

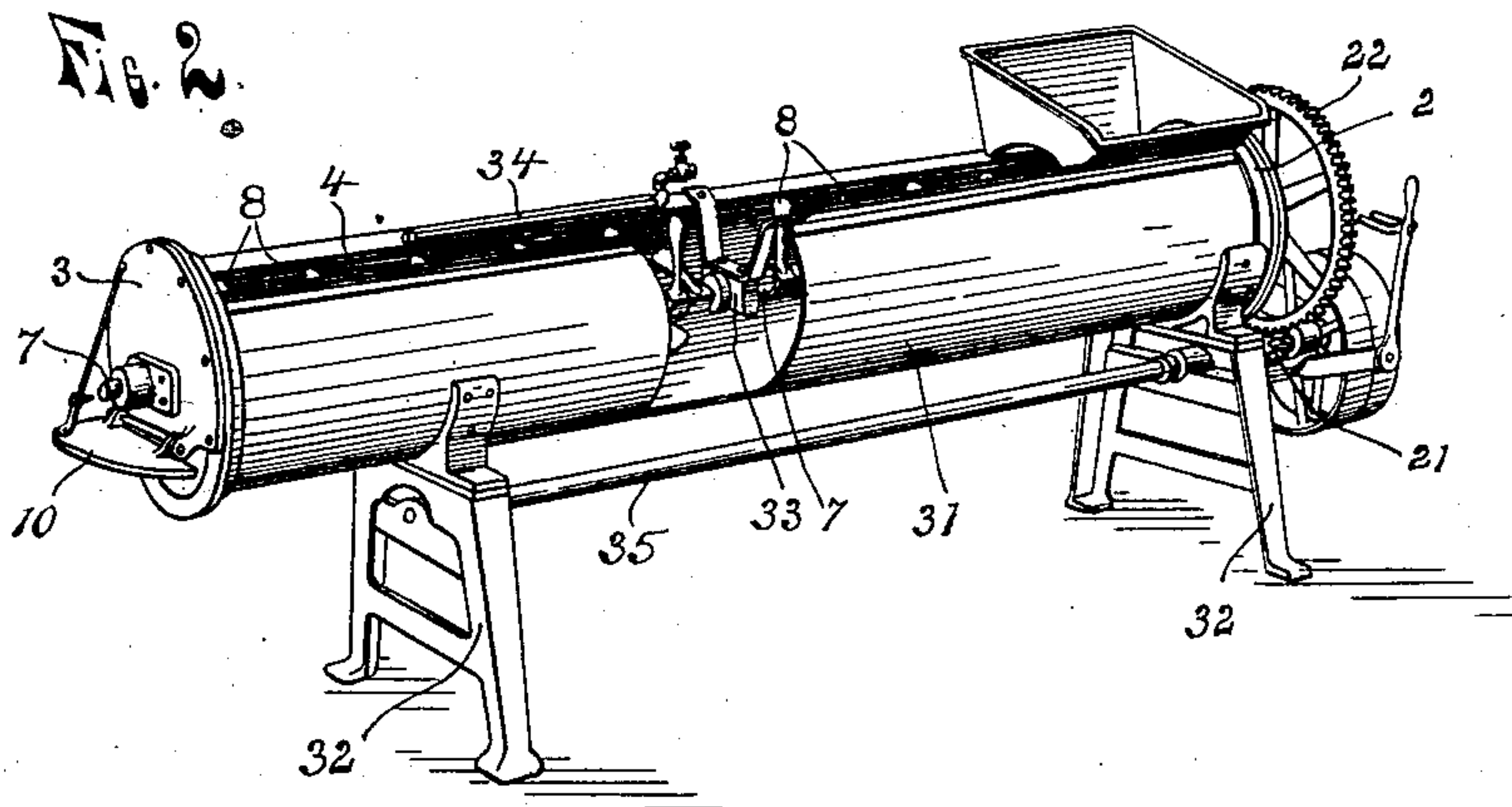
