

[54] **HAMMER CRUSHER**
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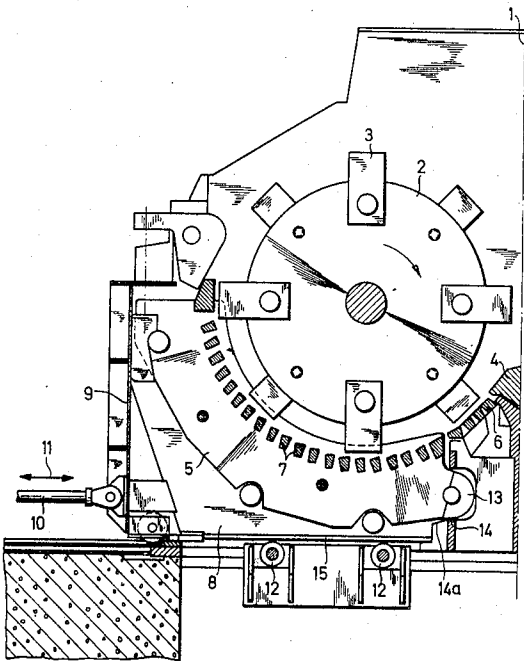
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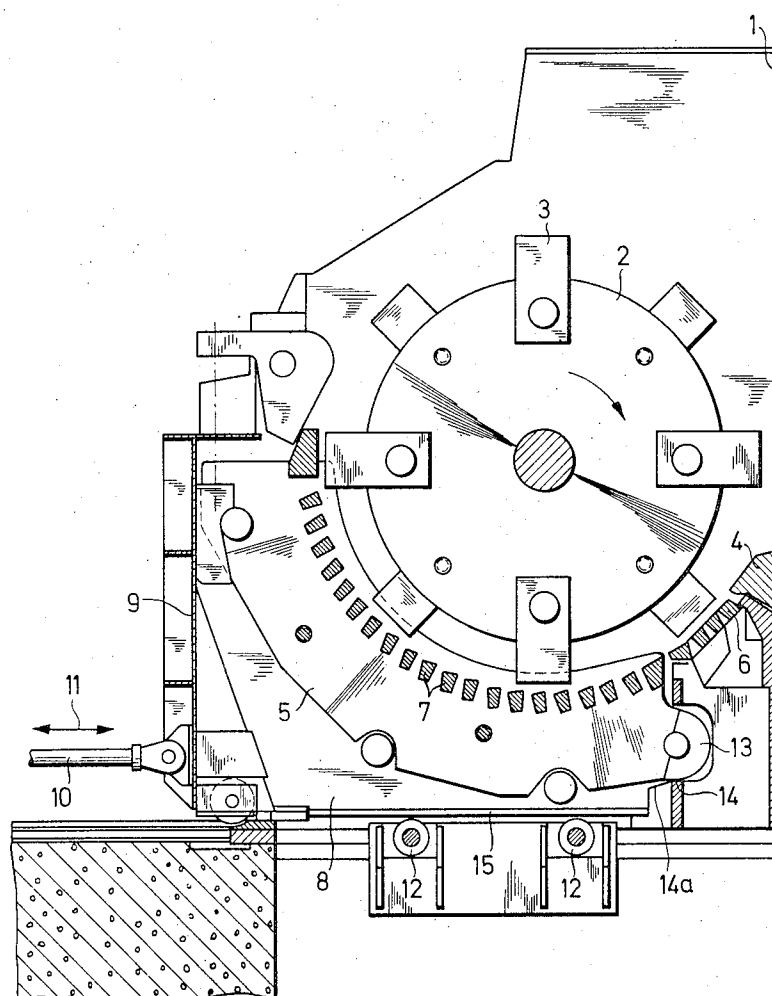
[57] **ABSTRACT**
A hammer crusher having a housing within which is journaled one or more rotatable hammer shafts cooperable with an anvil and gratings, each grating including replaceable grating bars. The grating bars are accessible for replacement by being mounted on a carrier movable into and out of the housing along a substantially horizontal path and without requiring appreciable lowering of the carrier to effect its removal from the housing.

7 Claims, 1 Drawing Figure



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HAMMER CRUSHER

The invention relates to a hammer crusher comprising at least one crusher shaft carrying the hammers, an anvil and a replaceable grating disposed in the lower portion of the crusher housing.

To change the grating in known hammer crushers of the aforementioned type the grating must first be lowered out of its assembly position and then withdrawn in the horizontal direction beneath the crusher shaft. Due to the movement of the grating necessary in two directions such an arrangement is relatively complicated.

