

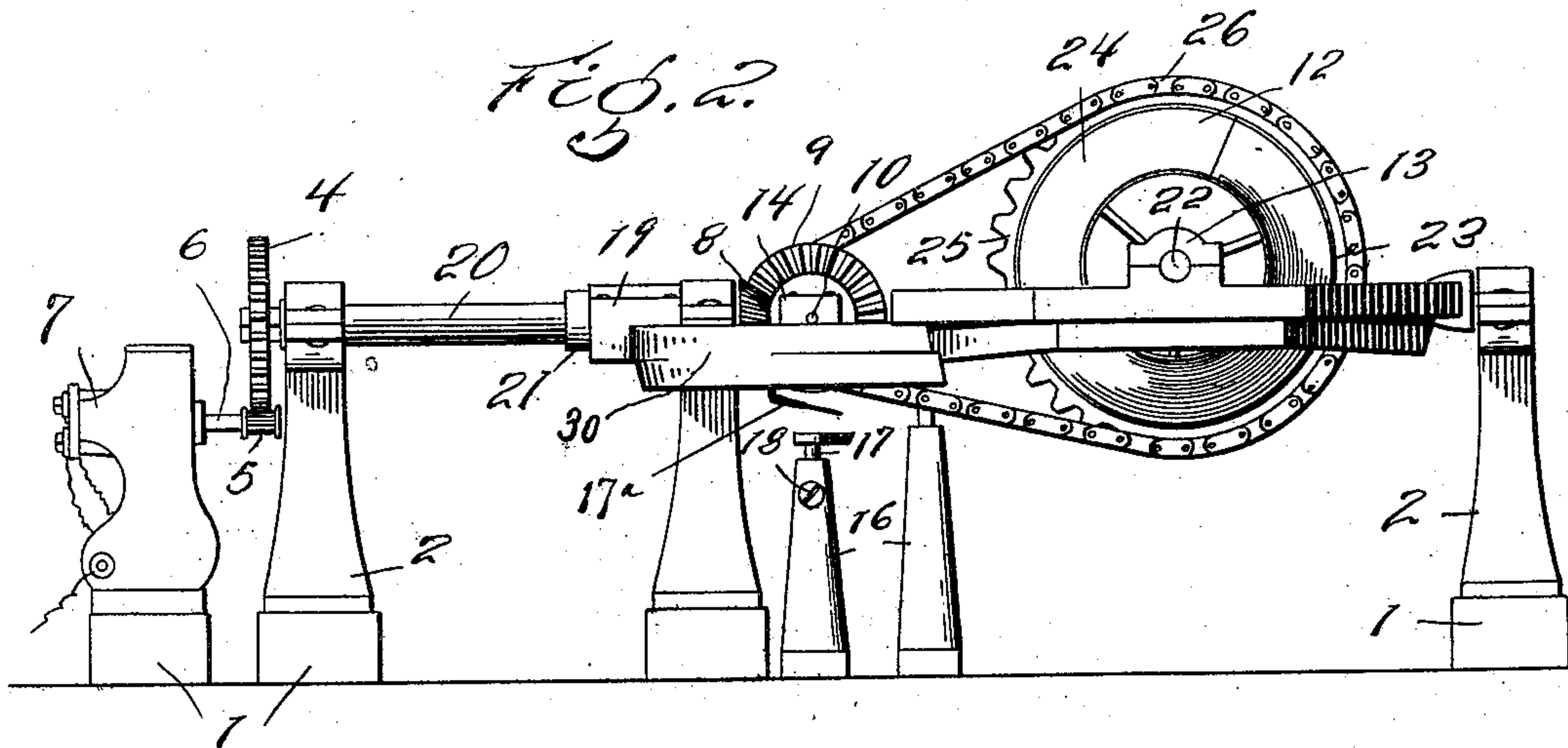
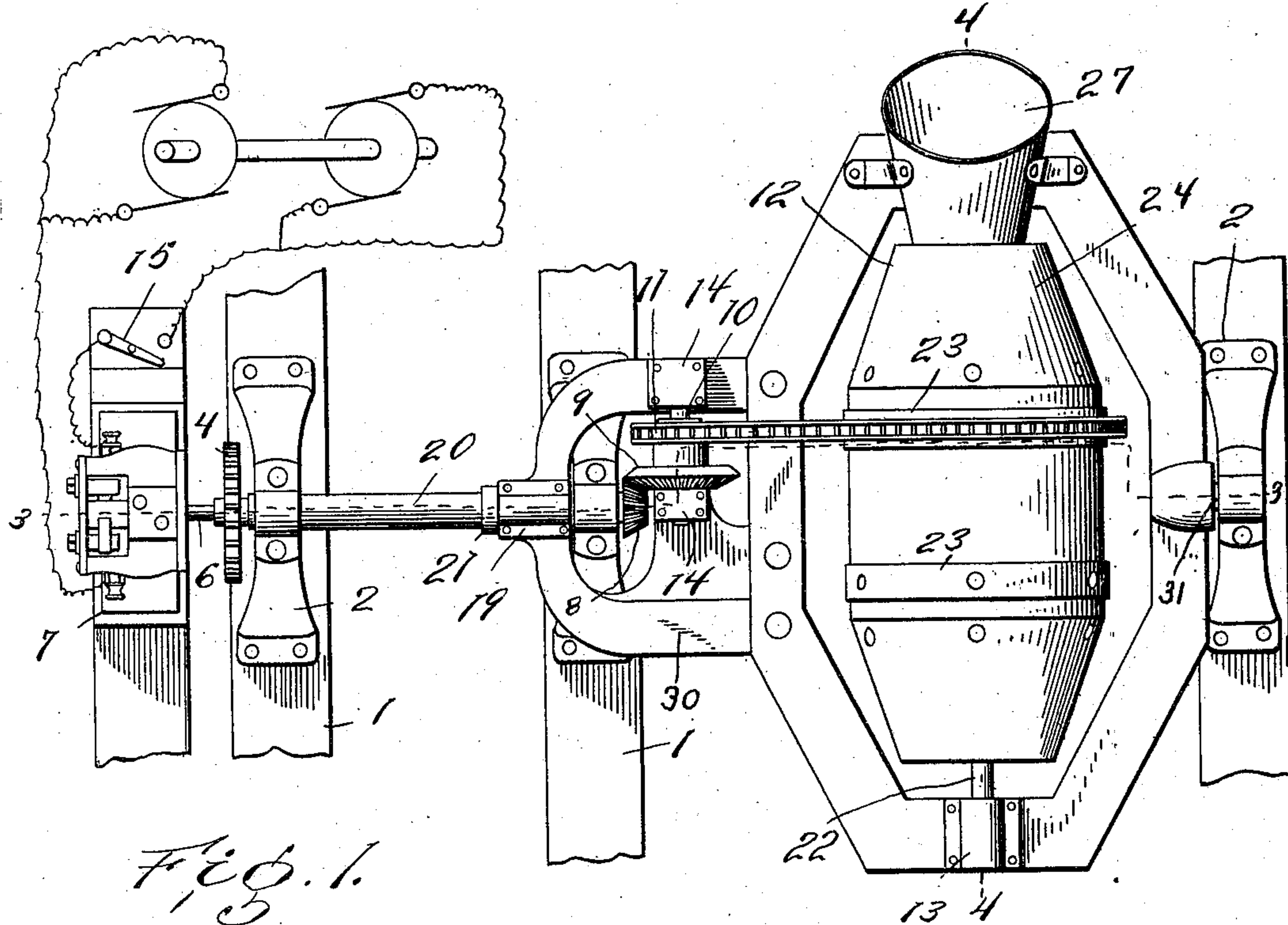
No. 842,902.

