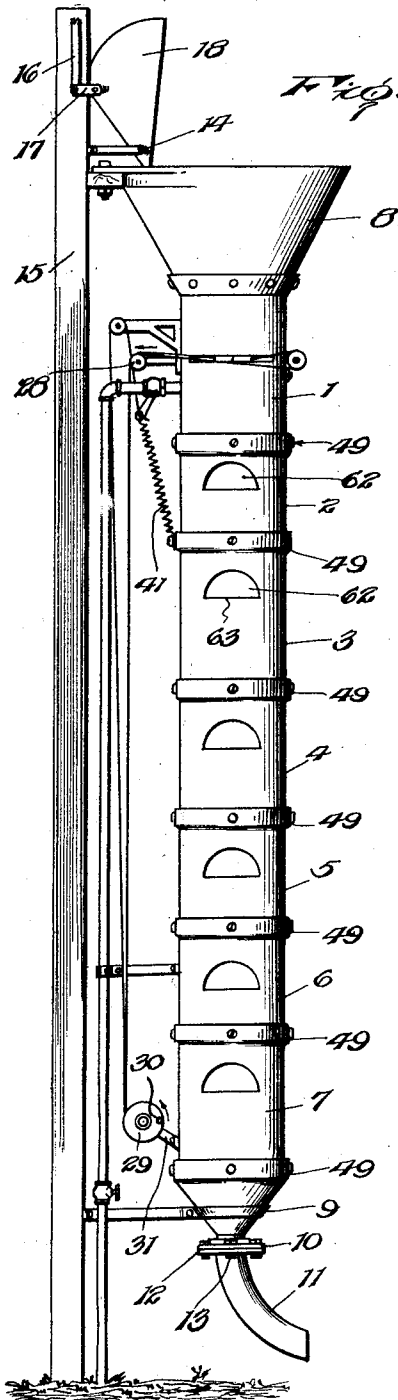
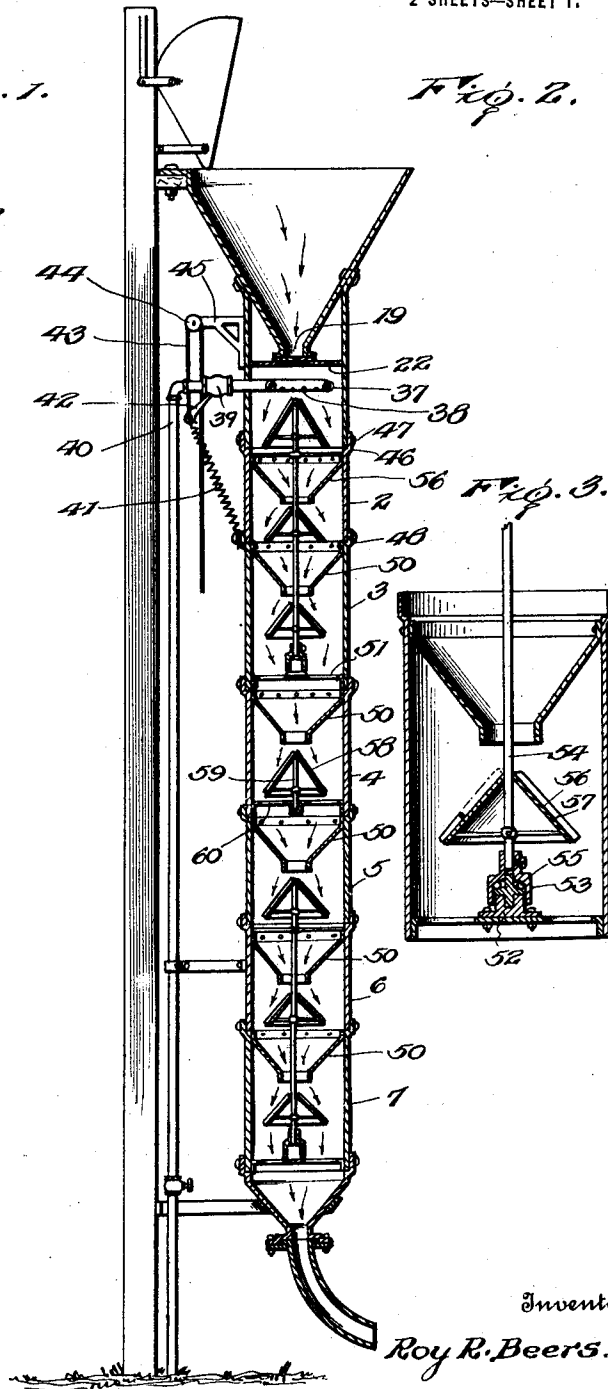


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CONCRETE MIXER.  
APPLICATION FILED MAY 15, 1920.

