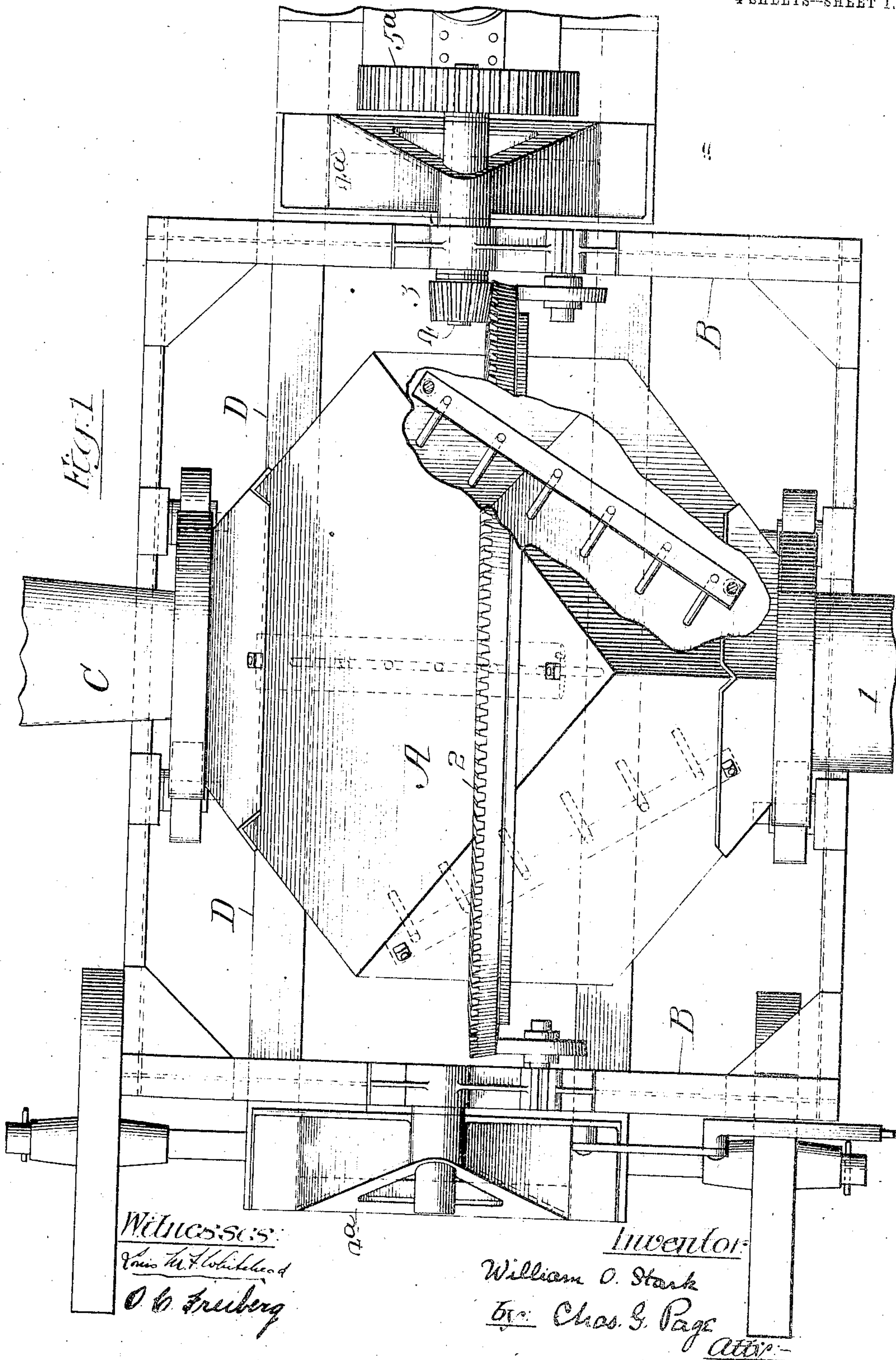


W. O. STARK.
MIXING MACHINE.
APPLICATION FILED SEPT. 5, 1906.

