inclined during the hoisting and mixing operation.

Like reference characters refer to like parts throughout the several views.

My new and improved mixer is primarily intended as a mixer for mixing concrete aggregates during the hoisting and delivery operations. It has been my experience as a building superintendent, that concrete aggregates once mixed, set rapidly and that if the mixed aggregates are to be transported any substantial distance that the aggregates have a tendency not only to set but to separate with the heavier aggregates falling to the bottom of the mass. A much more uniform construction results where the mixing continues to the final point of discharge. This is especially true in buildings, dams and other masses of concrete where substantial distances are to be encountered in the transportation of the mixed mass.

In my new and improved mixer, the unmixed aggregates are delivered into the mix-

ing chamber and the mixing occurs during the hoisting or transporting of the mixer to the point of discharge.

I accomplish these results through a mixer comprising a shell 1, preferably made having an enlarged base 2, and a restricted opening 3, through which the aggregates are to be admitted and from which the same are to be delivered from the mixer. A plurality of inwardly extending fins or ribs 4, are disposed within the mixer, preferably extending from the outward rim 5, of the mixing chamber to substantially the base or bottom 2, and increasing in depth from the rim to the base. A structural yoke 6, extends across the base and therearound and extending substantially to the center of the mixing chamber 1. A king bolt 7, is secured to the yoke and extends inwardly through the center of the base 2, that acts as a journal pin and support for the shell 1. A suitable bearing 8, is disposed within the central portion of the shell and a locking nut 9 maintains the shell about the king bolt 7. A suitable cap 10 prevents the concrete aggregates entering within and around the bearing. A raceway or track 11 runs circumferentially of the shell 1, about which the hoisting line 12 passes and which are made to engage within the track or raceway.

I have found best results obtain wherein the hoisting line makes one complete turn about the drum. One end of the line 12 is secured to the support 13, as a sheave block, the line then passes about the shell and over the block 13, down to the hoisting mechanism, not here shown, as the same may be made of any suitable unit adapted for the hoisting of a device of this kind. An arm 14 is secured to the yoke 6, and to which a trip line 15 is secured. The aggregates are delivered into the mixing chamber at the point of delivery of the aggregates and the mixer is then raised through the manipulation of the hoisting line and in doing so the mixing chamber is revolved. The revolving continuing until the point of delivery of the aggregate is reached. Where the mixer is being used, as in the erection of a building, it may be necessary to raise or lower the mixer one or more times in the initial or lower stories of the building, but as the building increases in height sufficient time and mixing will elapse to permit of a completely mixed aggregate when the point of delivery is reached. To maintain the mixer in a state of substantial equilibrium, the hoisting line passes between guide wheels 16 and 17, disposed upon the adjustable arm 18. The arm 18 has a slot 19, disposed therein which coacts with guide bolts 20 and 21, that are adapted for maintaining the arm fixed relative to the yoke 6. The distance that the guide wheels are disposed from the yoke pre-determines the tilt of the mixer.

While the form of mechanism herein shown, and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment herein shown and described as it is susceptible of embodiment in various forms, all coming within the scope of the claim which follows.

What I claim is—

In a concrete mixer, in combination with a mixing shell, a yoke encompassing the shell, a journal pin centrally disposed on the base of the yoke, said journal pin centrally disposed within the base of the shell about which the shell is adapted for rotation, a pair of supports, each having a slot being adjustably positioned relative to the arms of the yoke substantially near their ends, a pair of guide rollers journaled on the top of each support, a furcated U-shaped band centrally disposed about the outer circumference of the shell and directly aligned with the guide rollers and a hoisting line passing once around the shell within the furcated U-shaped band and between the two sets of guide rollers, substantially as shown and described and for the purposes set forth.

FRANK D. ROBBINS.