

Nov. 7, 1939.

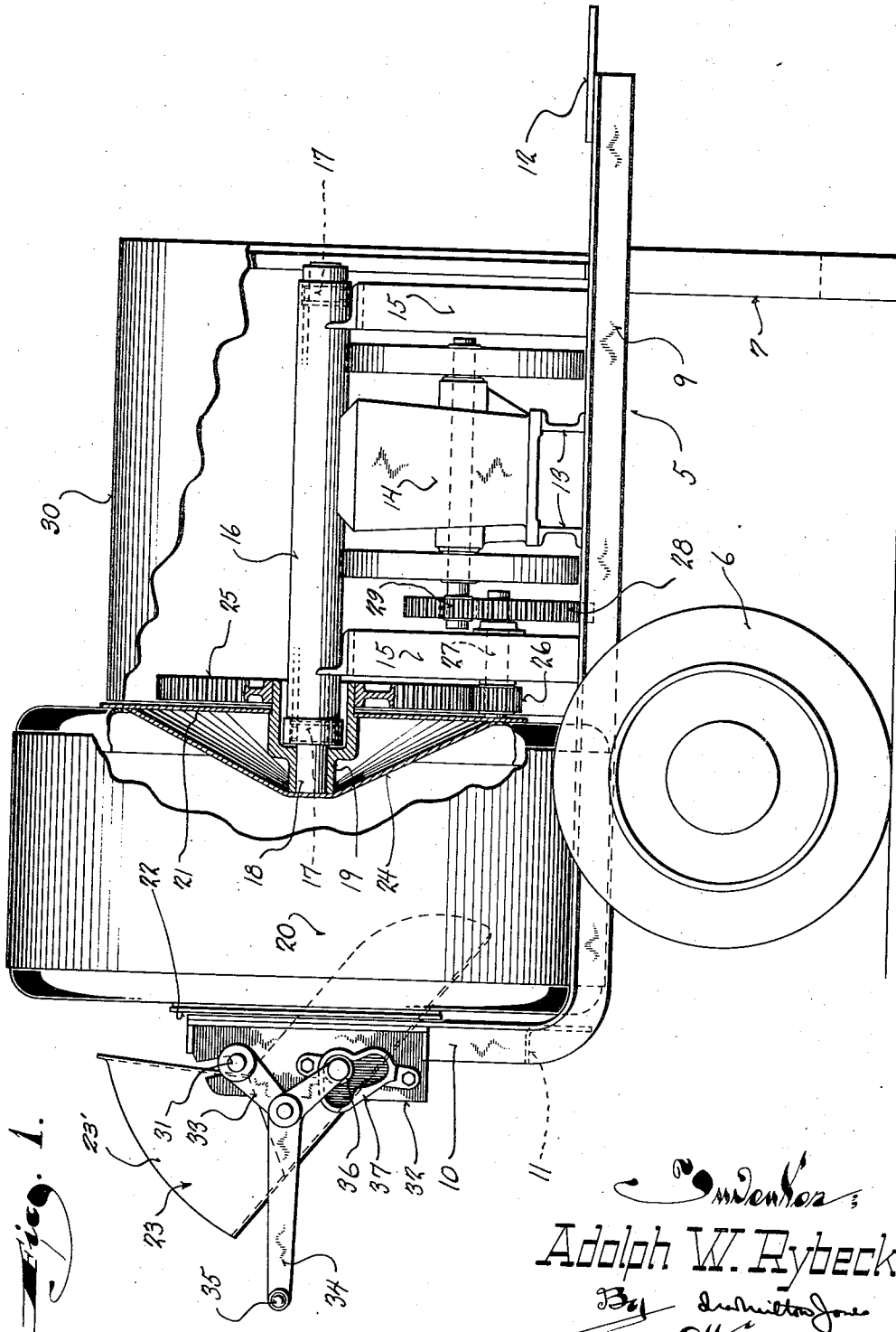
A. W. RYBECK

2,179,104

CONCRETE MIXER

Filed Oct. 16, 1937

2 Sheets-Sheet 1



Nov. 7, 1939.

