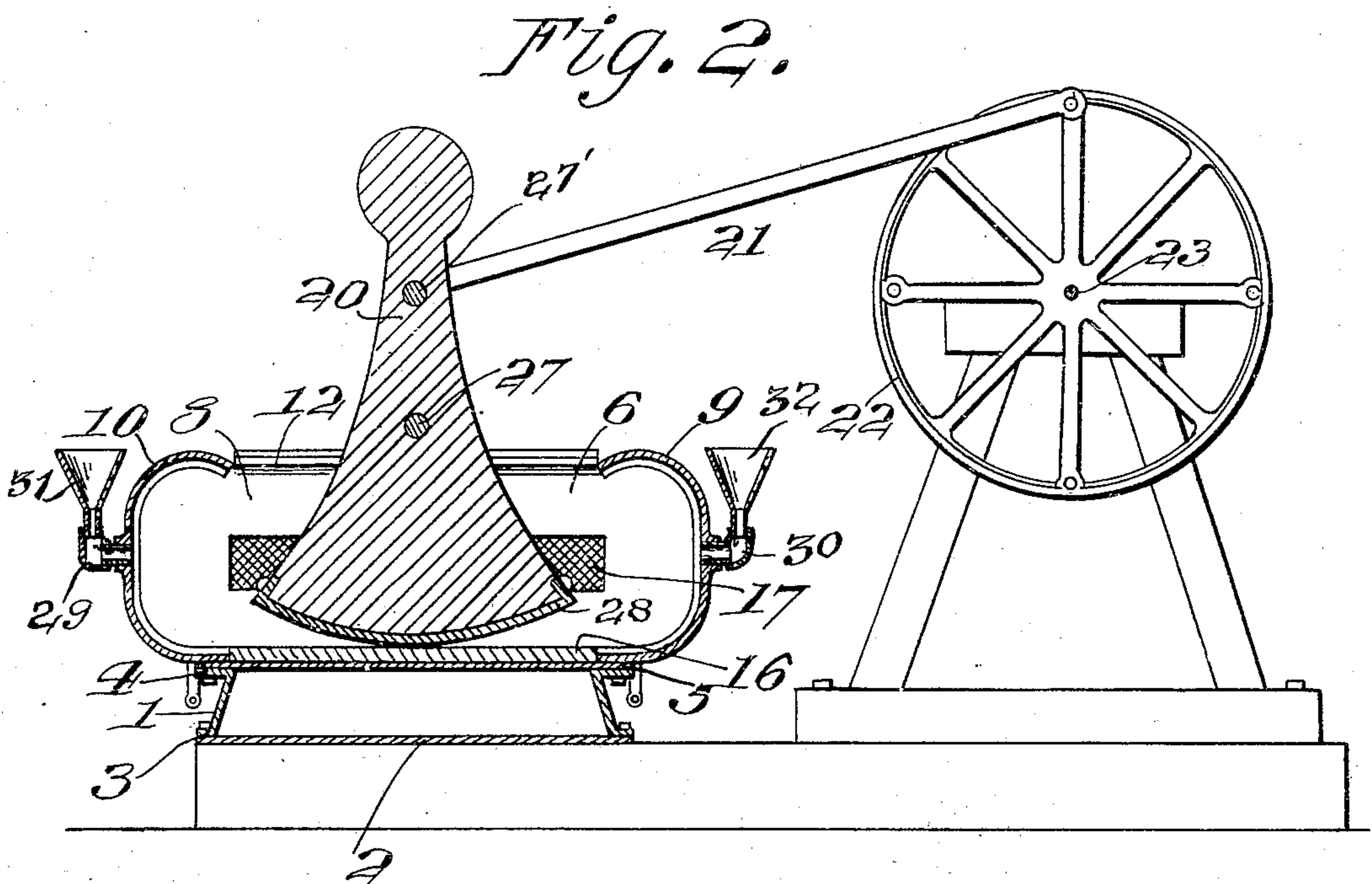
