

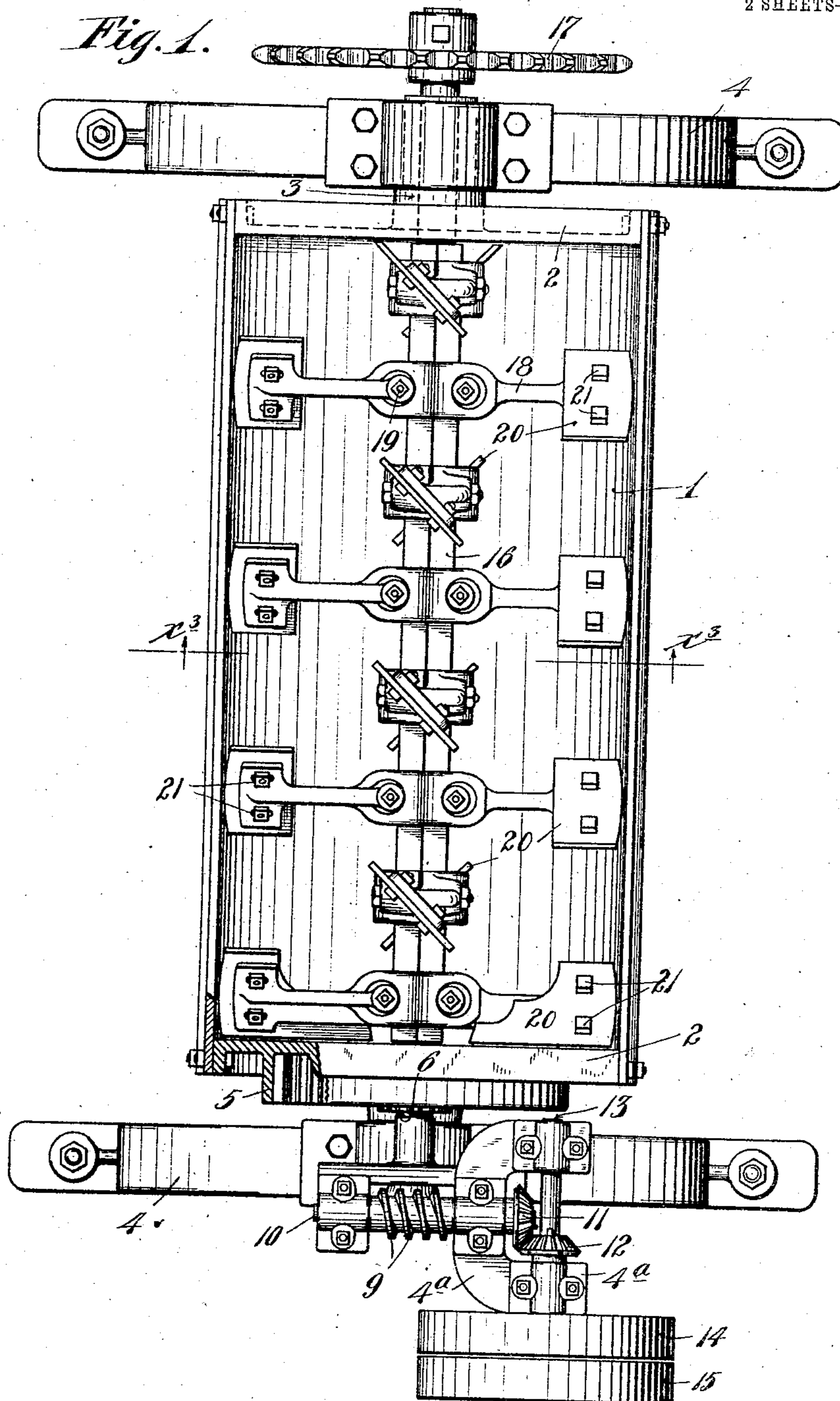
No. 819,299.

PATENTED MAY 1, 1906.

J. MILLER.
CONCRETE MIXER.

APPLICATION FILED MAY 18, 1905.

2 SHEETS—SHEET 1.



Witnesses.

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Inventor.

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By his Attorneys

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2 SHEETS—SHEET 2.

Fig. 2.

