No. 825,699. PATENTED JULY 10, 1906.

I. N. BONSAL.

ORE CRUSHER.

APPLICATION FILED AUG. 25, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

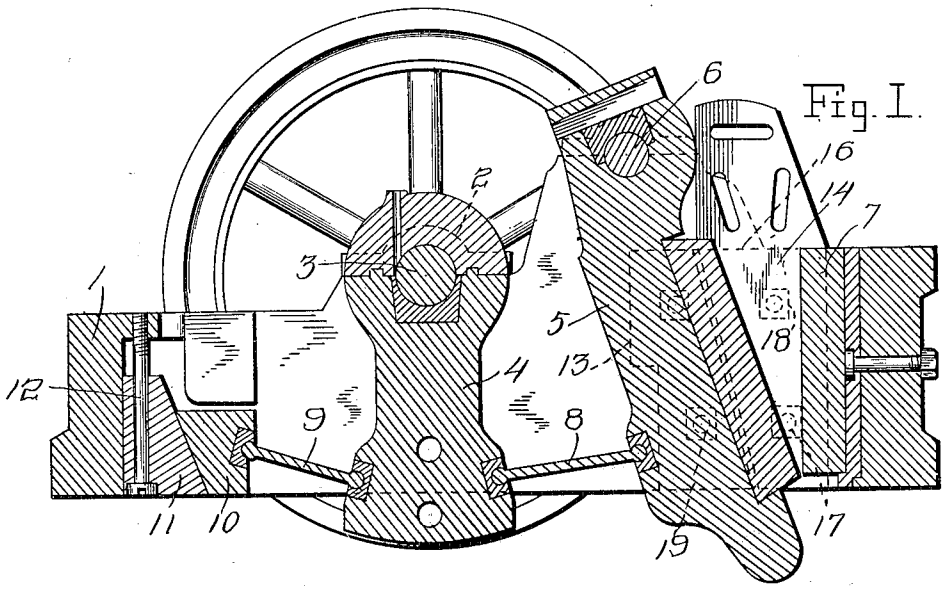
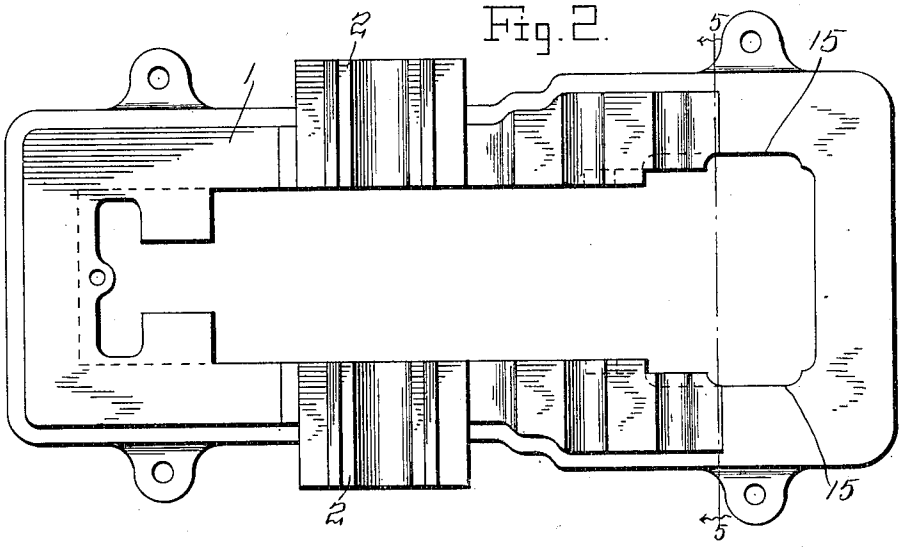


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

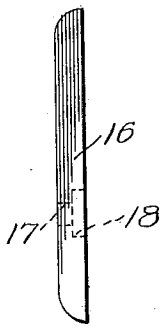


Fig. 4.

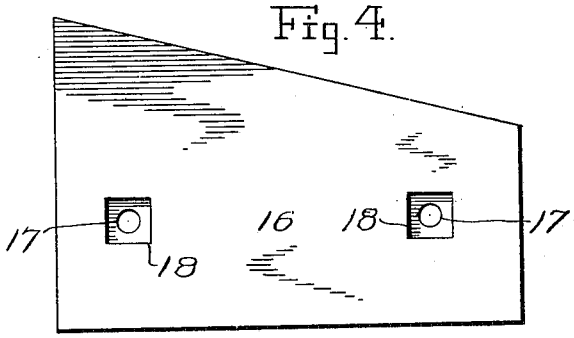
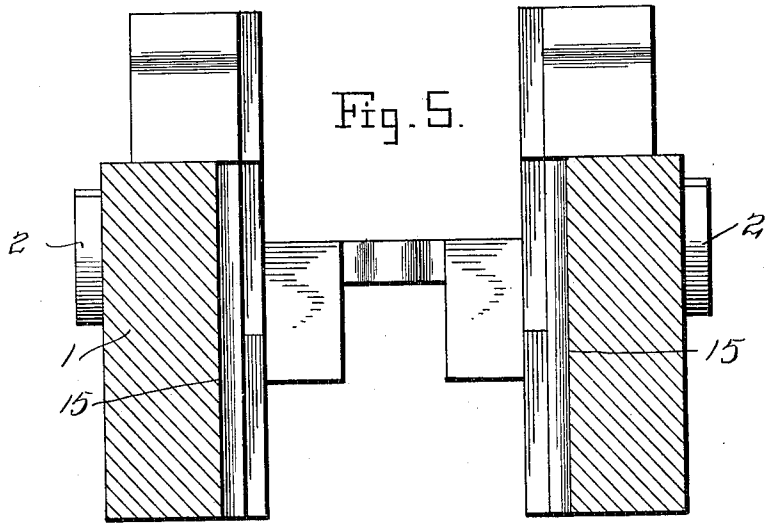


Fig. 5.