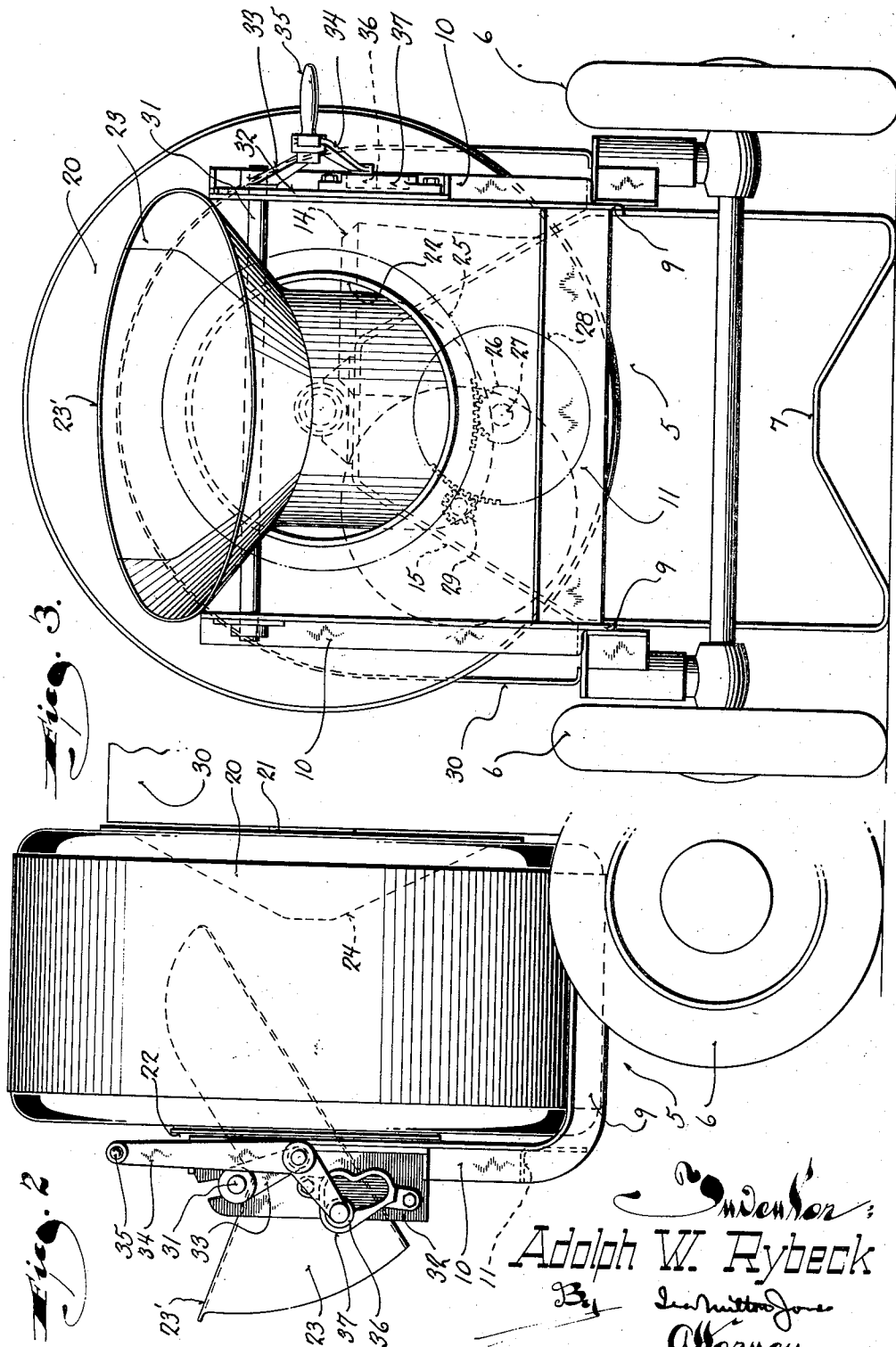
A. W. RYBECK

2,179,104

CONCRETE MIXER

Filed Oct. 16, 1937

2 Sheets-Sheet 2



Adolph W. Rybeck

Lawrence Jones
Attorney

UNITED STATES PATENT OFFICE

2,179,104

CONCRETE MIXER

Adolph W. Rybeck, Milwaukee, Wis., assignor to
T. L. Smith Company, Milwaukee, Wis., a corporation of Wisconsin

