

June 26, 1956

C. A. ADAMS

2,752,098

IMPELLER FOR IMPACT CRUSHER

Filed Aug. 9, 1954

FIG. 1.

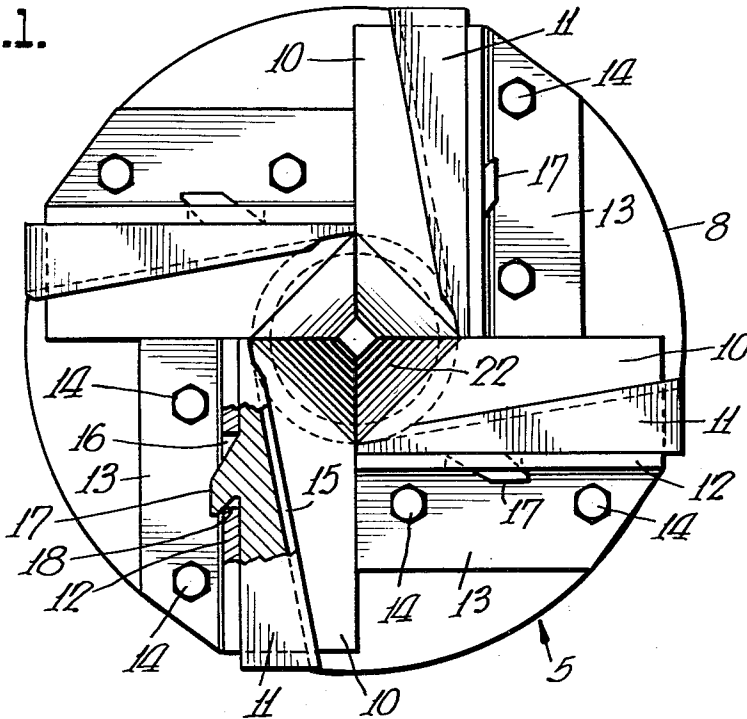
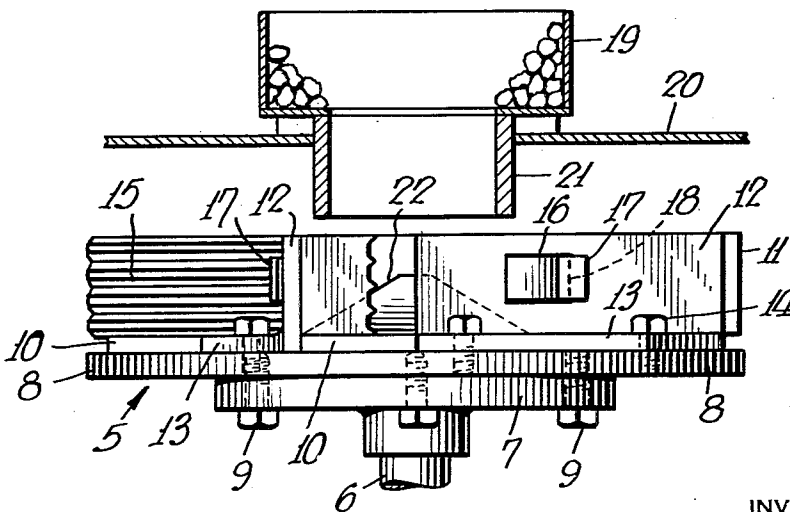


FIG. 2.



INVENTOR
Charles A. Adams
BY
Mitchell Beckett
ATTORNEYS

1

2,752,098

IMPELLER FOR IMPACT CRUSHER

Charles A. Adams, Wurtsboro, N. Y.

Application August 9, 1954, Serial No. 448,571

2 Claims. (Cl. 241—197)

My invention relates to an impact crusher, and more particularly to a wear plate and means for securing the same in place.

This invention is an improvement on that shown in my copending application, Serial No. 398,775, filed December 17, 1953.

In the impact crusher referred to, there is a rotatable impeller, preferably rotatable on a vertical axis, and there are vanes or wear plates or shoes for carrying the material outwardly under the action of centrifugal force and discharging the same against anvils or breaker plates. The impeller blades or plates include wear plates or shoes, because crushable material flowing over the impeller blades wears the plates down so that they require replacement.

It is the principal object of my invention to provide an improved wear plate or shoe in an impact crusher.

It is another object to provide improved means for simply yet securely holding wear plates or shoes rigidly in place on an impeller.

Another object is to provide improved securing means for securing a wear plate to an impeller blade, so arranged that the wear plate is acted on by centrifugal force in such a way as to make the wear plate hold more securely the faster the rotation of the impeller.

Other objects and features of novelty will be hereinafter pointed out or will become apparent to those skilled in the art.

