

W. B. EASTON & D. COLE.
 FRAME FOR JAW CRUSHERS.
 APPLICATION FILED AUG. 19, 1918.

1,298,188.

Patented Mar. 25, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

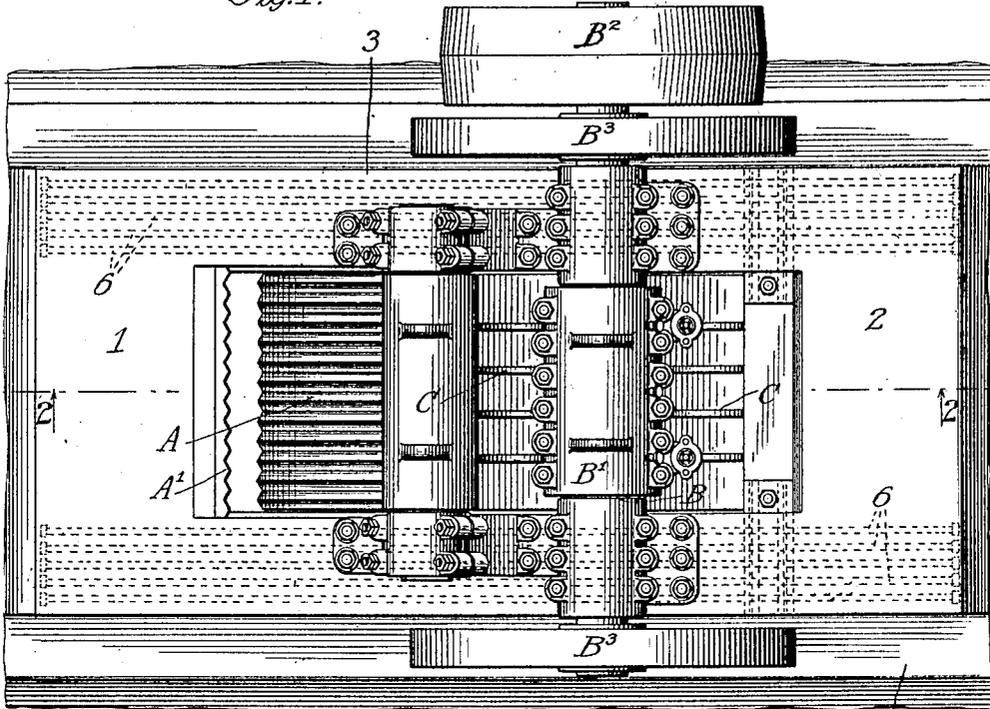
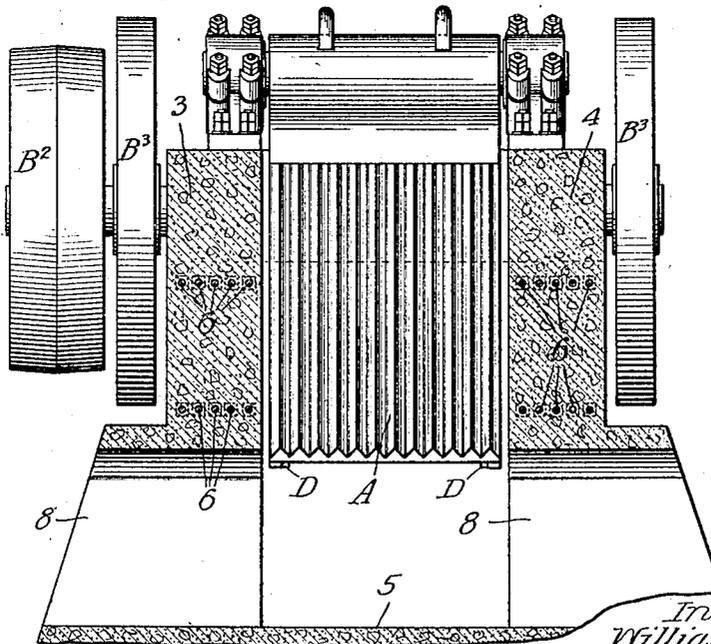


Fig. 3.



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2 SHEETS—SHEET 2.

