

No. 818,725.

PATENTED APR. 24, 1906.

M. F. WILLIAMS.
DUMPING CAGE FOR CRUSHERS AND PULVERIZERS.

APPLICATION FILED AUG. 24, 1905.

Fig. 1.

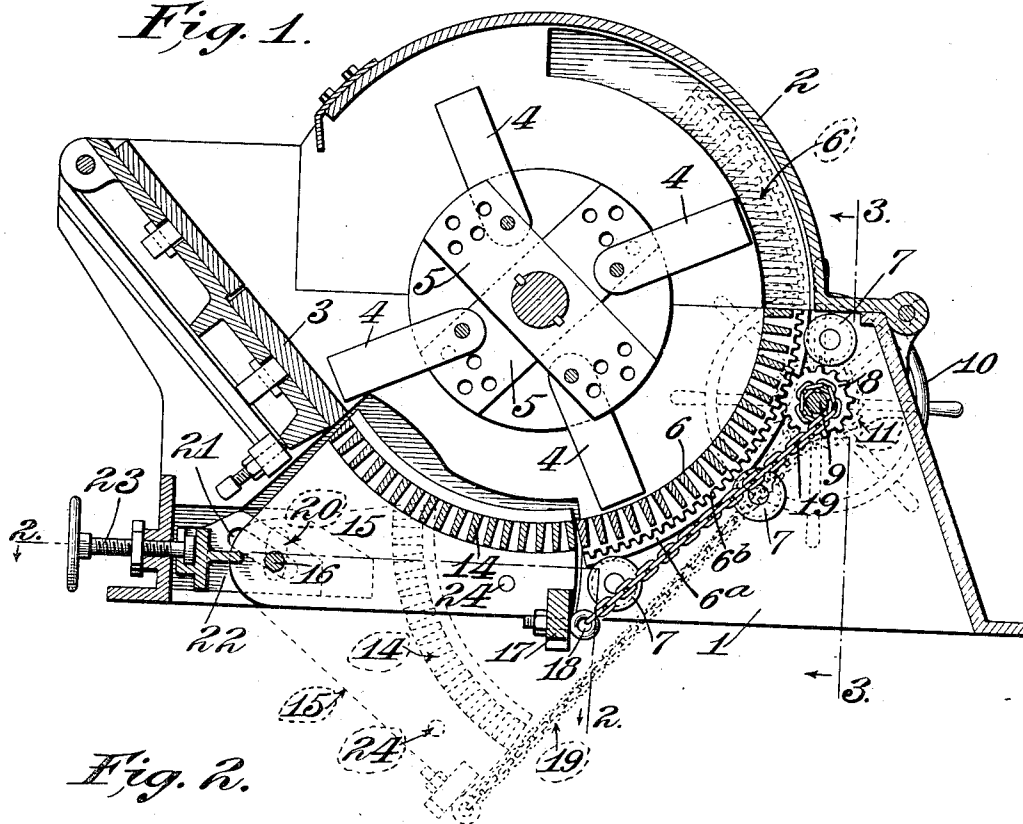


Fig. 2.

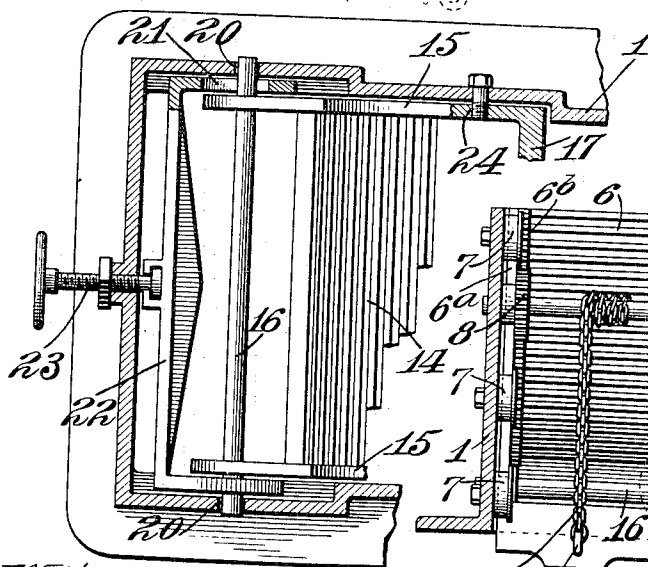
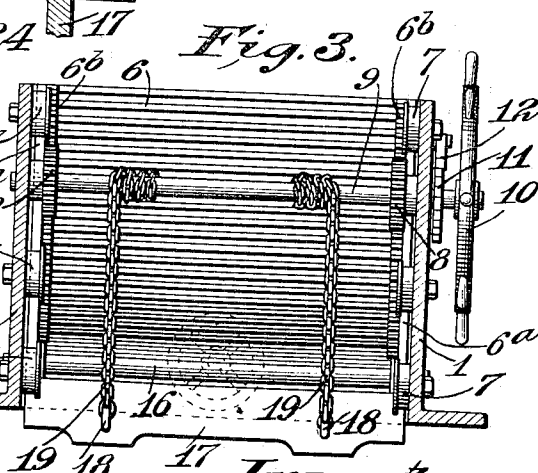


Fig. 3.



