M. F. WILLIAMS.

CAGE FOR REDUCING MACHINES.

APPLICATION FILED JAN. 22, 1918.

1,308,384.

Patented July 1, 1919.

2 SHEETS—SHEET 1.

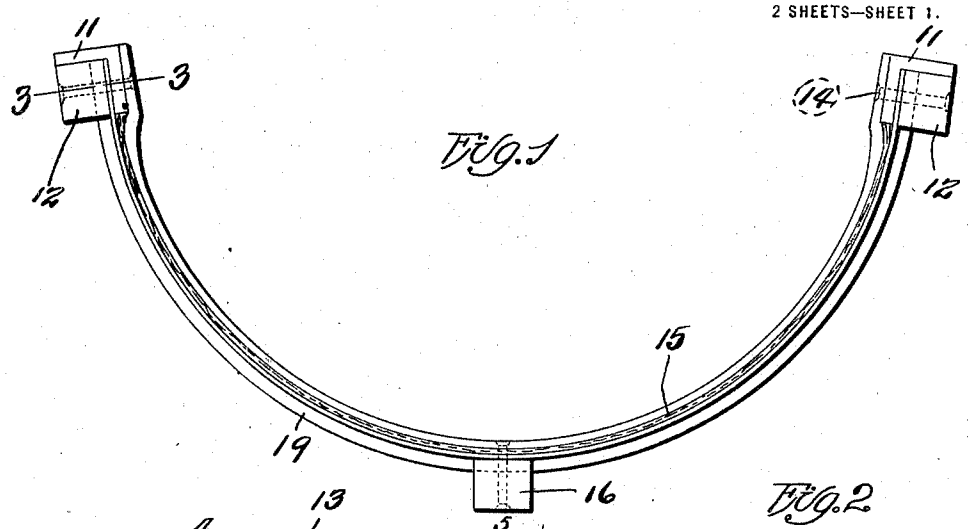


FIG. 1

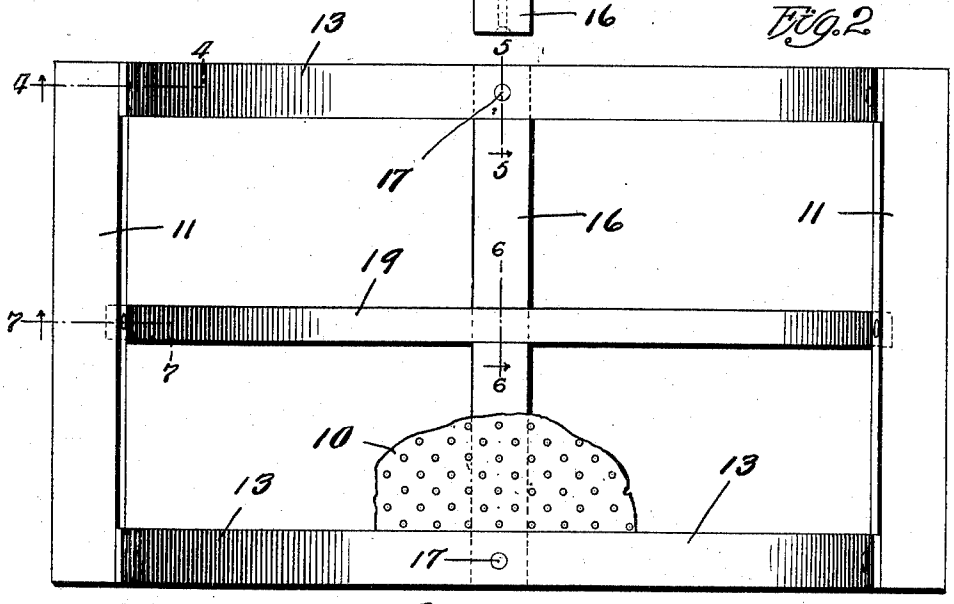


FIG. 2

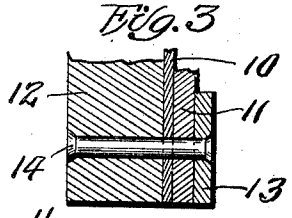


FIG. 3

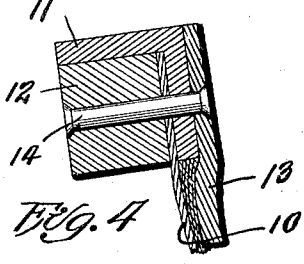


FIG. 4

