Sept. 4, 1928. 1,683,244

W. M. DUNCAN

DISINTEGRATOR

Filed Aug. 1, 1927

Fig. 1.

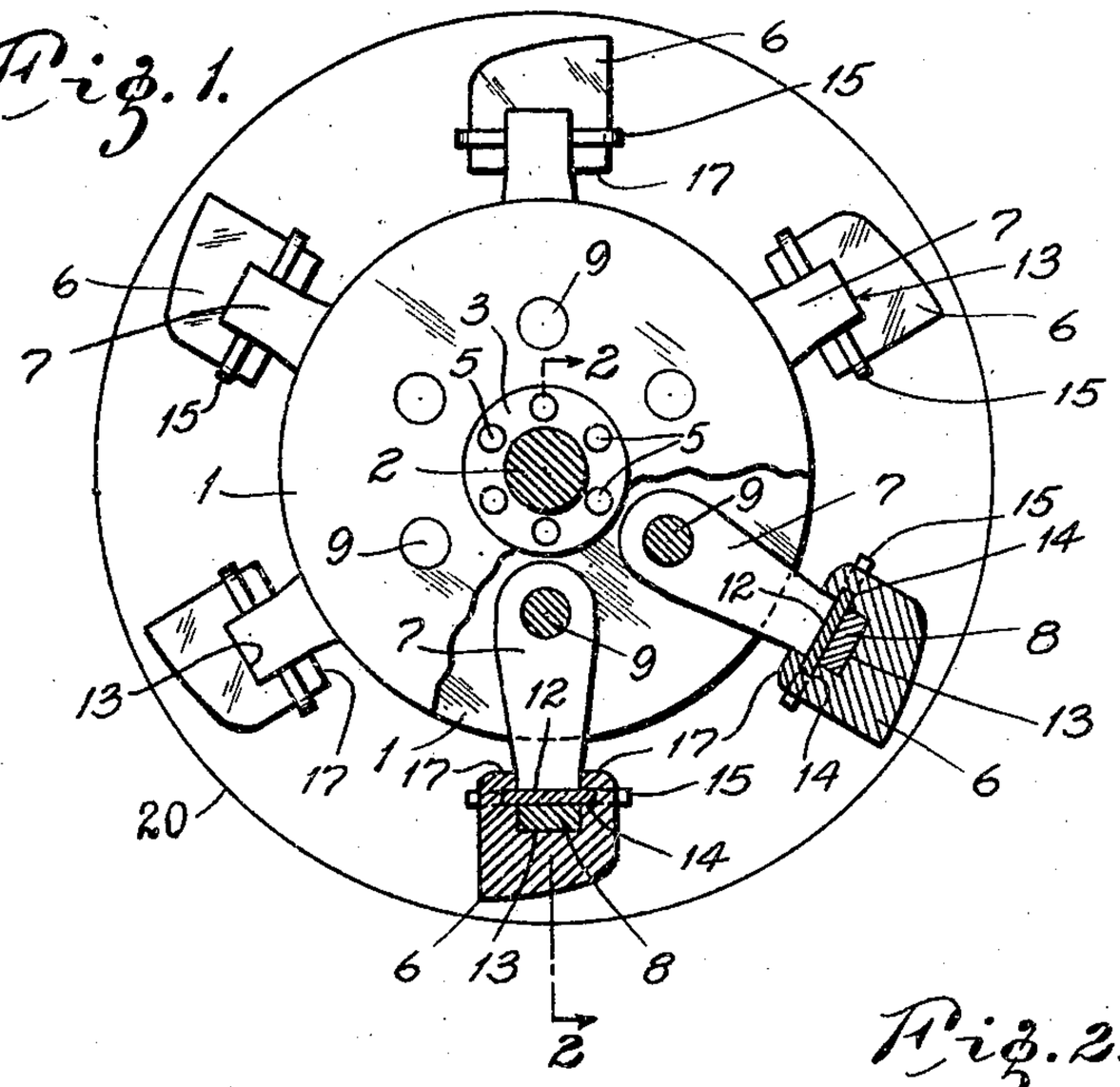


Fig. 2.