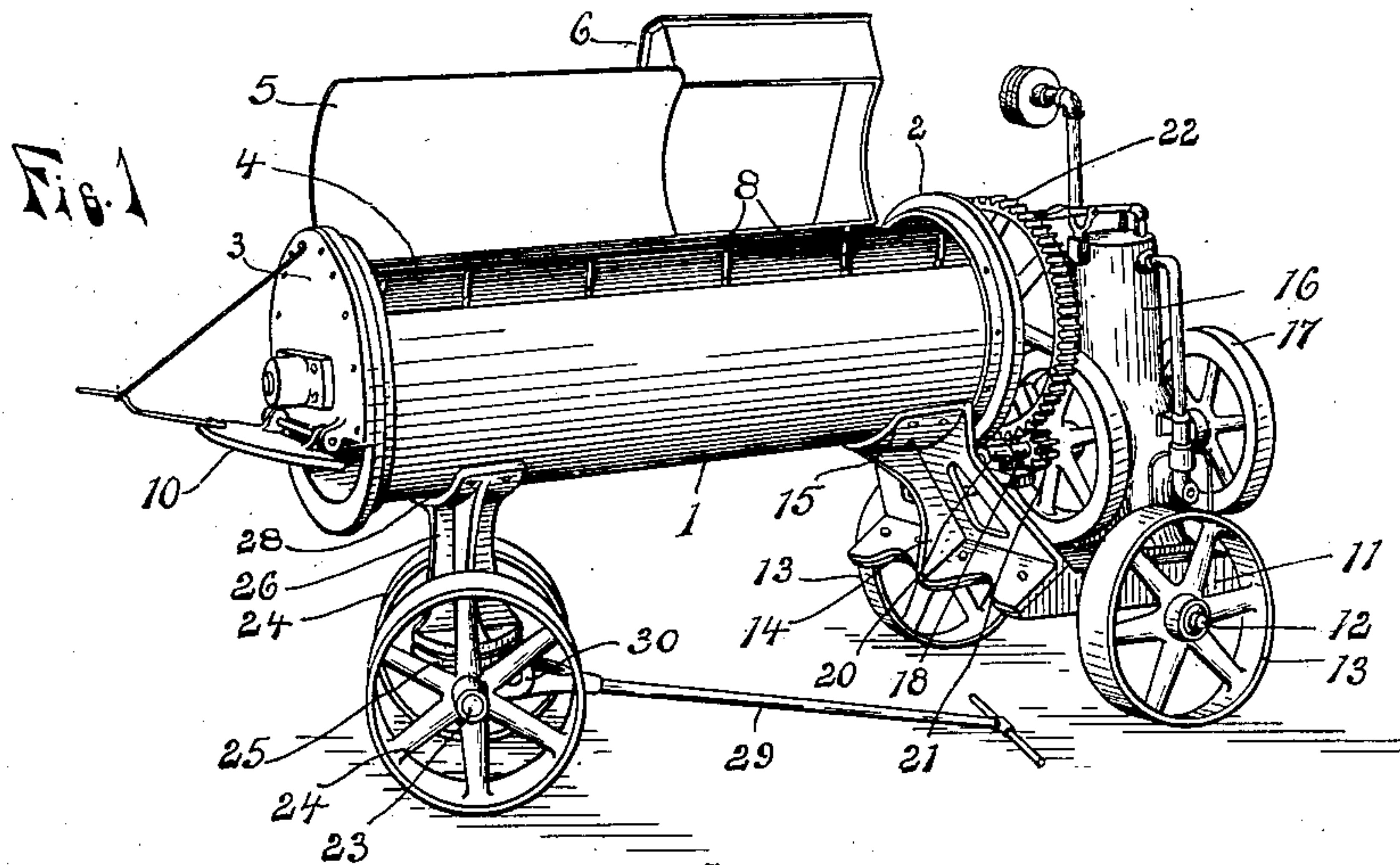
J. A. RANDALL.
CEMENT OR CONCRETE MIXER.

