No. 836,422. PATENTED NOV. 20, 1906.

M. F. WILLIAMS.

DUMPING CAGE FOR CRUSHERS AND PULVERIZERS.

APPLICATION FILED JULY 24, 1905.

Fig. 1.

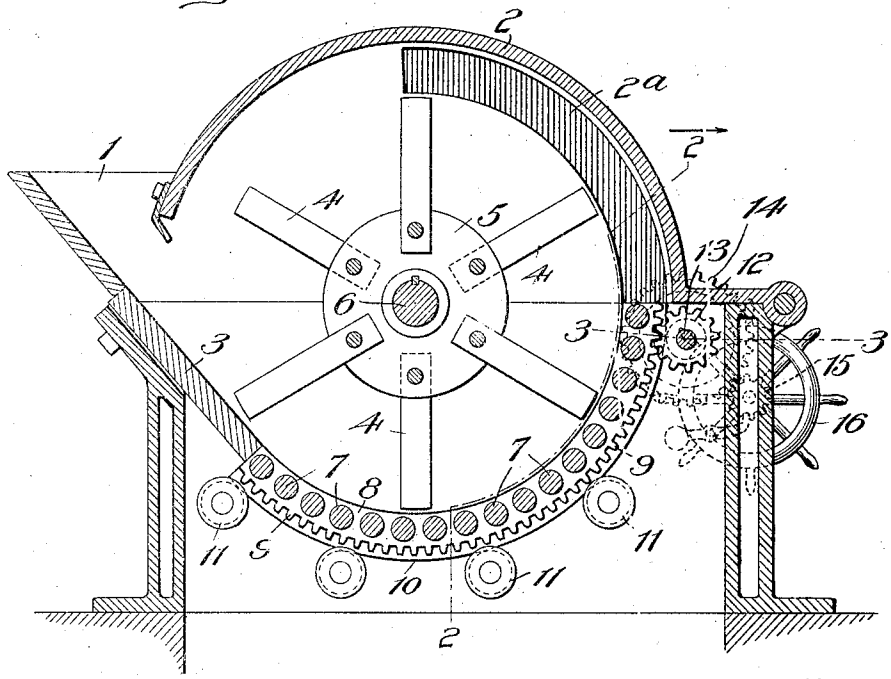


Fig. 2.

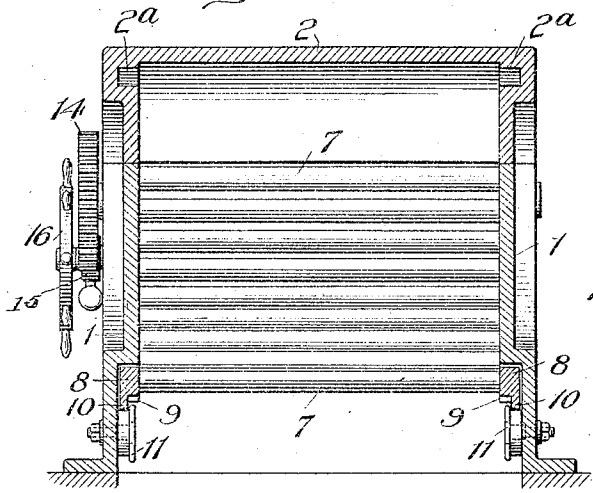
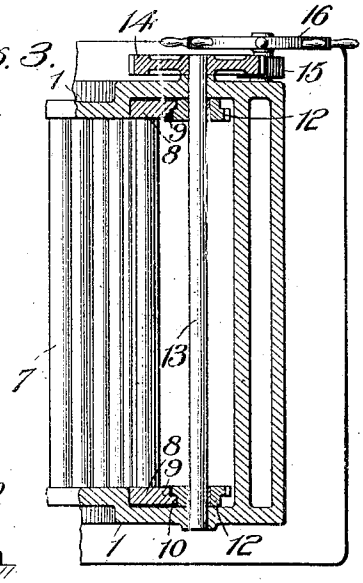


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

MILTON F. WILLIAMS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WILLIAMS PATENT CRUSHER & PULVERIZER COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

DUMPING-CAGE FOR CRUSHERS AND PULVERIZERS.