1,405,707.

Patented Feb. 7, 1922.

2 SHEETS—SHEET 1.



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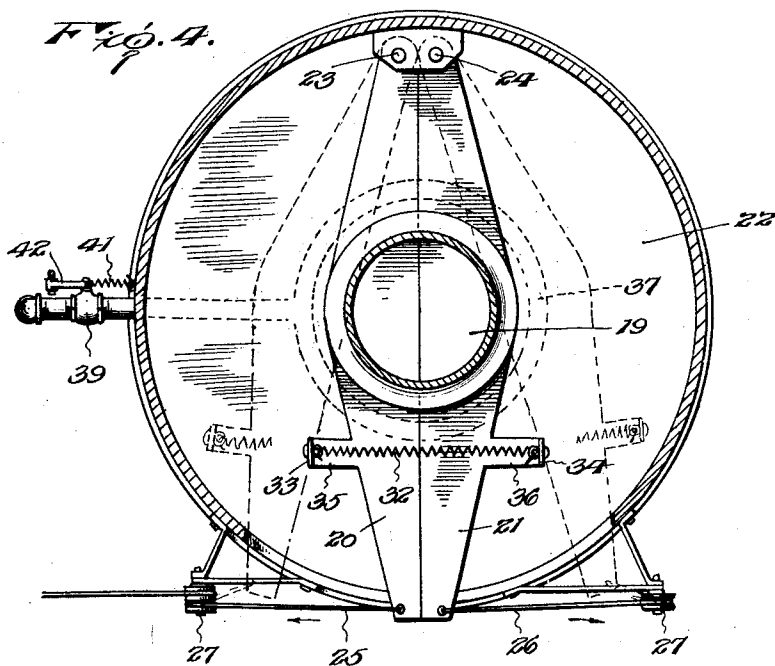
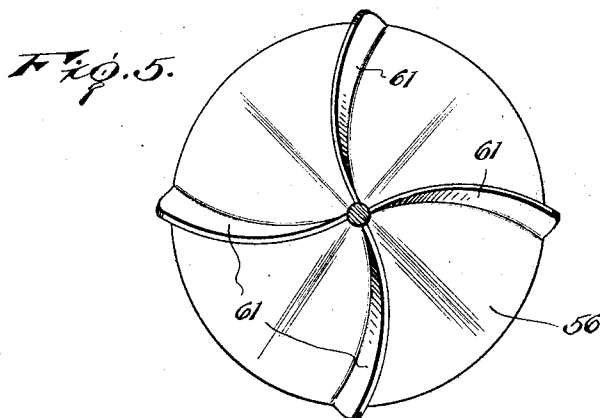
Attorney

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2 SHEETS—SHEET 2.



Inventor

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# UNITED STATES PATENT OFFICE.

ROY R. BEERS, OF ALVA, OKLAHOMA.

## CONCRETE MIXER.

1,405,707.

Specification of Letters Patent.

Patented Feb. 7, 1922.

Application filed May 15, 1920. Serial No. 381,770.

*To all whom it may concern:*

Be it known that I, ROY R. BEERS, a citizen of the United States, residing at Alva, in the county of Woods and State of Oklahoma, have invented certain new and useful Improvements in Concrete Mixers, of which the following is a specification.

This invention relates to a concrete mixer of that type which is adapted to receive the ingredients to be mixed at top and discharge the mixed ingredients at the bottom.

The invention has as one of its objects, the provision of a vertical concrete mixer having a series of baffle elements disposed in axial alignment and the said baffles serve to engage with and mix the material during its course through the mixer.

Another object of the invention resides in providing a gravity operated concrete mixer in which the weight of the material falling on one element of the mixer causes such material to be projected therefrom onto another mixing element.

A further feature of the invention consists in providing a series of gravity actuated rotating baffles in which the incoming material acts as a means for rotating the said baffles, said baffles being provided with vanes which, when engaged by the incoming material cause the rotation of the baffles.

Also, the invention resides in providing a vertical tubular body with a series of alternately arranged baffles of conical form and arranged in alternately inverted position with respect to each other, some of said baffles being movable and others fixed whereby the material in its downward course through the vertical tubular body is projected centrifugally from a moving conical surface to a fixed conical surface and feeds by gravity from a fixed conical surface onto a movable conical surface.

