

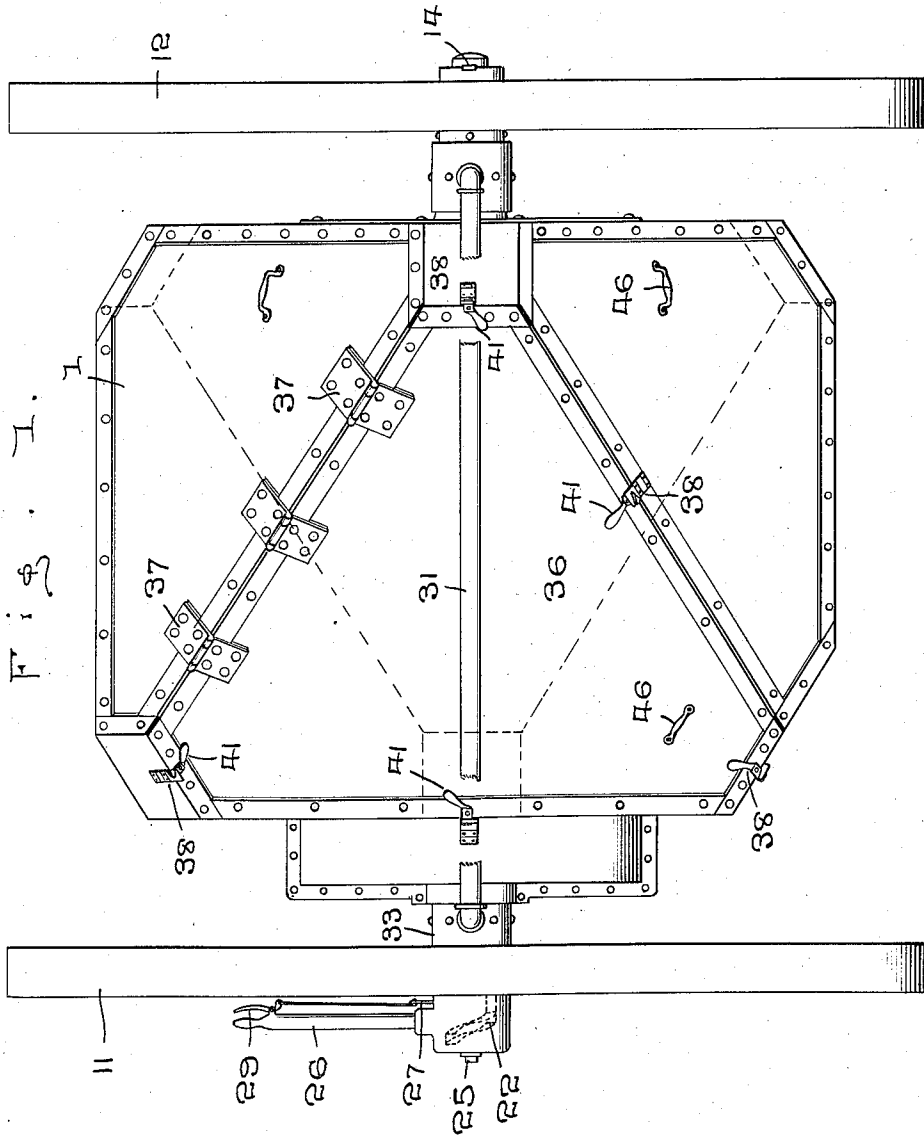
F. T. ARNOLD.
MIXING MACHINE.

APPLICATION FILED OCT. 28, 1909.

966,639.

Patented Aug. 9, 1910.

5 SHEETS—SHEET 1.



WITNESSES:

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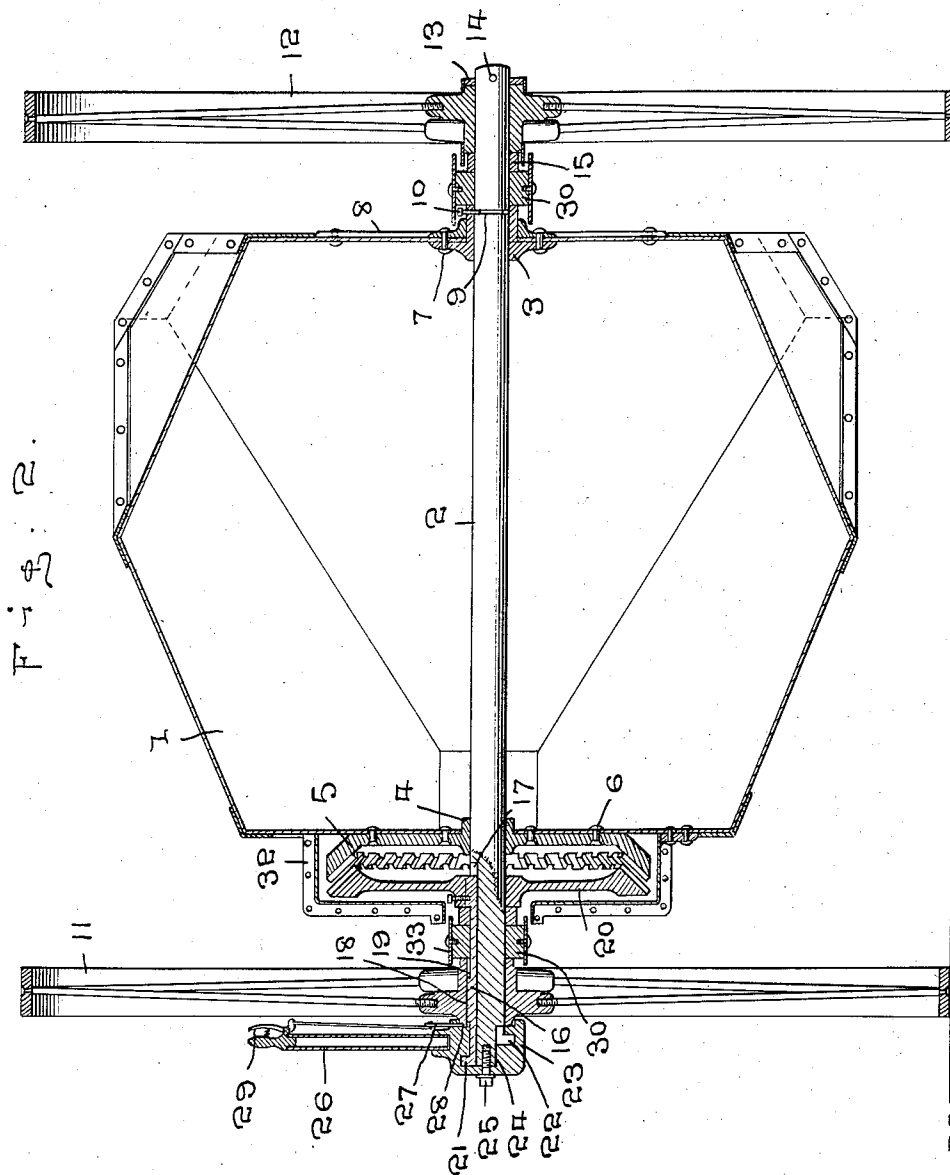


Fig. 2.