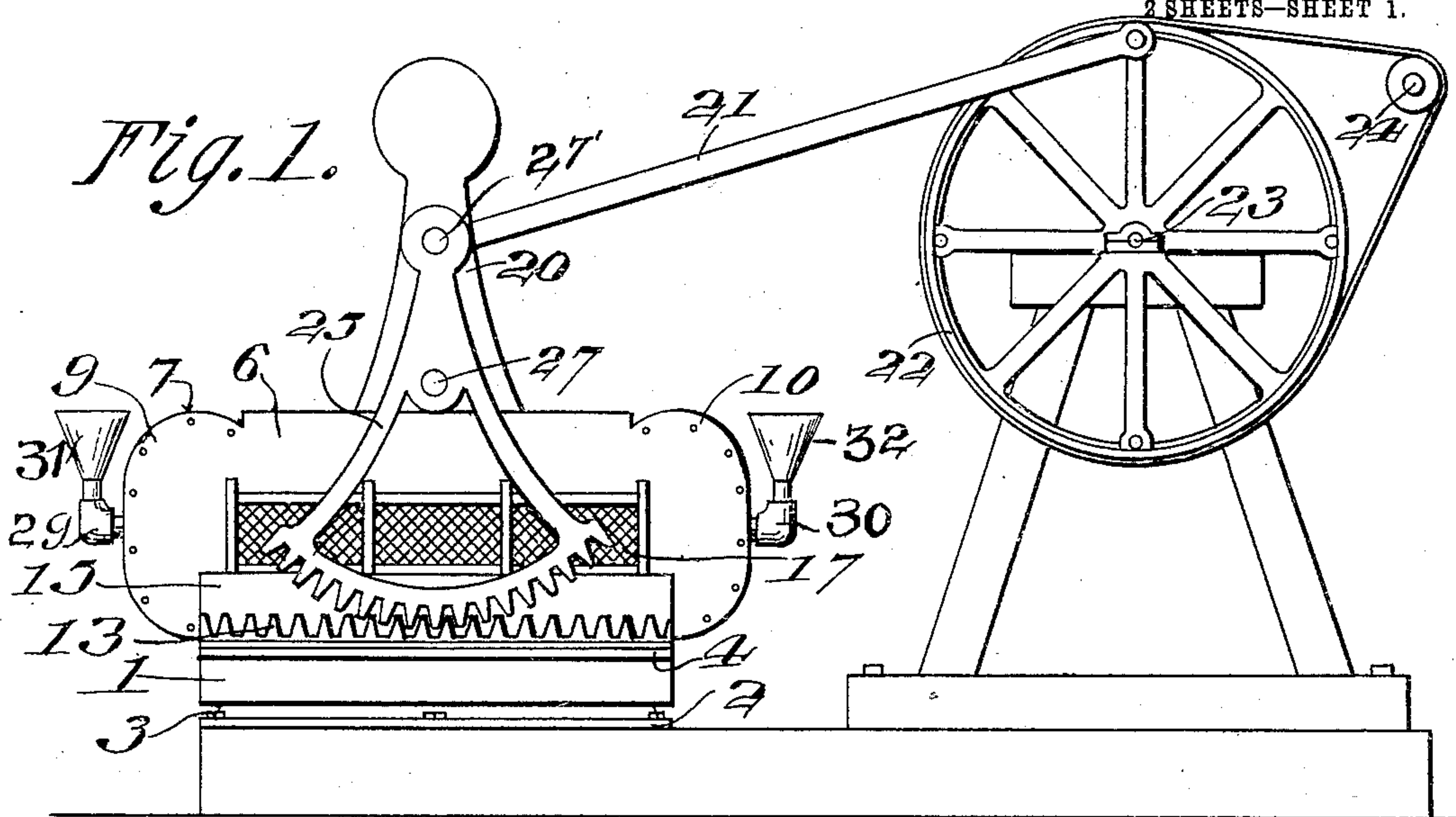