4 SHEETS--SHEET 1.



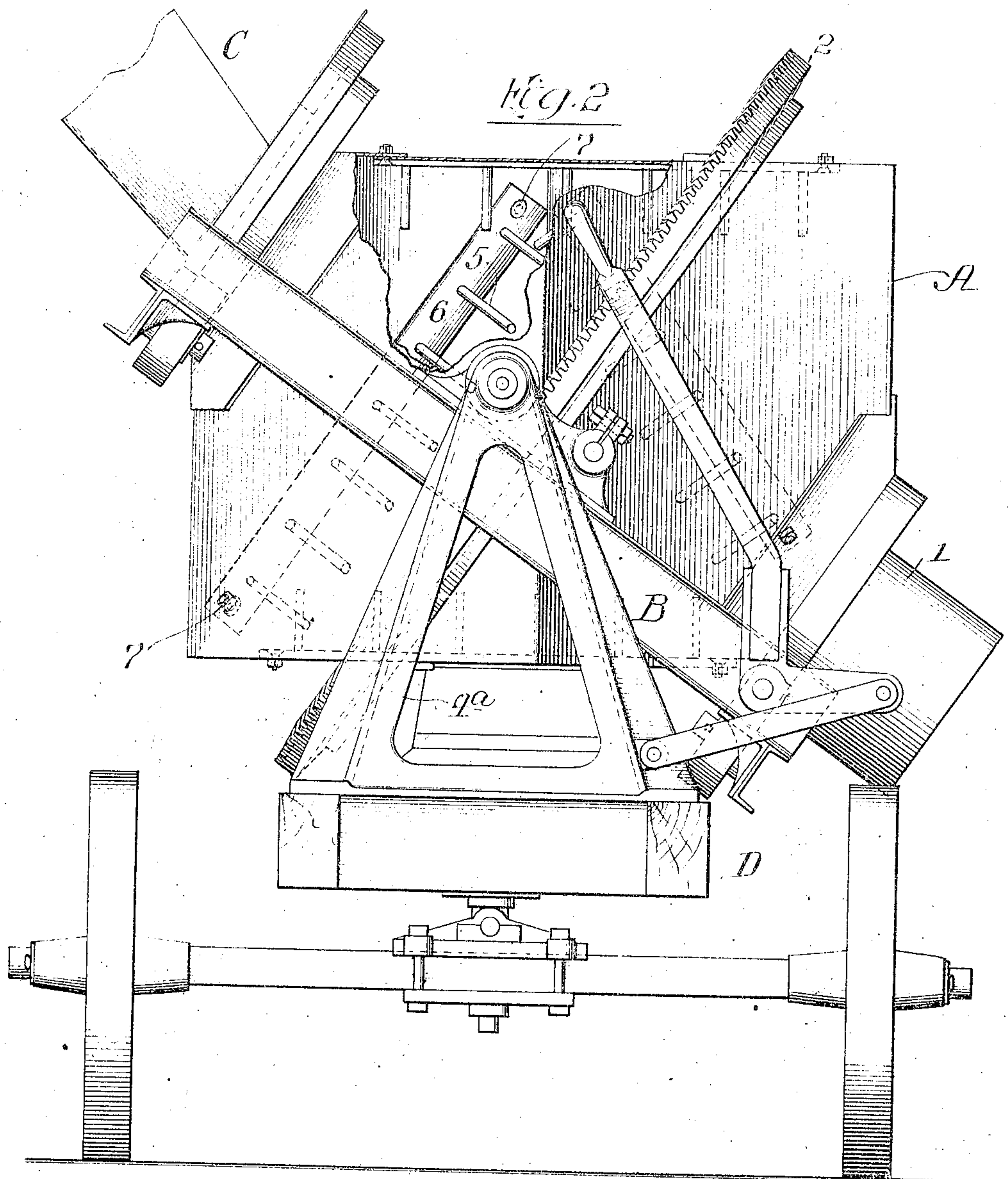
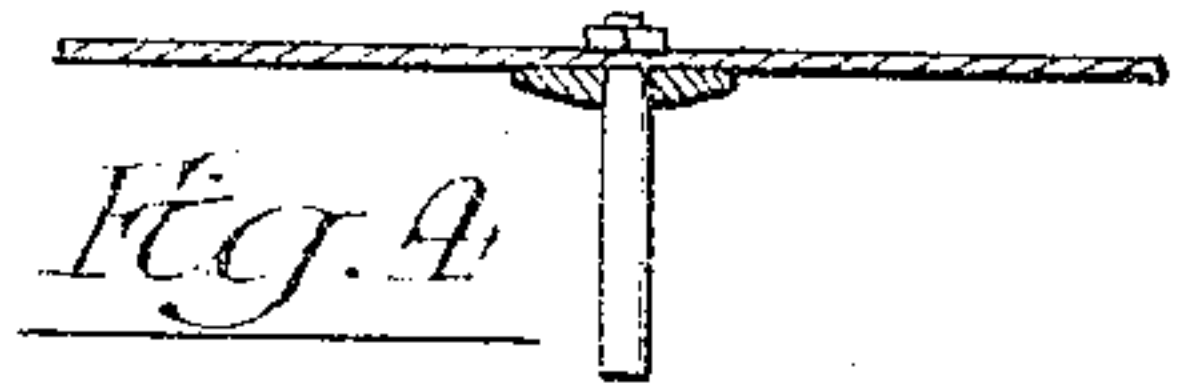