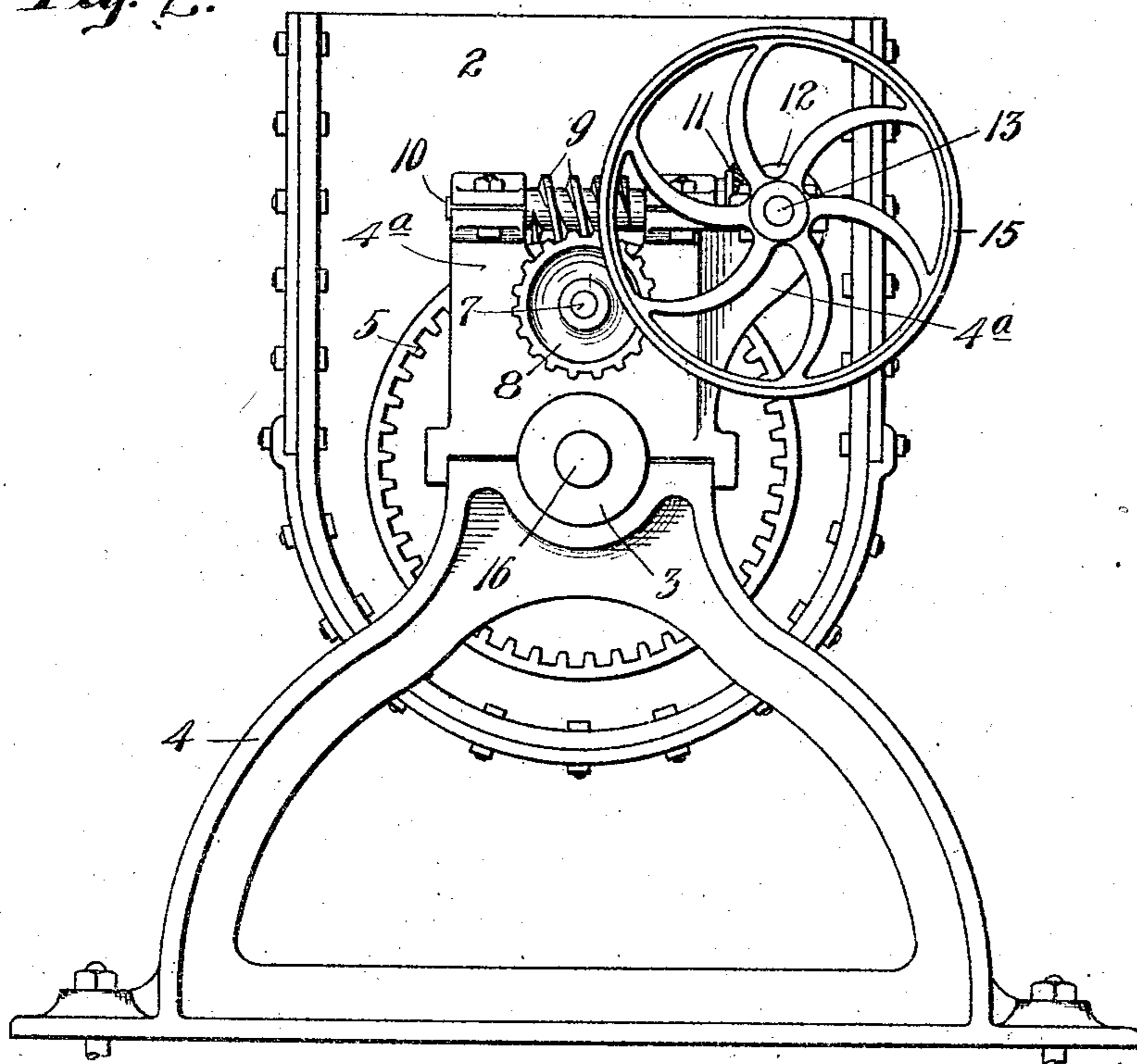
