F. A. RYTHER.

GRINDING MILL.

APPLICATION FILED JULY 20, 1910.

993,462. Patented May 30, 1911.

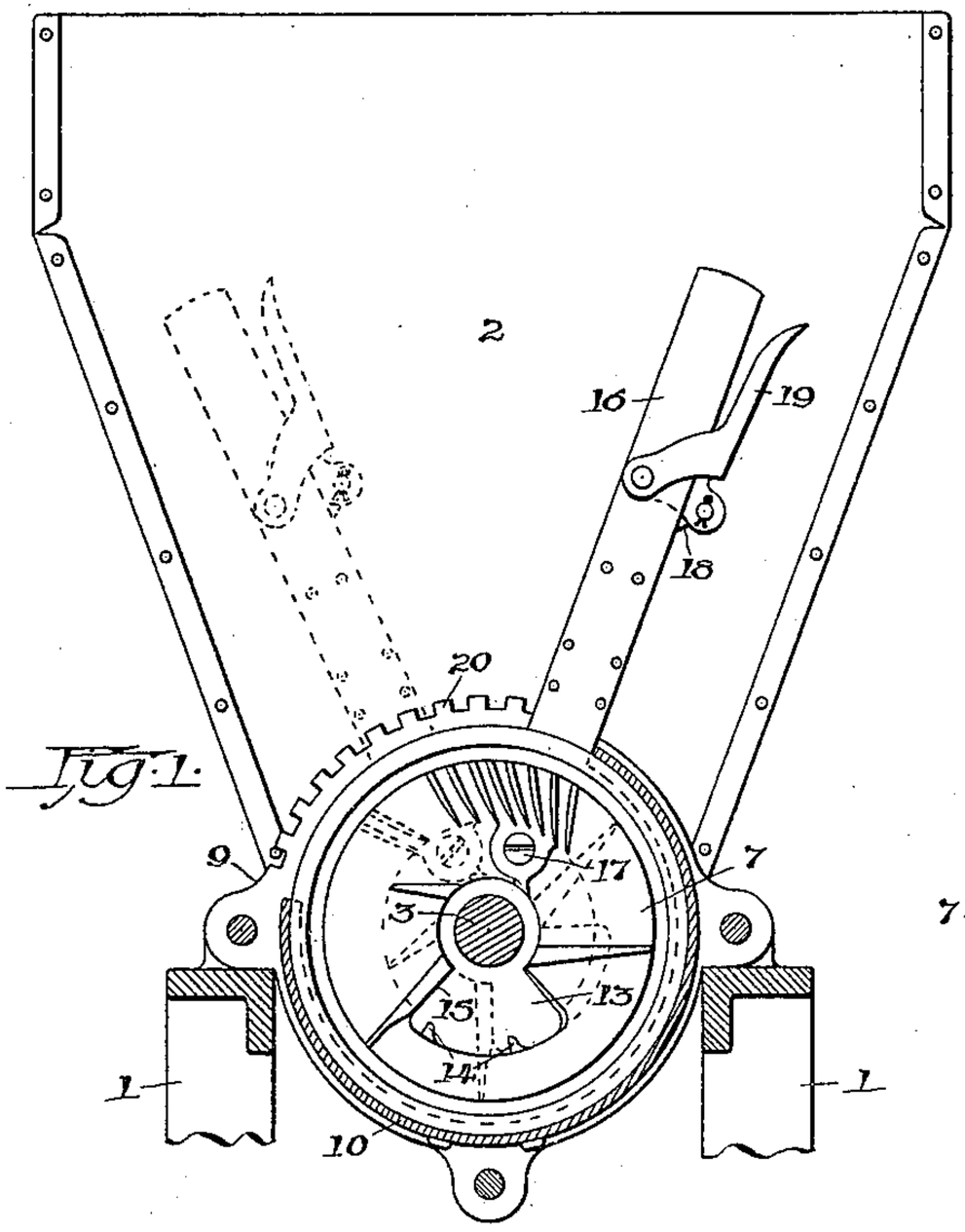


Fig. 1.