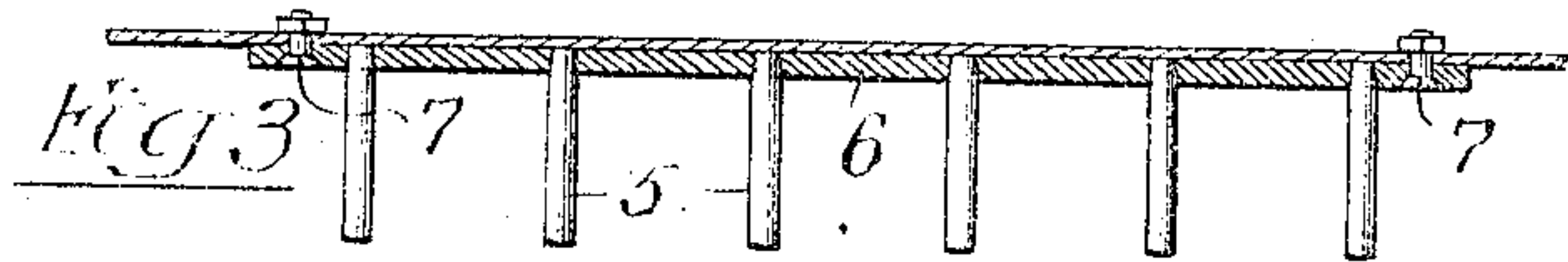
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903,516.

