F. M. CANDA.

CRUSHER PLATE.

APPLICATION FILED SEPT. 17, 1908.

1,015,871. Patented Jan. 30, 1912.

Fig. 1.

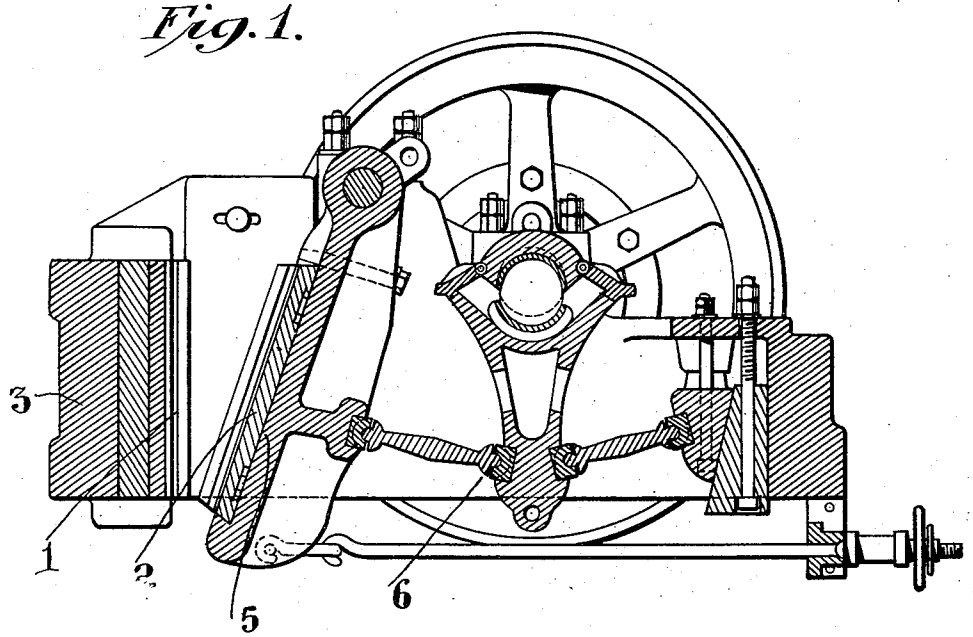
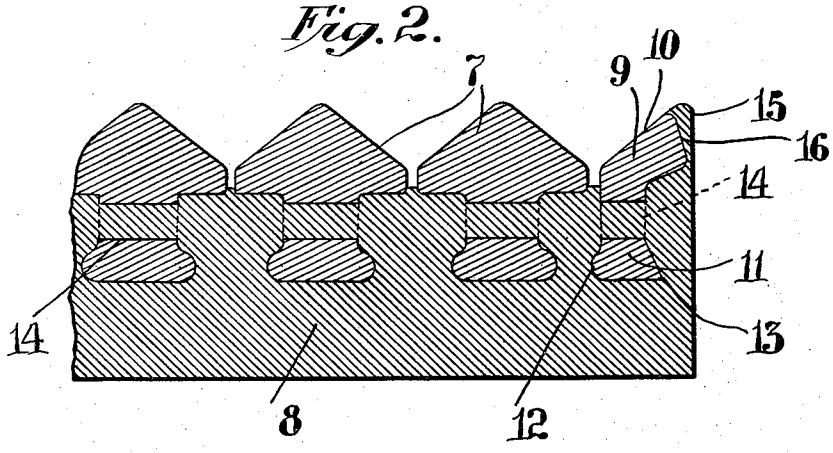


Fig. 2.



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UNITED STATES PATENT OFFICE.

FERDINAND MORA CANDA, OF NEW YORK, N. Y., ASSIGNOR TO CHROME STEEL WORKS, OF CHROME, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CRUSHER-PLATE.

1,015,871. Specification of Letters Patent. Patented Jan. 30, 1912.

Application filed September 17, 1908. Serial No. 453,417.

To all whom it may concern:

Be it known that I, FERDINAND M. CANDA, a citizen of the United States of America, and a resident of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Crusher-Plates, of which the following is a specification.

My invention relates to improvements in crusher plates, such as are used in rock crushers, and embodies improvements on the construction set forth in my Patent No. 883,619, dated March 31, 1908. The plate of said patent consists of a plurality of hard ribs, usually of high carbon steel and usually angle-faced, and a cast-metal base surrounding and interlocking with the lower portions of said ribs. I have found that for the edge ribs of such plates, what may be described as a half-rib is desirable, that is to say, a rib corresponding roughly to what might be produced by cutting one of the intermediate ribs down the middle, and which therefore would have only one oblique face. It is not practicable to produce edge ribs by cutting intermediate ribs down the middle, however, and if it were practicable to do so, such ribs would nevertheless be unsatisfactory, in that they would not provide room for a sufficient body of the base metal outside of such edge ribs. I have therefore devised, for the edge ribs, an angle bar of peculiar form, which is susceptible of being rolled readily, and which when in place in the plate has its base portion set in a considerable distance from the edge of the plate, while its face corresponds substantially to one side face of an intermediate rib.

In the accompanying drawings I illustrate a crusher plate comprising an edge rib such as referred to.

In said drawings: Figure 1 shows a vertical section of one well known type of rock crusher provided with plates such as above referred to; and Fig. 2 shows a transverse section of a plate having an edge rib such as referred to.