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UNITED STATES PATENT OFFICE.

MILTON F. WILLIAMS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WILLIAMS
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DUMPING-CAGE FOR CRUSHERS AND PULVERIZERS.

No. 818,725.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed August 24, 1905. Serial No. 275,646.

To all whom it may concern.

Be it known that I, MILTON F. WILLIAMS, a citizen of the United States, residing at St. Louis, 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 sectional view through my improved machine. Fig. 2 is a horizontal sectional view on the line 2 2 of Fig. 1, and Fig. 3 is a vertical 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 therein to be reduced.

My present invention, therefore, consists in making the grinding surface or cage, with which the revolving beaters cooperate 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 frames, and 2 the removable cover.

3 is the adjustable breaker-plate arranged at the feed end of the machine and on which the material entering the machine is first struck by the revolving beaters or hammers 4, mounted in suitable supports, in this instance said supports being shown as crossed

arms 5, having holes in their ends, whereby the hammers may be adjustably mounted therein.

6 indicates a portion of the cage or grinding surface which is located at the back of the machine, the same being mounted upon supporting-rollers 7, whose tread portion cooperates with a track portion 6^a of the grinding-surface. This grinding-surface, or rather the side bars thereof, are also provided with rack-teeth 6^b, which mesh with a pinion 8 on the transversely-arranged winding-shaft 9, having a hand-wheel 10 at its outer end. A ratchet 11 (see Fig. 3) is on this shaft, with which cooperates the pawl 12 to lock the shaft in adjusted position.

14 indicates a movable portion of the cage mounted in side frames 15, arranged on a transversely-disposed rod 16. These side frames 15 are connected in any suitable manner and preferably carry a cross-bar 17 at their free ends, in which are mounted adjustable screw-eyes 18. Chains 19 are secured to these screw-eyes and pass over the winding-shaft 9.

The operative positions of the parts are shown in full lines in Fig. 1, and in the event that the machine chokes the pawl 12 is raised and the dumping portion 14 of the cage is permitted to drop. The unwinding action of the chain may be facilitated by the hand-wheel, and motion is communicated through the pinion 8 to the movable rear section 6 of the cage, forcing the same upwardly, as shown in dotted lines in Fig. 1, so as to cause any of the contents of the machine lodged thereon to be dumped. After the machine is dumped the hand-wheel 10 may be manipulated so as to move the rear section 6 of the cage downwardly and forwardly and elevate the front pivoted cage-section, the weights of the two cage-sections counterbalancing each other, so as to render such manipulation easy.

In the event that it is desired to adjust the pivoted cage-section so as to take up the wear of the hammers I mount a pivot-rod 16 in a vertical slot 20 in the side frame of the machine, said rod passing through an obliquely-disposed slot 21 in a yoke member 22. This yoke member is provided with a threaded rod 23, having a hand-wheel on its end, said rod 23 being threaded through the front vertical wall of the machine-casing, so as to ad-

just the yoke 22, the side members of which yoke ride on the flanges extending inwardly from the side walls of the casing. If it is desired, the side frames 15 may be provided with threaded openings 24, which are designed to register with openings in the side frames 1 when the pivoted section of the cage is in normal operating position. Screws may be inserted through the side frames into said openings from the outside, so as to rigidly secure the rear end of the pivoted section in operating position, and thus relieve the supporting-chains from undue strains.

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

1. In a machine of the character described, the combination with a cage composed of movable sections, one of which is pivoted, and means for swinging said pivoted section and imparting a sliding movement to the other section; substantially as described.

2. In a machine of the character described, the combination with a grinding-surface composed of sections, one of which is pivotally mounted, means for adjusting the pivotal support for said section, means for swinging said section on its pivot, said means being also operatively connected to other sections to move the same; substantially as described.

3. In a machine of the character described, the combination with a grinding-surface composed of movable sections, one of which is pivoted, a chain connected to the free end of said movable section, a winding-shaft around which said chain is wound, a pinion on said winding-shaft, and a rack on the other movable section in mesh with said pinion; substantially as described.

4. In a machine of the character described,

the combination with a grinding-surface composed of movable sections, one of which is pivoted, antifriction-rollers for supporting the other of said movable sections, rack-teeth on the last-mentioned movable section, a chain connected to the free ends of the pivoted sections, a winding-shaft around which said chain is wound, a pinion on said winding-shaft meshing with the rack-teeth of said movable sections, and means for locking the winding-shaft against rotation in one direction; substantially as described.

5. In a machine of the character described, the combination of a casing having a slot in the side wall, a cage-section mounted on a pivot-rod whose end extends through said slot, a movable member provided with a slot arranged at an angle to the slot in the casing and through the slot in which movable member said pivot-rod also passes, and means for moving said movable member; substantially as described.

6. In a machine of the character described, the combination of a casing, revolving hammers or beaters, a movable grinding-surface, and means for adjusting said grinding-surface toward and from said revolving hammers or beaters, said means comprising a yoke whose side members are slidingly mounted upon flanges extending inwardly from the side walls of the casing, and means for moving said yoke; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 22d day of August, 1905.

MILTON F. WILLIAMS.

Witnesses:

G. A. PENNINGTON,
GEORGE BAKEWELL.