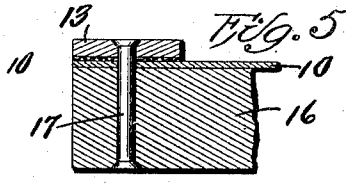


FIG. 5

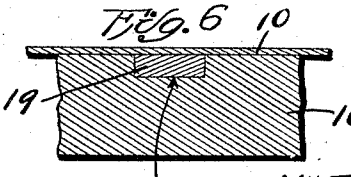


FIG. 6

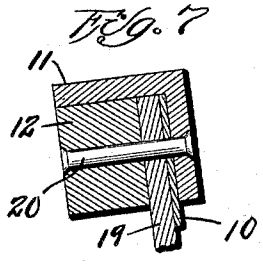


FIG. 7

INVENTOR

MILTON F. WILLIAMS

by F. A. Carmwell Atty.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

M. F. WILLIAMS.

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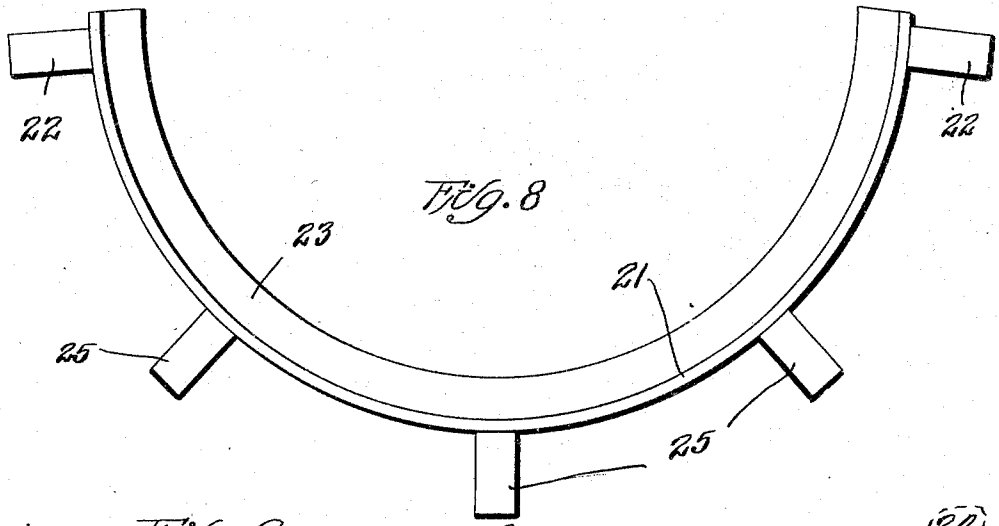


