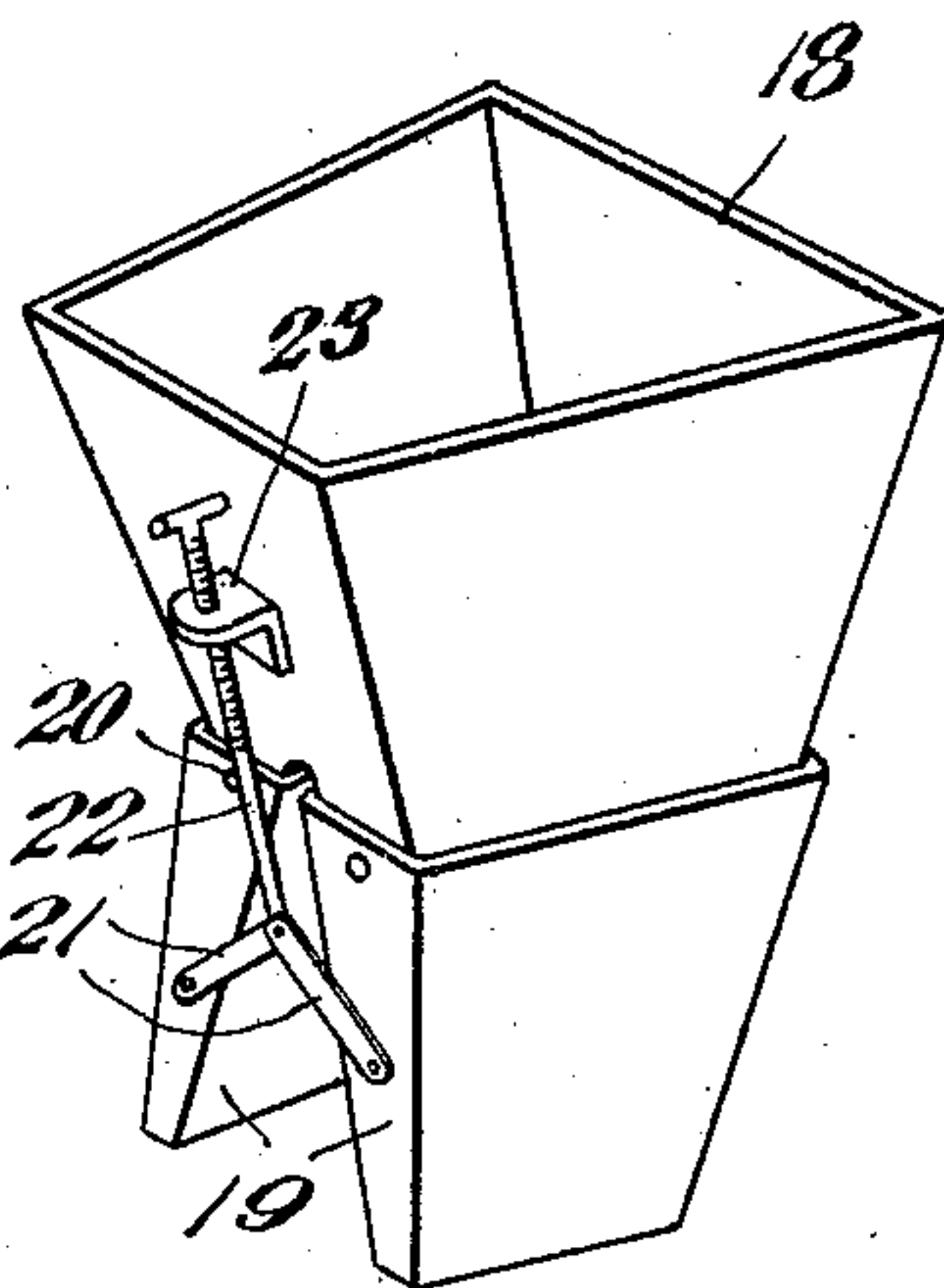