APPLICATION FILED DEC. 6, 1905. RENEWED JUNE 26, 1908.

899,071.

Patented Sept. 22, 1908.

2 SHEETS—SHEET 1.



WITNESSES:
L. E. Glanders
Oliver C. Barthel

INVENTOR.
James A. Randall
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ATTORNEYS.

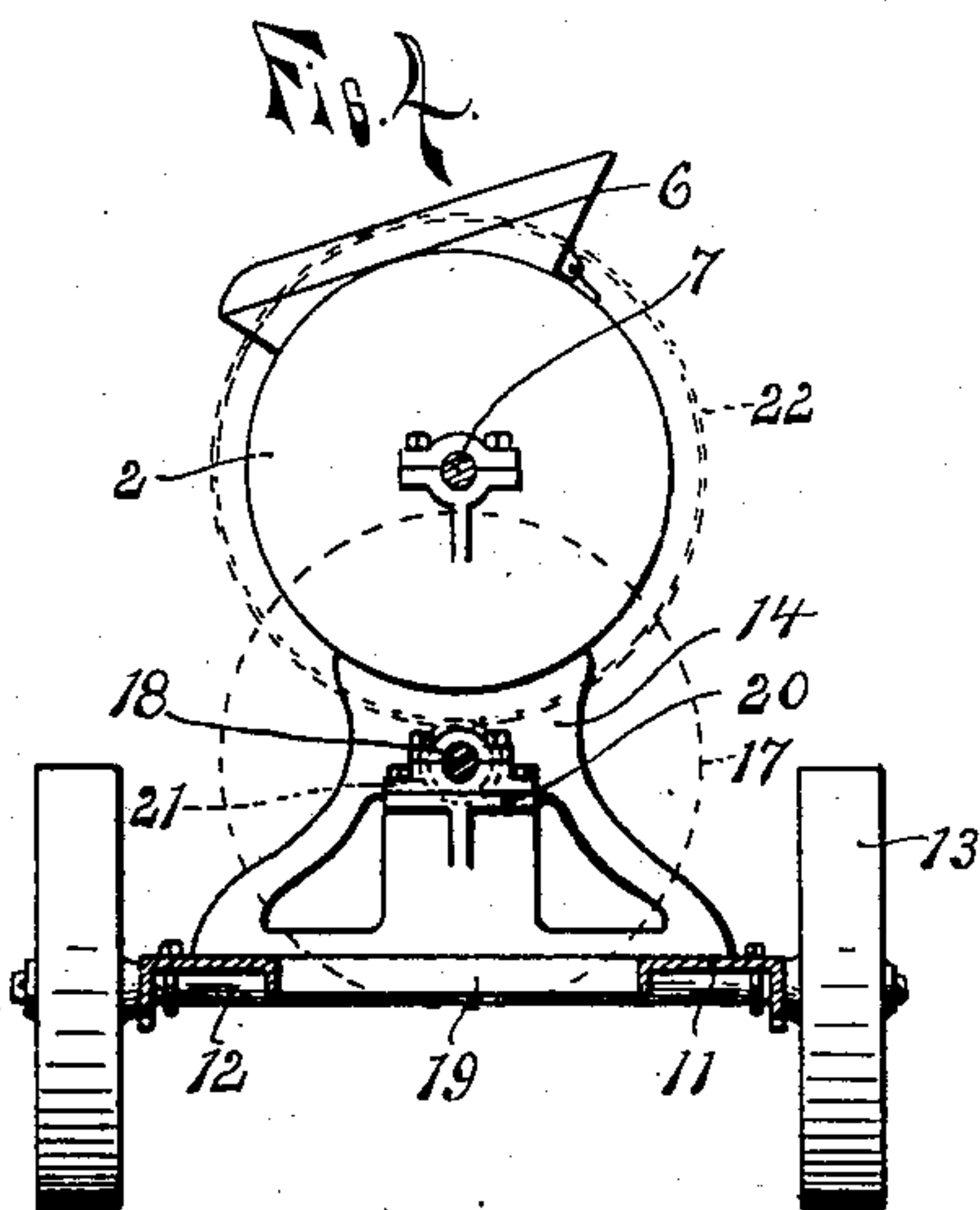
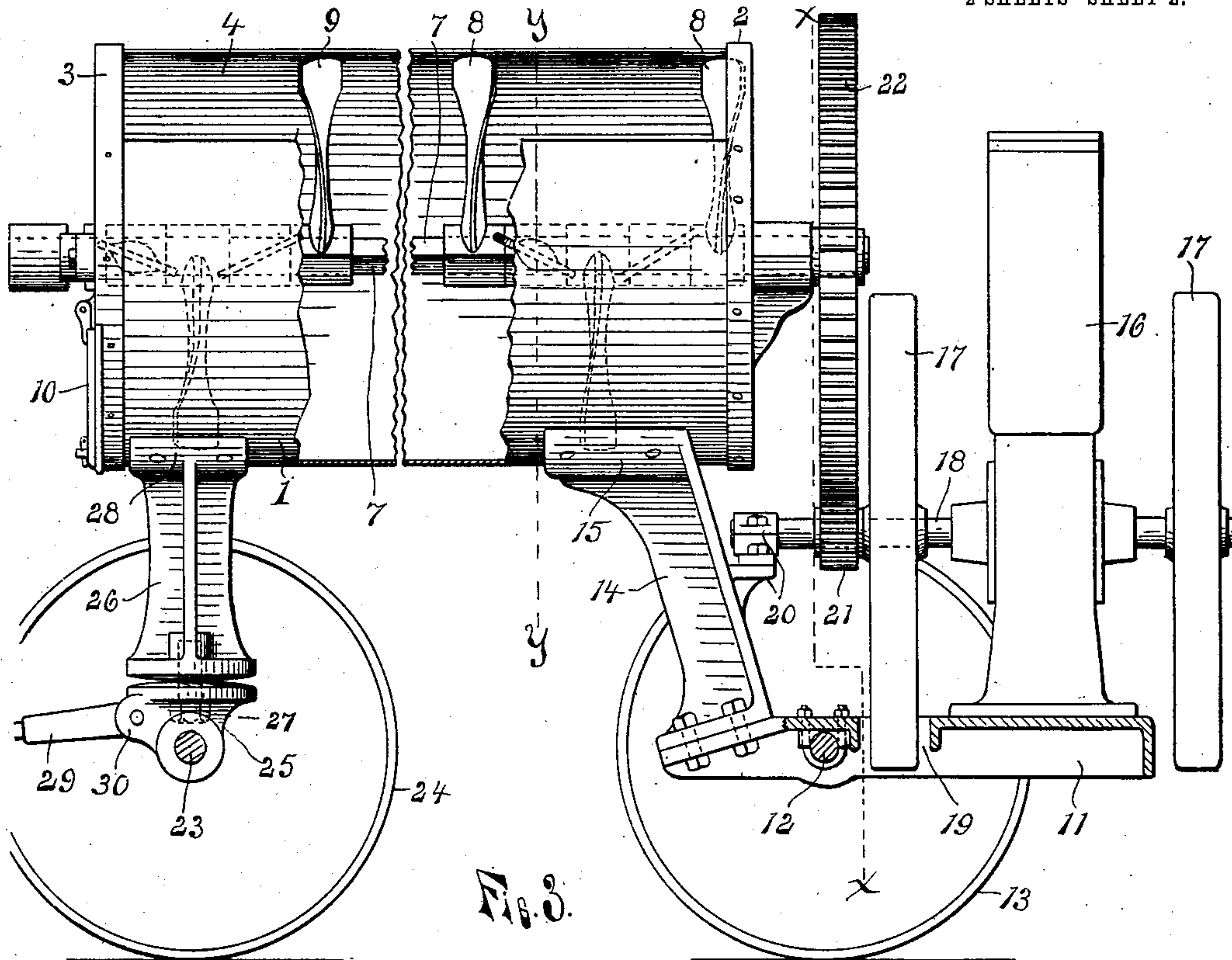
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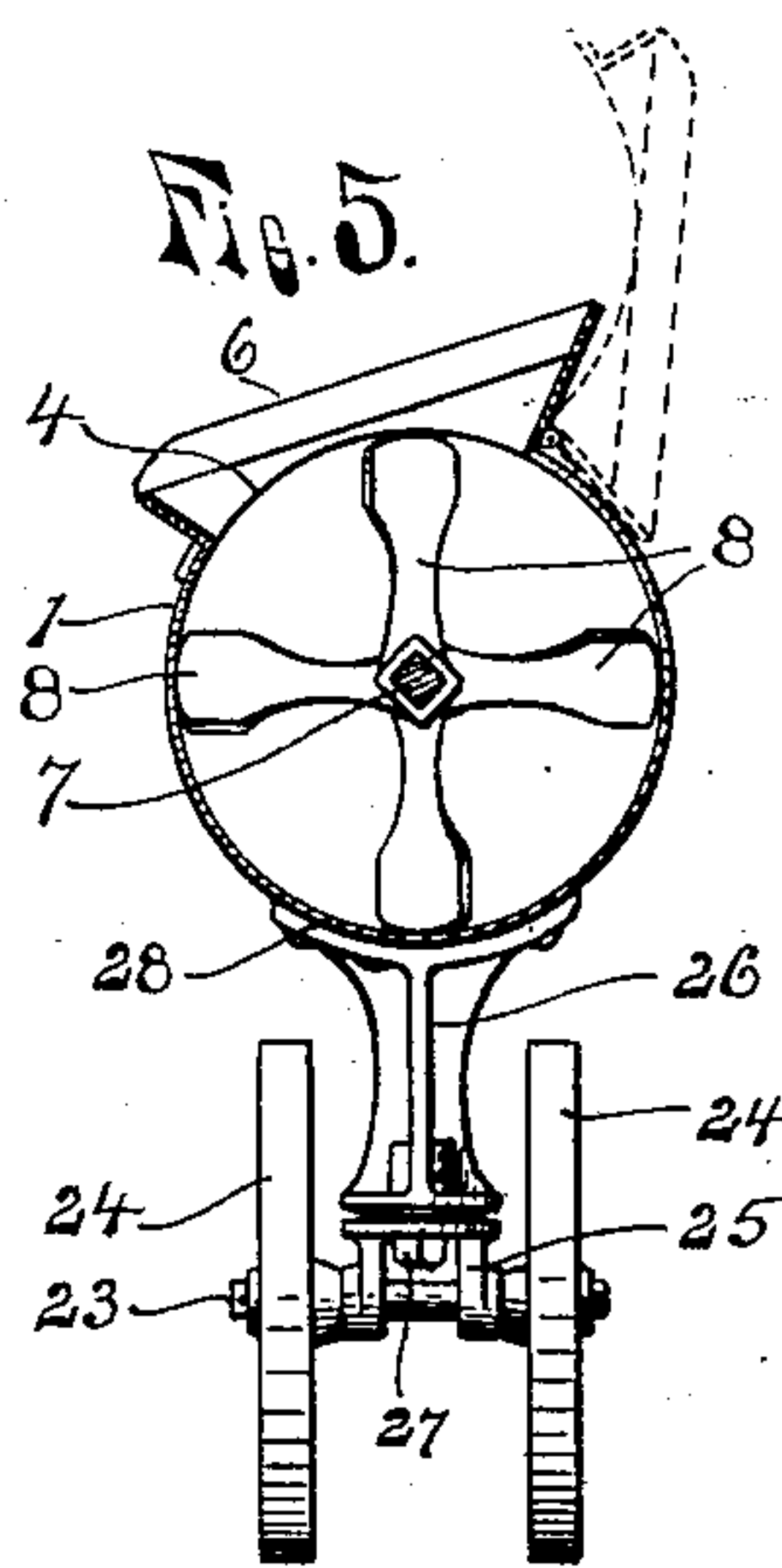
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UNITED STATES PATENT OFFICE.

