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IMPELLER FOR ROCK CRUSHERS

Filed June 4, 1923

Fig. 1.

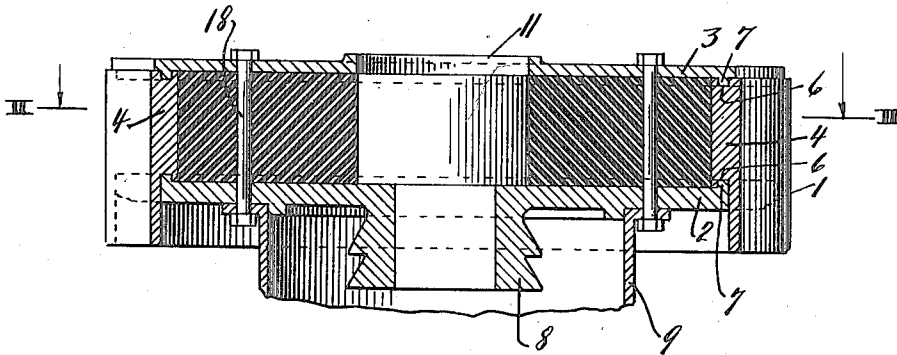
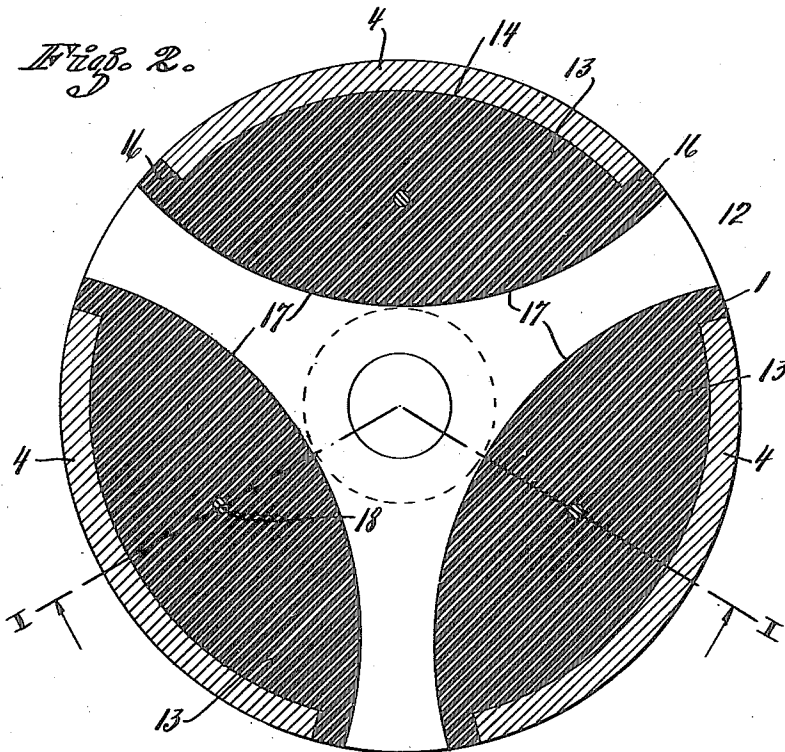


Fig. 2.



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IMPELLER FOR ROCK CRUSHERS.

Application filed June 4, 1923. Serial No. 643,453.

To all whom it may concern:

Be it known that I, ALVAH D. HADSEL, a citizen of the United States, and a resident of San Francisco, county of San Francisco, and State of California, have invented a new and useful Impeller for Rock Crushers, of which the following is a specification.

The present invention relates to improvements in impellers for rock crushers and has particular reference to centrifugal rock crushers in which the rock is fed into the center of the impeller, is thrown outwardly in radial direction by centrifugal force and discharged peripherally. A rock crusher of this character is described in my copending application, Serial No. 623,041, which latter application is hereby particularly referred to.

The particular object of the present invention is to provide means for protecting the walls of the impeller from the crushing action of the rocks thrown against the same. I have found through various experiments that a material particularly adapted for this purpose is ordinary rubber such as is used in tires for motor vehicles, and that a layer of rubber will withstand the impact of the rock material better than the best manganese steel. It is proposed, therefore, to provide guideways made of rubber or a similar substance for the rock to protect the metal structure of the impeller.

The preferred form of the invention is illustrated in the accompanying drawing in which Figure 1 shows a vertical section through my impeller taken along line I—I of Figure 2, and Figure 2 a horizontal section through the same taken along line II—II of Figure 1. While I have shown only the preferred form of the invention, it should be understood that various changes or modifications may be made within the scope of the claims hereto attached without departing from the spirit of the invention.

The impeller (1) shown in the drawing is in most respects similar to that shown in my copending application, and comprises a base plate (2), a top plate (3) and a plurality of circumferential wall elements (4) grooved at the top and at the bottom as shown at (6) adapted to be held between the two plates by means of annular projections (7). The base plate is formed with a hub (8) adapted to receive a vertical shaft not shown in the drawing which

supports the impeller and has suspended therefrom a cylindrical member (9) forming a pulley by means of which the impeller may be rotated. The top plate (3) is opened in the center as shown at (11) so that rock may be fed into the impeller from a hopper not shown in the drawing. The wall elements (4) are spaced to leave gaps (12) between the space through which the rock may be discharged peripherally. The principal parts of the present invention are the cushioning elements (13) preferably made of rubber. Vertically they fill the entire space between the bottom and the top plates. They are formed to line the inner faces (14) and the edges (16) of the wall elements and present arcs (17) interiorly, projecting inwardly sufficiently far to form radial guideways for the material to be crushed. Bolts (18) extending through the rubber and the top and bottom plates respectively hold the cushioning elements in place.

It will be noted that when rock is fed into the impeller centrally and discharged peripherally, it does not strike any metal parts except the bottom and top plates where the contact is comparatively light. It is thrown against the cushioning members, which latter not only guide the rocks in radial direction but also absorb the shock, and which resist wear considerably longer than high grade manganese steel.

I claim:

1. An impeller of the character described, comprising a rotary element formed to receive material centrally and to discharge the same peripherally and soft cushioning members within the same for guiding the material.
2. An impeller of the character described, comprising a rotary element having a central opening for receiving material and peripheral openings for discharging the same, and soft cushioning members forming guideways leading from the central to the peripheral openings.
3. An impeller of the character described, comprising a rotary element having a central opening for receiving material and peripheral openings for discharging the same, and soft rubber cushioning elements forming guideways leading from the central to the peripheral openings.
4. An impeller of the character described,

comprising a cylindrical rotary element having a central opening for receiving material and peripheral wall elements allowing the material to be discharged peripherally and soft cushioning elements protecting the wall elements.

5 5. An impeller of the character described, comprising a cylindrical rotary element having a central opening for receiving material and peripheral wall elements allowing the material to be discharged peripherally, and soft cushioning elements protecting the wall elements shaped to form radial guide-ways for the material.

10 6. An impeller of the character described, comprising a cylindrical rotary element having a central opening for receiving material and peripheral wall elements allowing the material to be discharged peripherally, and

soft cushioning elements covering the inner 20 faces and edges of the wall elements.

7. An impeller of the character described, comprising a cylindrical rotary element having a central opening for receiving material and peripheral wall elements allowing the material to be discharged peripherally, and soft cushioning elements covering the inner faces and edges of the wall elements, shaped to form radial guideways for the material.

8. An impeller of the character described, comprising a cylindrical rotary element having a central opening for receiving material and peripheral wall elements allowing the material to be discharged peripherally and rubber cushioning elements shaped to form radial guideways for the material.

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