PATENTED FEB. 5, 1907.

G. E. McARTHUR.
CONCRETE MIXER.

APPLICATION FILED JAN. 17, 1906.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

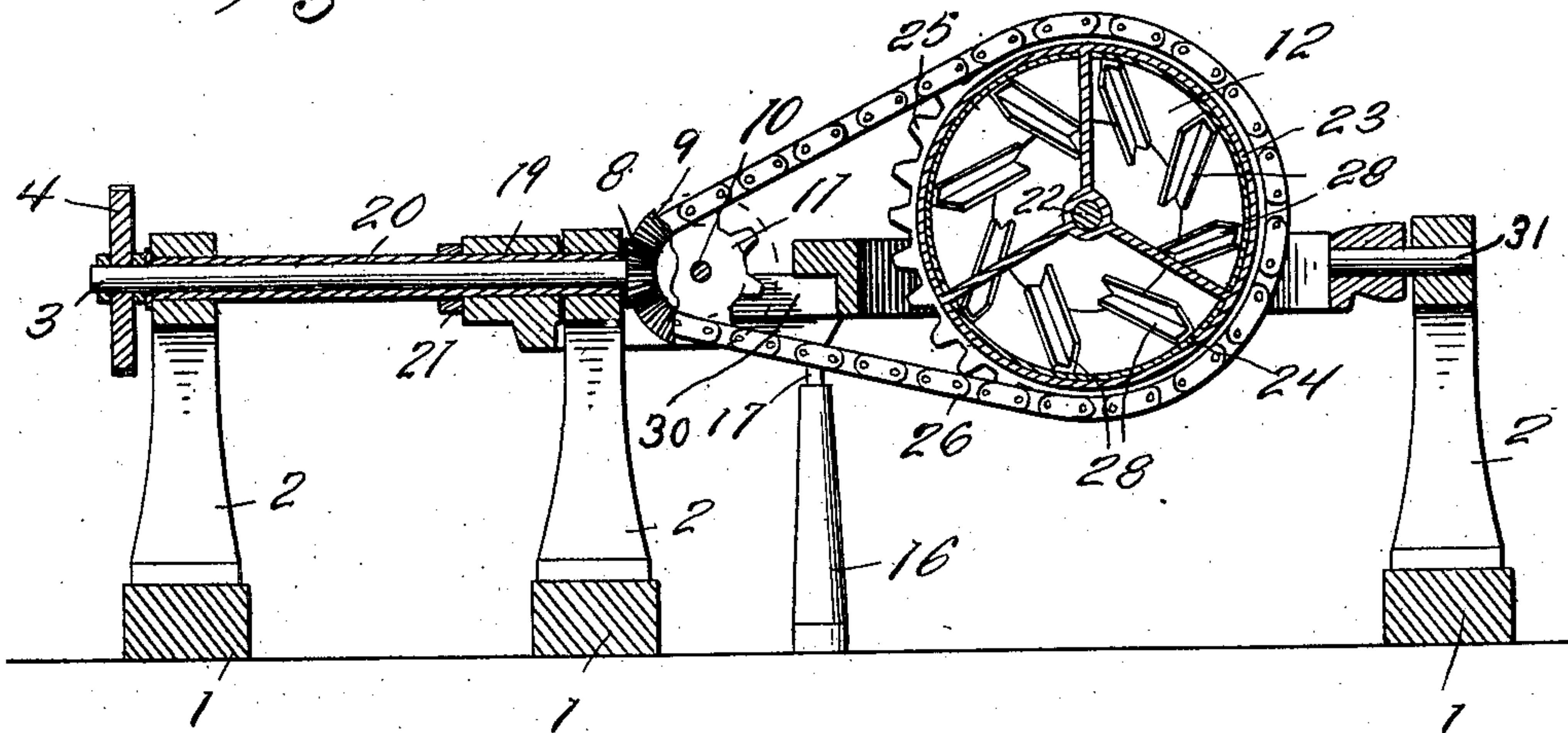
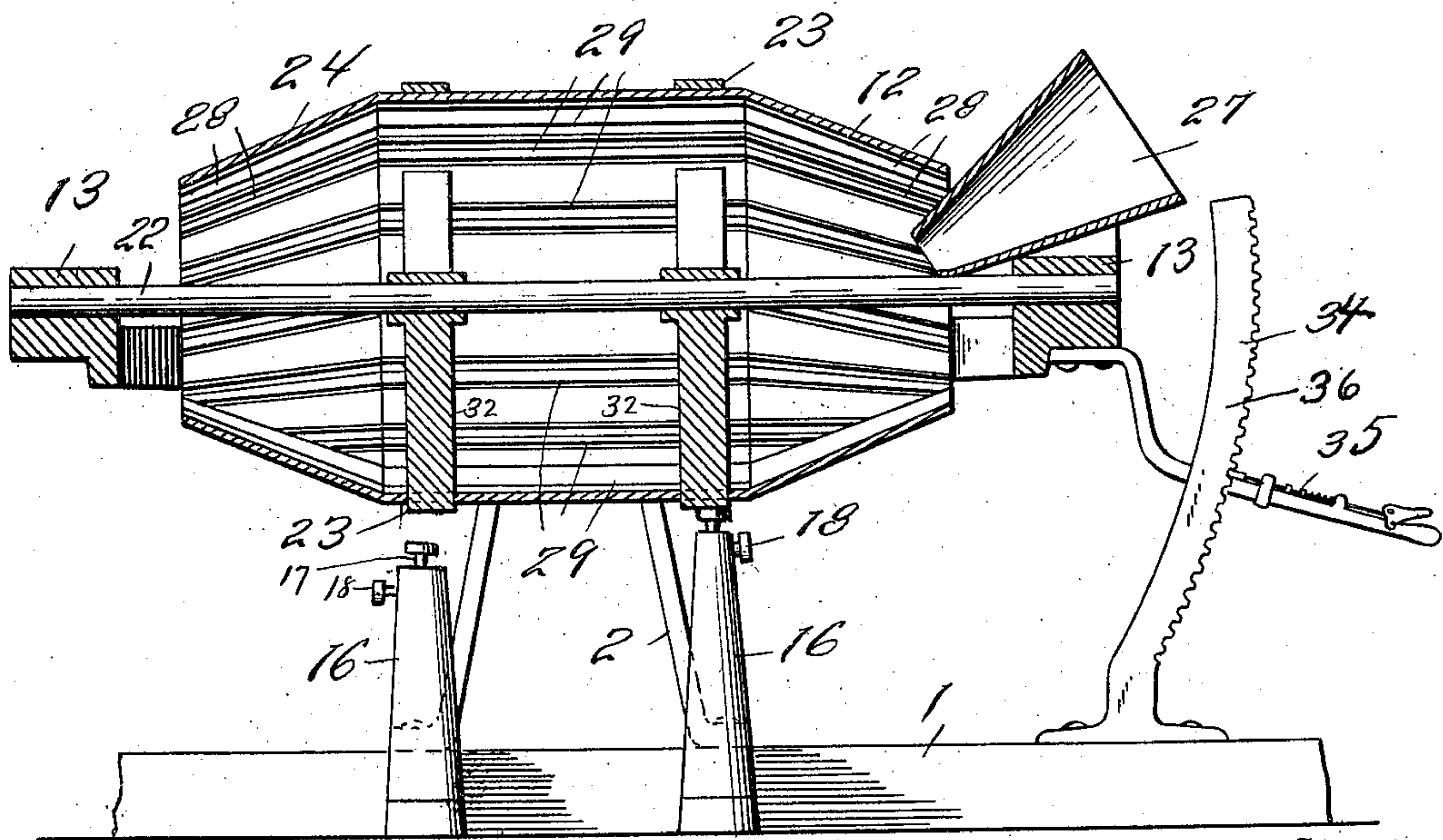


