

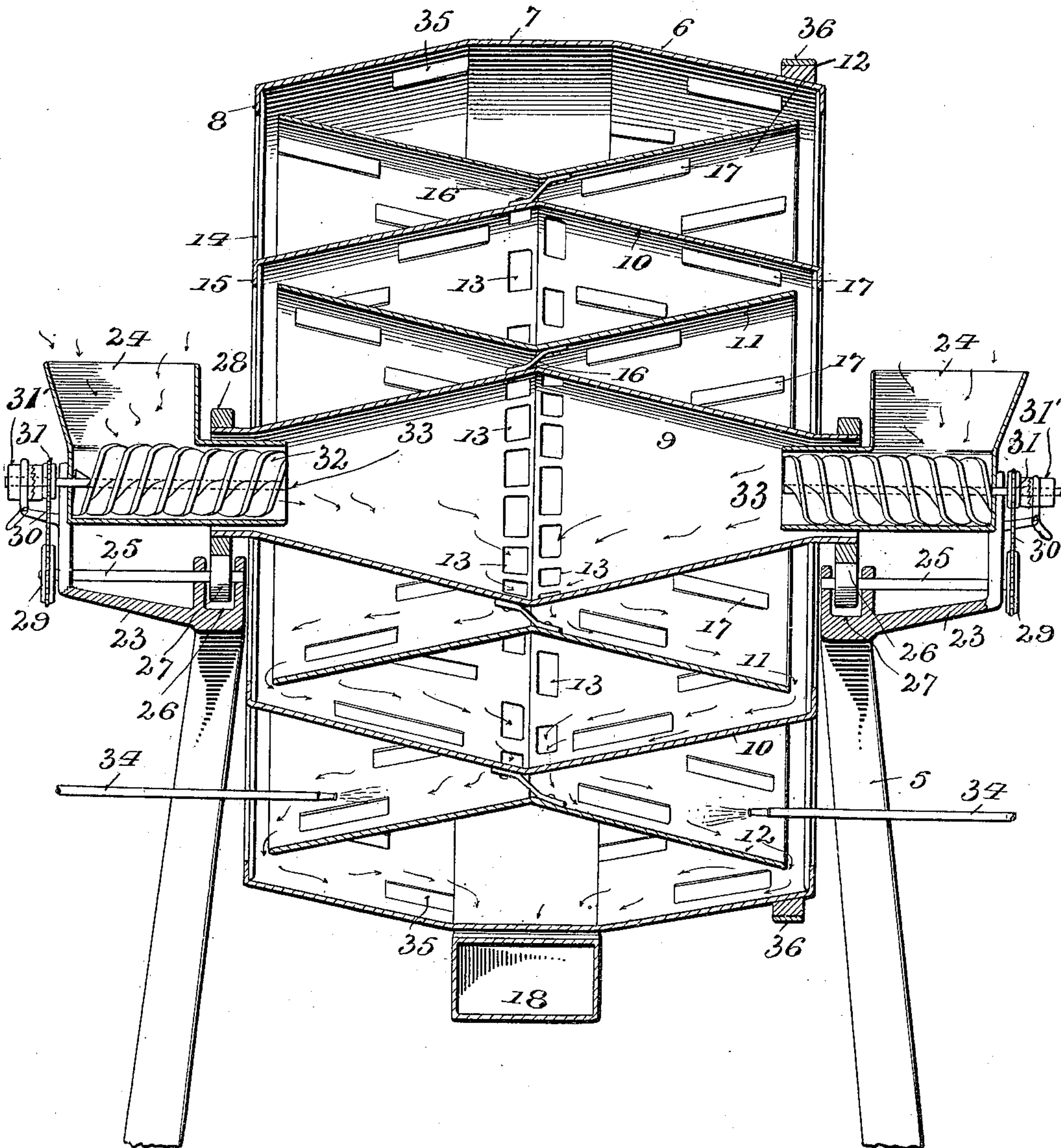
W. D. WISE.
CEMENT AND CONCRETE MIXER.
APPLICATION FILED MAY 12, 1909.

944,399.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Inventor

Witnesses
W. N. Woodson,
Juana M. Fallin.