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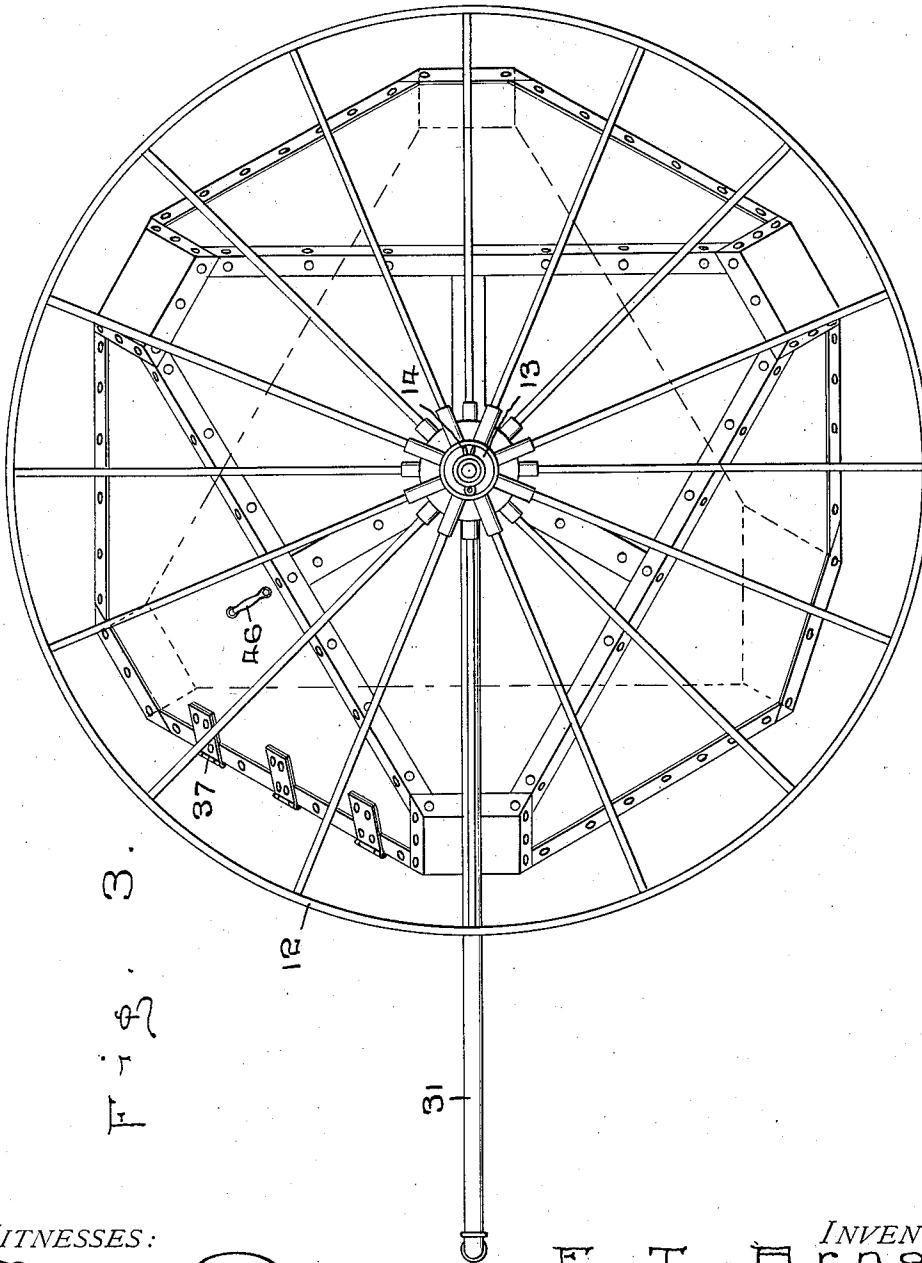


Fig. 3.