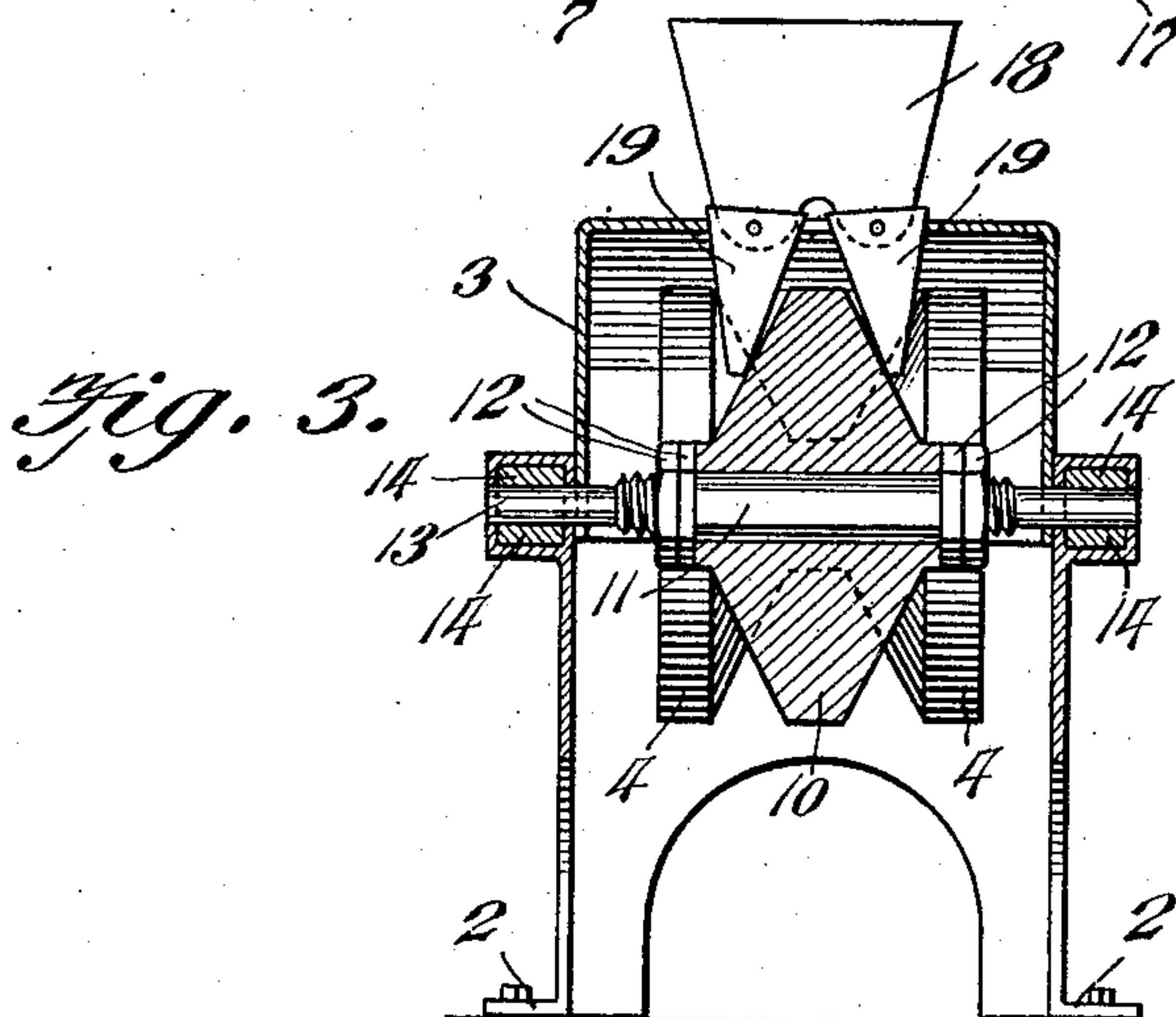