Application October 16, 1937, Serial No. 169,363

2 Claims. (Cl. 259-177)

This invention relates to concrete mixers and has as its primary object to provide a non-tilting mixer having but a single charging and discharging opening.

5 Certain advantages accrue from a construction in which the drum is charged and discharged through the same opening, and this invention therefore contemplates a construction which combines these advantages with the simplicity of a non-tilting mixer.

10 More specifically it is an object of this invention to provide a chute selectively positionable with respect to an opening in the drum for either charging the mixer or discharging the same, so that discharging of the drum contents can be effected without entailing a reversal in the direction of rotation and without requiring the tilting of the drum.

15 Another object of this invention is to provide simple means for mounting the combined charging and discharging chute and for readily releasably holding the same in either of its two positions.

25 Another object of this invention is to provide an improved manner of mounting the drum so that its charging and discharging opening is unobstructed.

30 Another object of this invention is to so mount the drum for rotation that smoother operation and longer life is assured by locating the bearings which carry the drum so as not to be exposed to the possible entrance of dirt and foreign matter.

35 It is also an object of this invention to provide a new and improved manner of driving the drum so as to obviate the need for the usual ring gear encircling the exterior of the drum, and whereby the wear on the driving means which had to be contended with where a ring gear was employed, is avoided.

40 Another object of this invention is to provide an improved construction for concrete mixers which is particularly adaptable to small portable units.

45 A further object of this invention is to provide a concrete mixer of simplified, rugged and inexpensive construction.

50 With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood
55 that such changes in the precise embodiment of

the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate one complete example of the physical embodiment of the invention constructed in accordance with the best mode so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of a concrete mixer constructed in accordance with this invention, parts thereof being broken away and in section;

Figure 2 is a side view of the rear portion of the mixer illustrating the manner in which the chute is positioned for discharging the drum; and

Figure 3 is a rear view of the mixer with the chute in its charging position.

Referring now particularly to the accompanying drawings, in which like numerals indicate like parts, the numeral 5 designates a chassis mounted upon a pair of wheels 6 and provided with a stand 7 to support its front end when the mixer is in use. The chassis comprises side rails 9 suitably joined at their front ends and turned up at their rear ends to provide vertical supports 10. A cross member 11 rigidly joins the rear end portions of the side rails, and at the extreme front end of the chassis, an attaching plate 12 is provided to permit the chassis to be coupled to a truck or other vehicle for transportation.

Directly ahead of the wheels, the side rails are joined by two cross beams 13 upon which an engine 14, or other suitable power unit, is mounted. Forwardly and rearwardly of the engine are two upright supports 15 fixed to the side rails of the chassis. These supports rigidly mount a tube 16 in the ends of which roller bearings 17 are fitted.

35 Journalled in the bearings 17 is a shaft 18 suitably restrained against endwise motion. The rear end of the shaft projects from its adjacent bearing and has the hub 19 of the mixing drum 20 fixed thereto. The drum is substantially cylindrical and has one end closed by a wall 21. Its other end has an opening 22 through which a chute 23 projects for charging and discharging the drum. The hub is fixed centrally to the wall 21 with its inner end projecting into the interior of the drum a substantial distance to dispose the end of the shaft inside the drum near its vertical center.

No support other than the shaft 18 is provided for the drum, and to reinforce the connection between the hub and the drum, a conical wall 24 has its apex fixed to the inner end of the hub and its base secured to the wall 21. The entire weight of the drum is thus suspended from the end of the shaft, which, being relatively long
55

and supported at both ends, provides a smooth running support for the drum entirely free from the possibility of wear arising from dirt and extraneous matter reaching the bearings on which the drum rotates. A substantial improvement is thus effected over past constructions wherein the drum was mounted on rollers engaging a track encircling the drum.