No. 836,422. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed July 24, 1905. Serial No. 271,017.

To all whom it may concern:

Be it known that I, MILTON F. WILLIAMS, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Dumping-Cages for Crushers and Pulverizers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view through my improved machine. Fig. 2 is a vertical cross-sectional view on the line 2 2 of Fig. 1, and Fig. 3 is a horizontal sectional view on the line 3 3 of Fig. 1.

This invention relates to a new and useful improvement in dumping-cages for crushers and pulverizers, the object being to construct a cage in such manner that when the machine chokes it is possible to dump the contents thereof without raising the cover and removing the material from the top.

In the operation of my machine, especially where electric motors are employed as a driving medium, it sometimes happens that the fuse will blow out or other accidents happen during the time that the machine is in operation, causing the machine to stop and leaving the material being operated upon in the machine. Under these circumstances it is impossible to start the machine without first removing such material, it being necessary to get the machine up to full speed before introducing the material thereinto to be reduced.

My present invention therefore consists in making the grinding-surface or cage with which the revolving beaters coöperate to reduce the material wholly or partly movable, means for moving the same extending to the exterior of the machine whereby in the event that the machine stops with a load or becomes choked it is possible for the operator to dump the contents of the cage and free the machine.

In the drawings, 1 indicates the side plates of the casing, and 2 is the cover.

3 indicates the breaker-plate arranged at the front end of the machine and on which the material is first operated upon by the revolving hammers or beaters 4, which are pivotally mounted in the hammer-supports 5, arranged on a transversely-disposed shaft 6.

7 indicates the cage or grinding-surface, which in this instance is shown as being composed of round rods arranged in curved side bars 8. The side bars of the cage are provided with rack-teeth 9 on their lower edges and also a smooth track portion 10, which latter rests upon and coöperates with anti-friction-rollers 11, constituting the supports for the cage. Pinions 12, mounted on a shaft 13 at the rear end of the machine, mesh with the rack-teeth 9. The hubs of these pinions coöperate with the track portions 10 of the curved side bars 8, so as to prevent binding between the rack-teeth and the teeth of the pinion 12. A gear 14, mounted on the end of shaft 13, meshes with a driving-pinion 15, which is connected to a hand-wheel 16. Preferably curved recesses 2^a are formed in the side walls of the cover 2 to permit the rearward and upward movement of the cage.

In operation if it is desired to dump the contents of the machine the hand-wheel 16 is manipulated, and through the train of gears above described the cage or grinding-surface is moved bodily rearwardly and upwardly, so as to dump its contents. To restore the cage or grinding-surface to normal position it is only necessary to reverse the movement of the hand-wheel 16 until the cage is seated home against the breaker-plate 3, which serves as a stop therefor. Preferably means is provided for locking the cage home, the means which is herein shown consisting of a pivoted pawl which coöperates with the pinion 15.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A crusher or pulverizer comprising a casing, revolving hammers or beaters mounted therein, an inclined breaker-plate mounted in the casing, a curved grinding-surface abutting against said breaker-plate and consisting of a plurality of cage-bars, and two curved bars to which said cage-bars are connected, said curved bars being mounted in grooves formed in the side walls of the casing, rack-teeth on said curved bars, and a pinion coöperating with said teeth for moving said grinding-surface in a path concentric to the

axes of rotation of said hammers or beaters and away from said inclined breaker-plate so as to provide a space through which the contents of the machine may be dumped; substantially as described.

2. A crusher or pulverizer comprising a casing, revolving hammers or beaters mounted therein, a cage or grinding-surface coöperating with said beaters and comprising curved bars having rack-teeth and track portions extending below said teeth, a grinding-surface carried by said curved bars, anti-friction-rollers carried by the casing and cooperating with the track portions of said curved bars, a pinion meshing with the rack-teeth of said bars, and means for driving said pinion so as to move said cage to and from normal operating position whereby a space is provided through which the contents of the machine may be discharged; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 14th day of July, 1905.

MILTON F. WILLIAMS.

Witnesses:

F. R. CORNWALL,

GEORGE BAKEWELL.