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE ELMER McARTHUR, OF EATON RAPIDS, MICHIGAN.

CONCRETE-MIXER.

No. 842,902.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed January 17, 1906. Serial No. 296,485.

To all whom it may concern:

Be it known that I, GEORGE ELMER McARTHUR, a citizen of the United States, residing at Eaton Rapids, in the county of Eaton and State of Michigan, have invented a new and useful Concrete-Mixer; 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.

This invention relates to machines for mixing cement, concrete, mortar, and other similar materials; and it has particular reference to that class of mixing-machines which are known as "batch-mixers" in contradistinction to machines for continuously mixing materials of this character, the batch-mixer being deemed by some preferable partly on account of the facility with which the proportion of the ingredients may be regulated and partly for the reason that in a continuous mixer the grout or concrete discharged from the machine is liable to set and harden, while in the batch-mixer the agitation of the material may be kept up until it is ready to be used, thus preventing premature setting.

One object of the invention is to provide an efficient machine of few parts in which is embodied a mixing-drum mounted for rotation in an oscillatory frame, which latter may be readily rocked or oscillated for the purpose of discharging the contents of the drum without interrupting the rotation of the latter.

Further objects of the invention are to simplify and improve the general construction and operation of this class of machines and to provide a device which shall be thoroughly efficient for the purposes indicated.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, and in said drawings—

Figure 1 is a top plan view of the improved mixer. Fig. 2 is a side elevation. Fig. 3 is a sectional view taken on the plane indicated by the line 3 3 in Fig. 1, omitting the motor.

Fig. 4 is a sectional view taken on the plane indicated by the line 4 4 in Fig. 1.

Corresponding parts in the several figures are indicated by like characters of reference.

1 1 designate blocks which may be regarded as constituting the base of the machine, it being understood that the latter may be supported upon a truck, if preferred, so as to be readily transportable. To provide bearings or supports for the movable parts of the machine, a series of uprights 2 2 are mounted upon the supporting-blocks. Two of these uprights support a tubular shaft or sleeve 20, wherein is journaled a shaft 3, having at one end a spur-wheel 4, meshing with a pinion 5, carried by the shaft 6 of a motor 7, which motor is furnished with sufficient power from any suitable source of supply. The end of the shaft 3 opposite to that carrying the spur-wheel 4 carries a bevel-gear 8, meshing with a bevel-gear 9 upon a counter-shaft 10, which is supported for rotation in a box or bearing 14 upon a rocking frame F.

