

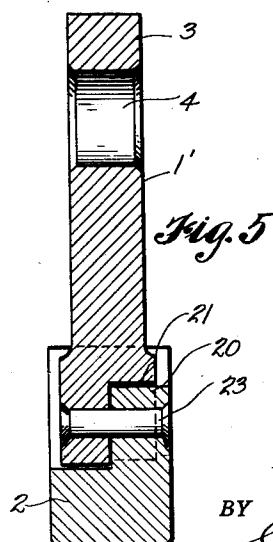
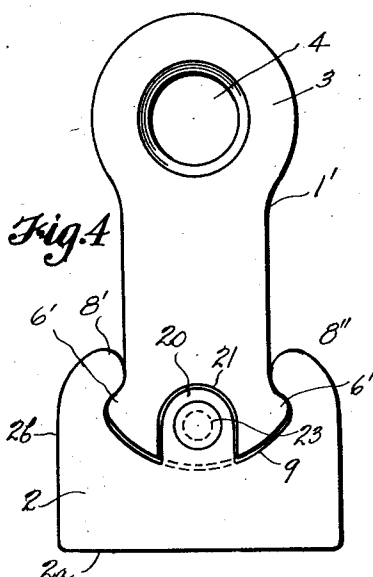
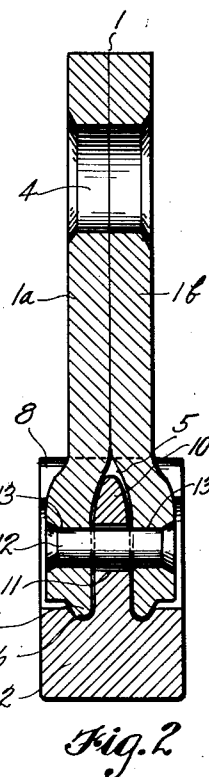
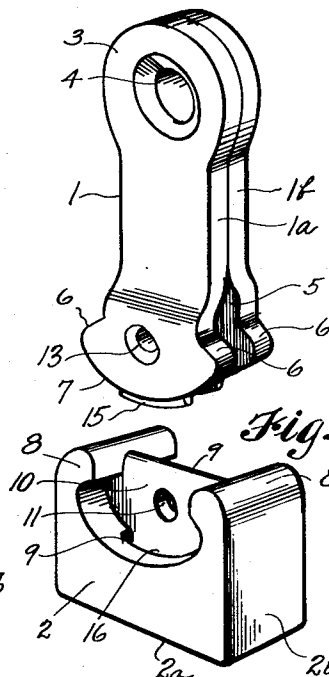
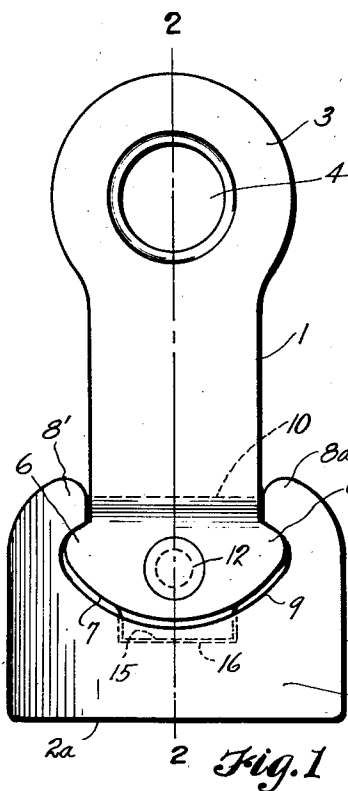
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J. P. BROOKS

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ROTARY HAMMER

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INVENTOR
J. P. BROOKS
BY
Cook & Robinson
ATTORNEY

UNITED STATES PATENT OFFICE

1,940,116

ROTARY HAMMER

James P. Brooks, Concrete, Wash., assignor to
Superior Portland Cement, Inc.

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3 Claims. (Cl. 83—11)

This invention relates to rotary hammers, and it applies in particular to rotary, pivoted hammers of that character generally used in rock crushers, cement manufacturing mills, and the like, and which in use are subjected to heavy duty and considerable wear; it being the principal object of the invention to provide an improved form of hammer including a mounting shank and a head portion which may be reversed on the shank when it becomes worn on one side, or may be removed for replacement.

Explanatory to the present invention it will be stated that hammers of this character, especially those employed in rock crushing machines, are subjected to heavy duty and to considerable wear on the head portion by reason of this use. The wear generally is uneven by reason of the rotary action of the hammer, and hence it becomes desirable or necessary to provide for reversing the position of the head on the shank in order that both sides may be utilized to their full extent. Heretofore hammers having reversible heads have been used, but as a general rule the head has been attached to the shank by a transverse connecting pin which is required to stand all of the strain and impact incident to the crushing blow struck by the hammer, and by reason of this, the pin will wear, become loose, and ultimately be sheared completely off. This shearing of the pin or looseness of the head consequently is a source of trouble and causes delays in operation, as it requires stopping the mill for repair and replacement of any part that becomes damaged.

In view of the above it has been the object of this invention to provide a hammer of the rotary type having a detachable and reversible head portion that is functionally connected to the hammer shank through the medium of two spaced, inwardly turned hooks on the head between which the shank end is disposed, and which shank has lateral shoulders against which the hooks engage to effect a secure holding connection by means of which the head is functionally held in place and without the use of a connecting pin for this purpose.

It is also an object of the invention to provide a hammer head of the above stated character that is strengthened by a cross web to prevent spreading apart of the hook portions by reason of the heavy duty imposed on the head.