This manner of supporting and mounting the drum also permits the use of an improved drive for the drum and entirely obviates the customary ring gear encircling the drum. To this end, a gear 25 is fixed to the hub outwardly of the wall 21, with which a driving pinion 26 meshes. The pinion 26 is fixed to a stub shaft 27 journaled in a suitable bearing carried by the adjacent part of the chassis. A gear 28 fixed to this stub shaft is driven from the engine by means of a pinion 29 carried by the engine shaft.

A cover 30 positioned over the entire power unit including the transmission gearing between the motor and the drum protects the gearing against the entrance of dirt and extraneous matter.

The chute 23 serves both as a means of charging the drum and also discharging the same, and for this purpose, the outer end of the chute is flaringly enlarged to form substantially a hopper 23', while its inner end, which projects into the drum, is an open topped trough. Hence, with the chute in the position illustrated in Figure 1, at which its outer hopper-like end is uppermost, charging of the drum is quickly effected by merely dumping the ingredients of the mix into the chute. To discharge the drum contents, the chute is swung to its position, shown in Figure 2, at which its inner end is uppermost and in position to intercept the material which drops from the mixing blades of the drum (not shown).

The chute is mounted on the vertical supports 10 formed by the upturned rear ends of the chassis side rails by means of a shaft 31. The shaft 31 has the chute rigidly fixed thereto and has its opposite ends journaled in bearings carried by the upright supports 10. One of these bearings is mounted on a plate 32 rigidly fixed to its adjacent rail portion 10.

At this end, the shaft 31 has a lever 33 fixed thereto to which a bell crank lever 34 is pivoted. The outer end of the long arm of the bell crank lever has a handle 35 mounted thereon and the end of its short arm carries a roller 36 which is disposed within a box cam 37 fixed to the plate 32. This cam is so shaped that it provides a detent to hold the chute in either of its adjusted

positions, as will be readily apparent from a comparison of Figures 1 and 2.

From the foregoing description taken in connection with the accompanying drawings, it will be readily apparent to those skilled in the art, that this invention provides a non-tilting mixer having but a single charging and discharging opening, and that a single chute serves both for charging and for discharging the drum. It is also to be noted that the simplified manner of rotatably mounting the drum makes possible unobstructed access to the end of the drum at which the charging and discharging opening is located, and that this manner of mounting the drum also eliminates the objections of an exposed ring gear encircling the drum and exposed roller supports such as heretofore used to rotatably mount the drum.

What I claim as my invention is:

1. In a concrete mixer of the character described: a rotatable shaft; a stationary supporting structure; spaced bearings carried by the supporting structure in which the shaft revolves; one end of the shaft protruding from one of the bearings; a hub fixed to said end of the shaft and having a skirt portion extending back over the adjacent bearing and the adjacent portion of the supporting structure; and a mixing drum mounted on said hub, said mixing drum having a charging and discharging opening in one end and having its other end closed and composed of an inner wall and an outer reinforcing member both rigidly secured to the hub, the inner wall contacting the hub at its forward extremity, and the outer reinforcing member contacting the skirt portion of the hub.

2. In a concrete mixer of the character described: a rotatable shaft; a stationary supporting structure; spaced bearings carried by the supporting structure in which the shaft revolves; one end of the shaft protruding from one of the bearings; a hub fixed to said end of the shaft and having a skirt portion extending back over the adjacent bearing and the adjacent portion of the supporting structure; a mixing drum mounted on said hub, said mixing drum having a charging and discharging opening in one end and having its other end closed and composed of an inner wall and an outer reinforcing member both rigidly secured to the hub, the inner wall contacting the hub at its forward extremity, and the outer reinforcing member contacting the skirt portion of the hub and a ring gear fixed to the hub in back of said outer reinforcing member.

ADOLPH W. RYBECK.