W. D. Wise

By

A. A. Macy, Attorneys.

W. D. WISE.
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2 SHEETS—SHEET 2.

Fig. 2.

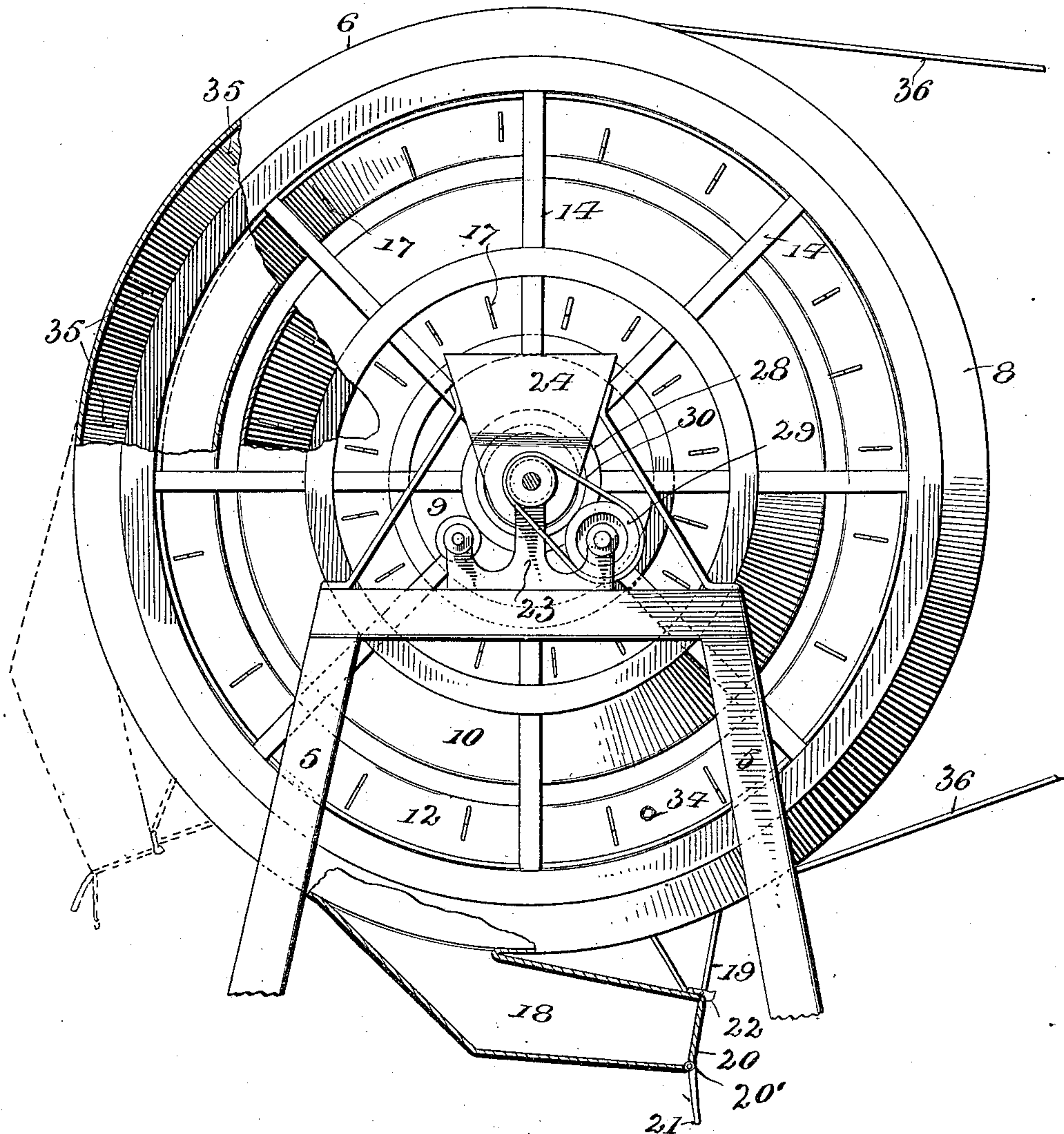
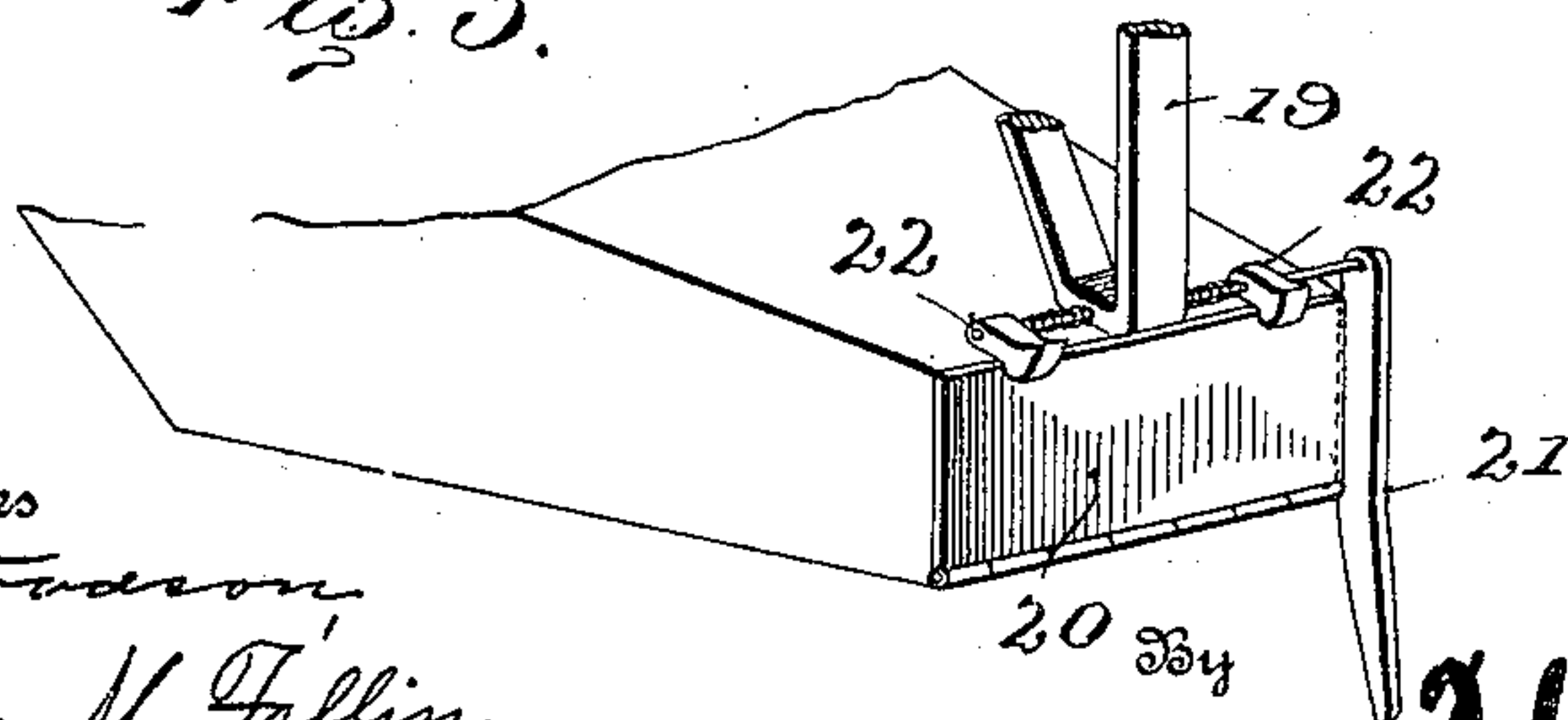