JAMES A. RANDALL, OF DETROIT, MICHIGAN, ASSIGNOR TO UNITED STATES CONCRETE MACHINE CO., OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

CEMENT OR CONCRETE MIXER.

No. 899,071.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed December 6, 1905, Serial No. 290,508. Renewed June 26, 1908. Serial No. 440,511.

To all whom it may concern:

Be it known that I, JAMES A. RANDALL, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Cement or Concrete Mixers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in the construction of cement or concrete mixers, and its object is to provide a machine for the purpose, which is simple and cheap to manufacture, yet is efficient in its operation and durable.

15 A further object of the invention is to provide a device having the several advantages of the particular construction, arrangement and combination of parts, and also embodying certain other new and useful features, all as hereinafter more fully described and pointed out in the claims, reference being had to the accompanying drawings, in which

20 Figure 1, is a perspective view of a device embodying the invention, and showing the cover and hopper in their raised position; Fig. 2, is a similar view of a device embodying a modified construction; Fig. 3, is a side elevation, partially in vertical section and 30 with parts broken away to show the construction, of the machine shown in Fig. 1; Fig. 4, is a transverse section of the same on the line $x-x$ of Fig. 3, drawn to a smaller scale; and Fig. 5, is a similar section on the 35 line $y-y$ of Fig. 3.

As shown in the drawings 1 is a cylindrically shaped stationary trough or drum formed of sheet metal and provided at its forward end with a cast head 2 secured 40 thereto by bolts or rivets and a cast head 3 similarly secured to its rear end. The drum has an opening 4 in its upper side throughout its length, and a cover 5 and hopper 6 at the forward end of said cover, are hinged 45 to the drum at one side of said opening to be turned up to the position shown in Fig. 1 to give free access to the interior of the drum. One longitudinal edge of this opening is farther from the vertical axial plane 50 of the drum than the other edge so that it will be lower thus giving free access to the drum from that side and the hopper is formed with a high side at the high side of the opening and an opposite low side to facilitate the shoveling in of the material.