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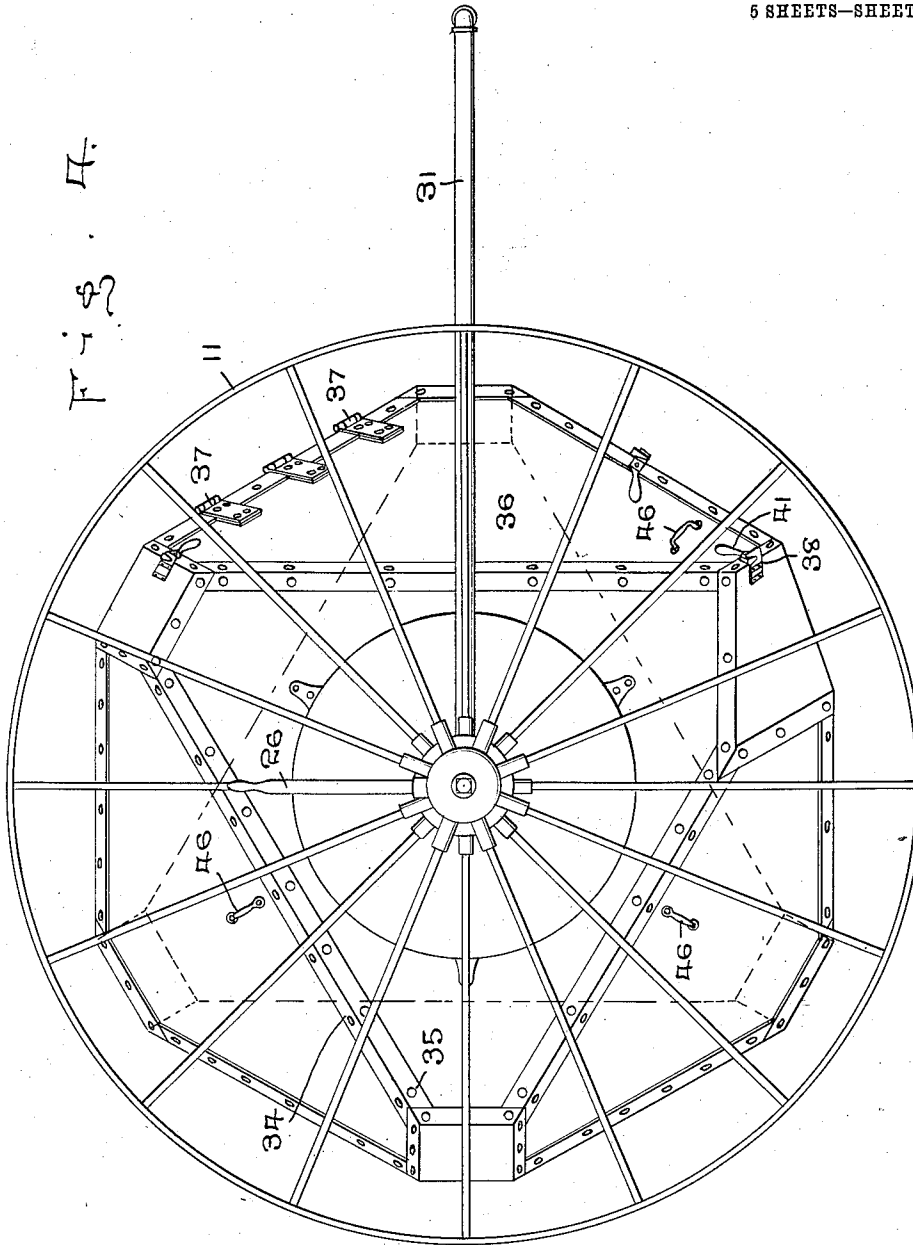
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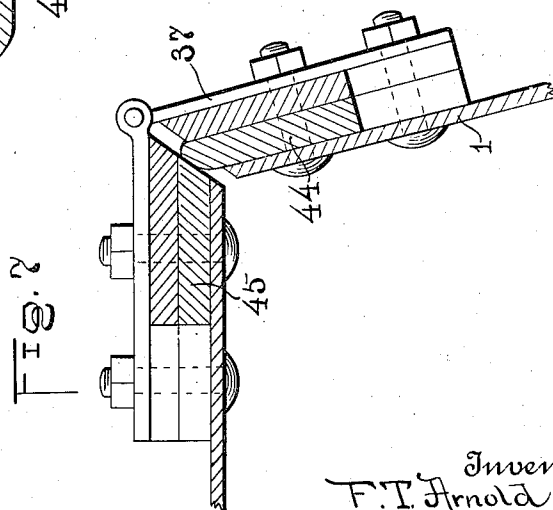
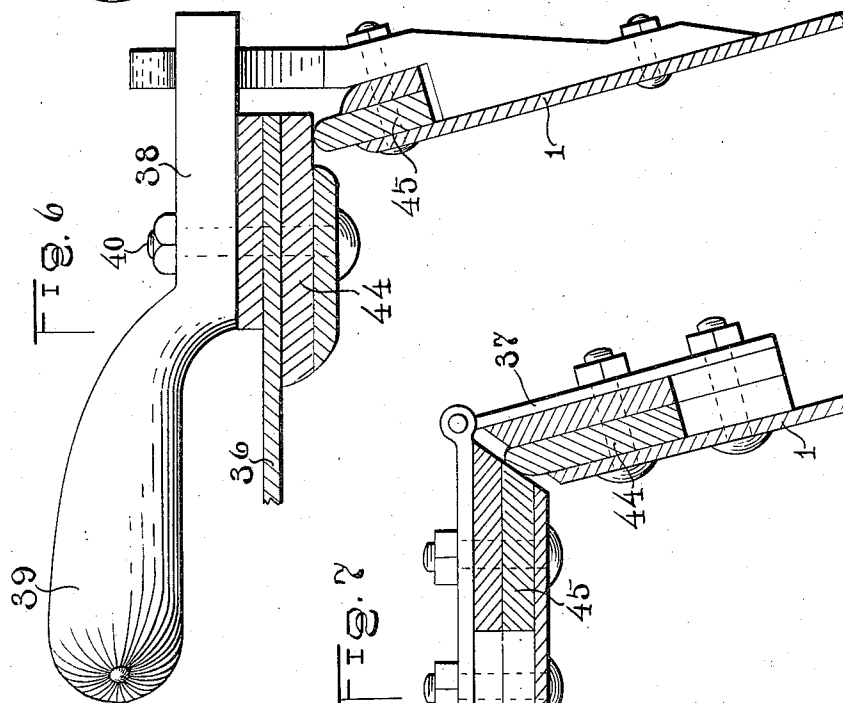
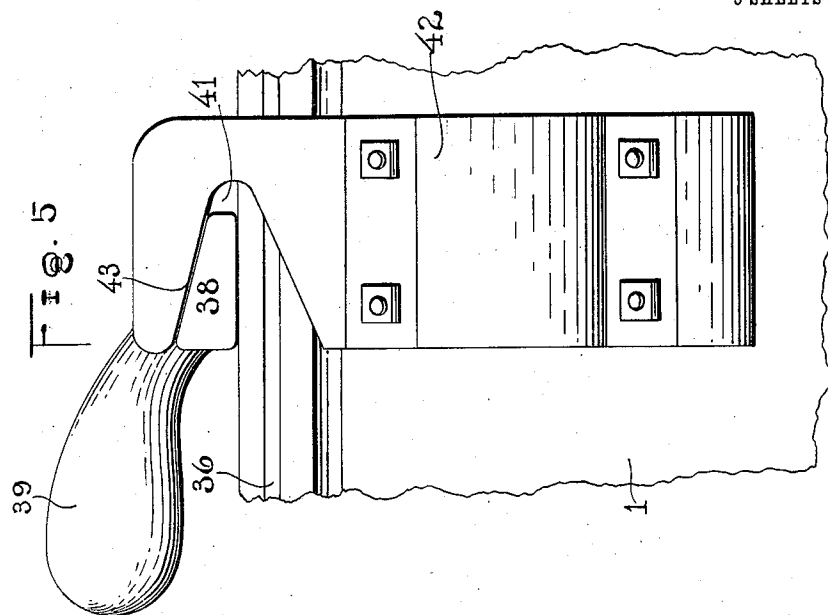
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5 SHEETS—SHEET 5.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK T. ARNOLD, OF FORT ROBINSON, NEBRASKA.

