April 22, 1924.

1,491,418

H. M. PLAISTED

ROTARY PIVOTED HAMMER

Filed April 2, 1923

Fig. 3.

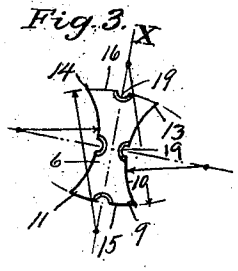
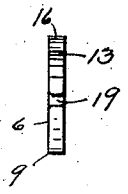


Fig. 4.



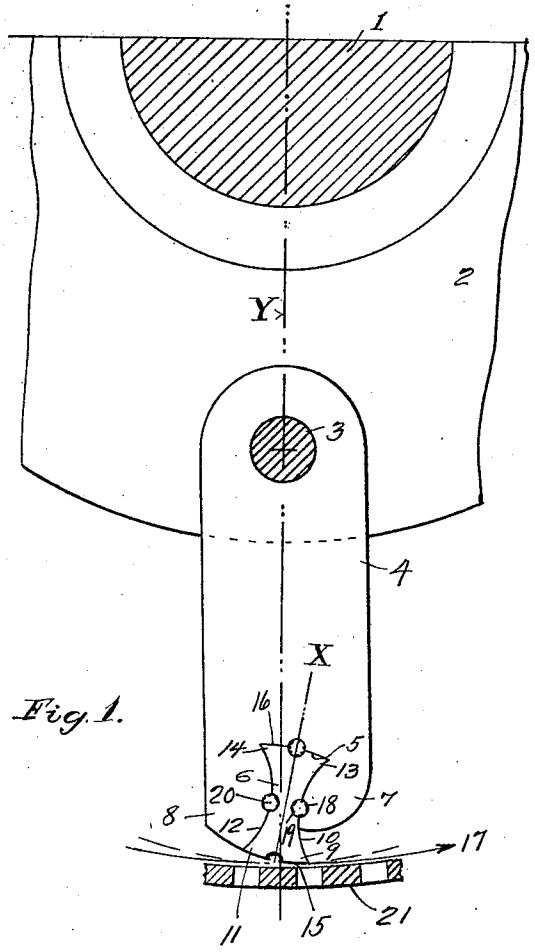


Fig. 1.

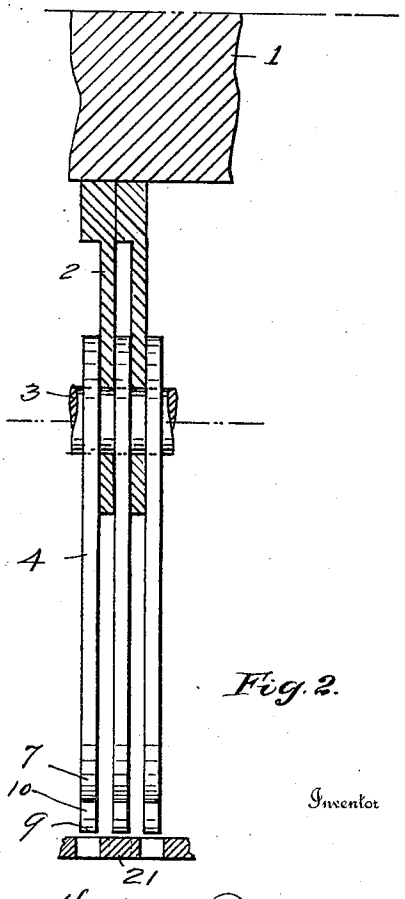


Fig. 2.

Inventor

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Patented Apr. 22, 1924. 1,491,418

UNITED STATES PATENT OFFICE.

HAROLD M. PLAISTED, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WILLIAMS PATENT CRUSHER & PULVERIZER COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

ROTARY PIVOTED HAMMER.

Application filed April 2, 1923. Serial No. 629,385.

To all whom it may concern:

Be it known that I, HAROLD M. PLAISTED, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Rotary Pivoted Hammers, of which the following is a specification.

This invention relates to certain new and useful improvements in rotary pivoted hammers for pulverizing grain, rock, and other material, the peculiarities of which will be hereinafter fully described and claimed.