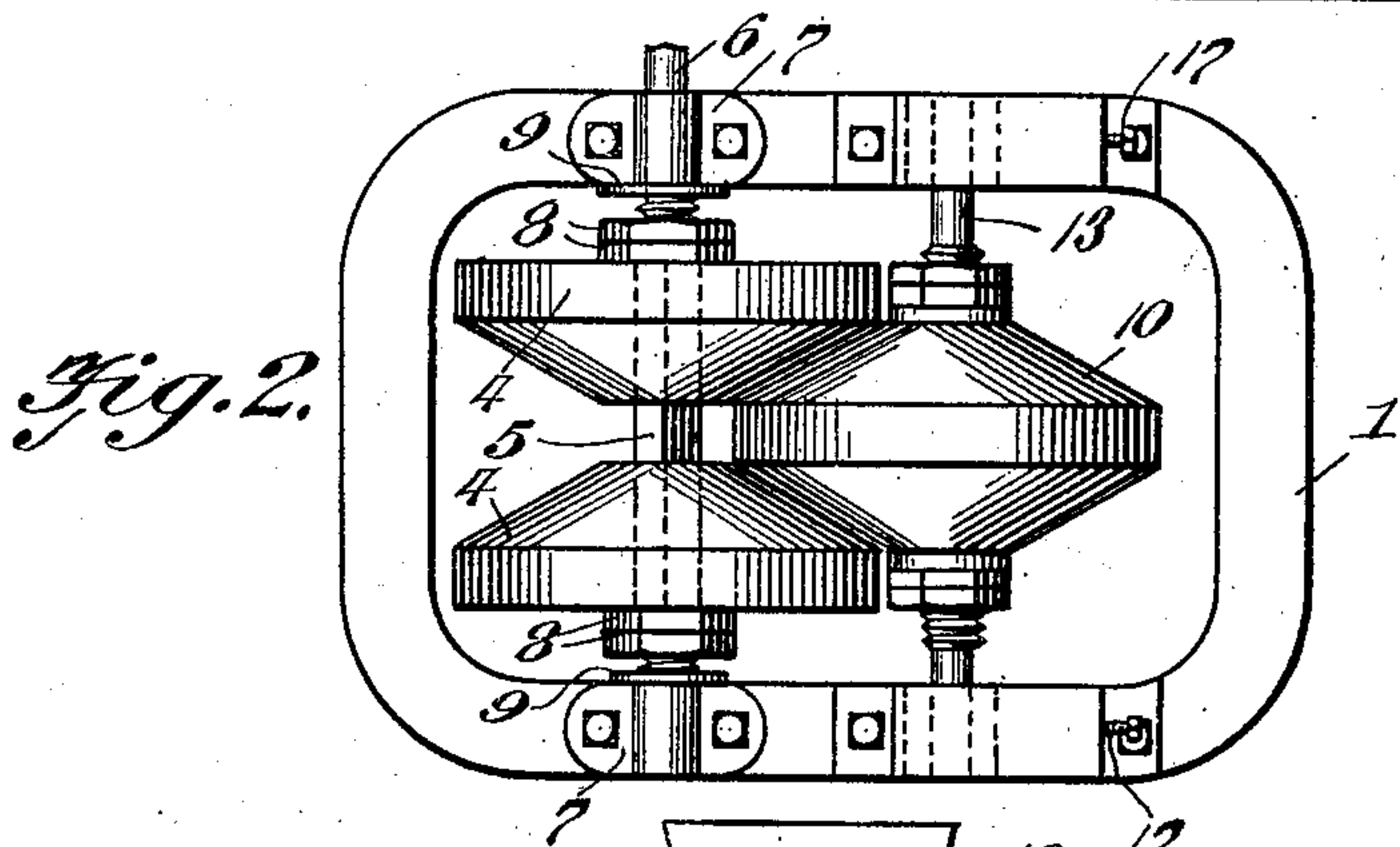
