Jan. 2, 1923.

1,440,429

A. F. WILLIAMS.
BREAKER PLATE FOR CRUSHERS.
FILED SEPT. 1, 1922.

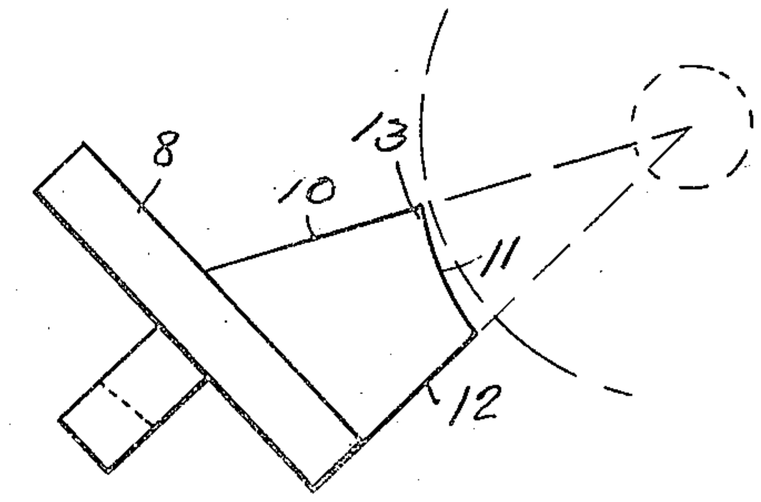


Fig. 3.

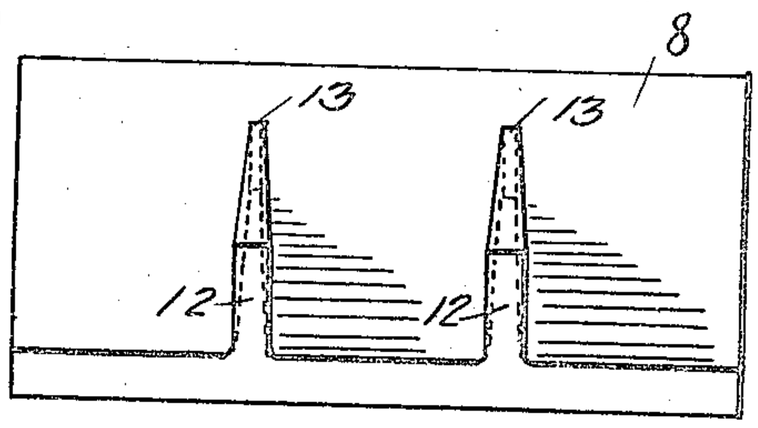


Fig. 4.

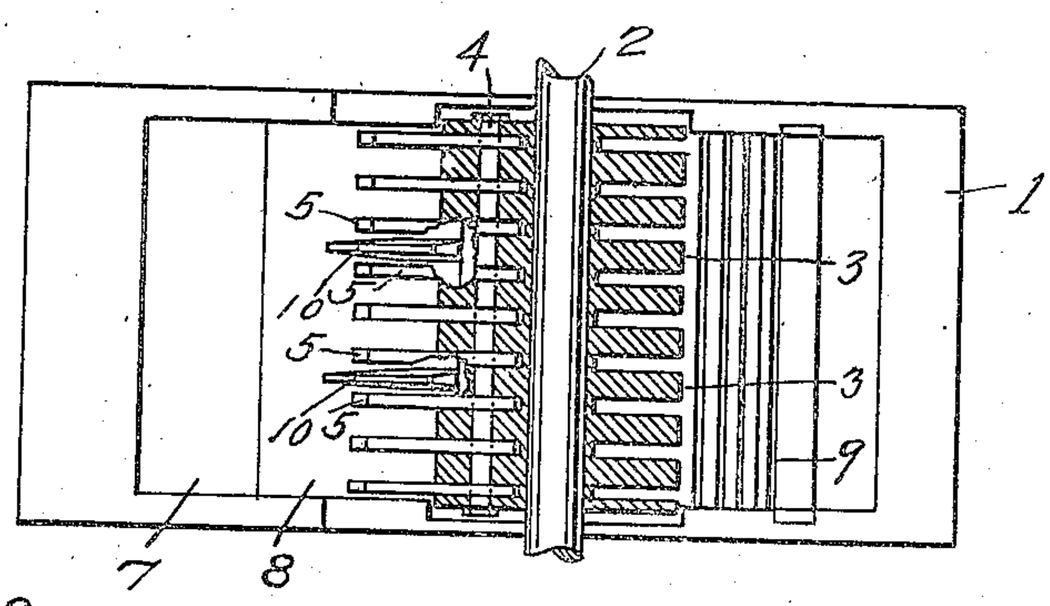


Fig. 2.