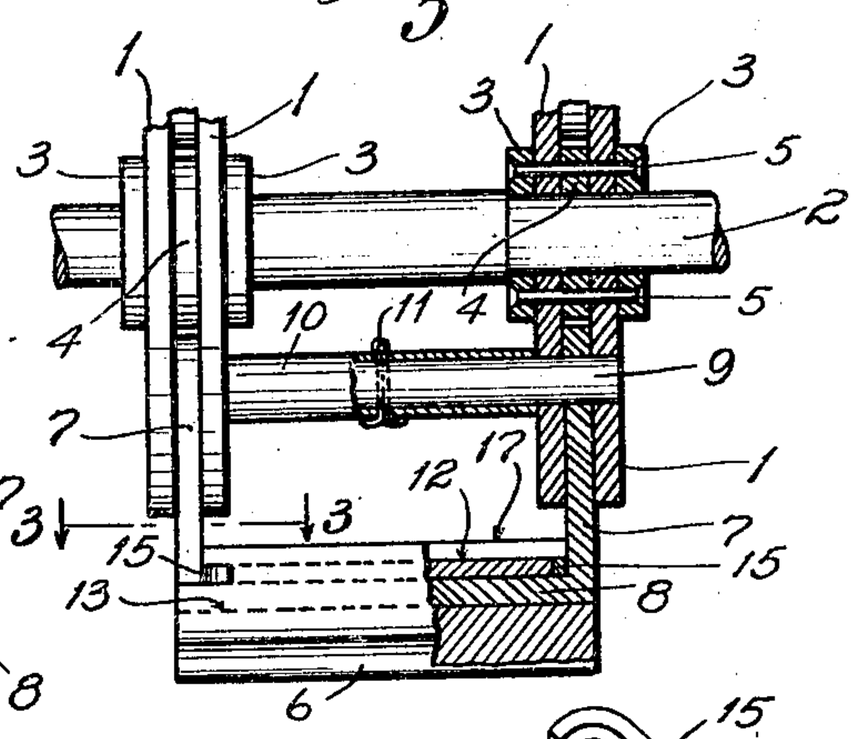


Fig. 3.

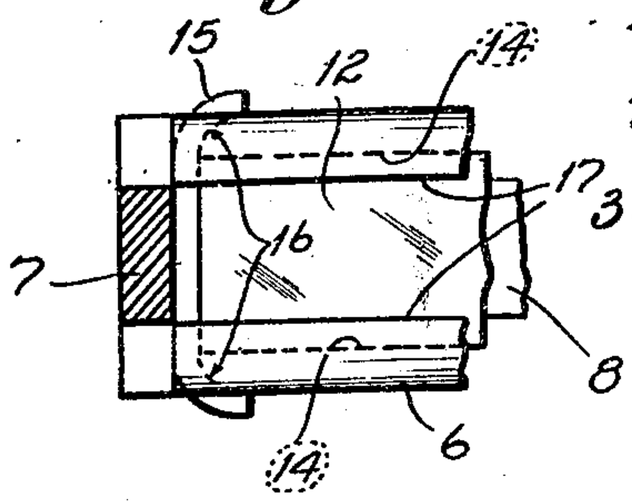


Fig. 4.