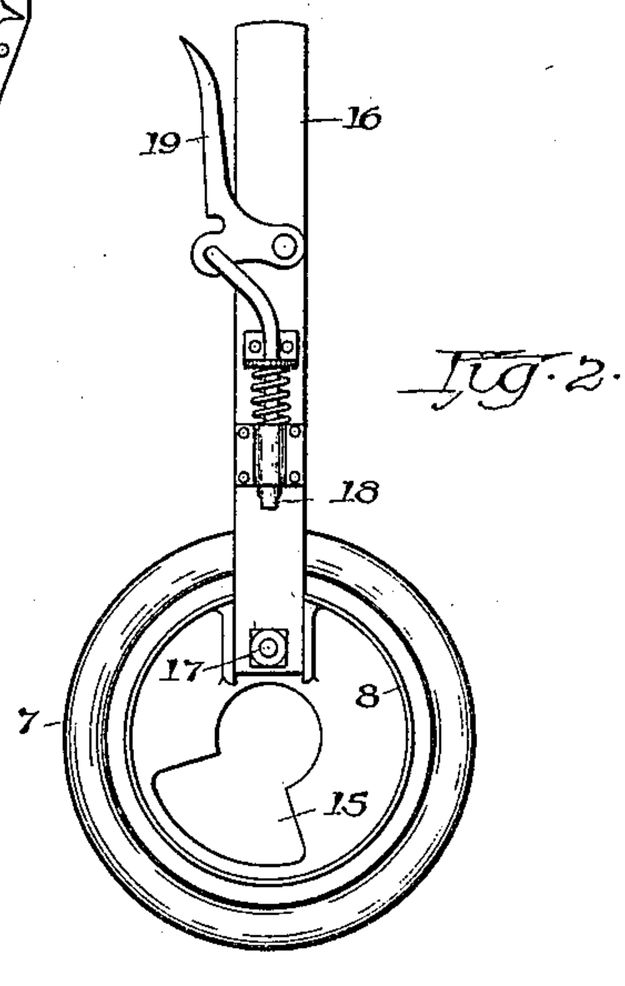


Fig. 2.

Fig. 3.