MIXING-MACHINE.

966,639.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed October 28, 1909. Serial No. 525,081.

To all whom it may concern:

Be it known that I, FREDERICK T. ARNOLD, a citizen of the United States, residing at Fort Robinson, in the county of Dawes and State of Nebraska, have invented certain new and useful Improvements in Mixing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in mixing machines and more particularly to that class adapted to be used for mixing plastic materials, such as concrete, mortar, plaster, etc., for all classes of construction and my object is to provide means for gearing the receptacle to one of its supporting wheels whereby when the wheel is rotated, the receptacle will be likewise rotated and a further object is to provide suitable means for operating the gearing mechanism, whereby the receptacle will be attached to or disconnected from the wheel.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings forming part of this application, Figure 1 is a front elevation of the mixing device complete. Fig. 2 is a vertical central sectional view there-through. Fig. 3 is an end elevation of the device. Fig. 4 is a similar view of the opposite end of the device. Fig. 5 is a detail plan view of the mechanism employed for securing the closure in its closed position. Fig. 6 is a detail sectional view thereof, and, Fig. 7 is a detail sectional view through the hinged end of the closure.

Referring to the drawings in which similar numerals designate corresponding parts throughout the several views, 1 indicates the receptacle or body which is in form a modified regular octahedron in general outline substantially as shown on drawing and through the center of the body is disposed an axle 2, said axle being of sufficient length to project beyond the walls of the body.

One wall of the receptacle through which the axle extends, is provided with a flanged collar 3, which forms a bearing for that end of the axle, while the opposite end of the axle extends through the hub 4 of a bevel gear 5, said gear being attached to the outer face of the end wall of the body by means of rivets or the like 6 and the flanged collar

3 is likewise attached to its respective end of the body by means of rivets 7 and in order to securely brace the end wall through which the collar 3 extends, a spider 8 is introduced over the bearing portion of the collar 3 and securely attached to the outer face of the end wall.