A still further object of the invention is to provide a longitudinally divisible shank whereby its assembly with the head of the hammer is greatly

facilitated and whereby removal or reversal of the head may be easily accomplished.

Other objects of the invention reside in the various details of construction of the head and shank and in the combination of parts and in their relationship and use, as will hereinafter be fully described.

In accomplishing these objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawing wherein—

Fig. 1 is a side view of a hammer constructed in accordance with the present invention.

Fig. 2 is a longitudinal section of the same, taken substantially on the line 2—2 in Fig. 1.

Fig. 3 is a perspective view of the shank and head portions of the hammer, shown in disconnected relation.

Fig. 4 is a side elevation of a hammer of an alternative form of construction.

Fig. 5 is a longitudinal section of the hammer shown in Fig. 4.

Referring more in detail to the drawing—

1 designates, in its entirety, the shank portion, and 2 designates, in its entirety, the head portion of the hammer and which is removably and reversibly mounted on one end of the shank. At its upper end the shank is provided with an enlargement 3 within which there is a centrally located eyelet 4 for receiving a connecting pin or the like for attaching the hammer functionally to its actuating means.

The shank, in this instance, comprises two complementary opposite face plates, designated in Figs. 2 and 3 by the reference numerals 1a and 1b. These plates are disposed flatly together throughout the greater portion of their length and have the eyelet 4 formed therethrough. At their lower ends the plates are spread apart to form a transverse, open slot 5 for a purpose presently apparent.

The lower end portions of the two plates forming the shank are similarly enlarged and provide laterally extending, and downwardly sloping shoulders 6 at opposite side edges of the shank, and these enlargements have downwardly rounded base surfaces 7.

The head 2 of the hammer consists of a one-piece block of metal or other suitable material, formed with a flat bottom surface 2a, parallel opposite side surfaces 2b—2b, and with upwardly and inwardly directed hook-like portions 8 and 8a between which is a recess 9 adapted to contain therein the enlarged end portion of the

shank, and this is shaped to conform to the shoulders and rounded end of the shank. A web 10 is extended transversely between the hook portions and this is provided with an aperture or opening 11.

In assembling the parts of the shank with the head enlarged and downwardly rounded lower end portions 7 of the plates 1a and 1b forming the shank are disposed within the recess 9 against opposite side faces of the connecting web 10 and a pin 12 is then extended through aligned openings 13 in the plates and the opening 10 in the web to hold the plates functionally assembled. The laterally extending shoulders 6 of the plates will then abut against the inwardly turned hook portions 8—8a of the head to prevent disconnection of the head from the shank, it being readily apparent that with the shoulders of the shank seated beneath and between the two inturned hook portions, the head will be securely attached to the shank and that, by reason of this connection, shearing strain will not be imposed on the pin 12, and that the latter will serve only to prevent spreading apart of the two plates forming the shank. The web 10 then serves to prevent the head being laterally displaced. To supplement the pin the lower rounded end edges 7 of the plates forming the shank are provided with flanged extension members 15 adapted to seat within grooves or recess 16 formed in the base portion of the recess 9 at opposite sides of the web 10.

In Figs. 4 and 5 is illustrated an alternative construction wherein the shank 1' is of one piece construction and is provided at its end with the lateral shoulders 6'—6' as in the other device of Fig. 1, to engage spaced hooks 8'—8'' of the head. However, the web 9 of the first device is omitted and a lug 20 is cast integrally with the head centrally between the hooks, to seat within a lateral recess 21 in the shouldered end of the shank. A pin 23 holds the shank and lug connected and this prevents displacement of the head from the shank. In this type of construction, the head is removed by withdrawing the pin and then moving the head laterally away from the recessed side of the shank.

The feature of construction in either type of hammer resides in the interlocking, holding connection provided by the lateral shoulders of the shank and the inturned hooks of the head, whereby a secure, holding connection is provided without use of a connecting pin.

In the device of Figs. 1, 2 and 3, the head is disconnected by removal of pin 12, then swinging

the upper ends of the plates 1a and 1b outwardly to clear the shoulders of the hooks and to permit withdrawing the flanges 15 from the grooves 16.

In either type, the parts of the head and shank are symmetrically formed in order to permit of reversal of the head on the shank.

Such hammers may be made in various sizes, various proportions and of suitable materials, according to the use to which they are to be applied, and it is readily apparent that details of construction might be altered without departing from the spirit of the invention.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is—

1. A hammer of the character described comprising a head portion provided with a top recess and inwardly directed hooks at opposite sides of the recess, and having a transverse web across said recess joining the hooks and having sockets in the base of the recess at opposite sides of the web; and a shank comprising complementary opposite side plates with enlargements at their lower ends forming laterally directed shoulders, said enlargements being fitted in said recess against opposite sides of the web and beneath the inturned hooks, and extensions formed on said plates at the lower edges to seat within said sockets.

2. A hammer comprising a head portion formed with a solid face and across the base with a transverse recess having a base socket; said head having symmetrically formed, inturned, overhanging hooks at opposite edges of the recess and a shank having an end enlargement with symmetrically formed lateral shoulders loosely applicable within the said recess in reverse positions and an extension on the shank loosely fitting in the said socket of the head to prevent lateral displacement of the latter.

3. A hammer of the character described comprising a head portion formed across the base with a transverse recess having inturned, overhanging hooks at opposite sides thereof and having a base socket and a shank comprising complementary opposite side plates with end enlargements, each formed with a base flange and with laterally extending shoulders; said enlargements being applied within the recess from opposite sides of the head thereby to seat the shoulders in holding contact with the said inturned hooks and to locate the base flanges within the said socket to prevent displacement of the head from the shank.

JAMES P. BROOKS.