Aug. 13, 1929. L. W. VAN BUSKIRK 1,724,786

CENTRIFUGAL HAMMER

Filed March 21, 1928

FIG. 1.

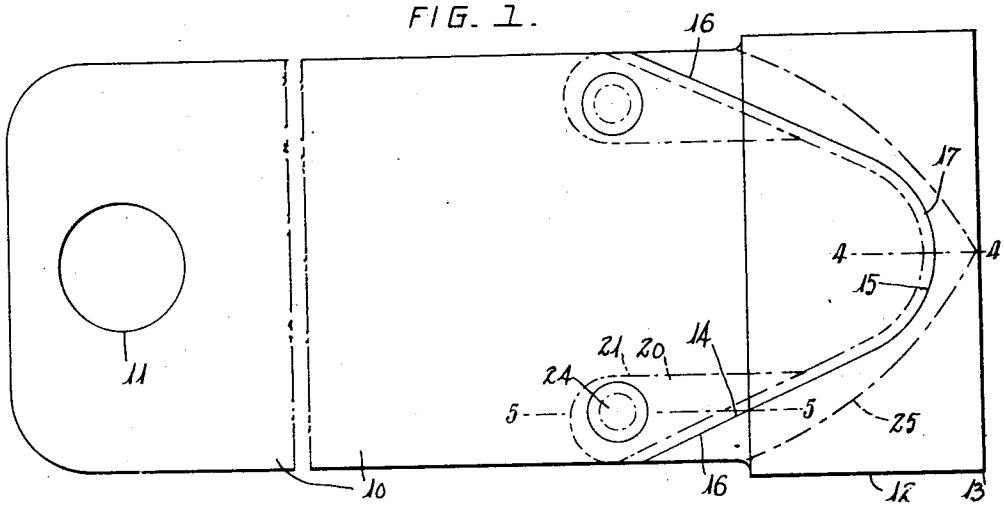



FIG. 2.

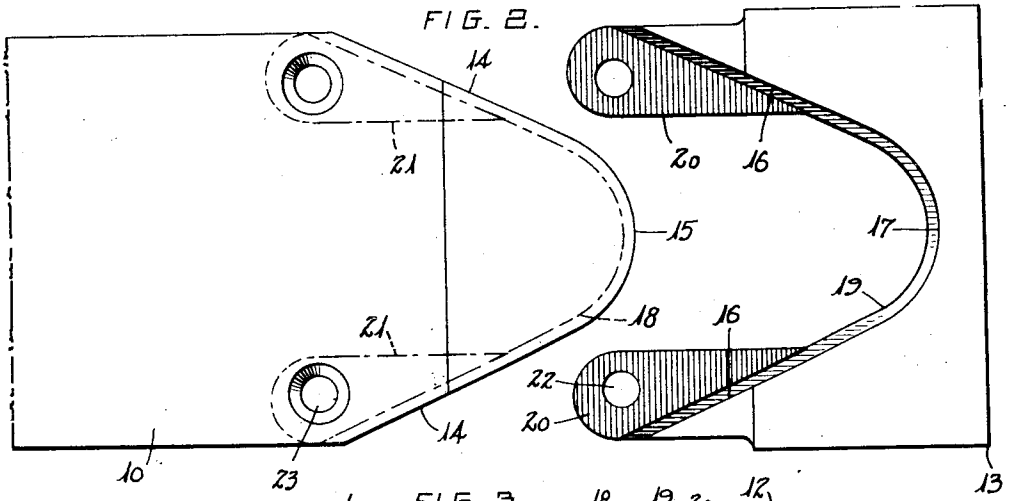



FIG. 3.

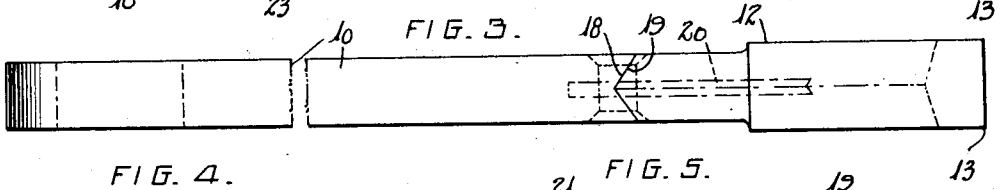



FIG. 4.

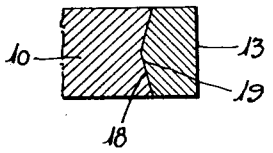
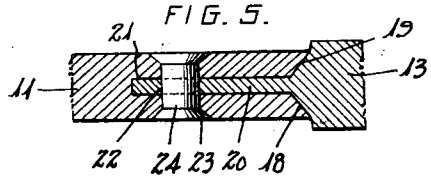



FIG. 5.




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# UNITED STATES PATENT OFFICE.

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## CENTRIFUGAL HAMMER.

Application filed March 21, 1928. Serial No. 263,562.

The present invention relates to centrifugal hammers such as are used in machines for pulverizing or crushing coal, stone, and other materials, and the primary object of the invention is the provision of a novel and improved breaking, pulverizing or crushing hammer or member for use in a rotary or centrifugal disintegrator which will be economical as well as efficient.

Another object is the provision of a hammer or crushing member of the kind indicated which has a removable and replaceable head or wear end, which may be substituted by a new one when worn out.

A further object of the invention is the provision of a centrifugal or similar hammer having a head which may be reversed, so as to double the life thereof.