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No 825,699. Specification of Letters Patent. Patented July 10, 1906.

Application filed August 25, 1905. Serial No. 276,804.

To all whom it may concern:

Be it known that I, ISAAC N. BONSAL, a citizen of the United States, residing at Oronogo, in the county of Jasper, State of Missouri, have invented certain new and useful Improvements in Ore-Crushers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to rock and ore crushers of what is commonly known as the "Blake" type, and has for its object to provide certain new and useful improvements for taking up wear to which devices of this class are subjected.

In my experience I find that it is not only the exposed faces of the side wear-plates which become worn, but the bed itself becomes worn back of the wear-plates by reason of the sand, water, &c., working in between the wear-plates and the bed. This wearing away of the bed is most noticeable at the lower edge portions of the wear-plates, and when the bed has been worn to a certain extent there is no backing to the wear-plates, particularly at their lower edges, and the crushing operation of the movable jaw tends to chip off the lower edge portions of the wear-plates, and thereby render the device defective.

To overcome the difficulty above mentioned, I propose to provide supplemental wear-plates or backing-plates, which are designed to be situated between the wear-plates and the sides of the bed, so as to take the wear usually taken by the bed. When these backing-plates become worn, they may be readily substituted by new plates, whereby the main wear-plates may always be backed in an efficient manner and the device thereby maintained in its proper working condition.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a longitudinal sectional view of an ore and rock crusher involving the features of the present invention. Fig. 2 is a top plan view of the bed of the device with the operating parts removed. Figs. 3 and 4 are detail views of one of the supplemental wear-plates or backing-plates. Fig. 5 is a cross-sectional view on the line 5 5 of Fig. 2.

Like characters of reference indicate corresponding parts in each of the several figures of the drawings.

For illustrating the application of the present invention there has been shown in the accompanying drawings an ordinary form of crusher-bed 1, which is in the nature of an open rectangular frame provided at opposite sides with corresponding bearings 2 for the reception of an eccentric drive-shaft 3. From this shaft there depends an eccentric bumper 4 for the operation of a jaw-bumper 5. This jaw-bumper works between the sides of the crusher-bed 1 and is loosely hung from a substantially horizontal shaft 6, mounted in suitable bearings upon the top of the crusher-bed. A jaw 6 is removably secured to the front side of the jaw-bumper 5 and is designed to coöperate with the stationary jaw 7, suitably secured to the inner face of the adjacent end of the crusher-bed. There is a link 8 extending between the bumper 4 and the jaw-bumper 5, and another link 9 extends rearwardly from the bumper 4 and engages a wedge-block 10 in the manner of a toggle, the position of the wedge-block 10 being adjusted by means of a movable wedge 11, controlled by an adjusting-bolt 12. At each side of the movable jaw there is a pair of removable wear-plates 13 and 14, which may be of any usual or preferred construction, and it will here be explained that the bed becomes worn back of its wear-plates by reason of whatever slight rubbing movements may be exerted by these plates and by reason of the sand and other material working in between the plates and the bed.

In carrying out my invention I provide each inner face of the bed with a vertical recess 15, located at the point of application of the wear-plates 13 and 14, and in each of these plates or recesses I mount a supplemental wear-plate or backing-plate 16, which is shown in detail in Figs. 3 and 4. This plate is provided with a pair of perforations 17 and seats or recesses 18 concentric with the openings, and at that face of the backing-plate which is adjacent the wear-plate suitable headed fastenings 19, such as bolts, are passed

through the bed and the openings 17, with their heads snugly fitted in the seats 8, whereby the backing-plates are removably held in place.

During the operation of the device the backing-plates take the wear which heretofore has been placed upon the bed, and after the machine has been run for a suitable length of time or as soon as the wear-plates 13 and 14 become broken at their lower edges or indicate that the backing-plates have become worn sufficiently to fail to properly back the wear-plates the backing-plates are removed and others substituted therefor, whereby the device will be restored to its proper operable condition.

Among the advantages of the present invention it will be noted that the application thereof does not alter the construction or arrangement of any of the elements of the original machine, the only change being in the production of the seats or recesses 15 in the crusher-bed, which can be easily produced without impairing the effectiveness of the machine.

Having thus described the invention, what is claimed is—

In a crushing-machine of the character described, the combination of an open crusher-bed, a stationary jaw fixed within one end of the bed, a movable jaw working between the sides of the bed in coöperative relation with the stationary jaw, wear-plates secured to the inner walls of the bed between the two jaws, the inner walls of the bed being provided with open-ended recesses at the backs of the wear-plates, backing-plates fitted within the recesses, and removable fastenings piercing the sides of the bed and engaging the backing-plates.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC N. BONSAL.

Witnesses:

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