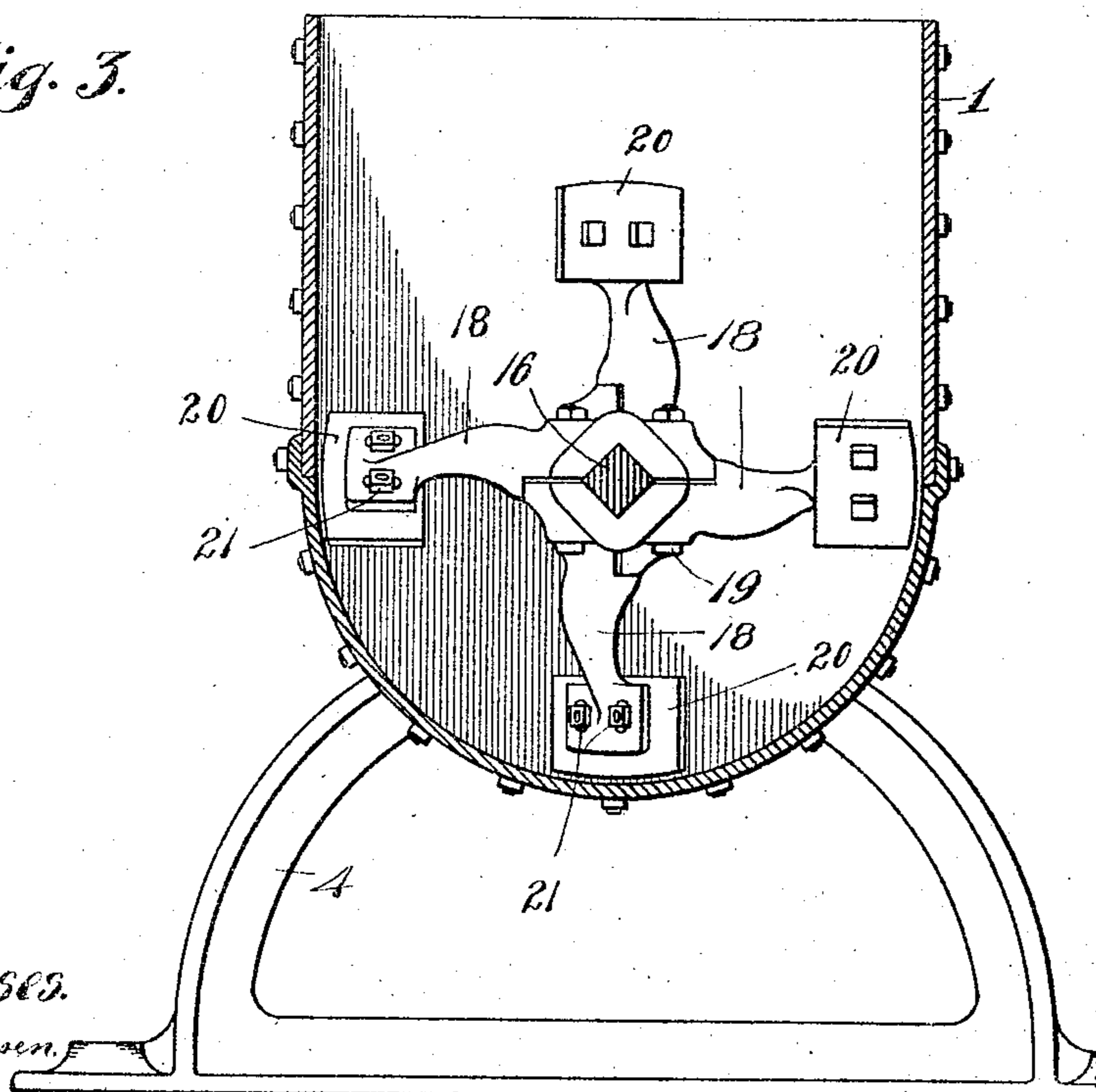


