

M. F. WILLIAMS.
HAMMER OR BEATER FOR CRUSHERS AND PULVERIZERS.
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904,908.

Patented Nov. 24, 1908.

Fig. 1.

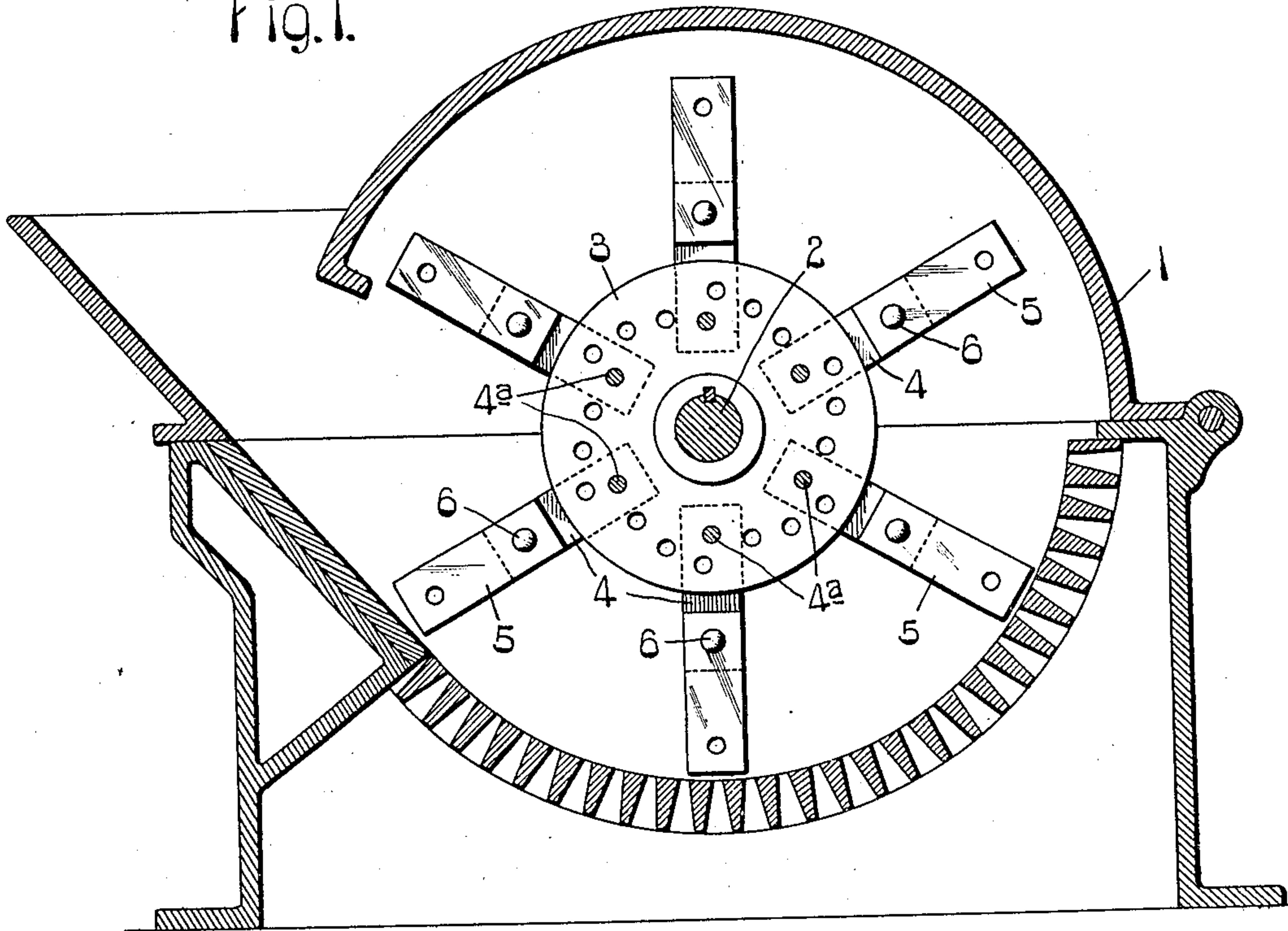
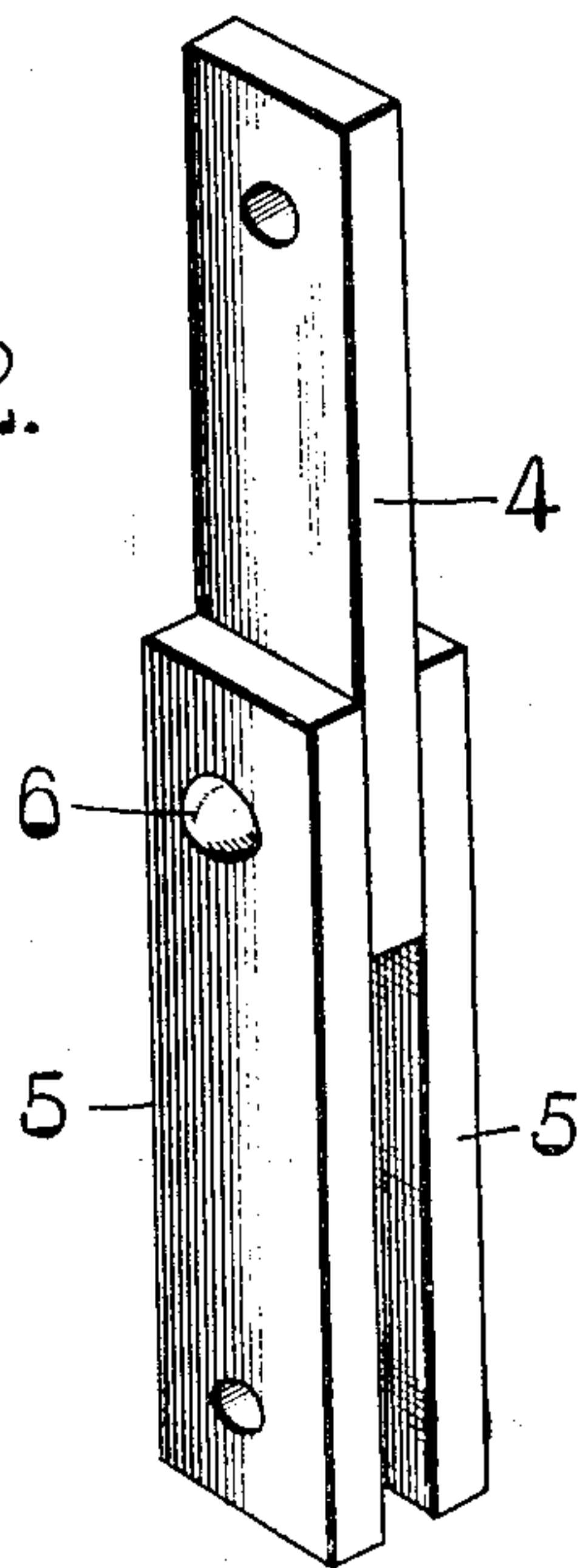