Another unfavorable factor is that when wear occurs of individual parts of the grating, in particular of the grating zone disposed adjacent the anvil which is subjected to the highest stress, it is generally necessary to replace the entire grating.

The invention is therefore based on the problem of avoiding the aforementioned disadvantages and making a hammer crusher of the aforementioned type in such a manner that the removal of the grating is possible in a very simple manner and in addition account is taken of the varying wear of the individual grating regions.

According to the invention, this problem is solved in that the grating is divided into a grating plate adjoining the anvil and a grating basket which may be withdrawn from the crusher housing in the horizontal direction without appreciable lowering.

Conveniently, the grating plate is made only so wide that the upper edge of the end of the grating basket adjacent the grating plate lies slightly lower than the lower edge of the hammers. In this manner, the grating basket may without lowering be withdrawn beneath the crusher shaft equipped with the hammers in the horizontal direction, after which the grating plate can also be removed if necessary.

The division of the grating into a relatively narrow grating plate exposed to high wear and a large grating basket also has the substantial advantage that the grating plate can be replaced separately when correspondingly worn.

The solution according to the invention is suitable both for single-shaft hammer crushers and for double-shaft hammer crushers.

An exemplary embodiment of the invention is illustrated in the drawing. It shows a partial cross-section (left half) through a double-shaft hammer crusher according to the invention.

The double-shaft hammer crusher is made symmetrically with respect to the vertical center axis 1 and consequently the description of the left half illustrated will be sufficient. The hammer crusher contains two rotating rotors or shafts 2 which are equipped with impact members or hammers 3 and cooperate with an anvil 4 common to both shafts and a grating which consists of a grating basket 5 and a grating plate 6 forming a bridge between the basket and the anvil 4.

Each grating basket 5 comprises a plurality of grating bars 7 arranged in an arc adjacent the rotary path of the hammers and which are mounted in a carriage frame 8 which may be moved with the outer housing wall member 9 in a horizontal direction (double arrow 11) by a hydraulic drive mechanism 10, the two baskets being movable in opposite directions during removal.

For this purpose, roller guides 12 are provided beneath each hammer crusher and the unit forming the basket 5 may be moved on such guides. In the driven-in

state the basket 5 extends on both sides of a vertical plane passing through the axis of rotation of the rotor 2 and bears with its front end 13 on a stationary abutment 14, the rails 15 being raised slightly from the roller guides 12 (thus relieving the latter from the grinding pressure). The upper (inner) edge of each grating basket adjacent the associated plate 6 lies slightly lower than the lower edge of the hammers 3.

The arrangement is however such that the basket 5 may be moved to one side only of the vertical plane through the axis of the rotor, i.e., withdrawn from the crusher housing in the horizontal direction, and without appreciable lowering. The basket 5 is lowered at the beginning of this horizontal movement only by a few millimeters until the rails 15 bear on the roller guides 12. Correspondingly, at the end of the insertion movement the basket 5 is raised slightly when it is introduced by an inclined face 14a into the abutment 14.

When the basket 5 is withdrawn the grating plate 6 remains in the crusher housing and can then be separately replaced if necessary.

What is claimed is:

1. Hammer crusher apparatus comprising a housing; at least one rotor journaled in said housing for rotation about an axis; hammers carried by said rotor for movement in a rotary path; anvil means fixed in said housing adjacent said path; grating means arranged in an arc adjacent said path; carriage means supporting said grating means for movement relative to said rotor substantially horizontally without appreciable lowering from a first position within said housing and extending on both sides of a vertical plane passing through said axis to a second position in which said grating means is wholly on one side of said plane; and a fixed grating carried by said housing in a position to form a bridge between said anvil means and said grating means.

2. Apparatus according to claim 1 including abutment means engageable by said carriage means to provide vertical support therefor when said carriage means is in said first position.

3. Apparatus according to claim 2 wherein said abutment means includes an inclined surface engageable by said carriage means.

4. Apparatus according to claim 1 including roller means supporting said carriage means for such movement.

5. Apparatus according to claim 1 including a second rotor journaled in said housing and having hammers carried thereby, said anvil means being common to both of said rotors.

6. Apparatus according to claim 5 including second grating means and second carriage means corresponding to the first-mentioned grating means and carriage means, respectively, said second carriage means also being movable substantially horizontally without appreciable lowering between first and second positions corresponding respectively to the first and second positions of said first-mentioned carriage means.

7. Apparatus according to claim 1 including roller means for supporting said carriage means during such movement thereof, and abutment means engageable by said carriage means to provide vertical support therefor when said carriage means is in said first position and relieve said roller means of the support of said carriage means.

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