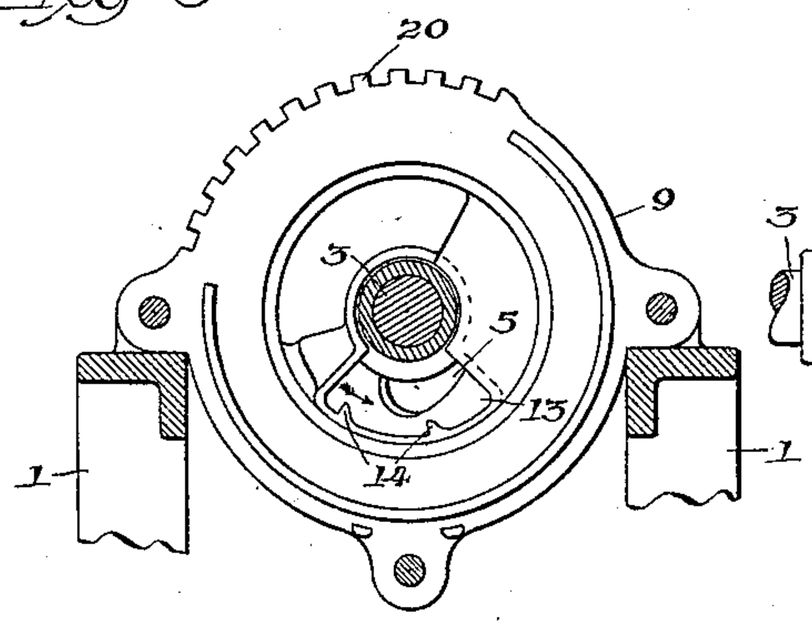
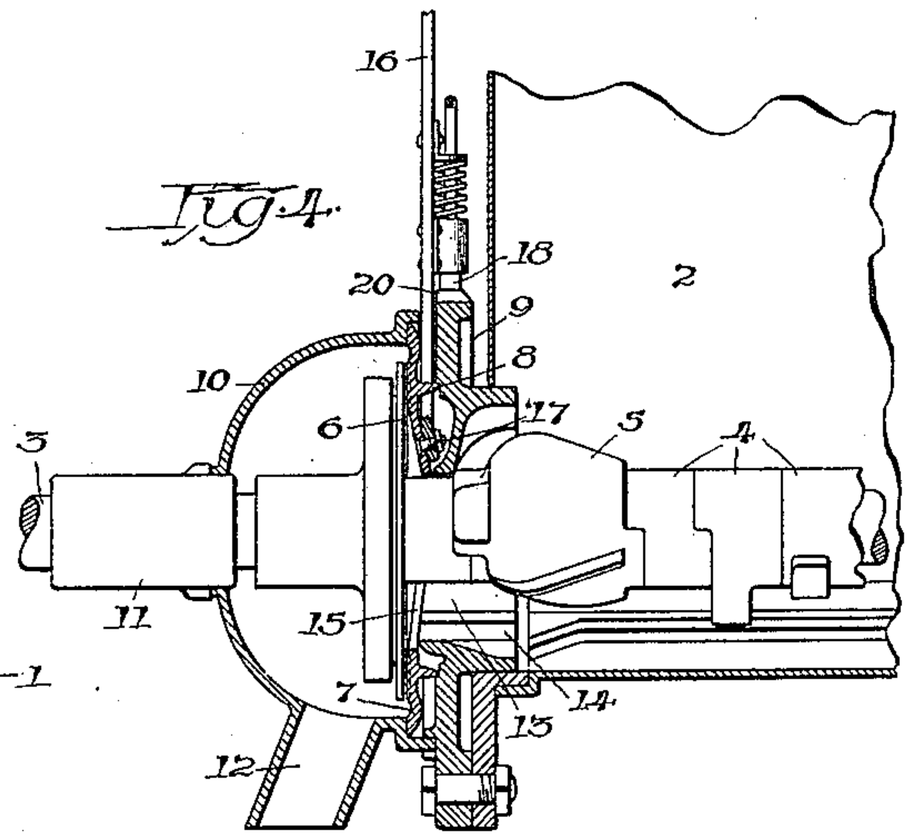


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK A. RYTHER, OF CHICAGO, ILLINOIS, ASSIGNOR TO INTERNATIONAL HARVESTER COMPANY, A CORPORATION OF NEW JERSEY.

GRINDING-MILL.

993,462. Specification of Letters Patent. Patented May 30, 1911.

Application filed July 20, 1910. Serial No. 572,822.

To all whom it may concern:

Be it known that I, FRANK A. RYTHER, 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 Grinding-Mills, of which the following is a specification.

My invention relates to grinding mills, and is particularly adapted for use in connection with the type having vertically arranged grinding plates, and consists in improved means for regulating the size of the feed opening communicating with the grain hopper of the grinding plates, its object being to provide a construction having few parts, efficient in operation and one that may be readily and quickly adjusted at the will of the operator. These objects are attained by means of the mechanism illustrated by the accompanying drawings, in which—

Figure 1 represents an end elevation, partly in section, of a portion of a grinding mill having my invention forming a part thereof; Fig. 2 is a detached detail of a relatively fixed grinding plate with an adjusting lever attached thereto; Fig. 3 is a sectional elevation of part of the fixed frame structure of the mill; and Fig. 4 is a longitudinal view, partly in section, of the main shaft and feeding mechanism, and shows the location of the grinding plates relative to the grain hopper.

The same reference characters designate like parts throughout the several views.