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

MILTON F. WILLIAMS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WILLIAMS PATENT CRUSHER AND PULVERIZER COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

HAMMER OR BEATER FOR CRUSHERS AND PULVERIZERS.

No. 904,908.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed December 16, 1907. Serial No. 406,726.

To all whom it may concern:

Be it known that I, MILTON F. WILLIAMS, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Hammers or Beaters for Crushers and Pulverizers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal sectional view of a crusher provided with my improved hammers or beaters; and Fig. 2 is a perspective view of one of the beaters or hammers detached from its support.

This invention relates to crushers and pulverizers, and particularly to the hammers or beaters that are used in such machines for disintegrating the material that is introduced into the mouth of the machine.

One object of my invention is to provide a beater that consists of a shank and a plurality of striking members or hammers pivotally connected to the shank and adapted to move independently of each other.

Another object of my invention is to provide a beater comprising a shank and a plurality of pivotally mounted striking members, all of said parts being of uniform shape and size and preferably constructed from a flat metal bar, thus enabling the beater to be manufactured at a low cost and also permitting the striking members and shank to be interchanged when they become worn. And still another object of my invention is to provide a high speed grinding machine or pulverizer provided with rotating beaters that are jointed intermediate their ends so that the striking portion of the beater can yield or move relatively to the portion of the beater which is connected to the rotating support.

Referring to the drawings which illustrate the preferred form of my invention, 1 designates the casing of the machine, and 2 designates a rotatable shaft having a plurality of beater supports 3 securely connected thereto. The beaters which form the novel feature of my present invention each consist of a shank 4 pivotally connected at its inner end by a pin 4^a to one of the supports 3, and a plurality of striking members or hammers 5 pivotally connected to the

outer end of the shank 4 by means of a pin 6, the shank 4 being arranged between the striking members or hammers 5 so that said striking members can move independently of each other and relatively to the shank 4. The shank and the striking members or hammers are of rectangular shape and both of said members and the shank are of uniform shape and size and are provided at both ends with holes to receive the connecting pins or pivots. One advantage of constructing the beater from a plurality of parts of uniform shape and size is the low cost of manufacture as the hammers and shank can be formed from a flat metal bar cut into short lengths or they can be stamped out of a metal plate. Another advantage of such a construction is that when the outer ends of the hammers become worn I can turn them end for end and thus utilize the inner ends which have received no wear, or I can turn the hammers so as to bring into use the rear edges thereof which have received no wear. If the hole in the shank through which the pivot pin 4^a passes should wear away I can substitute one of the hammers for the shank and if the hammers should become bent or worn to such an extent that they could not be used, I only have to replace the hammers and not the entire beater as has heretofore been necessary when the beaters were formed in one piece. By providing each beater with a plurality of striking members or hammers having sharp edges I produce a very efficient machine that comprises comparatively few parts, and as the beaters are jointed intermediate their ends, the striking portions thereof can yield when they come into contact with an obstruction and thus reduce the strain on the shaft and the beater supports which rotate at a high speed.

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

1. A beater for crushers and pulverizers, comprising a shank and hammers pivotally connected thereto, said parts being of the same cross sectional shape and size so that they can be interchanged with each other; substantially as described.

2. A beater for crushers and pulverizers, comprising a flat rectangular-shaped metal shank, and a hammer of the same cross sectional shape and size as the shank and piv-

otally connected to the outer end thereof; substantially as described.

3. A crusher or pulverizer having a rotatable shaft, supports connected thereto, 5 shanks pivotally connected to said supports, and a plurality of hammers or striking members pivotally connected to each of said shanks and adapted to move independently of each other; substantially as described.

10 4. A crusher or pulverizer having a rotatable shaft, beater supports secured to said shaft, and beaters pivotally connected to said supports and each consisting of a flat rectangular-shaped shank, and a plurality 15 of hammers pivotally connected to the outer end of said shank and conforming in shape and size thereto; substantially as described.

5. A crusher or pulverizer provided with rotatable beater supports, and beaters connected to said supports and each consisting 2 of a pivotally mounted shank and a pivotally mounted hammer that is adapted to move relatively to said shank, said shank and hammers being of uniform shape and size so that they can be interchanged with 2 each other; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this eleventh day of December 1907.

MILTON F. WILLIAMS.

Witnesses:

WELLS L. CHURCH,
GEORGE BAKEWELL.