Each head of the drum is provided with a bearing at its axis to receive the round ends of a square shaft 7 extending in the longitudinal axis of the drum. Upon this shaft is secured a series of blades 8 each set one 60 quarter of a turn in advance of the preceding blade and formed with a twist or lead so that they will force the material toward the rear end of the drum. These blades are preferably made of such a width that the 65 path of travel of each overlaps that of the next so that the whole interior surface of the drum will be scraped clean by the blades. It is also desirable to interpose at intervals in the series of blades, blades 9 which are 70 formed with a twist or lead opposite that of the others and which tend to force the material in an opposite direction or toward the upper end of the drum, thus breaking the continuity of flow and more thoroughly mixing the concrete. 75

The rear head is provided with a hinged door 10 at its lower side which is held open to permit the mixture to escape in a continuous stream but may be temporarily 80 closed to prevent the discharge if desired.

11 is a cast platform supported upon the axle 12 secured thereto and provided with supporting wheels 13 and a cast bracket 14 is bolted at its lower end to the platform and 85 extends upward in an inclined position to support the forward end of the drum. Said bracket is formed with a curved seat 15 at its upper end to receive the curved lower side of the drum to which it is bolted or otherwise 90 secured. The platform extends forwardly of the axle 12 and secured upon this portion thereof is any suitable motive power, preferably an explosive or gasolene engine 16 having balance wheels 17 secured upon its crank 95 shaft 18, the platform being formed with an opening 19 to receive the inner balance wheel.

20 is a suitable bearing on the bracket 14 for the inner end of said crank shaft, and secured upon said shaft adjacent to the balance wheel is a pinion 21 in mesh with a large gear 22 on the forward end of the drum shaft 7. The engine is thus supported low down where it is very accessible and where it may be conveniently geared directly to the drum 105 shaft, and the drum is elevated to bring its discharge end conveniently high.

The discharge end of the drum is supported upon an axle 23 provided with supporting wheels 24, and this axle is secured in bearings 110

on the truck frame 25 which is pivotally attached to the bolster 26 by the king bolt 27. Said bolster is formed with a curved seat 28 at its upper end to receive the curved lower side of the drum to which it is securely bolted, and a tongue or handle 29 is pivotally attached to ears 30 on the truck frame. The bolster or post 26 is of such a length that the wheels may be freely turned beneath the drum and the pivotal attachment of the truck frame to the bolster by the king bolt, permits of such turning so that the tongue or handle may be turned around out of the way and the machine turned in a small space.

The modified construction shown in Fig. 2 is a stationary machine, the cylindrical drum 31 which is about twice the length of the drum in the other construction being supported upon cast legs 32. In this construction the shaft is supported intermediate its ends in a bearing 33 supported or hung from the top of the drum, said top being left open throughout its length, and secured along one edge of this opening, is a short spray pipe 34 for spraying water upon the material as it is being mixed. This pipe is located at a distance from the upper or intake end of the drum so that the material is first mixed dry, then dampened and mixed, and finally discharged through the door in the end of the drum. A counter-shaft 35 is mounted in bearings on the supporting legs and provided with a tight and a loose pulley by means of which it and the drum shaft are driven, motion being transmitted from the counter shaft to the drum shaft by a large gear on the drum shaft and a pinion on the counter-shaft.

Having thus fully described my invention, what I claim is:—

1. In a concrete mixer, the combination of a cylindrical drum, a shaft in the axis of said drum, blades on said shaft, a platform, wheels attached to the platform to support the

same, a bracket secured at its lower end to the platform and extending upward therefrom at an inclination thereto and provided at its upper end with a curved seat to receive the lower side of the drum to which it is secured, a bolster secured to the lower side of the drum near its discharge end, a truck frame to which the bolster is pivotally attached, and supporting wheels for the truck frame.

2. In a concrete mixer, the combination of a cylindrical drum having a longitudinal opening in its top and provided with heads formed with bearings at their axes, a shaft in said bearings, blades on said shaft, a door in the head at the discharge end of the drum, a cover hinged at one edge to one edge of the opening in the drum, a hopper secured to one end of said cover and hinged at one edge to said edge of the opening to turn with the cover, a platform, an axle secured to the platform, wheels on the axle, a bracket bolted at its lower end to the platform and extending upwardly therefrom, said bracket having a curved seat in its upper end by which it is secured to the lower side of said drum, an engine mounted on said platform, a bearing on the bracket for the end of the engine shaft, a pinion on said engine shaft, a gear on the end of the drum shaft engaging the pinion, a bolster formed with a curved bearing to receive the lower side of the drum and secured thereto near the discharge end thereof, a truck frame, a king bolt pivotally connecting the truck to the bolster, wheels on the truck frame, and a tongue or handle pivotally attached to the truck frame.

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

JAMES A. RANDALL.

Witnesses:

OTTO F. BARTHEL,

THOS. G. LONGSTAFF.