H. J. SHELTON.

GRINDER AND SHREDDER.

APPLICATION FILED APR. 26, 1920.

1,375,862. Patented Apr. 26, 1921.

Fig. 1.

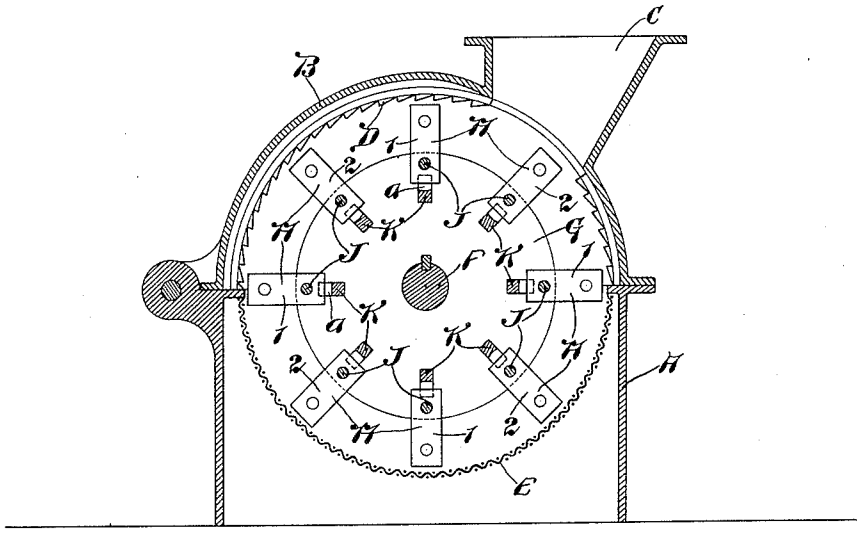


Fig. 2.

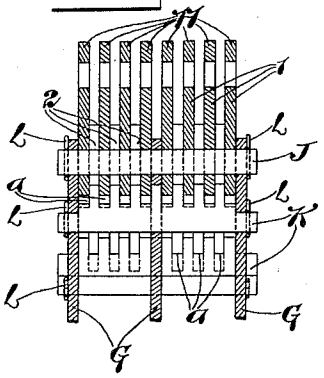


Fig. 5.

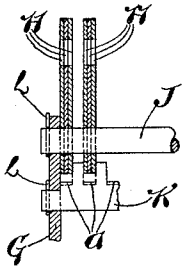


Fig. 3.

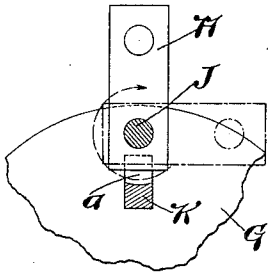
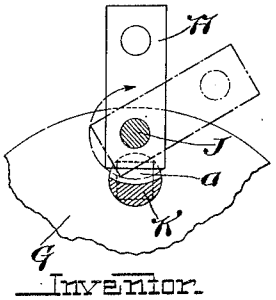


Fig. 4.



Attest.

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UNITED STATES PATENT OFFICE.

HARRY J. SHELTON, OF ST. LOUIS, MISSOURI.

GRINDER AND SHREDDER.

1,375,862. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed April 26, 1920. Serial No. 376,707.

To all whom it may concern:

Be it known that I, HARRY J. SHELTON, residing in the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Grinders and Shredders, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to grinding and shredding machines wherein the grinding and shredding is performed by rotating hammers which are pivotally mounted so that they can give or swing back when they encounter an obstruction or a hard object.

The object of my invention is to provide a means for pivotally mounting the hammers that will keep them in fixed spaced relation and that will be light and simple in its construction, thus saving material and reducing the first cost of the machine.

My invention is fully shown in the accompanying drawings where Figure 1 is a vertical interior view, partly in section, of a grinder and shredder embodying my invention; Fig. 2 is an enlarged view showing details of construction; Fig. 3 is an enlarged view showing the pivotal mounting of the hammers and the means whereby they are kept in fixed spaced relation with one another; and Figs. 4 and 5 are views showing modified forms of construction.