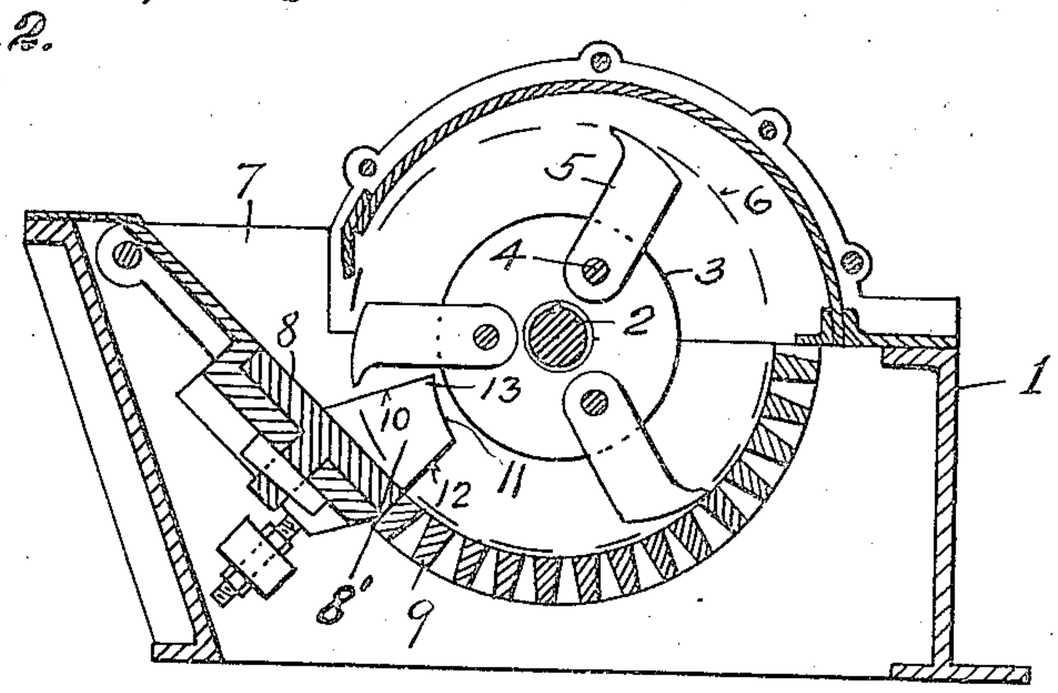


Fig. 1.

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# UNITED STATES PATENT OFFICE.

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

## BREAKER PLATE FOR CRUSHERS.

Application filed September 1, 1922. Serial No. 585,739.

*To all whom it may concern:*

Be it known that I, ARTHUR F. WILLIAMS, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Breaker Plates for Crushers, of which the following is a specification.

This invention relates to certain new and useful improvements in breaker plates for crushers, the peculiarities of which will be hereinafter fully described and claimed.

The main object of my invention is to provide means on a breaker plate located in the path of rotary pivoted hammers for temporarily holding back interwoven or tangled material passing from the supply hopper over the breaker plate to the rotor chamber of crushers, so that it will be gradually drawn in by the hammers.

In the accompanying drawing on which like reference numerals indicate corresponding parts, Fig. 1 represents a vertical sectional elevation across the shaft of a crusher embodying my invention; Fig. 2, a plan view of the same partly in section and partly broken away to show my improved breaker plate; Fig. 3, a detail edge view of my breaker plate with its relation to the rotor shaft and hammer discs indicated in dashed lines; and Fig. 4, a rear face view of the breaker plate shown in Fig. 3.

The numeral 1 designates a suitable casing in which is mounted a rotor shaft 2 having discs 3 thereon to which are pivotally secured by hammer rods 4 suitable rotary pivoted hammers 5 extending beyond the edge of said discs or other suitable hammer mounts, and the outer ends of the hammers traveling in a cylindrical plane indicated by the hammer circle 6.

The casing has a supply hopper 7, the lower bottom face of which is preferably formed by a detachable breaker plate 8 adjacent to a suitable cage 9 as shown in Fig. 1. The lower portion of the operative face of this breaker plate is preferably provided with a plurality of upwardly extending relatively thin ribs 8′, each located in the plane of the respectively adjacent disc and extending within the cylindrical plane of the hammer circle, so that adjacent hammers pass on either side of said rib as shown in Fig. 2. These ribs 8′ are vertically disposed on the inclined face of the breaker plate, and are separated horizontally a suitable distance according to the horizontal spacing of the hammers that pass down between the ribs and close to the lower end of the operative face of the breaker plate. The upper or front edge 10 of said wall is substantially radial to the rotor shaft lying in a higher plane than said rib as shown in Fig. 3, or is inclined upward from the breaker plate, so that material entering the rotor chamber from the hopper will be temporarily retarded until the hammers tear it apart from its tangled condition and draw it into the rotor chamber where it is further reduced on the breaker plate and cage until discharged. A more regular feeding action is thus secured as the mat of tangled material such as steel turnings, is held back from entering the rotor chamber till it is torn apart and can be better acted on than when it is delivered in a mat directly into the rotor chamber.

The upper portion 13 of the edge 10 of the rib is preferably closely adjacent to the disc lying in the same plane as said rib, and the edge 11 of the rib adjacent to said disc edge is curved eccentric to the axis of the shaft, so as to make a larger opening or space at the rear edge 12 and thus assist in freeing the upper edge of the rib from any material that may lodge between the point 13 and the edge of the disc.

As shown in Figs. 2 and 4, the upper edge 10 is thinner than the lower rear edge 12, formed by the side surfaces of said walls diverging downward from front to rear, and thereby giving more clearance between the sides of the hammers and the front edge of the rib as the hammers come opposite said edge 10 in their rotation and avoiding any possible interference of hammers and front edge due to any lateral play of the hammers. While the said rib is shown integrally supported from the breaker plate, it may be otherwise mounted. A suitable distance is provided between these ribs, and the sides of the casing, according to the size of the mats of tangled material delivered to the hopper.

I claim:

In a beater crusher, a casing having a hopper in combination with a detachable breaker plate adapted to receive thereon the discharge from said hopper, and provided with a series of ribs projecting above the lower end of the same, and a rotor having hammers adapted to pass between said ribs, the axis of the rotor being in a higher plane than said ribs and the upper edge of the ribs being substantially in radial alinement with said rotor.

In testimony whereof I have affixed my signature.

ARTHUR F. WILLIAMS.