In the drawings:

Figure 1 is a side elevation of a concrete mixer constructed according to the present invention;

Fig. 2 is a vertical longitudinal section;

Fig. 3 is an enlarged detail view of one unit of the mixer;

Fig. 4 is a top plan view of the moisture controlling valve and feed control;

Fig. 5 is a top plan view of one of the conical mixing baffles or distributors.

In detail:

The invention, as herein shown, comprises

a series of vertically superposed tubular axially alined sections 1, 2, 3, 4, 5, 6 and 7 having, at the top, an inlet hopper 8 and at the bottom an outlet funnel 9 provided with a flange 10 to which a spout 11 similarly flanged as at 12 may be secured by bolts 13 as shown. Arranged above the hopper 8 and pivoted for swinging dumping movement as at 14 on a supporting structure 15 and operated by a handle member 16 having a toggle connection 17 is a feed bucket 18 which may be dumped as shown in Fig. 2 to discharge its contents into the hopper 8. The outlet 19 of the hopper 8 is closed by the valve members 20 and 21 consisting of flat pieces of metal riding on the seat member 22 and pivoted at 23 and 24 respectively. These valve members are actuated through the medium of cables 25 and 26 running over sheaves 27 and over sheaves 28 and finally connecting with a reel 29 having a handle 30 and mounted on a support 31 so that the said valve members may be opened and closed. They are normally retained in their closed position by the coil spring 32 connected with ears 33 and 34 on projections 35 and 36 respectively of the valve members 20 and 21. Beneath the outlet 19 and the valve members 20 and 21 and in axial alignment with the mouth or outlet of the hopper 8 is a shower ring 37 having outlet openings 38 and fed with water through a valve 39 connected with the supply pipe 40, said valve being actuated to the closed position by a spring 41 connected with the operating member 42 of the valve, which operating member is also connected with one end of the cable 43 running over a sheave 44 carried on a support 45 and said cable is connected with the reel 29 so that movement of the handle 30 operates both the valve and the shower or spray.

The top section fits into the flange 46 of the next adjacent section and is held by suitable means 47 such as screws or the like and the bottom of the section 2 fits into the flange 48 of the section 3 and is similarly held, these joints all being indicated in general by the reference numeral 49. Each of the sections 2, 3, 4, 5, 6 and 7 has positioned in the uppermost part thereof an inverted conical or funnel shaped receiving baffle 50, and at spaced intervals are located webs 51 which carry bearing seats 52 receiving the bearing cap members 53 carried by vertical

shafts 54 and sustained on the balls 55 whereby the end thrust on the shaft is compensated for.

There are two of these vertical shafts 54 and each carries cones 56 having distributing vanes 57. The two shafts 54 divide the concrete mixer into two superposed units. The result is that, due to the spacing of the distributing cones 56 in alternate relation with respect to the funnels or inverted receiving cones 50 the material, in its downward course through the concrete mixer, is first deflected from a revoluble distributing cone to a receiving surface and thence passes onto another receiving cone and so on through the first unit until it reaches a fixed cone 58 carried by a spindle 59 supported in the web 60. After passing the fixed cone 58 the material passes downwardly through the second unit over its baffles 50 and 56.

By reason of the shape of the vanes 61 on the cones 56 the material acts on said cones to cause them to rotate while at the same time centrifugally distributing the material and mixing the same by reason of such rotation.

The rotation of the cones 56 has the effect of centrifugally distributing and mixing the material by causing it to leave the lower edge of the cone in a relatively thin film of uniform thickness.

If desirable sight openings 62 may be provided in each section for the purpose of ob-

serving the action of the mixer. In the event that such openings are provided the lower edge 63 of each opening must be above the bottom edge of each of the distributing cones 56 so that material will not fly out through the said openings.

It is to be understood that these sight openings are not essential to the mixer but may be incorporated therein if so desired.

I claim:

A concrete mixer comprising a fixed vertical tubular casing, a hopper on the upper end of the casing to discharge therein, a series of inverted open-ended conical baffles secured rigidly at their upper ends to the wall of the casing, a shaft mounted for rotation in the casing and passing axially through said baffles, conical spreaders fixed on said shaft concentric therewith and alternating with the inverted open-ended baffles, vanes on the upper surface of each spreader defining an arc having radius of the spreader for its chord and spreader extending from the center of the spreader to the edge thereof whereby material falling on said spreader from a superposed baffle will effect rotation of the spreader, there being a free annular space between the lower edge of the spreader and the wall of the casing through which material will be centrifugally discharged.

In testimony whereof I affix my signature.

ROY R. BEERS. [L. s.]