Referring to the figures, A is the lower portion of the housing of the machine to which is attached the upper portion B which is provided with a chute C through which the material to be ground or shredded is fed. The interior of the portion B is provided with a grinding surface D, and the lower part of the machine is provided with a screen E. The space inclosed by the grinding surface D and the screen E constitutes the grinding or shredding chamber. F is a shaft which is rotatably mounted in the housing of the machine and which has fixed to it so as to rotate therewith a plurality of disks G. H are hammers which are pivotally mounted on the pivot rods J which extend through openings formed in the disks G. The disks G are spaced with respect to one another so that a plurality of hammers may be mounted between adjacent disks. In order to keep the hammers H in spaced position with one another on the same pivot rod J there is provided for each rod a guide bar K which has formed in it a plurality of notches *a*. The guide bar K is positioned with respect to the pivot rod J so that the heels or the inner ends of the hammers will always lie in the notches *a* for every position of the hammers, as shown in Figs. 3 and 4. The guide bars K are preferably made rectangular in form, and have at least one end thereof rectangular to engage with a rectangular opening formed in the end disk, so as to prevent the bar from turning. If the guide bar K is made round as shown in Fig. 4, one end thereof may be made square as shown by the dotted lines and this end may be made to engage with a square hole formed in the end disk. It is to be understood that any means may be used for preventing the guide bars K from turning so as to move the notches out of engagement with the heels of the hammers.

Fig. 5 shows each hammer made of a plurality of separate pieces or members instead of a single piece as is shown in the other figures. The pieces used to form the hammers of Fig. 5 are preferably mounted on the pivot rods so that each can swing independently of the others.

The pivot rods J and the guide bars K are provided with suitable means, such as cotters L, whereby they are prevented from becoming disengaged from the supporting disks G.

The hammers on adjacent pivot rods are preferably mounted in such a way that the hammers on one rod will be opposite the spaces between the hammers on the adjacent rod. Thus the hammers indicated by the numeral 1 in Fig. 1 are shown in Fig. 2 spaced so that they come opposite the spaces between the hammers represented by the numeral 2.

As few of the disks G are used in the machine as is consistent with strength, and as many hammers are placed between adjacent disks as possible in order to reduce the weight of the rotating parts of the machine, thus decreasing the first cost and reducing the power required to operate the machine.

It is evident that the sizes and proportions as well as the shapes of the various parts may be varied to suit different requirements, and that the material of which the hammers are made may be that best suited for the work to be done.

What I claim as new, and desire to secure by Letters Patent, is:

1. A grinding and shredding machine comprising a housing, a grinding chamber,

disks rotatably mounted in said chamber, pivot rods extending between said disks, a plurality of hammers pivotally mounted on said pivot rods between adjacent disks, and means engaging the sides of the inner ends of said hammers and separate from and independent of said pivot rod whereby the hammers on a pivot rod are maintained in spaced relation.

2. A grinding and shredding machine comprising a housing, a grinding chamber, disks rotatably mounted in said chamber, pivot rods extending between said disks, a plurality of hammers pivotally mounted on said pivot rods between adjacent disks, and means engaging the sides of the inner ends of said hammers and positioned wholly between said pivot rods and the center of rotation of said disks whereby the hammers on a pivot rod are maintained in spaced relation.

3. A grinding and shredding machine comprising a housing, a grinding chamber, disks rotatably mounted in said chamber, pivot rods extending between said disks, a plurality of hammers pivotally mounted on said pivot rods between adjacent disks, and means separate from and independent of said pivot rods engaging the heels of said hammers whereby the hammers on a pivot rod are maintained in spaced relation.

4. A grinding and shredding machine having a housing with a plurality of revoluble disks mounted therein, pivot rods extending between said disks, hammers pivotally mounted in spaced relation on said pivot rods, a guide bar having recesses in one of its faces the walls of which are adapted to engage the heels of said hammers whereby the hammers on a pivot rod are maintained in spaced relation.

5. A grinding and shredding machine having a housing with a plurality of revoluble disks mounted therein, pivot rods extending between said disks, hammers pivotally mounted in spaced relation on said pivot rods, and guide bars having notches adapted to receive the heels of said hammers.

6. A grinding and shredding machine having a housing with a plurality of revoluble disks mounted therein, pivot rods extending between said disks, hammers pivotally mounted in spaced relation on said pivot rods, guide bars having notches adapted to receive the heels of said hammers, and means whereby said guide bars are prevented from turning to disengage said hammers from said notches.

7. A grinding and shredding machine having a housing with a plurality of revoluble disks therein, pivot rods extending between said disks, hammers pivotally mounted in spaced relation on said pivot rods, the hammers of one pivot rod being so spaced as to be opposite the spaces between the hammers on an adjacent pivot rod, and guide bars having notches adapted to receive the heels of said hammers.

In witness whereof I have signed my name to this specification.

HARRY J. SHELTON.