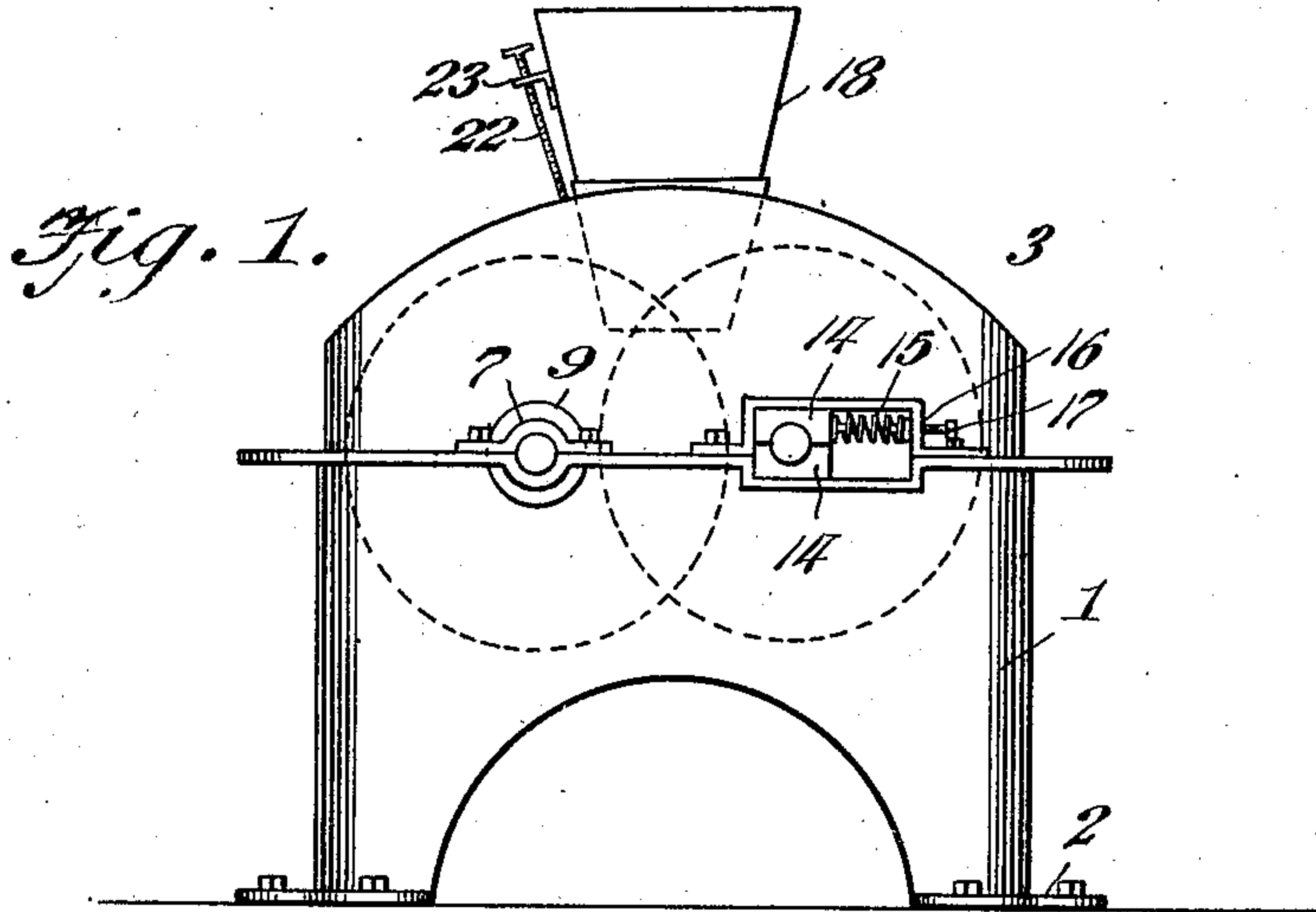