Fig. 3.



Inventor

W.D. Wise

Witnesses
W. H. Anderson
Juana M. Fallin

A. H. Macy, Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM D. WISE, OF DETROIT, MINNESOTA, ASSIGNOR OF ONE-HALF TO CHARLES R. STONE, OF FARGO, NORTH DAKOTA.

CEMENT AND CONCRETE MIXER.

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To all whom it may concern:

Be it known that I, WILLIAM D. WISE, a citizen of the United States, residing at Detroit, in the county of Becker and State of Minnesota, have invented certain new and useful Improvements in Cement and Concrete Mixers, of which the following is a specification.

This invention relates to mixing machines and more particularly to a machine especially designed for mixing concrete preparatory to molding the same.

The object of the invention is to provide a mixing machine in which the materials to be mixed are fed in proper proportions through the opposite sides of the machine to the mixing drums and subsequently sprayed with water, thereby to form a plastic mass for delivery to a mold or other receptacle designed to receive the same.

A further object is to provide a mixing machine including a plurality of double cone shaped mixing drums having ports formed therein and provided with baffle plates for agitating the materials and properly mixing or blending the same while in a dry condition and prior to spraying the latter.

A further object is to provide the rotary casing with a discharge spout adapted to receive a predetermined quantity of concrete from the mixing drums, said spout being provided with a pivoted gate or closure arranged to be manually opened to permit the discharge of the contents of the spout at each revolution of the casing.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability, and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions, and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view of a concrete mixer constructed in accordance with my invention; Fig. 2 is a side elevation of the same; Fig. 3 is a detail per-

spective view of the forward end of the discharge spout.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved mixing machine forming the subject matter of the present invention comprises a supporting frame including spaced side members 5 between which is mounted for rotation a casing or housing 6. The casing 6 is open on its opposite sides and is provided with a centrally disposed peripheral flat portion 7, the metal on each side of the flat portion 7 being inclined in opposite directions and thence bent inwardly to produce flanges 8, which latter form partial closures for the openings in the opposite sides of the casing.

Disposed within the casing 6 and mounted for rotation therewith, are a plurality of double cone shaped mixing drums 9 and 10, there being an inverted double cone shaped drum 11 interposed between the drums 9 and 10 and a similar double inverted cone shaped drum 12 interposed between the drum 10 and the interior wall of the casing 6, as shown. The drum 11 is not only interposed between the drums 9 and 10, but it incloses the drum 9 and is inclosed by the drum 10, while the drum 12 incloses the drum 10. The central portions of the drums 9 and 10 are formed with spaced annular rows of openings 13 constituting ports and through which the sand, cement or other materials to be mixed pass from one mixing drum to another as the casing revolves.

The mixing drums 11 and 12 are preferably of less length than the drums 9 and 10, the latter being rigidly secured to the casing 6 by means of a plurality of radiating spokes 14 secured to the drum 9 and engaging the flanges 8 and 15, as shown. The mixing drums 11 and 12 are secured to and supported in proper spaced relation to the drums 9 and 10, by means of inclined braces 16 extending across some of the ports 13 in the drums 9 and 10, these braces serving the dual function of spacing members and as deflectors for directing a portion of the material passing through the ports 13 onto the mixing drums 11 and 12 to one side of the casing.

The flanges 15 are secured to or formed

integral with the drum 10 and extend inwardly and radially toward the axis of the mixing machine so as to prevent the spilling of material outside the casing.

5 Secured to the inner faces of the drums 10, 11 and 12, are a plurality of baffle plates 17 preferably disposed in staggered relation and serving to mix or blend the different materials as the casing revolves.

10 Secured in any suitable manner to the flat portion 7 of the casing 6 and preferably disposed tangentially to the casing 6, is a discharge spout 18 having its free end spaced from and secured to the casing by means of one or more braces 19 and its fixed
15 end in communication with the interior of the casing 6, thereby to permit the concrete, after passing through the mixing drums, to enter the spout for delivery to a mold or
20 other suitable receptacle.

The free end of the spout 18 is normally closed by a pivoted gate 20, and journaled in the spout above said gate is a transverse rod 20' having a depending arm 21, which
25 latter may be actuated manually or otherwise to release the spring catches 22, thus to permit the discharge of the contents of the spout at each revolution of the casing.

The side members of the supporting
30 frame are provided with lateral extensions 23 which form supports for suitable hoppers 24, the latter being disposed on opposite sides of the casing and adapted to receive the cement, gravel, sand or other materials to be mixed.