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN MILLER, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO WINNER
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CONCRETE-MIXER.

No. 819,299.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed May 18, 1905. Serial No. 260,946.

To all whom it may concern:

Be it known that I, JOHN MILLER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Concrete-Mixers; 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 has for its object to provide an improved device for mixing concrete—that is, for mixing together the sand, the gravel, the cement, and the water which are to form the concrete.

To the above ends the invention consists of the novel device and combinations of devices hereinafter described, and defined in the claims.

In the accompanying drawings, which illustrate my invention, like characters indicate like parts throughout the several views.

Figure 1 is a plan view showing the complete machine, some parts being broken away. Fig. 2 is an end elevation of the machine, and Fig. 3 is a transverse vertical section taken on the line $x^3 x^3$ of Fig. 1.

The numeral 1 indicates a mixing-trough constructed of metal and open at its top. This mixing-trough, as shown, is U-shaped in cross-section and at its ends is provided with heads 2, having outwardly-projecting trunnions 3, that are journaled in pedestal-brackets 4. One of the heads 2 is provided with an internal annular gear 5, that meshes with a pinion 6, carried by a short shaft 7, journaled in an extension 4^a of one of the pedestals 4. At its outer end the shaft 7 carries a worm-gear 8, that meshes with a worm 9 of a shaft 10, which shaft is journaled in suitable bearings in the pedestal extension 4^a and is provided at one end with a miter-gear 11. The miter-gear 11 meshes with another miter-gear 12, that is carried by a short counter-shaft 13, journaled in the pedestal extension 4^a. At its outer end the shaft 13 is provided with a fixed pulley 14 and a loose pulley 15.

The trunnions 3 of the heads 2 form bearings for a long shaft 16, which at its intermediate portion—that is, between the heads 2—is square or angular in cross-section. At one end the shaft 16 projects and, as shown, is provided with a sprocket-wheel 17.

Rigidly clamped and adjustably secured on

the square interportion of the shaft 16 is a plurality of rotary-disposed arms 18, which arms are arranged in diametrically-extended pairs and are provided with overlapping hub portions that are adapted to be clamped onto the said shaft by nutted bolts 19 passed there-through. Rigidly but adjustably secured to the outer ends of the arms 18 are mixing-blades or agitating-plates 20, that stand at an angle to the plane of rotation of said arms. As shown, said blades 20 are secured to expanded end portions of said arms by slot-and-bolt connections 21, that permit radial adjustments of said blades.

It is important to note that those blades or plates 20 that stand in longitudinal line with each other are all inclined in the same direction and that the blades of circumferentially-adjacent rows are inclined to turn in opposite direction. This arrangement is important because of the rotary movement of the shaft 16 and arms and blades carried thereby. The reversely-beveled blades or plates will come into action on the concrete ingredients alternately and in passing there-through will plow or turn the same, first in one direction and then in the other, thereby thoroughly mixing the same. The radial adjustment of the blades 20 permits the same to be set for close engagement with the cylindrical bottom of the trough or hopper 1. It will also be noted that the extreme members of the blades 20 are set at a backward inclination with respect to their direction of travel and have their outer edges extended radially and working close to the respective adjacent heads of the mixing-trough to throw the concrete ingredients out and away from said heads.

Under the mixing action the trough 1 is of course held stationary with its open end turned upward. The shaft 16 will then receive its rotary movement from a sprocket-chain, (not shown,) but which will run over the sprocket 17. After the concrete ingredients have been thoroughly mixed they may be dumped from the trough 1 by tilting the said trough or turning the same upside down, and this may be done by running the belt (not shown) from the loose pulley 15 onto the fixed pulley 14, and thereby giving the said trough the complete rotation. This dumping may be accomplished either while the shaft 16 is stopped or while it is being rotated.

The device described, while extremely sim-

ple, is efficient for the purposes had in view and is capable of performing in a most satisfactory manner a large amount of work in a very short time.

5 The worm and worm-gear in the trough-rotating drive, serve normally, to lock the said trough in an operative position and against rotation.

From what has been said it will be understood that the machine described is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

15 1. The combination with a mixing-trough, of a shaft extending longitudinally through the same, said shaft having radial blades located in longitudinal rows and provided at their free ends with obliquely-set blades, the
20 blades of the one row being given an inclination in opposite direction from that of the adjacent row and the extreme end members of

said blades being set at a backward inclination with respect to their direction of travel and having their outer edges extended radially and working close to the respective adjacent heads of said trough, substantially as described. 25

2. The combination with a mixing-trough, journaled for complete rotary movements, of means for rotating the said trough, involving 30 a worm and worm-gear for normally locking the same in a set position, and a rotary shaft extended longitudinally through the journals of said trough, and provided with radial arms 35 having at their ends, obliquely-set agitating-blades, substantially as described.

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

JOHN MILLER.

Witnesses:

H. D. KILGORE,
F. D. MERCHANT.