A. I. EAGLE & A. E. CARLSON.
ORE CRUSHER.

APPLICATION FILED MAY 6, 1908.

933,832.

Patented Sept. 14, 1909.



Witnesses

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AUBREY I. EAGLE AND ANDREW E. CARLSON, OF BOISE, IDAHO.

ORE-CRUSHER.

933,832.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed May 6, 1908. Serial No. 431,183.

To all whom it may concern:

Be it known that we, AUBREY I. EAGLE and ANDREW E. CARLSON, citizens of the United States of America, residing at Boise, in the county of Ada and State of Idaho, have invented new and useful Improvements in Ore-Crushers, of which the following is a specification.

This invention relates to ore crushers, and one of the principal objects of the same is to provide three rolls, one of which is double frusto-conical, and the other two are frusto-conical, said rolls being rotated with their surfaces in contact to grind any material passing between the same. In the use of conoidal rolls, the surfaces of which are brought into contact, there is a rubbing action of one roll against the other, owing to the fact that the surface of greatest radius in one roll is brought against the surface of the least area of the other roll or rolls, the result of which is there must be a rubbing action of one roll against the other.

It is one of the objects of this invention to utilize this principle in a crusher for ore, rock, etc.

Another object of our invention is to provide a pair of rolls mounted to rotate in a frame and another roll mounted on spring bearings to move slightly away from the first named rolls when a large piece of material is passed between the rolls.

Still another object of our invention is to provide a hopper with pivoted feed spouts so arranged that they may be placed between the rolls, means being provided for adjusting these spouts to compensate for wear of the rolls.

These and other objects may be attained by means of the construction illustrated in the accompanying drawing, in which,—

Figure 1 is a side elevation of a crusher made in accordance with our invention. Fig. 2 is a top plan view of the same with the cover removed from the machine and the hopper also removed. Fig. 3 is a transverse sectional view through the double conoidal roll. Fig. 4 is a perspective view of the hopper.

Referring to the drawing for a more specific description of our invention, the numeral 1 designates a frame of suitable contour for supporting the rolls, said frame being provided with feet 2 which may be

bolted to the floor or other suitable support. A cover 3 is provided for the operative parts.

The frusto-conical rolls 4 are mounted upon a shaft 5, said shaft being polygonal in cross section and said shaft passing through the center of the rolls 4. The outer ends of the shaft 5 are round, as at 6, and are mounted in suitable bearings 7. Lock nuts 8 hold the two rolls in contact with the intermediate roll, and in order to prevent lateral movement of the rolls 4, suitable collars 9 are secured to the shaft 5 and bear upon the inner surfaces of the frame and bearing 7. The double-frusto conical roll 10 is also mounted upon a polygonal shaft 11 provided with lock nuts 12 for holding the roll in place on the shaft. The outer ends of the shaft 11 are rounded, as at 13, and mounted in suitable spring bearings 14. The spring 15 bears against a housing 16 at one end and against the bearing 14 at the other end, and a screw 17 passes through the box 15 for adjusting the tension of the spring 15.

The hopper is placed in an opening in the top or cover 3, said hopper consisting of a main portion 18 having two openings in the lower ends thereof, and connected to said lower ends are the two feed spouts 19, said spouts being pivoted at 20 to the hopper 18. To adjust the spouts laterally a pair of links 21 are pivotally connected to the spouts and pivotally connected together, and an operating rod 22 is connected to the links 21 and mounted in a bracket 23 at the side of the hopper 18. By turning the rod 22 the links are operated to bring the spouts 19 nearer together or farther apart.

The operation of our invention will be readily understood from the foregoing.

Having thus described the invention, what is claimed as new, is:—

1. The herein described ore crusher comprising a frame, a shaft journaled in said frame and provided with a central polygonal portion, frusto-conical rolls mounted upon said shaft, lock nuts for holding said rolls against lateral displacement, collars connected to said shaft to bear against the frame, a double frusto-conical roll disposed between the frusto-conical rolls and mounted in yieldingly supported boxes, a hopper provided with pivoted feed spouts extending

upon opposite sides of the double frusto-conical roller, and means for adjusting said spouts laterally.

2. In an ore crusher, the combination of
5 frusto-conical rolls mounted upon a shaft journaled in a frame, a double frusto-conical roll mounted upon a shaft and journaled in said frame, the faces of said rolls being in contact, a hopper supported above the rolls
10 and provided with pivoted feed spouts disposed upon opposite sides of the double frusto-conical roll, links pivotally connected

one to each feed spout, said links being pivotally connected together, and an operating rod connected to said links and mounted in a bracket for adjusting said feed spouts laterally. 15

In testimony whereof we affix our signatures in presence of two witnesses.

AUBREY I. EAGLE.

ANDREW E. CARLSON.

Witnesses:

EDWARD H. HOPPER,

W. N. SWEET.