It is also an object of the invention to provide a hammer of the kind indicated wherein, when the removable head is worn out, there will be a minimum amount of metal remaining in the head, so as to reduce the waste of metal.

The invention also aims to provide a hammer having the characteristics above noted and which may have the same contour and size as a solid hammer which it replaces.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation of the improved centrifugal hammer, a portion of the shank being broken away.

Fig. 2 is a side elevation of the hammer with the shank and head separated, a portion of the shank being broken away.

Fig. 3 is an edge view of the hammer.

Figs. 4 and 5 are sectional details on the lines 4—4 and 5—5, respectively, of Fig. 1.

The pulverizing, crushing and breaking hammers or members of centrifugal disintegrators and similar machines comprise a metal shank or arm 10 having an aperture 11 near its inner end for pivotally connecting the shank with the rotating member for the centrifugal action of the hammer. The outer end portion of the shank 10 is, as shown, made slightly wider and thicker, as at 12, to resist the wear and tear in encountering the material. This shank is usually made of one integral piece of flat metal, so that when the working end of the hammer is worn out, the entire remaining shank has to be discarded and thrown away.

In carrying out the invention, the hammer may be made in the same size and shape of the hammer which it replaces, or may be made in any other suitable contour and proportions, and the working end of the hammer constitutes a removable head or cap 13, which may be detached from the shank 10 for replacement.

The outer end portion of the shank 10 is formed with the portions 14 converging from the edges of the shank to a rounded nose 15, and the head 13 has a recess to receive the nose end of the shank, said recess having the converging portions or walls 16 with the rounded wall 17 between them. The walls 16 and 17 of the head fit snugly against the walls 14 and nose 15 of the shank, so that the head fits astride the nose of the shank.

The walls 14 and nose 15 are formed with a V-shaped groove 18 and the walls 16 and 17 of the head are formed with a corresponding V-shaped ridge 19 to fit snugly in the groove 18, in order to prevent the displacement of the head and shank out of their common plane relatively to one another.

In order to attach the head and shank together, the head 13 is provided within the recess thereof with tongues 20 projecting rearwardly from the ridge 19 to slip into pockets 21 with which the shank 10 is provided, said pockets 21 extending rearwardly from the groove 18 of the walls 14 adjacent to the opposite edges of the shank. The tongues 20 have apertures 22 registering with apertures 23 in the shank 10 to receive rivets 24 or other securing elements, which are preferably countersunk in the apertures 23.

With the head 13 fitting astride the nose of the shank, the contacting walls of the nose and shank fitted together as shown and described, and the tongues 20 secured within the pockets 21, the head is securely fastened on the shank to withstand the jars and shocks due to the head impinging against the material with great force.

It is apparent that the head 13 may not only be removed, but that it may also be reversed, the head and shank being symmetrical about their longitudinal center line. The head may therefore be reversed to be worn

down at its opposite extremities, and when the head is completely worn down, its wearing surface is close to the division line between the head and shank, as indicated at 25 in Fig. 1.

Thus, the division line between the removable head and the shank corresponds closely to the final worn down surface line 25 of the head, which provides for minimum waste of metal, the head being useful until worn out close to the walls 14 and nose 15 of the shank. The head may be readily removed, when worn out, and replaced by a new head, and the shank may therefore be used repeatedly, thereby providing for economy and efficiency.

Having thus described the invention, what is claimed as new is:—

1. A hammer of the character described comprising a flat shank having a nose at one end and pockets extending from said end near the opposite edges of the shank, and a removable head fitted astride said nose and having tongues entering said pockets.

2. A hammer of the character described comprising a flat shank having a nose at one end and pockets extending from said end near the opposite edges of the shank, a removable and reversible head fitted astride said nose and having tongues entering said pockets, and securing elements engaging through said shank and tongues.

3. A hammer of the character described comprising a shank having a rounded nose at one end and walls converging to said nose, and a removable head having a recess with walls to fit said walls and nose of the shank, the contacting portions of said shank and head being formed with an interfitting groove and ridge.

4. A hammer of the character described comprising a shank having a rounded nose and walls converging from the side edges of the shank to said nose, said walls and nose being formed with a V-shaped groove, and the shank having pockets extending from said walls at the side edges of the shank, and a head having a recess formed with walls to fit said walls and nose of the shank and provided with a V-shaped ridge to fit in said groove, the head having tongues extending therefrom to fit in said pockets.

5. A hammer of the character described comprising a shank having a nose and walls converging to said nose, and a removable and reversible head having a recess receiving said nose.

6. A hammer of the character described comprising a shank having a nose and walls converging to said nose, and a removable and reversible head having a recess receiving said nose, a shank and head having portions fitted together to prevent relative transverse displacement of said shank and head.

7. A hammer of the character described comprising a shank having a rounded nose at one end and walls converging to said nose, and a removable head having a recess of a form to fit said walls and nose.

8. A hammer of the character described comprising a shank having a rounded nose at one end and walls converging to said nose, and a removable head having a recess of a form to fit said walls and nose, said shank and head having portions fitted together to hold them against relative displacement.

9. A hammer of the character described comprising a shank having a nose and a pocket at one end, and a removable head having a recess receiving said nose with the head disposed astride said nose, said head having a portion entering said pocket for holding the head and shank assembled.

In testimony whereof I hereunto affix my signature.

LESHER WHARTON VAN BUSKIRK.