J. G. KIRKSEY.
ORE GRANULATOR OR PULVERIZER.
APPLICATION FILED JULY 20, 1908.

931,316.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.



Witnesses
C. D. Brown
C. H. Giesbauer.

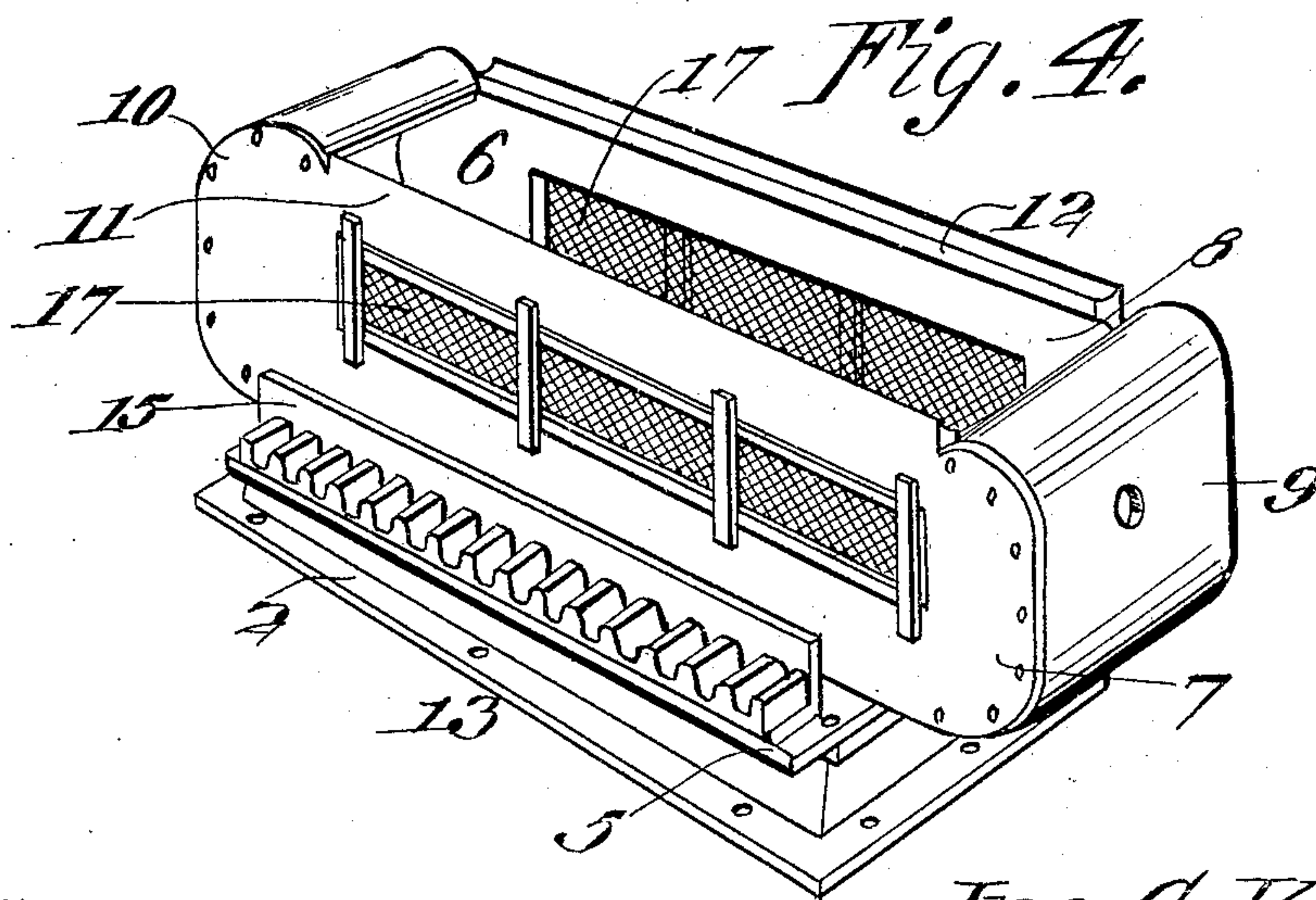
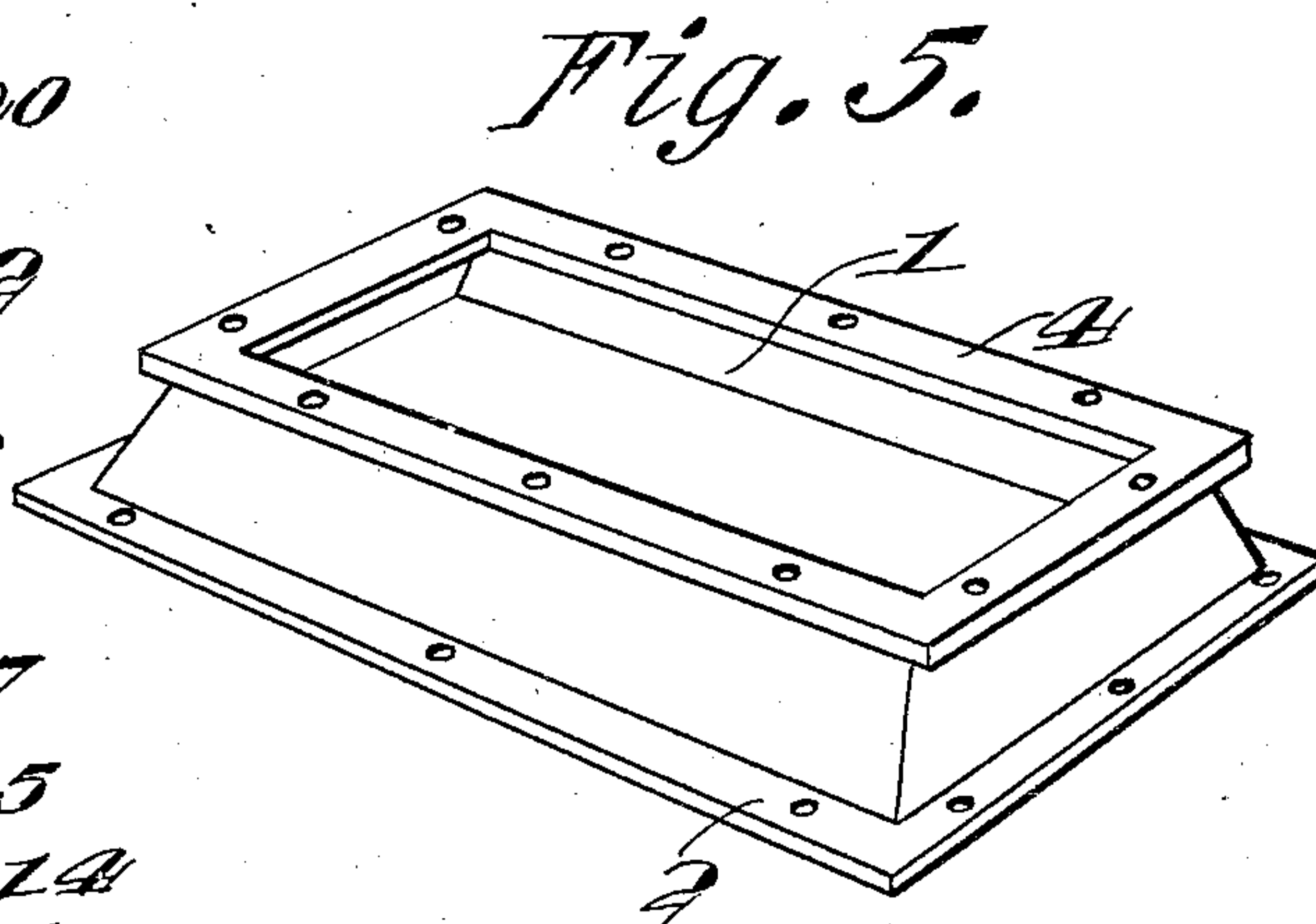
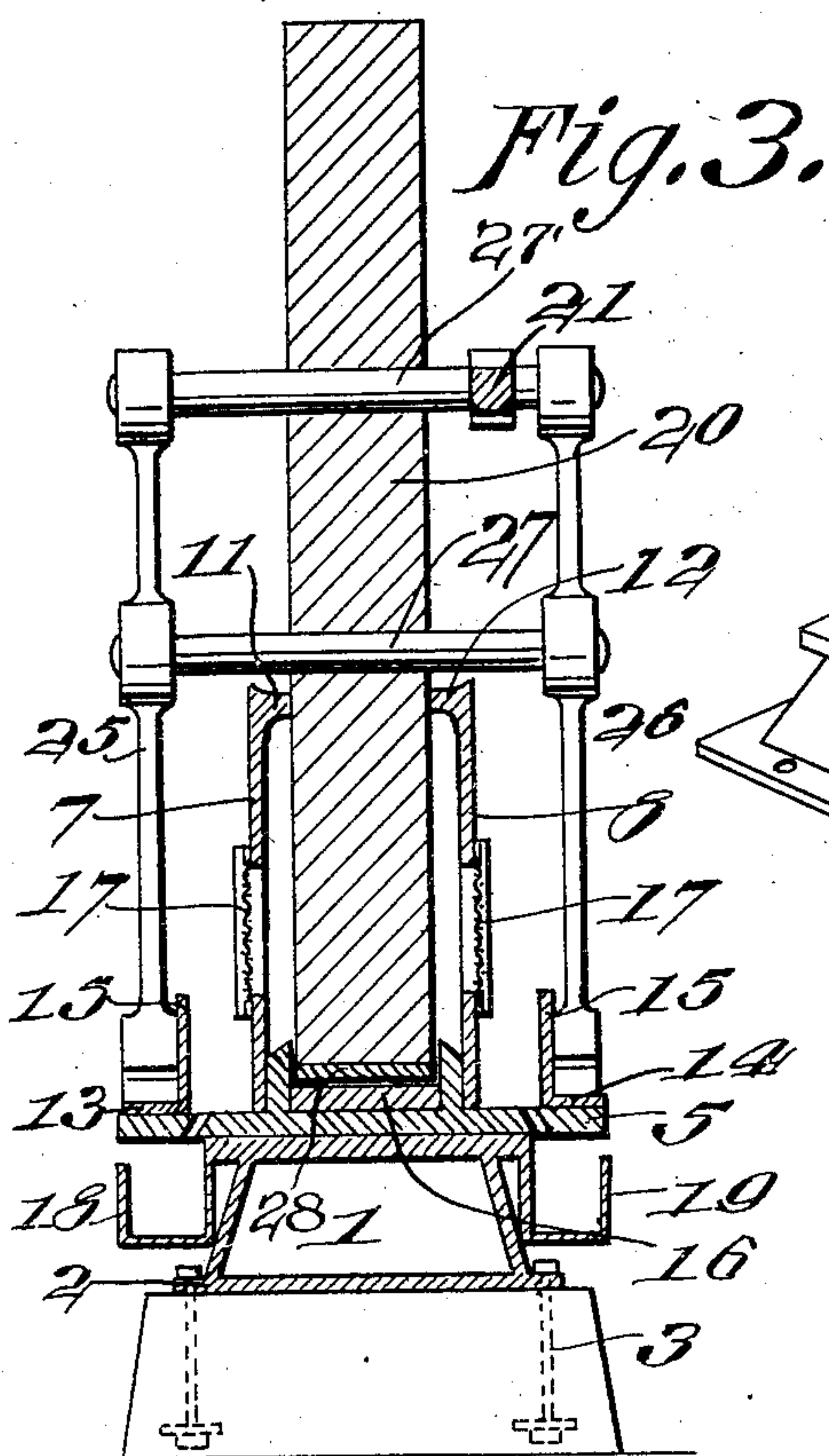
Inventor
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UNITED STATES PATENT OFFICE.