In Fig. 1, numerals 1 and 2 designate crusher plates such as referred to, removably mounted respectively in the main frame 3 and in the jaw 5. I have shown the familiar toggle mechanism 6 for operating jaw 5.

Referring to Fig. 2, numerals 7 designate the said intermediate ribs, and 8 the cast backing therefor, surrounding and interlocking with the base portions of said ribs. 9 designates the edge rib. As shown, it is an angle bar, one face 10 of which forms an angle face corresponding substantially to one of the faces of the adjacent intermediate bar, the other leg, 11, of the angle bar being embedded in the backing 8 and forming a base for the bar. This leg 11 has at one lower corner a rounded rib, 12, and at the opposite lower corner a sharp edge, 13, the face of the bar above said edge being beveled or reëntrant, the effect of these constructions being that the backing metal 8 interlocks with the base 11, just as with the bases of the other ribs; and the base 11, like the bases of the other ribs, is perforated, as at 14, so that the base metal, by filling these perforations, will interlock yet more strongly with the bases of the ribs. It is extremely desirable that these ribs shall weld more or less completely to the base metal when the latter is cast about them. The peculiar form of the edge rib 9 materially aids in securing a weld of this rib to the base metal, for not only does the sharp edge 13 heat quickly under the influence of the molten metal, but the base 11, being set over to the extreme inner side of the bar, provides room for a considerable thickness of base metal outside of this base,—a thickness nearly or quite as great as that of the metal between rib 9 and the next rib. Consequently, the metal outside of rib 9 will cool somewhat slowly, affording ample time and heat to raise the base of the rib to the temperature necessary that it may unite firmly to the base metal.

In practice I am able to use a single size of edge bar 9 with a plurality of sizes of intermediate bars 7, as it is not necessary that the edge bar shall rise to the full height of the intermediate bars. In the new plate, the base metal may extend up outside of the edge rib, forming an extension 15. When the plate is placed in the crusher its edge is close against a cheek plate of the crusher which prevents the rock from acting materially on this extension 15, so that this extension, though of soft metal, is relatively little subject to wear. It will be noted that the edge surface 16 of bar 9 is beveled backward, so that the base metal outside of this edge helps to hold the bar in place.

What I claim is:—

1. A crusher plate comprising a series of

hard ribs and a softer and tougher cast metal base said ribs comprising intermediate ribs having oblique faces above the cast metal base, and comprising also an edge rib having a single oblique face corresponding approximately to one of the oblique faces of the intermediate ribs, and sloping inward, portions of said intermediate and edge ribs being completely embedded in the cast metal and interlocked therewith.

2. A crusher plate comprising a series of hard ribs and a softer and tougher cast metal base, said ribs comprising intermediate ribs having lower portions embedded in said cast metal and having oblique faces above the cast metal, and comprising also an edge rib consisting of an angle bar, one leg of which is embedded in the cast metal base, the other leg of said angle bar having a face which forms a wearing face.

3. A crusher plate comprising a series of hard ribs and a softer and tougher cast metal base, said ribs comprising intermediate ribs having lower portions embedded in said cast metal and having oblique faces above the cast metal, and comprising also an edge rib consisting of an angle bar, one leg of which is embedded in the cast metal base, the other leg of said angle bar having a face which forms a wearing face, one of the lower edges of the rib being sharp to facilitate union of said rib with the cast metal.

4. A crusher plate comprising a series of hard ribs and a softer and tougher cast metal base, said ribs comprising intermediate ribs having lower portions embedded in said cast metal and having oblique faces above the cast metal, and comprising also an edge rib consisting of an angle bar, one leg of which is embedded in the cast metal base, the other leg of said angle bar having a face which forms a wearing face, one of the lower edges of the rib being sharp to facilitate union of said rib with the cast metal and the portion of the rib above said sharp edge being reëntrant to effect interlocking of said rib with the cast metal.

5. A crusher plate comprising a series of hard metal ribs and a softer and tougher cast metal base surrounding the lower portions of said ribs, said ribs comprising intermediate ribs provided each with a reduced lower portion of a shape adapted to interlock with the cast metal base and comprising also an edge rib consisting of an angle bar, one leg of which is embedded in the cast metal base and forms a base for said rib set inward from the edge of the plate and so affording room for a considerable body of cast metal outside of the base portion of said rib.

6. A crusher plate comprising a series of hard metal ribs and a softer and tougher cast metal base surrounding the lower portions of said ribs, said ribs comprising intermediate ribs provided each with a reduced lower portion of a shape adapted to interlock with the cast metal base and comprising also an edge rib consisting of an angle bar, one leg of which is embedded in the cast metal base and forms a base for said rib set inward from the edge of the plate, the outer side of such leg being reëntrant, one side of the other leg of said rib being exposed and forming a wearing face, the other side being reëntrant and being covered by metal of said base.

7. A crusher plate comprising a series of hard metal ribs and a softer and tougher cast metal base, said ribs comprising intermediate ribs having oblique faces above the cast metal base, and comprising also an edge rib having a single oblique face corresponding approximately to one of the oblique faces of the intermediate ribs, and sloping inward, portions of said intermediate and edge ribs being completely embedded in the cast metal, the metal of said base extending along the outer side of said edge rib to and above the apex of said edge rib, the upper part of the so extended portion of said base metal forming a continuation of the oblique face of said edge rib.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FERDINAND MORA CANDA.

Witnesses:
H. M. MARBLE,
FRANK E. RAFFMAN.