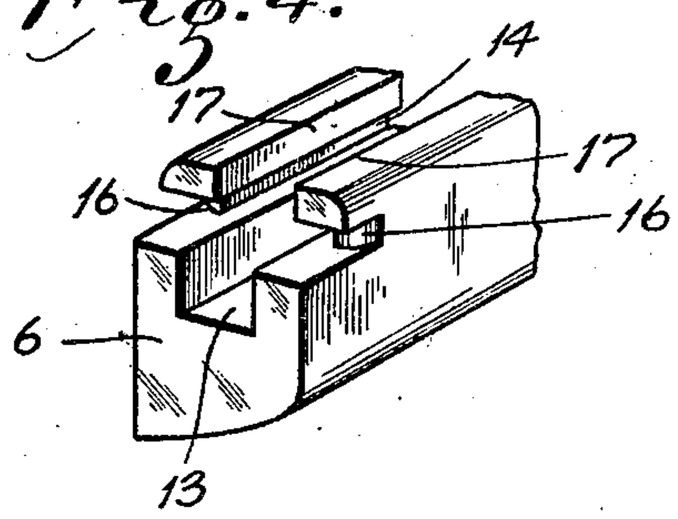
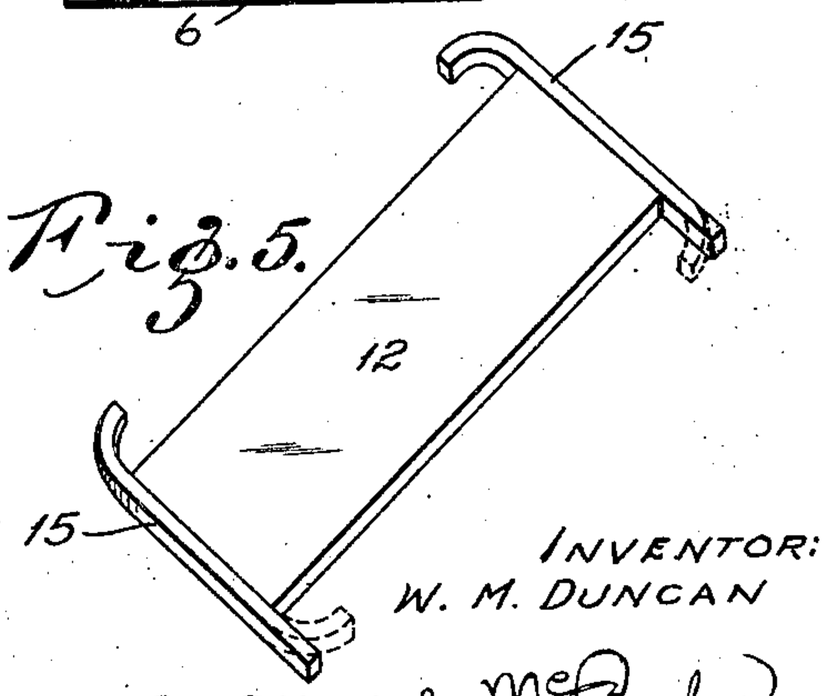


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM M. DUNCAN, OF ALTON, ILLINOIS.

DISINTEGRATOR.

Application filed August 1, 1927. Serial No. 209,809.

This invention relates to disintegrators, and more particularly to a disintegrator provided with pivotally supported hammers which strike the material to be crushed, pulverized, or otherwise acted upon. Hammers of this kind usually consist of a head formed integral with an arm, or arms, which are pivoted to a rotary carrier. The hammer-heads are rapidly worn away by abrasion and the shocks they receive in service. It is, therefore, necessary to frequently renew the hammers, and in the ordinary structures this involves the cost of not only the worn hammer-head, but also the arms or the like connecting the head to the rotary carrier.

One of my objects is to reduce the maintenance costs by producing a hammer with a simple and inexpensive detachable head which can be renewed without renewing other parts of the hammer structure.

A further object is to easily and quickly accomplish this without removing the arms, or the like, which support the head, thereby reducing the labor of making repairs.

Another object is to produce a strong and durable connection adapted to securely attach the hammer head, without danger of breakage or displacement when the device is in service.

With the foregoing and other objects in view, the invention comprises the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications which come within the scope of the claims hereunto appended.

Fig. 1 is a side elevation, partly in section, illustrating a rotary carrier provided with detachable hammer-heads embodying the features of this invention.

Fig. 2 is a section on the line 2—2 in Fig. 1, with some of the parts in elevation.

Fig. 3 is an enlarged section on the line 3—3 in Fig. 2.

Fig. 4 is a perspective view of one end of the detachable hammer-head.

Fig. 5 is a perspective view of the plate and keepers which secure the detachable head to the yoke or stirrup.

To illustrate one form of the invention I have shown a disintegrator provided with a rotary carrier comprising pairs of disks 1 secured to a rotary shaft 2, so as to rotate with the shaft. The disks of each pair be located between smaller disks 3 and at opposite sides of a spacing disk 4. Fastening devices, such as rivets 5, may be used to connect the several disks in each group.