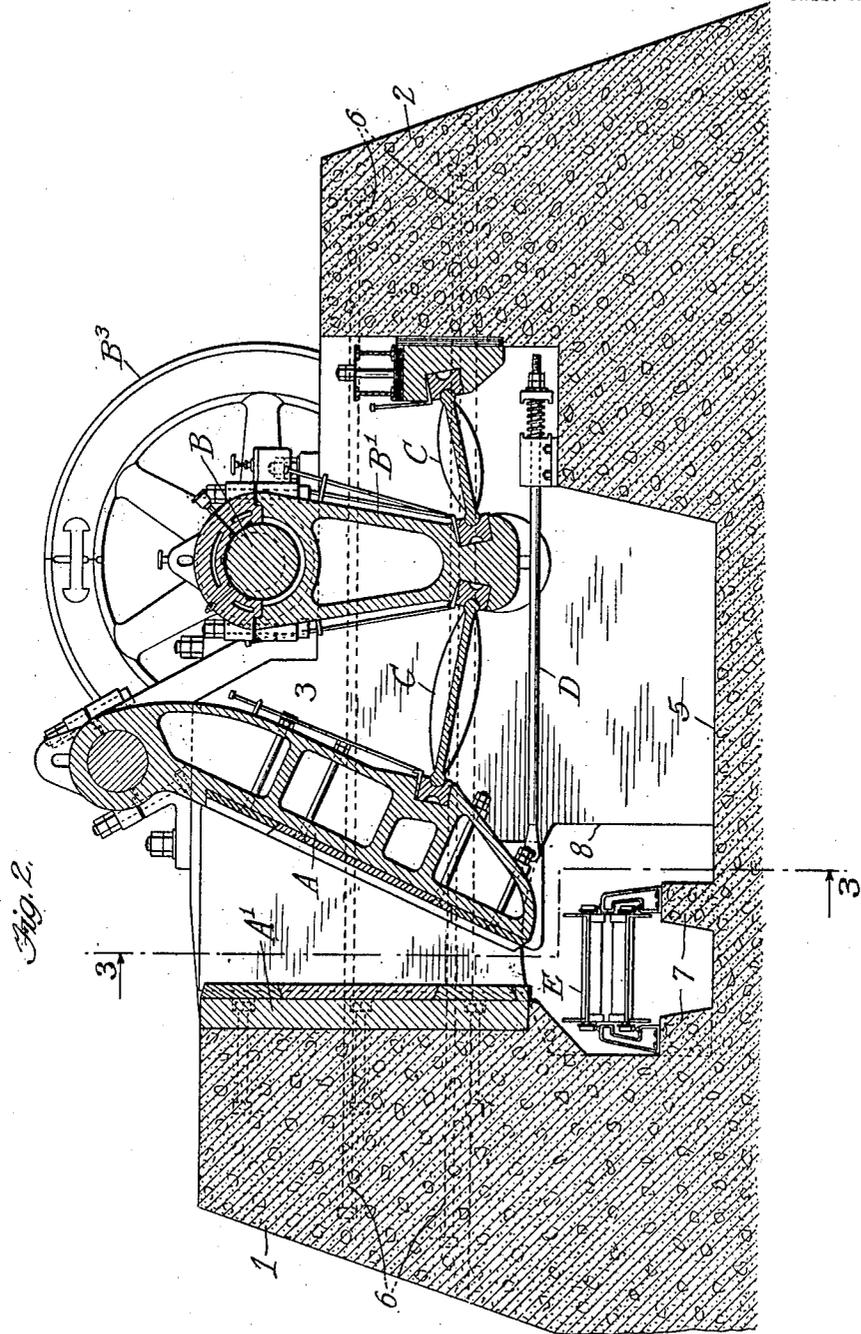


Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM B. EASTON, OF CHICAGO, ILLINOIS, AND DAVID COLE, OF EL PASO, TEXAS.

FRAME FOR JAW-CRUSHERS.

1,298,188.

Specification of Letters Patent.

Patented Mar. 25, 1919.

Application filed August 19, 1918. Serial No. 250,505.

To all whom it may concern:

Be it known that we, WILLIAM B. EASTON and DAVID COLE, citizens of the United States, and residents, respectively, of Chicago, in the county of Cook and State of Illinois, and of El Paso, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Frames for Jaw-Crushers, of which the following is a specification.

This invention relates to jaw crushers for crushing rock, ore and the like, and has particular reference to frames for such crushers.

Crushers of the type to which my invention relates are made in very large sizes, the over-all dimensions thereof varying with the size of the jaw openings thereof up to approximately 24 feet long by 15 feet wide and 13 feet high.

Also, as showing the great stresses which will be produced in the machine in operation and the great strength required to withstand said stresses, a machine of the size specified will ordinarily have a maximum jaw opening of about 60 inches by 84 inches and will reduce the product to a size of about 9 inches.