In the drawings, which show, for illustrative purposes, only, a preferred form of the invention:

Fig. 1 is a top plan view of an impeller for an impact crusher illustrating the invention; and

Fig. 2 is a side elevation of the impeller shown in Fig. 1, parts being broken away.

In an impact crusher of the character indicated, there is a rotatable impeller having impeller blades which guide or conduct crushable material outwardly under the action of centrifugal force, and there are anvils or breaker plates surrounding the impeller so that the crushable material is cast forcibly against the anvils or breaker plates so as to crush the material.

The present invention, as stated, is in the nature of an improvement on my copending application, identified above, to which application reference is made for a fuller description of certain parts of the present invention.

In said drawings, there is illustrated an impeller 5, which may comprise a vertical impeller shaft 6 having a plate hub 7 thereon. A bottom impeller plate 8 is secured as by means of bolts or the like 9 to the hub 7 of the impeller. The impeller has renewable bottom wear plates or liners 10 resting on and secured to the impeller plate or disk 8. The impeller further includes impeller blades and, in the form shown, these blades consist of

2

wear plates or shoes 11—11, which may rest on the bottom renewable plates or liners 10—10, and which may be secured to blades or upstanding walls on the impeller plate. As illustrated, the wear plates 11—11 are secured to upstanding walls 12, which in the form illustrated constitute legs of angles, the bases 13 of which are secured to the impeller as by means of screws 14, as will be clear. The wear plates 11 are preferably generally wedge-shaped, and they may have radially extending ribs or serrations 15 thereon to assist in guiding the crushable material in its centrifugal travel from the center to the outer periphery of the impeller.

The wear plates 15 are preferably formed of tough hardened steel or the like, so as to resist wear. However, despite the efforts to avoid wear, the plates 15 do wear out, and I have provided improved means for securing them in place on the impeller. My improved means is of such a nature that the wear plates may be very readily and quickly applied to the upstanding walls 12, and may rest on the bottom renewable plates or liners 10. The means for securing the wear plates in place is further of such a nature that centrifugal force tends to wedge the wear plates into tighter and tighter engagement with the walls 12 and as the speed of the impeller is increased.

In the form illustrated, the upstanding blades or walls 12 are provided with openings 16 therein, which are preferably about centrally located. The wear plates 11 are provided with securing means in the form of tongues 17, preferably integral therewith, which tongues are inclined generally radially outwardly so as to hook over the edge 18 of the hole 16 and thus more tightly wedge or bind the wear plates to the upstanding plates or blades 12 as the speed of the impeller increases. It will be seen that, with the wear plates 11 resting on the bottom plates or liners 10, a single lug 17 will suffice to hold the plates 11 securely in place, and, as stated, as the speed of the impeller is increased so is the holding effect of the wedge lug 17 in the hole 16 of the upstanding plate of the angle.

As is more fully set forth in the copending application above identified, the impeller is enclosed in a casing and there are suitable anvils or breaker plates distributed about the impeller. There is a feed hopper 19 secured above the top plate 20 and provided with a down chute 21 for discharging crushable material onto the impeller. The impeller at the center has a pyramid or cone platform 22, which is designed to distribute the crushable material and force the same off center, so that it may be acted upon centrifugally and thrown outwardly and crushed.

It will be seen that I have provided an exceedingly simple impeller and simple improved means for holding the wear plates securely in place, so that they may be definitely held and yet may be readily removed for replacement when necessary.

While the invention has been described in considerable detail and a preferred form illustrated, it is to be understood that various changes and modifications may be made within the scope of the invention, as defined in the appended claims.

I claim:

1. In an impact crusher, a generally vertical shaft, a bottom impeller plate carried by said shaft, an upstanding wall on said impeller plate, said upstanding wall having a hole therethrough, a wear plate fitting against said upstanding wall, said wear plate having a laterally and outwardly extending wedge tongue extending through said hole, said wedge tongue having forward and rear wedge

3

surfaces engageable with the forward and rear edges of said hole, whereby movement of said wear plate in radially outward direction will cause said forward wedge surface and engaging edge of hole to wedge said plate into tight engagement with said upstanding wall, and radial movement in a radially inward direction will cause the rearward wedge surface and the rear edge of said hole to wedge said wear plate laterally away from said upstanding wall.

2. In the combination defined in claim 1, a bottom wear plate on said impeller plate on which said first mentioned wear plate rests.

5

10

4

References Cited in the file of this patent

UNITED STATES PATENTS

1,921,914	Edman	Aug. 3, 1933
2,246,902	Smith	June 24, 1941
2,357,843	Morrissey	Sept. 12, 1944
2,392,958	Tice	Jan. 15, 1946
2,605,972	Le Blanc	Aug. 5, 1952

FOREIGN PATENTS

1,065,275	France	Jan. 6, 1954
-----------	--------	--------------