No. 836,163. PATENTED NOV. 20, 1906.

M. F. WILLIAMS.

DUMPING CAGE FOR CRUSHERS AND PULVERIZERS.

APPLICATION FILED JULY 24, 1905.

Fig. 1.

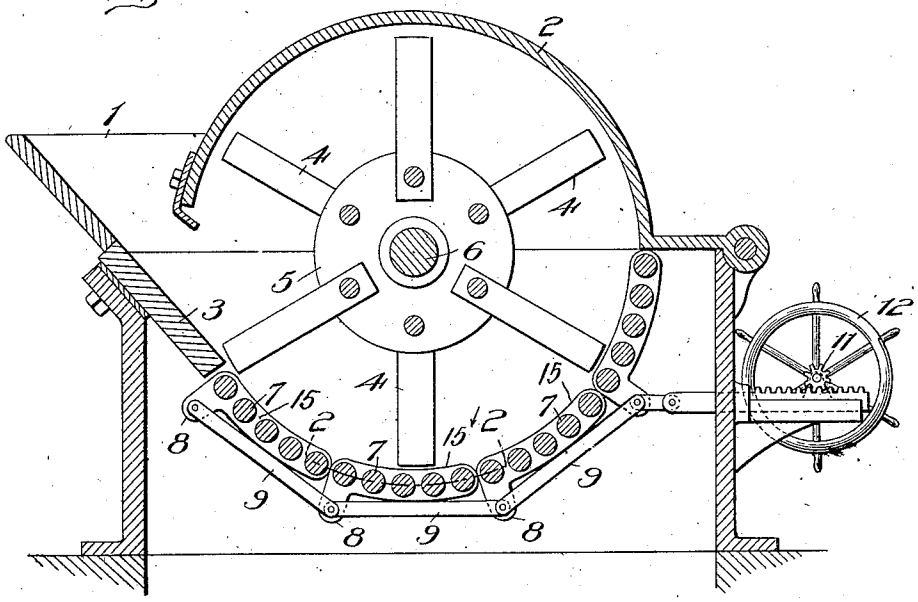


Fig. 2.

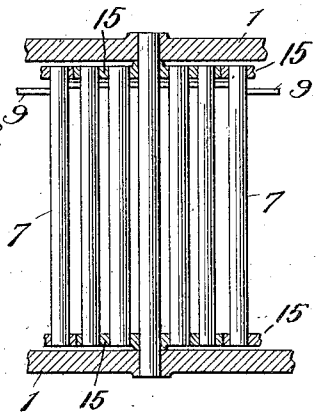
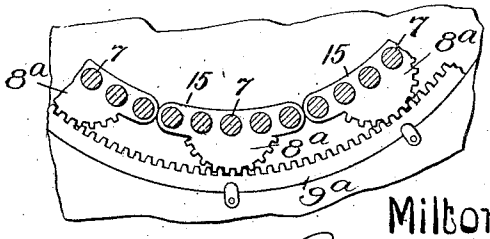


Fig. 3.



Witnesses
A. J. McCauley.
Lenore Nelson

Inventor:
Milton F. Williams
BY Bakewell & Cornwall Atty's.

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. 836,163. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed July 24, 1905. Serial No. 271,020.

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 vertical sectional view through my improved machine. Fig. 2 is a detail view, partly in section, taken on the line 2 2 of Fig. 1 looking in the direction of the arrow. Fig. 3 is a detail view of a modified form of cage-section.

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. The cage or grinding-surface is made up of a plurality of pivotally-mounted sections each comprising side bars 15, to which the cage-bars 7 are connected, each section preferably having five cage-bars and the central cage-bar of each section extending laterally through openings or bearings formed in the side plates 1 of the machine, so that said sections can rock to dump the contents of the machine. Extending downwardly from the end of one of the side bars 15 of each section is a perforated lug 8, which lugs are connected together by links 9, the end link having rack-teeth meshing with a pinion 11, secured to a hand-wheel 12, arranged exteriorly the casing of the machine.

To dump the cage, it is only necessary to operate the hand-wheel to swing the different sections on their pivots, after which the parts may be returned to normal position.

In Fig. 3, which shows a modified form of cage, the sections instead of having perforated lugs connected together by links are provided with toothed segments 8^a, with which meshes a curved rack-bar 9^a, that may be actuated in any well-known manner.

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

1. In a crusher or pulverizer, the combination of a casing, hammers or beaters, a cage or grinding-surface composed of a plurality of sections oscillatingly mounted on fixed pivots, each section consisting of a plurality of grate-bars, a connection between said oscillatingly-mounted sections, and means coöperating with said connection whereby said sections may be simultaneously oscillated to dump the contents of the machine; substantially as described.

2. In a crusher or pulverizer, the combination of a casing, revolving hammers or beaters, a cage or grinding-surface composed of a number of independent sections which are oscillatingly-mounted, links connecting said sections, and means coöperating with said links and extending to the exterior of the casing, whereby all of said sections may be si-

multaneously oscillated to dump the contents of the machine; substantially as described.

3. In a machine of the character described, the combination of a casing, revolving hammers or beaters, a sectional cage or grinding-surface coöperating therewith, each of said cage-sections being pivotally mounted on a fixed pivot, connections between all of said sections, a rack-bar coöperating with said connections for simultaneously actuating all of the cage-sections to dump the contents of the machine, and means for actuating said rack-bar; 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.