JOHN GIDEON KIRKSEY, OF QUINCY, ILLINOIS.

ORE GRANULATOR OR PULVERIZER.

No. 931,316.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed July 20, 1908. Serial No. 444,347.

To all whom it may concern:

Be it known that I, JOHN GIDEON KIRKSEY, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Ore Granulators or Pulverizers; and I do 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 an improved ore granulator or pulverizer for which a caveat was filed Aug. 3rd, 1907.

The object of the invention is to provide an ore granulator which is simple in construction and efficient in operation and which will effectively and cheaply grind or pulverize ore or other material as it passes from the crusher to any predetermined size, preparatory to its passage to the concentrating tables whereby the quantity of ore handled is greatly increased and wear and expense of the moving parts is obviated.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction, combination of parts as will be hereafter full described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of this improved granulator complete; Fig. 2 is a longitudinal vertical section thereof; Fig. 3 is a vertical transverse section; Fig. 4 is a perspective view of the ore receiving box with the roller removed; and Fig. 5 is a perspective view of the base member.

In the embodiment illustrated, the base member 1 comprises a box-like structure having a laterally extending base flange, 2, apertured to receive fastening means, 3, for securing it to the floor or other support, said floor being here shown as composed of concrete. The upper edge of the member, 1, is also provided with a laterally extending annular flange on which the bed-plate, 5, is mounted. This bed-plate, 5, projects laterally on opposite sides of the base member, 1, for a purpose to be described.

A box, 6, is secured to the bed-plate, 5, and comprises side members, 7 and 8, connected by curved end members, 9 and 10, for a purpose to be described. The side members of the box, 6, are provided with upstanding flanges, 11 and 12, to support and guide the roller hereinafter described.