Fig. 8

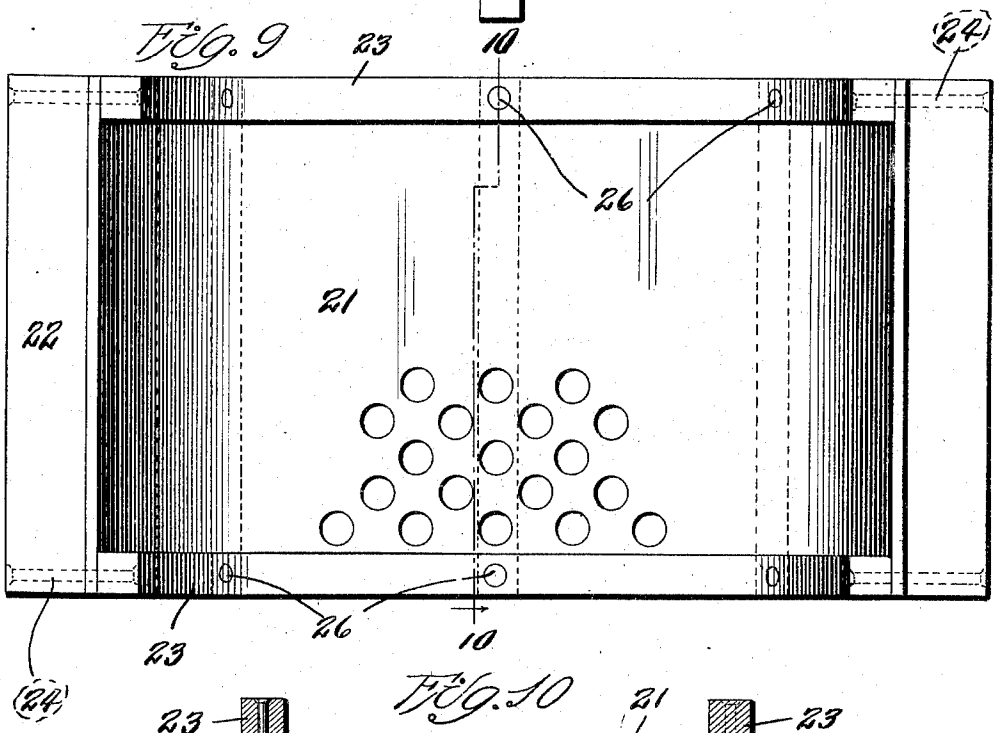


Fig. 9

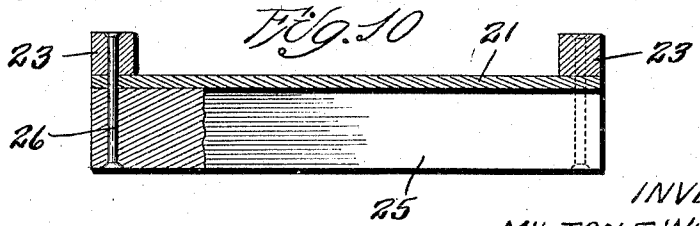


Fig. 10

INVENTOR

MILTON F. WILLIAMS

by F. C. Lawrence Atty.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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.

CAGE FOR REDUCING-MACHINES.

1,308,384. Specification of Letters Patent. Patented July 1, 1919.

Application filed January 22, 1918. Serial No. 213,202.

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 Cages for Reducing-Machines, 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.

My invention relates to a cage or screen for material reducing machines and particularly those machines utilizing hinged or pivoted hammers or beaters, and which latter are carried by a shaft which rotates at a relatively high speed.

The principal object of my invention is to provide a cage or screen which is comparatively strong, rigid and durable and the parts of said cage or screen including the framework being made up of ordinary and readily obtainable structural shapes which can be easily worked and assembled to produce the finished cage, thereby minimizing the cost of manufacture.

It will be understood that cages or screens utilized in connection with reducing machines employing pivoted hammers or beaters are curved lengthwise or formed on the arc of a circle which is concentric with the shaft carrying the hammers or beaters, and it is one of the objects of my invention to construct an arcuate cage or screen so that it will effectively resist strains and forces which it may be subjected to while in service and which may tend to distort or bend it to such a degree as to render it unfit for service.

A further object of my invention is to arrange suitable packing strips between certain of the frame members and the side edges of the reticulated body of the cage, thereby eliminating the possibility of loss of pulverized or reduced material between the sides of the cage or screen and the body of the machine in which said cage is positioned.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevational view of a cage or screen of my improved construction.

Fig. 2 is a plan view of the cage, a portion of the reticulated body thereof being broken away.

Fig. 3 is an enlarged detail section taken approximately on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail section taken approximately on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged detail section taken approximately on the line 5—5 of Fig. 2.

Fig. 6 is an enlarged detail section taken approximately on the line 6—6 of Fig. 2.

Fig. 7 is an enlarged detail section taken approximately on the line 7—7 of Fig. 2.

Fig. 8 is a side elevational view of a modified form of my improved cage.

Fig. 9 is a plan view of the modified form of the cage.

Fig. 10 is a cross sectional view taken approximately on the line 10—10 of Fig. 9.