1 represents a part of the base frame of the machine, upon which is mounted the grinding mechanism, including a grain hopper 2, a main shaft 3, having cob crushers 4 and a feed worm 5 mounted thereon, a grinding plate 6 secured to the shaft and adapted to rotate therewith, a relatively fixed grinding plate 7 with its operative face adjacent the plate 6, having an annular rib 8 upon its opposite face that contacts with a fixed plate 9 forming part of the end wall of the grain hopper, the plate being held in place by means of a bell shaped member 10 interposed between the plate and the end of a bearing box 11, in which the main shaft 3 is journaled, the bell having an opening 12 through its lower wall forming an exit passage for the ground feed. The plate 9 is provided with an eccentric feed opening 13, having its lower wall provided with axially alined ribs 14 for the purpose of assisting the feed worm member 5 in conducting the material to the grinding plates. The fixed feed plate is provided with an eccentric feed opening 15 corresponding with that in plate 9 and adapted to register more or less therewith in a manner to regulate the flow of material therethrough, the plate being permitted a limited rotative movement for that purpose, and means are provided for turning it about its axis including a hand lever 16 having its inner end secured to the plate by means of a bolt 17 and a sliding spring pressed detent 18 arranged thereon and controlled by a thumb lever 19, the detent engaging with a toothed sector 20 integral with the fixed plate forming part of the end wall of the hopper in a manner to hold the plate in any desired position of adjustment for the purpose of regulating the size of the feed opening.

What I claim as my invention, and desire to secure by Letters Patent, is:

1. A grinding mill including, in combination, a grain hopper, a rotatable grinding plate, a relatively fixed grinding plate, a feed opening communicating with said hopper and said grinding plates, a feed opening in said relatively fixed grinding plate adapted to register more or less with said first mentioned opening, and means for turning said fixed plate axially in a manner to regulate the flow of material therethrough.

2. A grinding mill including, in combination, a grain hopper, a rotatable grinding plate, a relatively fixed grinding plate, a feed opening communicating with said hopper and said grinding plates, a feed opening in said relatively fixed grinding plate adapted to register more or less with said first mentioned opening, means for turning said fixed plate axially in a manner to regulate the flow of material therethrough, and means for securing said plate in adjusted relation with said opening.

3. A grinding mill including, in combination, a grain hopper, a rotatable grinding plate, a relatively fixed grinding plate, a feed opening communicating with said hopper and said grinding plates, a feed opening in said relatively fixed grinding plate adapted to register more or less with said first mentioned opening, means for turning said fixed plate axially in a manner to regulate the flow of material therethrough, said

means including a hand lever secured to said fixed plate and a sliding detent mounted thereon, a toothed sector, said detent adapted to engage with said sector in a manner to secure said plate in adjusted relation with said opening.

4. A grinding plate including, in combination, a base frame, a shaft journaled in bearings carried by said frame, a grain hopper, a plate forming part of an end wall of said hopper and having a feed opening therein eccentric with said shaft, a grinding plate secured to said shaft and adapted to rotate therewith, a relatively fixed grinding plate having its grinding face adjacent the grinding face of said rotatable plate, and an annular rib upon its opposite surface that rests against the plate forming part of the end wall of the hopper, and a bell shaped member inclosing the plates, having one end thereof abutting a fixed part of the frame of the machine, and its opposite end with said relatively fixed plate and provided with a feed exit in its lower wall.

5. A grinding mill including, in combination, a base frame, a shaft journaled in bearings carried by said frame, a grain hopper, a plate forming part of an end wall of said hopper and having a feed opening therein eccentric with said shaft, a grinding plate secured to said shaft and rotatable therewith, a relatively fixed grinding plate having its grinding face adjacent the grinding face of said rotatable plate, and an annular rib upon its opposite surface that rests against the plate forming part of the end wall of the hopper and provided with a feed opening adapted to register more or less with the feed opening in the end wall of the hopper, a bell shaped member inclosing the grinding plates, having one end thereof abutting a fixed part of the frame of the machine and its opposite end with said relatively fixed plate, a hand lever secured to said fixed plate whereby it may be angularly adjusted in a manner to control the flow of material through the feed opening therein.

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