The rocking frame F may be of any suitable and desired shape and dimensions, and said frame is provided at one side thereof with a laterally-extending yoke 30, having a box or bearing 19 engaging the sleeve 20, which latter is provided with a collar 21 to prevent lateral displacement of the frame. The side of the frame F opposite to that having the yoke 30 is provided with a stub-shaft 31, which is journaled in a suitable bearing upon one of the uprights 2, said stub-shaft being in axial alinement with the drive-shaft 3 and with the sleeve 20, supporting the bearing 19, in order that the frame F may be readily rocked or oscillated upon its bearings. The bearings 14 of the counter-shaft 10 are upon the yoke 30, which is regarded as constituting a part of the frame F, and it is obvious that said frame may be rocked or oscillated upon its bearings without interrupting the rotation of the shafts 3 and 10 or throwing the gears 8 and 9 upon said shafts out of mesh.

Journaled in bearing 13 upon the frame F at right angles to the axis of the shaft 3 and parallel to the shaft 10 is a shaft 22, carrying a pair of wheels or spiders 23. 24 designates the mixing-drum, which consists of a cylindrical body having frustum-shaped ends, the casing of said drum being secured interiorly upon the rims of the wheels or spiders 23, the

spokes of which, 32, extend through said casing, as will be clearly seen by reference to Figs. 3 and 4 of the drawings. By this construction great strength is insured and the interior of the casing will not be obstructed by the wheel-rims, as would be the case if the shell or casing was secured exteriorly upon said rims, which latter would then to some extent obstruct the discharge of material from the drum. I am also enabled to utilize one of the wheels 23 as a sprocket-wheel, the same being provided with teeth 25, as will be seen by reference to the drawings, said sprocket-wheel being connected by the link belt 12 with the sprocket-wheel 11 upon the shaft 10, from which latter rotary motion will thus be imparted to the drum.

It will be particularly observed that by the construction herein described a very firm support is provided for the mixing-drum, which latter is thus enabled to carry a heavy load without straining the bearings. External bearing or supporting means, such as wheels or rollers, are avoided, such being objectionable on account of the strain occasioned thereby and their liability to become clogged and obstructed.

Upon the inside of the frustum-shaped ends at right angles with the inner surface of the drum are angled mixers or stirrers 28, which are disposed diagonally to the angled mixers or stirrers 29, which are disposed longitudinally of the drum upon the cylindrical portion of the latter. Said angled mixers at the opposite ends of the drum are disposed diagonally, so that when the drum rotates the contents is thrown toward the center from either end, and the angled mixers which lie longitudinally of the drum serve to elevate the concrete to a sufficient height, after which gravitation causes it to break and fall to the bottom of the drum, and also for the reason that by being thus placed when the dumping takes place the contents will be augered out more rapidly, and for the further reason that in a wet mixture the angled mixers being thus placed sloshing out at the ends is prevented.

Upon the frame F adjacent to the receiving end of the drum there is supported a chute or hopper 27, through which the ingredients that are to be mixed may be passed into the drum.

The frame F is provided at one end with a hand-lever 34, whereby it may be readily tilted, said hand-lever being provided with a

spring-actuated stop member 35, engaging a segment-rack 36, whereby the parts may be retained in position at various adjustments.

The rocking movement of the frame is limited by means of stems 17, adjustably mounted in tubular standards 16, where they may be secured by set-screws 18.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood. Rotary motion is imparted to the drum from the motor 7, which, as conventionally indicated in the drawings, may be operated by electricity, 15 designating the switch. The ingredients to be mixed may be supplied to the drum while the latter is in motion through the hopper or chute 27. When the ingredients have been thoroughly mixed, the lever 34 is manipulated to tilt the frame carrying the drum, the contents of which will thus be discharged, after which the drum, still revolving, is restored to an approximately horizontal receiving position.

Having thus described the invention, I claim—

In a machine of the class described, a rocking or tiltable frame having a laterally-extending yoke said yoke being provided with a box or bearing and said frame being provided at the sides opposite the laterally-extending yoke with a stub-shaft, a plurality of uprights or supports arranged in alinement with each other, a sleeve supported by two of said uprights and affording a bearing for the box upon the yoke of the tilting frame, a bearing upon one of the uprights for the stub-shaft of the tilting frame said bearing being in axial alinement with the bearing-sleeve supporting the yoke, a driven shaft journaled in said bearing-sleeve, a counter-shaft journaled upon the yoke and receiving motion from the driven shaft, a mixing-drum carried by the tilting frame, means for transmitting motion to the mixing-drum from the counter-shaft, a hand-lever connected with the frame for tilting the latter, and tubular standards arranged in the path of the tilting frame and having adjustable stop members to limit the tilting movement of said frame.

In testimony whereof I have hereto affixed my signature in the presence of two witnesses.

GEORGE ELMER McARTHUR.

Witnesses:

LAURA WILLIAMS,
BESSIE I. STEWART.