Mounted on the side extensions of the bed-plate, 5, outside of the box, 6, are two longitudinally disposed rack bars, 13 and 14, which are preferably provided with upstanding flanges, 15, to provide for their connection with the box by any suitable means and forming a trough. The end members, 9 and 10, of the box, 6, are curved longitudinally with their upper ends turned down and adapted to overturn the material and water contained in the box and throw it into the path of the roller after it leaves each end as well as to promote agitation in the box.

Disposed within the bottom of the box is a removable chilled steel plate, 16, upon which a crushing roller acts and which is preferably provided with a smooth upper face. The box, 6, is also provided on its opposite sides with screened openings, as 17, through which the ground material passes to the troughs, 18 and 19, from which said material passes to the concentrating tables. The screens may be of any desired mesh to permit the passage therethrough of the ground ore of the required size. A rocking crushing head, 20, preferably made in the form of a segment or arc as shown, is designed to rock back and forth in the box 6, on this chilled plate, 16, and is preferably provided with a smooth crushing surface. This segment, 20, is made of a pre-determined weight to pulverize any kind of rock in one passage thereover, to any desired fineness. The small end of this segment, 20, pivoted to a pitman, 21, connected with a crank wheel, 22, supported on a shaft, 23, which operates in boxes mounted on suitable supports, and said wheel is driven by any suitable means, preferably by means of the main line shaft, 24.

The segmental gears, 25 and 26, are fixed to the shafts, 27 and 27', on which the crushing head, 20, is mounted. These gears are arranged outside of the box, 6, and are designed to mesh with the rack bars to prevent the crushing head 20 from slipping as it moves back and forth. The teeth of these gears are of sufficient length to permit vertical play of the crushing member, 20, and the weight of this member 20 and the segmental gears is sustained entirely by the hardened plate, 16. The face of this roller, 20, is provided with a chilled steel tire or rim, 28, which is preferably bolted thereto, and may be removed and another substituted when desired.

The curved ends, 9 and 10, of the box are provided with pipes, 29 and 30, preferably provided with funnel-shaped mouths, 31 and 32, through which the ore from the crusher
5 mixed with water is fed into said box.

In the operation of this improved granulator the water and material is fed in through the pipes, 29 and 30, and becomes scattered along the plate, 16, over which the
10 heavy crushing member, 20, operates and is ground thereby, to a fineness sufficient to permit it to pass out with the constantly flowing water through the screens on each side of the box and into the troughs, 18 and
15 19, from which it passes to tables or other concentrating vessels.

From the foregoing description it will be seen that this apparatus is a simple construction and combines all the elements necessary
20 for an efficient pulverizer and the construction of the parts permits the parts to be assembled with the liability of derangement and wear reduced to a minimum.

I claim as my invention:—

25 1. In an ore granulator the combination of a supporting structure, a box-like member fixed thereon and having a flat bottom and its end members curved vertically and provided with a feed water inlet opening, the
30 sides of said box having screened outlet openings arranged therein, guide rails arranged on the upper edges of the said members of said box, and a crushing member operable within said box and guided on said
35 rails.

2. In an ore granulator the combination of a supporting structure, a box-like member

fixed thereon and having a flat bottom and its end members curved vertically and provided with a feed water inlet opening, the
40 sides of said box having screened outlet openings arranged therein, guide rails arranged on the upper edges of the side members of said box, and a crushing member operable within said box and guided on said
45 rails, horizontally disposed rack bars arranged outside of said box, and segmental gears carried by said roller and arranged to mesh with said rack bars.

3. In an ore granulator, the combination 50 of a supporting structure, a base plate fixed thereto, a box-like member fixed on said base plate and having a removable flat bottom with inlet pipes arranged at its opposite ends, the sides of said box having screened
55 openings therein, longitudinally disposed rack members arranged on said baseplate at opposite sides of said box and spaced therefrom, said racks having upwardly extending flanges on their inner sides to form troughs
60 between them and said box, the bottoms of said troughs having openings arranged therein, and a roller mounted to operate within said box and provided with segmental gears arranged outside of the box in position
65 to mesh with said bars.

In testimony whereof I have hereunto set by hand in presence of two subscribing witnesses.

JOHN GIDEON KIRKSEY.

Witnesses:

V. JOHNSON,
W. F. THOMPSON.