Patented Nov. 10, 1908.

4 SHEETS—SHEET 2.



Witnesses:

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C. C. Freilich

Inventor:

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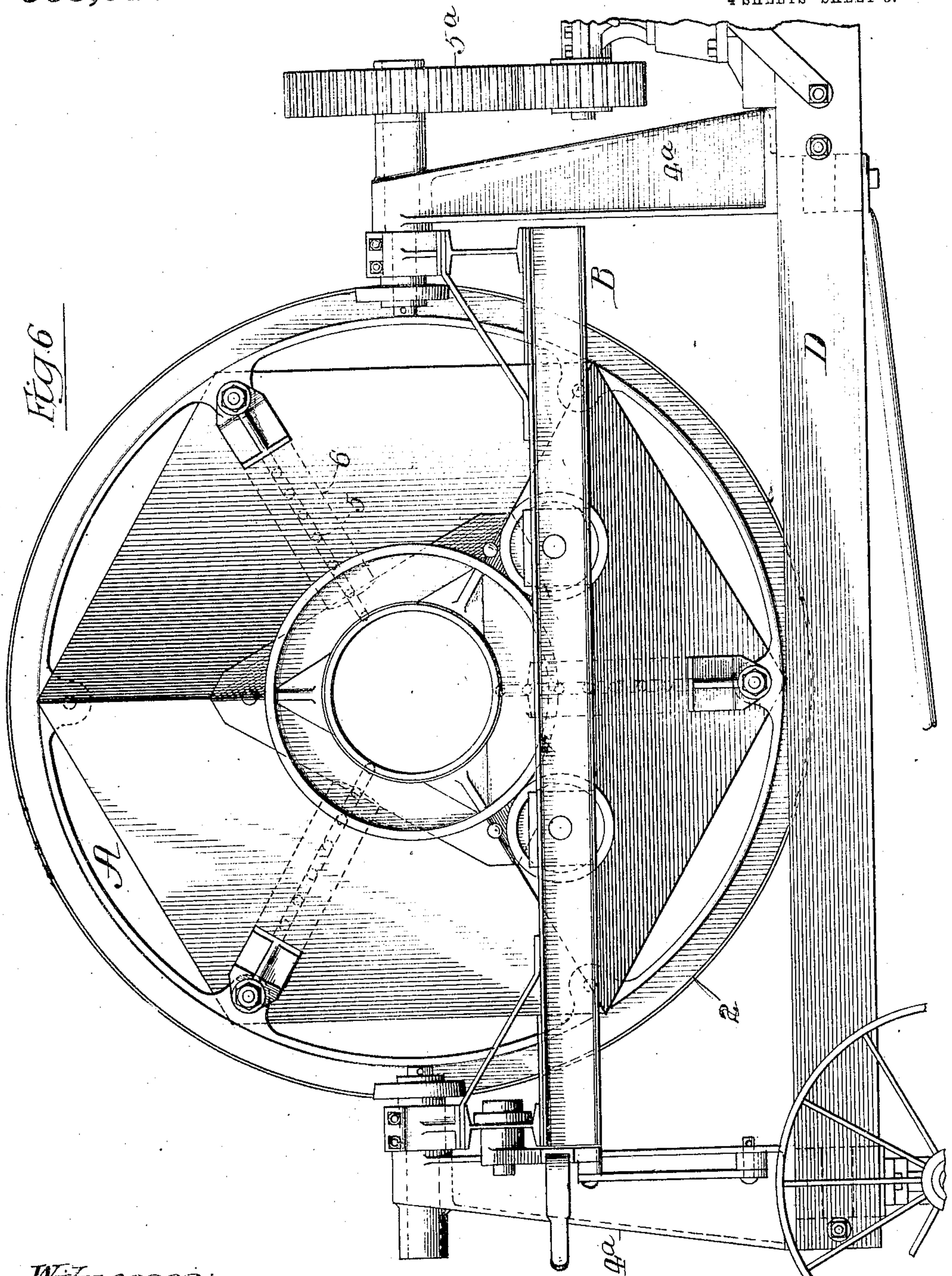
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4 SHEETS—SHEET 3.



Witnesses:
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4 SHEETS—SHEET 4.