35 Journaled in the extensions 23 are stub shafts 25 to the inner ends of which are secured rollers 26, the latter being mounted in suitable pockets 27 formed in the side
40 members 5, and adapted to bear against the extended hubs 28 of the inner mixing drum 9, as shown. The outer end of one of the stub shafts 25 on each side of the machine, is provided with a sprocket wheel 29 which
45 is connected through the medium of a sprocket chain 30 with a similar sprocket wheel 31 carried by the longitudinal shaft of a feed auger or screw 32, so that as the casing revolves motion will be transmitted
50 from said casing through the medium of the sprocket chains 30 to the feeding devices 32, thereby to deliver the materials in proper proportions to the central mixing drum 9.

In order to positively deliver the materials from the hoppers 24 to the central mixing drum 9, said hoppers are provided with reduced portions 33 which extend through the hubs 28 of the central mixing drum 9 to a point within the casing, the materials
55 from the feed screws falling on the inclined walls of the drum 9 and passing downwardly through the ports 13 for delivery to the adjacent drum 11.

It will here be noted that the ports 13 of
65 the drums 9 and 10 are disposed in stag-

gered relation, while the inclined braces 16 are arranged beneath some of the ports so that the materials passing through the ports will be uniformly distributed over the opposite inclined surfaces of the adjacent drums 70 11 and 12.

In operation, the cement, sand, and gravel, in their proper proportions, are fed by the screws 32 to the interior of the revolving drum 9 to the center of the latter where they
75 pass through the ports 13 to the drum 11 and receive their initial mixing by the baffle plates 17 on the drum 11, the materials passing downwardly in opposite directions on the drum 11 to the drum 10 where they are
80 again subjected to the mixing action of the baffle plates on said drum, the thoroughly mixed materials then falling through the openings or ports 13 in the drum 10 onto the drum 12, where the material is subjected
85 to the action of the liquid spray from suitable nozzles 34, thereby to moisten the mass and give the same the desired plastic qualities. After being subjected to the action of the spray from the nozzles 34, the plastic
90 mass drops by gravity onto the casing and is again mixed or agitated by the baffle plates 35 on said casing, the material entering the spout 18 when the latter is at its lowest position. When the spout 18 reaches the position shown in dotted lines in Fig. 2 of the
95 drawings, the arm 21 may be operated manually to release the door 20 or otherwise as desired, thus permitting the contents of the spout to be delivered to a mold or other suitable
100 receptacle designed to receive the same.

The sprocket wheels 31 are preferably formed with mating clutch members 31' actuated by suitable operating handles to disengage the sprocket wheels from the chains
105 of the screws 32 so as to prevent the latter from feeding material to the interior of the casing during the dumping of the spout.

Any suitable mechanism may be employed for rotating the casing, and by way of illustration, there is shown a belt 36 which encircles the casing 6 and is operatively connected with the driving pulley of a motor or other suitable source of power (not shown).

Thus it will be seen that by arranging the
115 mixing drums in the manner described, the materials to be mixed are compelled to follow a tortuous passage before delivery to the spout 18, the baffle plates 17 serving to thoroughly agitate and blend the several ingredients prior to the application of the spray, and the baffle plates on the drum 12 and casing 6, serving to mix the several materials after the application of the spray.

Having thus described the invention, what
125 is claimed as new is:

1. A mixing machine including a revolving casing, a plurality of double cone shaped mixing drums disposed within and mounted for rotation with the casing, inverted double
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cone shaped drums interposed between the first mentioned drums, and means for feeding the material into one of the mixing drums.

2. A mixing machine including a revolving casing, a plurality of double cone shaped mixing drums disposed within and mounted for rotation with the casing, inverted double cone shaped drums spaced from the first mentioned drums, baffle plates secured to some of said drums, and means for feeding the materials to the central mixing drum.

3. A mixing machine including a supporting frame, a casing mounted for rotation on said frame, a plurality of spaced mixing drums disposed within and mounted for rotation with the casing, some of said drums being provided with ports and others with baffle plates, hoppers disposed on opposite sides of the machine and extending within one of the mixing drums, means disposed within the hoppers for feeding the materials to said mixing drums, and a discharge spout mounted for rotation with the casing and extending tangentially from the periphery thereof.

