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JAW OR BREAKER PLATE FOR STONE CRUSHERS AND THE LIKE

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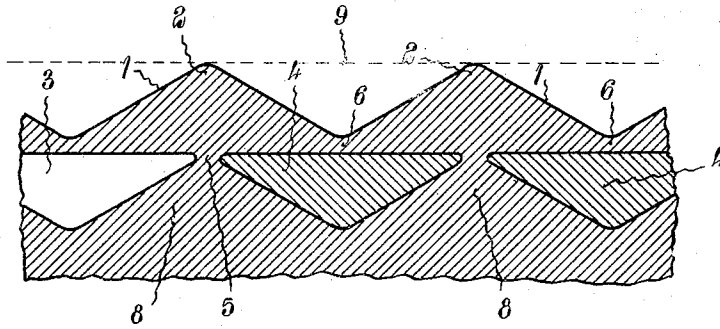


Fig. 1

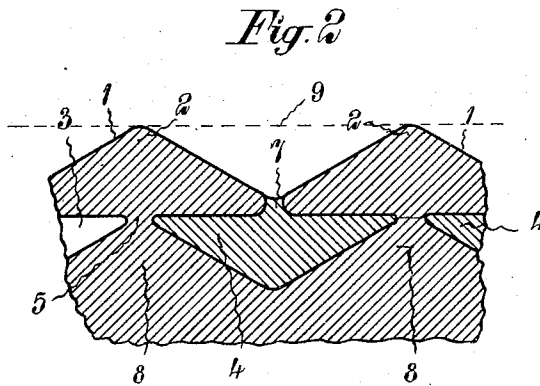


Fig. 2

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JAW OR BREAKER PLATE FOR STONE CRUSHERS AND THE LIKE.

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This invention refers to jaws or breaker plates for stone crushers and the like and has for its object to lengthen the life of the plates which, as is well known, are subjected to great wear and tear. As the teeth or ridges on the working surface of such breaker plates become worn away after a comparatively short lapse of time on account of the continual and intense wear against the material to be crushed it has already been proposed to make the working surface having teeth or ridges exchangeable, but great difficulties have arisen in producing a satisfactory device for fixing the working surface subjected to great stresses so that it does not get loose. Conventional fastening devices are of no use, and for this reason it has been proposed to fix the part forming the working surface by means of tongues integral therewith and corresponding grooves in the breaker plate, a soft and easily meltable metal being cast in the space between the tongues and the walls of the grooves. This arrangement however is also not quite satisfactory, because it has been found that the soft metal has the tendency to flow out under the great stresses acting upon the breaker plate. The object of the invention therefore is to solve this problem according to another principle, that is to construct or form the jaw or breaker plate in such a manner that it offers a quite new working surface upon the original working surface having become worn out. By this means the necessity of providing exchangeable parts and the disadvantages connected therewith have been completely avoided.

The invention is illustrated by way of example in two preferred forms of embodiment in the accompanying drawing which shows in Figs. 1 and 2 cross sections through a portion of a jaw or breaker plate according to the invention. The original or initial working surface of the breaker plate is denominated 1 and 2 are the teeth or ridges thereon. Closely under the surface of these ridges there are arranged cavities 3 of approximately the same form and sectional area as the spaces between the ridges 2, an imaginary line 9 being drawn touching the tops of the ridges. These cavities 3 are in juxtaposition to the spaces between the initial ridges 2 and they are filled by casting into the same molten softer or more brittle metal, such as for instance lead, cast iron or

the like. The left hand cavity 3 in Fig. 1 is shown without filling and the other cavities are shown filled as at 4. The jaw or breaker plate is of course made of very tough and hard steel. The initial teeth or ridges 2 form a continuous piece and are integral with the body of the breaker plate through durable bars 5, the corners of the cavities 3 near these bars being rounded off. The initial ridges 2 hang together by the thinner portions 6. In a modification shown in Fig. 2 these thinner portions are left out entirely and the space obtained thereby may be filled as at 7 with the same metal as the cavities 3 and in this case may serve as ingate, when the cavities are filled.

It will be quite obvious that when the initial teeth or ridges 2 have been completely worn out and the metal cast into the cavities 3 has thereupon been removed the breaker plate will offer a quite new working surface having teeth or ridges 8 instead of the former ones 2, so that thereafter the jaw or breaker plate is as good as new. In this manner the longevity of the jaw or breaker plate obviously is doubled, and it does not appear impossible to further lengthen the life of a breaker plate by arranging a further series of similar cavities underneath the cavities 3 above described.

It is to be understood that the invention is not limited to the specific forms of embodiment herein shown and described, for the forms of the teeth or ridges and of the cavities and the positions of the latter in relation to the ridges may be varied without depreciating the contemplated result. It is further not absolutely essential to fill the cavities by casting into the same molten softer or more brittle metal, although this would be preferred. It also appears possible to fill the cavities for the purpose of supporting the projecting portions of the initial ridges 2 by means of well fitting and if necessary welded on rods or bars which in this case may also be of hard and durable metal. When the cavities are filled with, for instance, cast iron the surfaces of the cavities may be specially treated beforehand in order to prevent the cast iron from adhering too strongly to the said surfaces. Another method to fill the cavities is to use rods or bars of cast iron or the like as cores, when the breaker plate is cast, and to leave these cores in their places. If in this case the initial teeth or ridges 2 are

worn out so that they no longer could be used, the remaining portions thereof and the cores forming the fillings of the cavities could be knocked away by means of a sledge
5 or the like.

What I claim and desire to secure by Letters Patent is:—

1. A breaker plate for stone crushers and the like comprising a toothed surface layer
10 and a sub-surface layer having tooth shaped portions integral with the surface layer and formed alternately with portions of different homogeneity with respect to said tooth
shaped portions.

15 2. A breaker plate for stone crushers and the like comprising a toothed surface layer and a sub-surface layer having tooth shaped portions directly beneath the teeth of said surface layer and integral therewith, said
20 tooth shaped portions being formed alternately with portions of different homogeneity with respect to said tooth shaped portions.

3. A breaker plate for stone crushers and the like comprising a toothed surface layer 25 and a sub-surface layer having tooth shaped portions integral with the surface layer, said sub-surface layer being formed by the sides of said tooth shaped portions with cavities filled with portions of different
30 homogeneity from that of said tooth shaped portions.

4. A breaker plate for stone crushers and the like comprising a toothed surface layer and a sub-surface layer having tooth shaped 35 portions beneath the teeth of said surface layer and shaped similarly to said teeth, said tooth shaped portion being integral with said surface layer and being arranged
40 alternately with cavities filled with portions of different homogeneity with respect to said tooth shaped portions.

In testimony whereof I have signed my name to this specification.

POUL BECHGAARD.