The main object of my invention is to provide a reversible insert piece for a rotary pivoted hammer that is adapted to present four cutting edges or points in succession to act on the material being reduced, and to expose only one cutting point while protecting the other three points from wear until they are successively adjusted to the operative position; and secondly, to mount said piece detachably yet firmly in effective position in the head of such a hammer.

In the accompanying drawing on which like reference numerals indicate corresponding parts, Fig. 1 represents a side face view of a hammer exemplifying my invention mounted on a rotor shaft in connection with a concentric cage; Fig. 2, an edge view of the same showing the adjacent parts in section on a radial line from the center of the shaft through the pivot of the hammers; Fig. 3, a detail side face view of my four-point insert piece, and Fig. 4, an edge view of the same as adapted to a relatively thin hammer.

1 designates a rotor shaft carrying discs 2 and hammer rods 3 on which are pivoted rotary pivoted hammers consisting of shanks 4, preferably relatively thin compared to their width, and having a recess 5 at the head end in which is mounted an insert piece 6 of finer grade of steel and having multiple points that are successively brought to operative position.

The recess 5 divides the head end into front and rear jaws 7 and 8 respectively, the front jaw being shorter than the rear jaw so as to expose the operative point 9 of the insert piece and the adjacent edge surface 10 forming the front throat. A rear point 11 pairs with the point 9 of the insert piece, and a corresponding edge surface 12 reversely inclined to the surface 10, forms a widened or dove-tail end on the insert piece at the outer end, which is duplicated by another pair of points 13 and 14 on the inner dove-tail end. The edge surfaces 10 and 12 are preferably located in cylindrical planes that are nearest to each other at the middle of the piece, and diverge in both directions to form the dove-tail ends and constitute cutting points before mentioned where they intersect the outer and inner end surfaces 15 and 16 respectively of the said dove-tail ends, which are preferably curved as shown in the side face views Figs. 1 and 3. The longitudinal axis X of the insert piece and the corresponding recess in the head, is inclined backward with regard to the direction of rotation indicated by the arrow 17, Fig. 1, so that suitable clearance is provided for the outer edge surface, and the rear jaw 8 is alined therewith. The curved edge surface 10 of the point 9 preserves the acute angle of the point in the tipped back position shown.

This insert piece is secured in any suitable manner in said recess, preferably by providing notches 18 and 19 in the edge surfaces of the recess and insert piece respectively which match to receive fastening rivets 20, preferably countersunk at the ends, and maintain the said piece from lateral displacement. The recess and insert piece are normally located in the radial plane Y through the rotor shaft and pivot of the hammer so that the operative point 9 is located near such plane and close to the cage 21 with which it co-operates in reducing material.

Only the point 9 as shown and the corresponding cutting edge, is exposed while the other three points are protected by the recess from wear against the material until they are successively brought to the outward front operative position shown by point 9 in Fig. 1.

I claim:

1. A rotor comprising a shaft, hammer mounts, and rotary pivoted hammers, each hammer comprising a shank adapted for pivotal mounting and having a dove-tail recess in its outer head end,—said recess being located substantially in the radial plane through the hammer pivot and rotor axis, and bifurcating the head into relatively short and long front and back jaws respectively and widening inward and having the axis of said recess inclined backward,—and

an insert piece located in said recess and consisting of a four-pointed piece having widened ends and a reduced body portion and fitting said recess,—one of said points being exposed in operative position and projecting beyond the front jaw and located near the said radial plane.

2. In a rotary pivoted hammer, a reversible insert piece having two symmetrical dove-tail ends connected by a reduced body portion forming two pairs of cutting points equi-distant from the center of the piece,—the edge surfaces of the body and ends lying in cylindrical planes diverging both ways from the middle of the body and meeting the end edge surfaces in acute angles forming four cutting points,—a corresponding recess being provided in the head end of the hammer exposing one of said cutting edges in operative position, and means for securing said insert piece firmly yet detachably in said recess, substantially as described.

3. In a rotary pivoted hammer, a reversible insert piece consisting of two symmetrical dove-tail end portions connected by a reduced body portion,—each end portion having two diverging edge surfaces and an end surface which meet in acute angles thereby forming cutting edges equidistant from the center of the said piece,—the edge surfaces being adapted to form successively the front throat of the adjacent cutting edge when each point of the pair of dove-tails is adjusted successively to operative position in a hammer.

In testimony whereof I have affixed my signature.

HAROLD M. PLAISTED.