4. A mixing machine including a supporting frame having spaced side members provided with lateral extensions, a casing mounted for rotation between the side members, a plurality of mixing drums disposed within and mounted for rotation with the casing, one of said drums being projected laterally beyond the adjacent sides of the casing to form oppositely disposed hubs, rollers mounted for rotation on the side members, hoppers carried by the extensions of the side members and projecting within the hubs of said mixing drum, feeding devices disposed within the hoppers, and means for transmitting motion from the rollers to the mixing devices.

5. A mixing machine including a supporting frame having spaced side members provided with lateral extensions, there being pockets formed in the side members, stub shafts journaled in the extensions and provided with rollers seated in said pockets, a casing mounted for rotation between the side members of the supporting frame, a plurality of mixing drums disposed within and mounted for rotation with the casing, the opposite ends of one of the mixing drums being projected beyond the adjacent sides of the casing to form hubs adapted to bear against the rollers, hoppers carried by the extensions of the side members and projecting within the hubs, feeding devices disposed within the hoppers, a connection between the stub shafts and feeding devices for transmitting motion from one to the other, and a discharge spout extending tangentially from the peripheral wall of the casing and communicating with the interior of the latter.

6. A mixing machine including a supporting frame, a casing mounted for rotation on the frame, a plurality of spaced mixing drums disposed within and mounted for rotation with the casing, some of said drums being provided with ports and others with baffle plates, means for feeding the materials to the interior of one of the mixing drums, means for spraying said materials after the latter are mixed, and a discharge spout communicating with the interior of the casing and mounted for rotation therewith.

7. A mixing machine including a supporting frame, a casing mounted for rotation on the supporting frame and having its opposite sides open and provided with inwardly extending flanges, a plurality of mixing drums disposed within the casing, some of said mixing drums being double cone shaped and others double inverted cone shaped flanges formed on the outer ends of one of the drums, spokes secured to the central drum and bearing against the flanges of the last mentioned drum and flange of the casing respectively, means for feeding materials to the central mixing drum, and a discharge spout disposed tangentially to the periphery of the casing and communicating with the interior of the latter.

8. A mixing drum including a supporting frame, a casing mounted for rotation on the frame, a plurality of double conical shaped mixing drums disposed within and mounted for rotation with the casing, said mixing drums being provided with spaced circumferential rows of ports disposed in staggered relation, inverted double conical shaped mixing drums interposed between the first mentioned drums and the interior wall of the casing and terminating short of said first mentioned drums, inclined braces for spacing the several drums and disposed at the ports, baffle plates carried by some of the drums, means for feeding materials to the central mixing drum, means for spraying the materials with liquid after the materials are partially mixed, and a discharge spout carried by the casing and adapted to receive the materials after the latter are thoroughly mixed.

9. A mixing machine including a supporting frame, a casing mounted for rotation on the frame, a plurality of spaced mixing drums disposed within and mounted for rotation with the casing, means for feeding materials to the interior of one of the mixing drums, and a discharge spout communicating with the interior of the casing and mounted for rotation therewith.

10. A mixing machine including a supporting frame, a casing mounted for rotation on the frame, a plurality of mixing drums disposed within and mounted for rotation with the casing, means for feeding the materials to the interior of one of the

mixing drums, means for spraying said materials, a discharge spout communicating with the interior of the casing and mounted for rotation therewith, and means for normally closing the discharge spout.

11. A mixing machine including a supporting frame, a casing mounted for rotation on the frame, a plurality of double cone shaped mixing drums disposed within and mounted for rotation with the casing, inverted double cone shaped drums interposed between the first mentioned drums, and means for feeding the materials to the interior of one of the mixing drums, there being ports formed in the double conical shaped drums.

12. A mixing machine including a supporting frame, a casing mounted for rotation on the frame, a plurality of spaced concentric mixing drums disposed within and mounted for rotation with the casing, a tangentially disposed discharge spout secured to and mounted for rotation with the casing, and means for normally closing the discharge end of said spout.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM D. WISE. [L. s.]

Witnesses:

C. R. STONE,
ADELINE E. ALWARD.