The receptacle 1 is securely held in position on the axle and prevented from moving longitudinally thereon by providing a circumferential groove 9 in that portion of the axle 2 extending through the collar 3 and into said groove is introduced the end of a pin 10 carried by the collar 3, this construction permitting the receptacle to rotate independently of the axle, but holding the same against longitudinal movement thereon.

The ends of the axle 2 have mounted thereon supporting wheels 11 and 12, the wheel 12 being retained in position on the axle by providing a washer 13 which is introduced over the end of the axle and bears against the outer end of the hub of said wheel 12, a pin 14 being extended through the axle to retain the washer in position, while the inner end of the hub is engaged by a collar 15, which collar is fixed in any suitable manner to the axle. The wheel 11 is caused to rotate with the axle 2 by providing a key 16, said key entering a seat 17 in the axle and having a projection 18 thereon, which enters a seat 19 in the hub of the wheel 11, whereby when said wheel is rotated, the axle will likewise be rotated.

The key 16 is of considerable length and has attached to its inner end a bevel gear 20, which is adapted to be moved into engagement and mesh with the gear 5, whereby the receptacle 1 will be rotated and as the key 16 is slidably mounted in the seat 17, said gear 20 may be moved into or out of engagement with the gear 5 thereby. The outer end of the key 16 is provided with an upwardly extending tongue 21, which enters a spiral channel 22 on the interior of a cam 23, said cam having a bore 24 extending inwardly from one end thereof, into which the end of the axle 2 is extended and said cam is rotatably mounted upon the end of the axle and held in position thereon by means of a screw 25, which screw extends through the closed end of the cam and enters the end of the axle and in view of the spiral trend of the channel 22, it will be readily seen that when the cam is rotated

on the end of the axle, said key will be moved inwardly or outwardly, thereby engaging or disengaging the bevel gears and it will likewise be seen that by placing the
 5 cam adjacent the outer end of the hub of the wheel 11, said cam will serve to prevent the wheel from leaving the axle.

In order to readily operate the cam to rotate the same on the axle and move the
 10 gear 20 into engagement with the gear 5, a lever 26 is attached to the outer face of the cam 23, so that by grasping the lever and swinging the same in the arc of a circle, the cam will be likewise rotated, the
 15 lever and cam being held in a fixed position when desired by providing a latch 27, the lower end of which engages in either one of a series of notches 28 in the periphery of the hub of the wheel 11, the latch 27 being
 20 operated through the medium of a spring pressed lever 29 adjacent the upper end of the lever 26.

The mixing device is adapted to be operated primarily by hand power and to this
 25 end a pair of collars 30 are mounted upon the shaft 2, said collars being positioned between the wheels and the ends of the receptacle 1 and to these collars are attached a frame or handle 31, whereby the vehicle
 30 or mixer may be propelled, but instead of using the frame, a pair of shafts (not shown) may be substituted therefor and the vehicle propelled by horse power.

Attached to the end of the receptacle 1
 35 and extending over the gears 5 and 20 is a two-part shield 32, which is adapted to prevent foreign particles from coming in direct contact with the gears and in order to further protect the bearing parts of the device, each of the collars 30 is provided with
 40 a band 33, which extends a distance beyond each end of the collar and prevents the gravel, etc., from entering between the ends of the collar and parts adjacent thereto, the
 45 bands being fixed to the collar in any suitable manner.

The meeting edges of the several walls of the receptacle 1 are secured together and rendered water tight by placing over said
 50 meeting edges suitable angle irons 34, which are secured in position over the edges by means of rivets 35 or otherwise, and in order to gain access to the interior of the receptacle, one of said walls is left free to
 55 form a door 36, one edge of which is attached to the receptacle by means of hinges 37, while the remaining edges are secured in position by means of suitable locks which comprise latches 38, which are pivotally secured
 60 around the edges of the door section 36, said latches having handles 39 thereon, whereby the latches may be readily swung on their pivot bolts 40.

The free end of the latch 38 when swung
 65 into locked position extends over the edge

of the door and into a notch 41 in a keeper 42, said keeper being fixed to the wall of the receptacle. The notch 41 is substantially V-shaped, thereby providing an inclined surface with which the latch 38 engages and
 70 the upper face of said latch is similarly inclined as shown at 43, so that said latch can be readily introduced into the notch and in view of the inclination of the wall of the notch and the face of the latch, the meeting
 75 edges of the closure and walls of the receptacle will be securely clamped together when the latch is introduced to its full extent into the notch.