Fig. 8

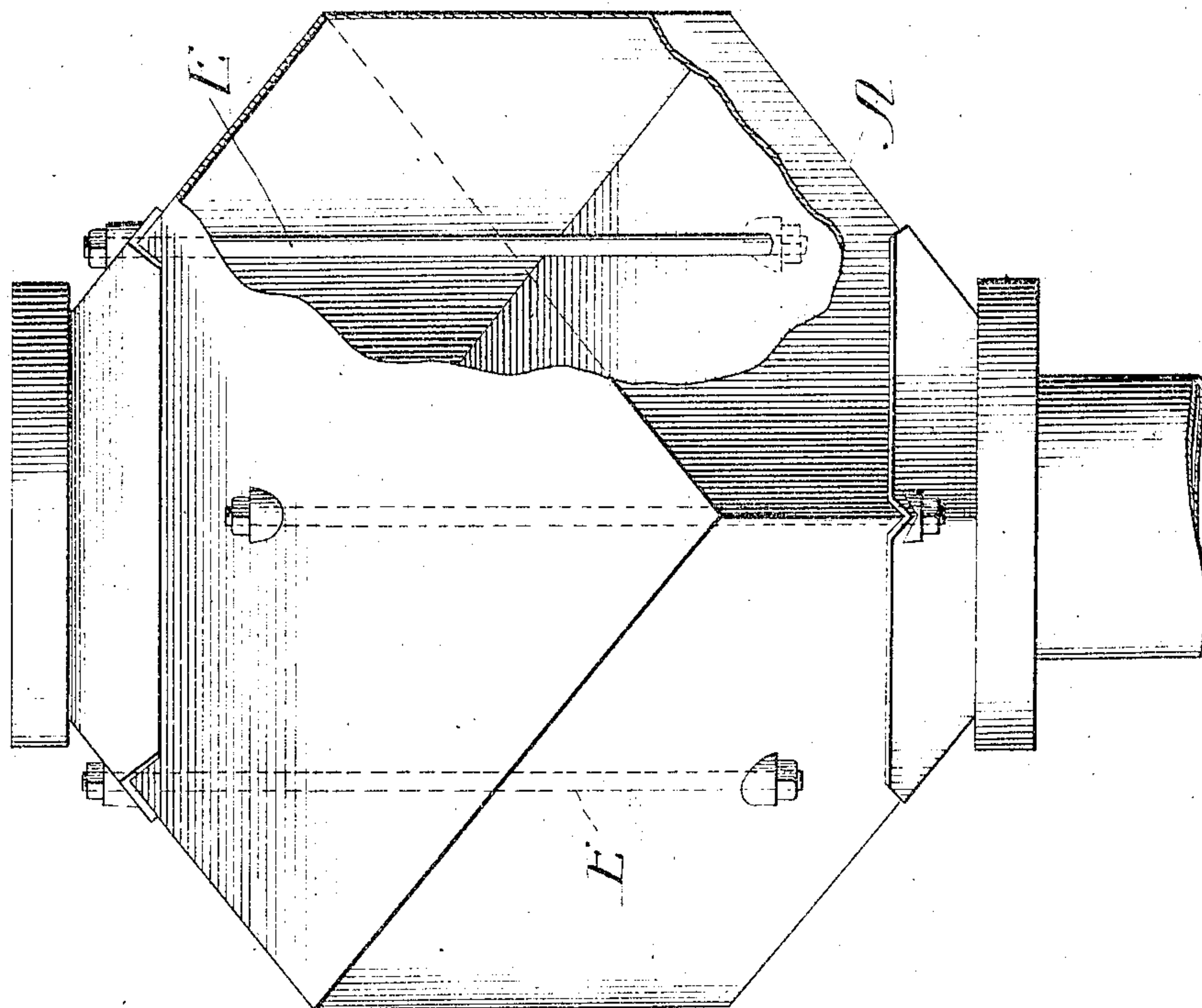