As heretofore usually constructed, the frames of such large size crushers have always, so far as we are aware, been made of cast steel, which, to provide requisite strength, have been very large, massive and heavy—crushers, complete, weighing as high as 450,000 pounds and the frames therefor as high as 140,000 pounds. It will thus be seen that merely figuring the cost of the frame at the bare cost of the castings, this item alone will be very great, to which must be added the cost of transportation. Moreover, when used for crushing ore, such machines are frequently installed at remote places which are so nearly inaccessible as to render it practically impossible to carry in the frame, and, in any event, greatly increasing the transportation charge and thus the ultimate cost of the machine when installed.

The object of the present invention is to overcome the foregoing objectionable features, which we accomplish by constructing the frame of the machine from material which will be relatively very cheap as compared with cast steel, and which, for the most part, will be readily available at the point of erection, or, in so far as it is necessary to transport it, presents no serious problems either on account of size, weight or ex-

pense. Specifically, our invention contemplates making the frame of the crushers from concrete.

In the accompanying drawings, in which our invention is fully illustrated,

Figure 1 is a top plan view of a jaw crusher having a frame of our invention.

Fig. 2 is a sectional elevation thereof on the line 2—2 of Fig. 1; and

Fig. 3 is a sectional elevation thereof on the line 3—3 of Fig. 2.

In the drawings, we have, for purposes of clear and concrete illustration, shown our improved frame as embodied in a jaw crusher of a familiar type known to the trade as a Blake crusher. Our invention, however, admits of general application in different types of crushers and we do not, therefore, desire to limit ourselves to the specific embodiment shown.

Our present invention in no way relates to the operative parts of the crusher, which, as shown, are of an old and well known type and will be readily understood by persons skilled in the art from an inspection of the drawings, without a description in detail thereof.

For purposes of convenient reference, different operative parts of the crusher are designated as follows: A is the movable jaw, A' the fixed jaw, B the eccentric or pitman shaft, B' the pitman, B² the driving pulley, B³ the fly wheels, C the toggles for oscillating the movable jaw A, D the tension rod for preventing lost motion in the toggle lever bearings, and E a conveyer mounted below the crusher jaws adapted to receive the crushed material therefrom and convey it to a desired point of use or delivery.

In accordance with our invention, the frame of the crusher is made of concrete and comprises end portions 1 and 2 against which the crusher jaws A, A' react directly; side walls or portions 3 and 4 which support the bearings for the pitman shaft B and the shaft of the movable crusher jaw A; and, preferably, a bottom portion 5. Said ends, sides and bottom are made integral with each other and together define what may be referred to as a pit in which the crusher jaws and certain parts associated therewith are positioned.

While, in operation, the thrust of the crusher jaws A, A' will be exerted directly upon the ends 1 and 2 of the crusher frame,

it may also be sustained, in part, by the sides 3 and 4 of the frame, which, if desired or necessary, may be reinforced and strengthened by steel reinforcing bars embedded therein, shown at 6. In the preferable practice of our invention, however, we contemplate making the end portions 1 and 2 of said frame sufficiently large, massive and heavy to sustain the thrust of the crusher jaws without additional or outside support. However, as equivalent constructions, our invention contemplates embedding said end portions 1 and 2 in the ground, the outer sides thereof sloping outwardly, or building one or both of said end portions against any convenient natural abutment, as a rock ledge or the like.

As shown, the conveyer E rests on supports 7 on the bottom of the crusher panel, and to provide for running said crusher under the crusher jaws and carrying away the crushed material, openings 8 are formed in the sides 3 and 4 of the crusher frame through which said conveyer passes.

It is contemplated that crushers having frames of our invention will be utilized where it would be impractical or impossible to install usual cast steel frames, because of their prohibitive cost or the inaccessibility of the locality where it is desired to install the crusher, thus rendering transportation very difficult if not impossible.

We claim:—

1. A frame for a jaw crusher comprising

end portions made of concrete which sustain the direct thrust of the crusher jaws, said end portions being sufficiently massive and heavy to withstand the thrust of the crusher jaws without connecting supports, substantially as described.

2. A frame for a jaw crusher comprising end portions made of concrete which sustain the direct thrust of the crusher jaws, said end portions being sufficiently massive and heavy to withstand the thrust of the crusher jaws without connecting supports, and concrete side portions which form supports for the shaft bearings of the crusher, substantially as described.

3. A frame for a jaw crusher comprising end, side and bottom portions made of concrete and formed integral with each other, and which form a pit in which the crusher jaws and certain associated parts are mounted, substantially as described.

4. A frame for a jaw crusher comprising end and side portions made of concrete and formed integral with each other, and openings in the lateral portions thereof adapted for the installation of a conveyer below the jaws of the crusher, substantially as described.

In testimony that we claim the foregoing as our invention, we affix our signatures this 13th day of August, 1918.

WM. B. EASTON.
DAVID COLE.