To form a water tight seal between the
 80 edges of the door and the walls of the receptacle, strips of rubber or the like 44 and 45 are secured, respectively, to the edges of the receptacle 1 and door 36, the rubber 44 extending slightly beyond the edges of the
 85 walls of the receptacle 1 and contact with the rubber 45, around the edges of the door 36, so that when the latch is operated to lock the door in its closed position, the rubbers will be securely clamped together.
 90

As before stated, this device is normally operated by pushing the entire device forwardly or rearwardly to thoroughly mix the contents of the receptacle, but if preferred, the gear 20 may be disengaged with the gear
 95 5 and the receptacle 1 rotated around the axle manually through the medium of hand-holds 46 which are placed at suitable intervals on the faces of the receptacle and these hand-holds may be also employed for turning
 100 the receptacle to such position as to discharge the contents thereof when the door 36 is opened and when the gear 30 is in mesh with the gear 5, the receptacle 1 may be rotated by turning the device in a circle,
 105 employing the wheel 12 as a pivot, the travel of the wheel 11 causing the receptacle 1 to rotate.

In operation, the lime, cement, sand and other products employed in forming the
 110 concrete or other plastic material are placed at some distance from the construction for which the concrete is used and after a proper quantity of the various ingredients, together with the proper amount of water are placed
 115 in the receptacle, the door is securely fastened. The lever 26 is then rotated to move the key 16 lengthwise and force the gear 20 into engagement with the gear 5, when the attendant grasps the frame 31 and moves
 120 the mixer toward the place where the mixture is to be used and in view of the shape of the receptacle, the various particles therein will be thoroughly mixed and ready for use by the time the mixer reaches its destination. The door 36 is then released and the contents of the receptacle emptied therefrom, when by operating the lever 26 and releasing the gear 20 from the gear 5, the mixer may be returned to the initial posi-
 125
 130

tion and the same operation again performed.

By providing a device of this class, it will be readily seen that the arduous labor of mixing the ingredients with shovels, hoes or the like and requiring a number of men to perform the operation, will be entirely dispensed with and further in view of the small cost of the mixer, the same may be profitably used on small jobs. It will further be seen that in view of the shape of the receptacle and the manner of mounting the same on the axle, the contents thereof will be thoroughly mixed when the receptacle is rotated as described and in view of the lightness of the mixer, it can be readily operated by one or two men and it will further be seen that as substantially all the parts of the device are constructed of metal, it will be practically indestructible from use.

What I claim is:

1. A mixing device, comprising the combination with a receptacle, of an axle extending through receptacle, supporting wheels for said axle, a key adapted to fix one of said wheels with the axle, a gear fixed to said receptacle, a similar gear fixed to one end of said key and means to move said key longitudinally, whereby the gear on the key will be moved into or out of mesh with the gear on the receptacle.

2. In a mixing device, the combination with a receptacle, an axle upon which said receptacle is rotatably mounted and wheels upon the ends of said axle; of a key adapted to fix one of the wheels to the axle, a gear

fixed to said receptacle, a similar gear fixed to said key, a cam rotatably mounted on one end of the axle and having a spiral channel therein, a tongue carried by the key adapted to enter said channel, a lever by means of which said cam may be rotated to move the gear on the key into or out of engagement with the gear on the receptacle and means to hold said cam in a fixed position.

3. A mixer of the class described comprising a receptacle, in form a modified regular octahedron, an axle extending through the opposite parallel triangular faces of said receptacle, supporting wheels for said axle, a key carried by the axle and having a projection thereon adapted to engage one of said wheels and cause said wheel to rotate with the axle, a gear fixed to said receptacle, a similar gear carried by said key and adapted to be moved into engagement with the gear on the receptacle, a cam rotatably mounted on one end of the axle and having an interiorly disposed spiral channel, a tongue on said key adapted to enter said channel, whereby when the cam is rotated, the key will be moved inwardly or outwardly, an operating lever for said cam and means to hold the cam against casual rotation.

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

FREDERICK T. ARNOLD.

Witnesses:

WILLIAM K. ALTHER,
J. A. HABEGGER.