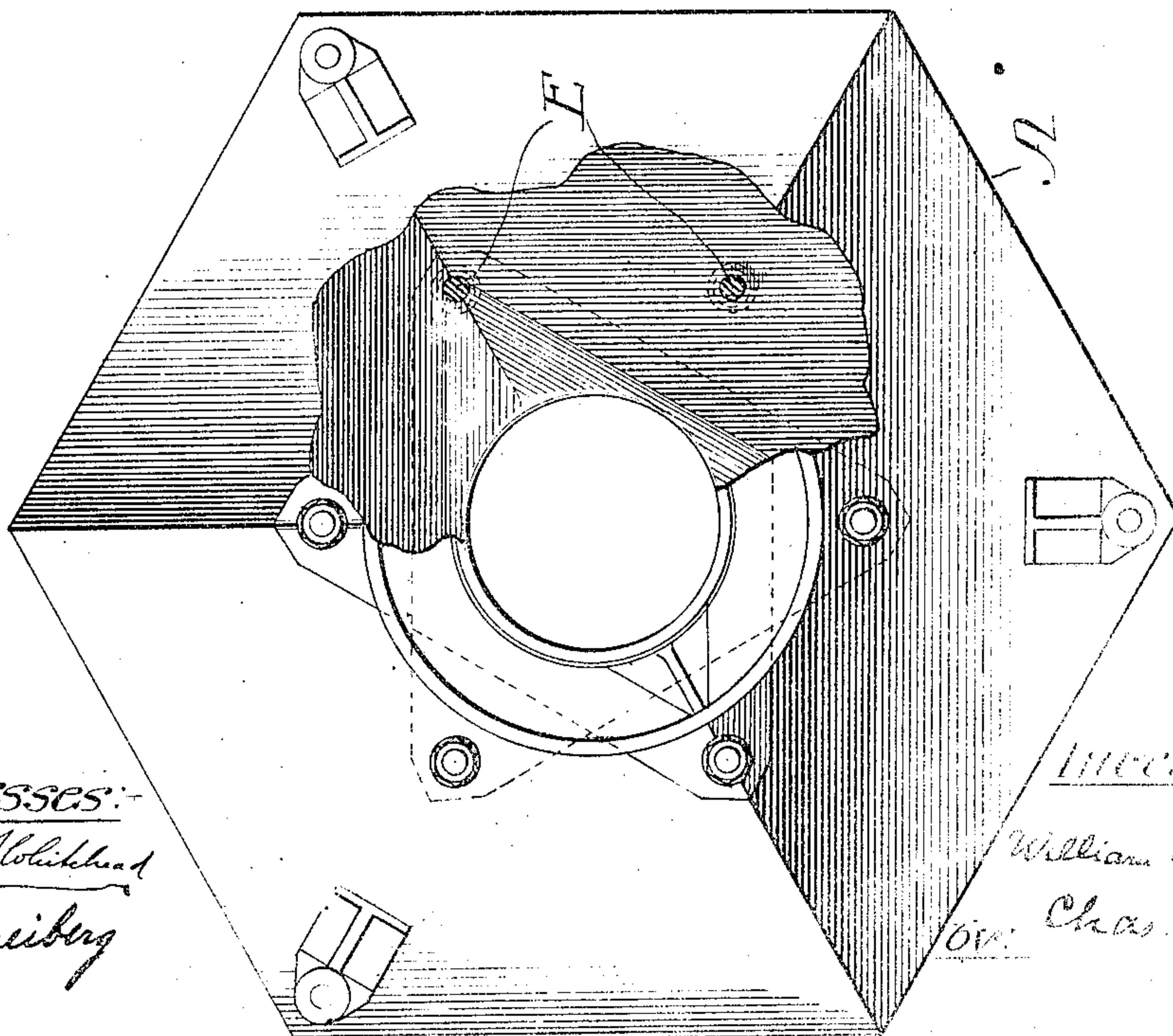


