May 30, 1967 L. E. TOEWS 3,322,356

ROTARY CRUSHER HAMMER WITH ALTERNATE THICK AND THIN WEAR STRIPS

Filed June 16, 1964

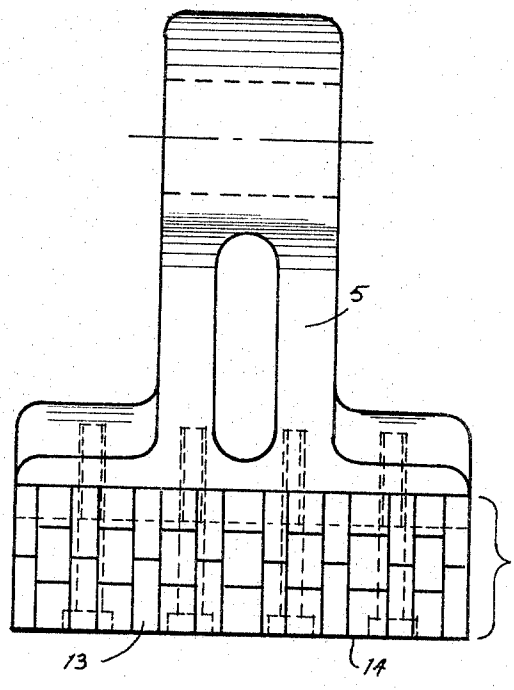


Fig. 1

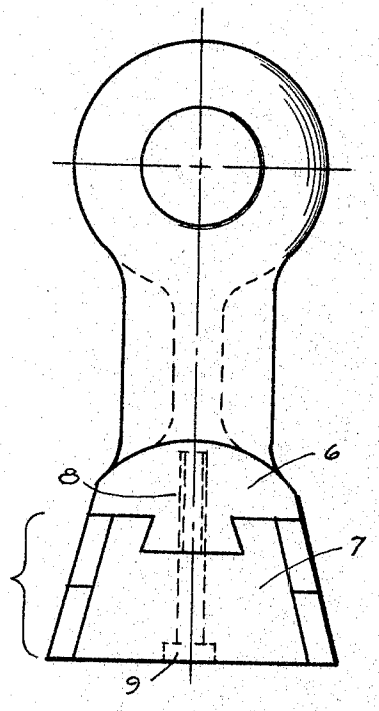


Fig. 2

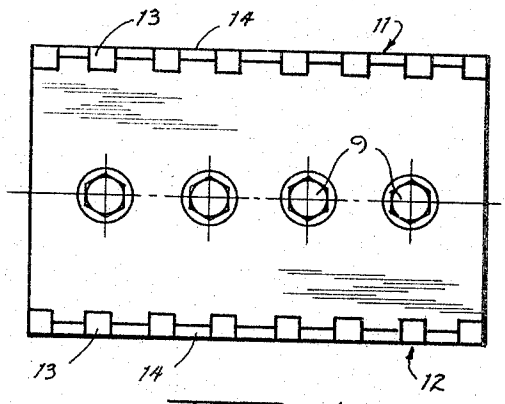


Fig. 3

INVENTOR

Leonard E. Toews

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1

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ROTARY CRUSHER HAMMER WITH ALTERNATE THICK AND THIN WEAR STRIPS

Leonard E. Toews, Willowdale, Ontario, Canada (% Letco Limited, 1212 Bishop St. N., Preston, Ontario, Canada)

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This invention relates to new and useful improvements in rotary hammer mills used in cement, gypsum, asbestos and like industries where the main function of said hammers is to reduce limestone, rock, etc., in powder form prior to ball milling.

It is understandable that in such industries like tools are subjected to tremendous wear which greatly reduces the efficiency of the industry and creates a high maintenance factor. It is with this in mind that the present invention was devised.

It is therefore the primary object of the present invention to increase the efficiency of such industries and to substantially decrease the maintenance cost.

Other objects will become apparent as the description proceeds.

Previous to my invention, in order to overcome this wear problem, various hard-surfacing materials such as stellite, boron strips and tungsten-carbide strips were brazed to the leading edge of the hammer faces. The result was that the abrasive action of the materials being crushed would wear the hammer faces above these hard-surfacing strips and in a relatively short time wash out the braze material attaching the strips to the hammer face. All these methods proved unsuccessful.

My invention comprises a method of covering the entire hammer face where wear is encountered.

I use inserts of two different thicknesses so that more bonding area is obtained in brazing. The purpose of the thin inserts is to cover the wear and the thicker ones is to absorb the shock load encountered.

With these and other objects in view that may appear as the description proceeds, the invention consists in the novel arrangement of co-operating elements as hereinafter more specifically set forth, claimed and shown in the accompanying drawings and in which:

FIGURE 1, is a side elevational view of a hammer constructed in accordance with the present invention;

FIGURE 2, is an end elevational view, and

FIGURE 3, is a bottom view showing the bolts which secure the removable face.

Referring more in detail to the drawing in which similar reference characters designate corresponding parts throughout the several views, it will be seen the invention comprises a hammer head of conventional construction. The head of the hammer is formed in two

2

pieces **6** and **7** which are joined together by means of a tongue and groove **8**. To hold the removable face in position I provide a plurality of bolts **9** which secure both pieces **6** and **7** firmly together.

Since the abrasive action on the hammer face affects the entire area indicated by the bracket **10** it is imperative in order to increase the hammer life to protect this entire surface. On each face **11** and **12** I provide a plurality of surfacing inserts of two different thicknesses **13** and **14** which are set in and brazed to the hammer face. The varying thickness of the strips increase the bonding area so that the said strips are more firmly secured and more able to withstand shock.

Since the hammer is constructed of two sections **6** and **7**, the heat dissipation when brazing the strips to the bottom section **7** will be greatly facilitated and this, particularly since the coefficient of expansion is different in common steels and tungsten carbides.

A point to consider is that tungsten carbide inserts may be applied to either face **11** or **12** for economic purposes.

It is believed that the construction and advantages have been fully set forth and that further detailed description is not required.

While the preferred embodiment of the invention has been set forth, it is to be understood that minor modifications may be resorted to without departing from the spirit of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

I claim:

1. A rotary hammer head comprising a head having alternate thick and thin strips of tungsten carbide brazed to the face of said head, said head having alternate grooves formed in its face to receive the thicker strips so that the hammer surface of the strips constitute a planar or smooth surface.

2. A rotary hammer as described in claim **1** wherein said head is formed of two sections, one of said sections having a groove to receive a tongue formed on the other section and a plurality of bolts firmly securing the sections together.

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ANDREW R. JUHASZ, *Primary Examiner.*