6 designates hammer-heads which may be detachably secured to holders of any suitable shape. I have shown holders in the form of substantially U-shaped yokes, each comprising a pair of arms 7 and a member 8 connecting said arms. One end of each arm 7 is confined between a pair of disks 1. A pivot rod 9 passes through both pairs of disks 1 and also through the arms 7 to pivotally secure the hammers to the rotary carrier. Each pivot rod 9 is secured by means of a tube 10 (Fig. 2) surrounding the rod, and a cotter pin 11 passing through said tube and rod. The inner disks 1 cooperate with the ends of the tube 10 to prevent longitudinal displacement of the rod and tube. To illustrate a suitable means for securing the detachable hammer-heads 6, I have shown a plate 12 seated on the connecting member 8 of the U-shaped yoke. This plate 12 is parallel with the member 8, but its side margins extend from the sides of said member as shown in Figures 1 and 3. The hammer-head has a longitudinal recess 13 in which the connecting member 8 is located, and the side walls of this recess are provided with longitudinal grooves 14 (Figures 1, 3 and 4) to receive the extended side margins of the plate 12. The hammer-head is thus securely interlocked with its holder by means of interlocking elements which lie parallel with the axis of the shaft 2.

To illustrate a suitable retaining device for preventing longitudinal displacement of the head 6, I have shown keeper bars 15 between the ends of the plate 12 and the inner faces of the arms 7. These bars 15 are arranged transversely of the connecting member 8, and their end portions extend through notches 16 (Fig. 4) in the ends of the hammer-head to prevent longitudinal displacement of said head. Each bar 15 is thus located between one of the arms 7 and portions of the head 6. The ends of these keeper bars 15 may be bent as shown in Figures 3 and 5 to lock the bars in their operative positions.

In removing the hammer-head 6 it is only necessary to remove one of the keeper bars 15, and to then slide the head longitudinally of the plate 12. The space between the flanges 17 on the head 6 is wide enough to receive one

of the arms 7, so the arm does not prevent removal of the head.

The circle 20 in Fig. 1 indicates the grinding surface which supports the material to be acted upon by the hammers.

I claim:

1. In a disintegrator, a rotary carrier, a hammer-holder pivoted to said carrier, interlocking elements extending from the sides of said holder, a hammer-head having interlocking elements slidable on the first-mentioned elements, and a keeper cooperating with said head and holder to prevent displacement of said head.

2. In a disintegrator, a rotary carrier, a hammer-holder pivoted to said carrier, a hammer-head removably interlocked with said holder, said hammer-head being slidable in a line parallel with the axis of said rotary carrier, and a keeper cooperating with said head and holder to prevent displacement of said head.

3. In a disintegrator, a rotary carrier, a substantially U-shaped yoke comprising arms pivoted to said carrier and a member connecting said arms, a hammer-head having a longitudinal recess in which said connecting member is located, said head and yoke being provided with interlocking elements detachably securing said head to said yoke, and a retaining device cooperating with said interlocking elements to prevent displacement of said head.

4. In a disintegrator, a rotary carrier, a substantially U-shaped yoke comprising arms pivoted to said carrier and a member connecting said arms, a hammer-head having a longitudinal recess in which said connecting member is located, said head and yoke being provided with interlocking elements detachably securing said head to said yoke, said interlocking elements being arranged longitudinally of said head and in lines substantially parallel with the axis of said rotary carrier, and a retaining device cooperating with said interlocking elements to prevent displacement of said head.

5. In a disintegrator, a rotary carrier, a substantially U-shaped yoke comprising arms pivoted to said carrier and a member connecting said arms, a plate seated on said member and extending from the sides thereof, a hammer-head having a longitudinal recess in which said connecting member is located, the side walls of said recess being grooved to receive the extended portions of said plate, and keeper bars arranged over said connecting member and between said arms and hammer head to prevent displacement of said head.

In testimony that I claim the foregoing I hereunto affix my signature.

WILLIAM M. DUNCAN.