Fig. 7



Witnesses:

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Inventor:

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By: Chas. G. Page

Att.

UNITED STATES PATENT OFFICE.

WILLIAM O. STARK, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. AUSTIN, OF CHICAGO, ILLINOIS.

MIXING-MACHINE.

No. 903,516.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed September 5, 1905. Serial No. 277,036.

To all whom it may concern:

Be it known that I, WILLIAM O. STARK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mixing-Machines, of which the following is a specification.

My invention relates to mixing machines for mixing concrete, mortar and the like, and more particularly to machines of such class in which a cubiform or polyhedric mixing receptacle is employed. In using a cubiform mixing receptacle or the mixing receptacle having a discharge passage for the concrete at a point intersected by several sides of the structure, the operation of producing concrete is rapid, effective, and satisfactory. But in mixing cement mortar in mixing machines, the material is apt to form balls, and where the interior of the mixer is devoid of teeth or blades, these balls or lumps of material are not always satisfactorily broken up.

Objects of my invention are, to overcome the foregoing stated objectionable features.

In the accompanying drawings: Figure 1, is a top plan view of a mixing machine embodying the principles of my invention, a portion of the mixing receptacle being broken away. Fig. 2, is a side elevation of the mixing machine with the mixing receptacle in position for discharge, a portion of the mixing receptacle being broken away. Figs. 3, 4 and 5, are details of removable plates with rods for breaking up or preventing the formation of balls or large lumps of mortar cement during the process of mixing. Fig. 6, shows the mixing machine in elevation viewed from a side at right angles to the plane of Fig. 2. Fig. 7, is another view of the mixing receptacle partially broken away and illustrating an arrangement of mixing rods somewhat longer than the mixing rods shown in preceding figures. Fig. 8, is another view of the mixing receptacle shown in Fig. 7, partially broken away.

A indicates the mixing receptacle which is revolubly mounted upon a tilting frame B. The mixing receptacle shown is cubiform and is provided with a suitable inlet opening at one corner portion, and with a suitable discharge opening at the diagonally opposite corner portion, it being understood that said corner portions are cut away for the purpose of providing said openings. The discharge opening is provided with a discharge spout or

nozzle 1, and as illustrated in Figs. 1 and 2, C indicates a portion of a charging chute or hopper which is understood to be suitably supported. The mixing receptacle is provided with a ring-gear 2 arranged between its receiving and discharge opening. As a means for continuously revolving the mixing receptacle, the ring-gear 2 is engaged by driving pinion 3, on a rotary shaft 4, having a gear 5^a, which is in practice engaged by the driving-gear of any suitable driving mechanism.

D indicates a wheel supported carriage or body-frame having uprights 4^a upon which the frame B is supported to tilt.

In the first six figures of the drawings, the means for breaking up the material consists of rods 5, secured to plates or strips 6, which are removably secured to the inner sides of the mixing receptacle. Each one of these plates or strips 6 is provided with a series of rods 5 and the latter are of a length to form a series of teeth projecting inwardly from the plates within the mixing space of the mixing receptacle. These material breaking devices are somewhat in the nature of a set of rakes each detachably secured to one of the cube sheets by bolts 7, and arranged to extend from one cube corner to the diagonally opposite cube corner opening, it being observed that in the arrangement shown three of these plates or strips extend from the inlet corner portion of the cube to diagonally opposite corners of the cube sheets, and that the remaining three of said plates or strips extend from the opposite cut away corner portion of the cube to diagonally opposite corners of the cube sheets, whereby three of said strips alternate with the remaining three of said strips.

In Figs. 7 and 8, the rods E are arranged parallel with the axis of rotation of the mixing receptacle and extend through the sides of the latter. These rods E can be secured in any suitable way, as for example, by bolts or nuts. During operation the rods whether made short like the rods 5, or long like the rods E, will tend to break up the material and prevent the formation of balls or large lumps. It will not be necessary to use the rods for mixing concrete and when the machine is to be used for such purpose, the rods can be removed. In order to remove the rods 5, the plates or strips 6, can be unbolted and removed through one of the open

ings of the mixing receptacle. The rods E may, however, be permitted to remain in place if preferred, although, they can be removed and in such case the openings or such
5 rods can then be closed by screw plugs, or any other suitable closing device.

What I claim as my invention is:

1. In a mixing machine, a tilting frame, a rotary tilting cubiform or polyhedric mixing
10 receptacle mounted on said tilting frame to revolve about a diagonal axis and provided with a set of internal mixing and breaker rods supported within the mixing receptacle in annular series and arranged parallel with
15 and around the axis of rotation.

2. In a mixing machine, a rotary tilting cubiform or polyhedric mixing receptacle mounted to revolve about a diagonal axis and provided with internal plates or strips having mixing and breaker rods, the said 20 rods being secured to the plates and arranged in series extending from one cube corner portion to a diagonally opposite cube corner portion in lines parallel with the diagonal axis, substantially as shown and described.

WILLIAM O. STARK.

Witnesses:

AUGUST BALTZER,
R. B. ENGLE.