Referring by numerals to the accompanying drawings, and particularly to Figs. 1 to 7 inclusive, which illustrate a practical embodiment of my invention, 10 designates a reticulated member, preferably a metal plate having holes punched therein, said plate being bent into arcuate form.

Positioned on the ends of this body are transversely disposed angle bars 11, each bar being arranged with one leg or flange overlying the end of the inner face of plate 10 and the other leg or flange projecting outwardly from said end. Positioned immediately against the outer face of each end of the reticulated plate 10 and against the outwardly projecting leg or flange of the corresponding angle bar 11 is a bar 12, preferably of metal and substantially square in cross section.

Located on the inner face of the reticulated plate and along the edges thereof are curved metal strips 13, the ends of which overlie the end portions of the inner legs or flanges of the angle bars 11. These strips or bars 13 perform the functions of frame members which combine with the rails 11 and bars 12 to form a marginal frame for

the reticulated plate 10 and in addition, said strips serve as reinforcing means for the sides of the cage.

Rivets 14 or like fastening devices serve to secure the ends of the strips 13 to the ends of the angle bars 11 and rails 12 and likewise to secure these parts to the corners of the reticulated plate 10. In order to form tight joints between the side strips or rails 13 and the side edges of the plate 10, strips 15 of suitable packing material such as fabric, leather, rubber or the like, are interposed between said strips 13 and plate 10, and thus comparatively fine material will be effectively prevented from passing between said parts during the operation of the machine in which the cage is positioned.

The central portion of the plate 10 is reinforced and strengthened by means of a transversely disposed rail or bar 16, preferably of metal and square in cross section, the same being applied to the outer face of plate 10 and its ends being secured to said plate and to the central portions of side rails or strips 13 by means of rivets 17. Formed in the inner face of this rail or bar 16 is a notch or recess 18 which is occupied by the central portion of a longitudinally disposed reinforcing bar or strip 19, the latter being applied to the outer face of plate 10 at a point preferably midway between the side strips or rails 13. The ends of this longitudinally disposed reinforcing strip 19 are secured to the central portions of the angle bars 11, rails 12 and the corresponding portions of the plate 10 by rivets 20.

In the modified construction illustrated in Figs. 8 to 10 inclusive, a reticulated plate 21 bent to arcuate form constitutes the body of the cage, and positioned on the ends thereof and against the outer face are transversely disposed metal rails 22. Positioned against the inner face of this plate 21 and immediately adjacent to the side edges thereof are side rails or bars 23, the ends thereof being secured to the ends of transverse bars 22 and to the interposed portions of the plate 21 by means of rivets 24, or like fastening devices.

Arranged on the outer face of the reticulated plate 22 and preferably spaced at equal distances apart, are transversely disposed rails 25, the ends of which are connected to the bodies of the side bars 23 and to the interposed portions of plate 21 by means of rivets 26 or like fastening devices.

The type of cage just described and illustrated in Figs. 8 to 10 inclusive, is particularly designed for comparatively heavy service or for reducing machines in which comparatively hard material such as coal, limestone, and the like is reduced, and consequently, the parts are formed of relatively heavy material well adapted to withstand heavy service shocks and strains.

Cages of my improved construction are comparatively simple, can be easily and cheaply manufactured, can be made in various sizes and shapes to suit different conditions and are particularly designed to resist wear and likewise service shocks and strains.

It will be readily understood that minor changes in the size, form and construction of the various parts of my improved cage can be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claim.

I claim:

The hereindescribed reducing machine cage comprising a reticulated plate curved lengthwise, transversely disposed reinforcing bars applied to the underside of said plate at both ends and near the center thereof, the inner faces of said reinforcing bars being notched at points adjacent to their centers, a longitudinally disposed reinforcing bar applied to the underface of the reticulated plate and occupying the notches in said transversely disposed reinforcing bars, strips applied to the inner face of the curved plate adjacent to the side edges thereof, packing strips interposed between said strips and the reticulated plate, and fastening devices seated in the curved plate, the transversely disposed reinforcing bars, the longitudinally disposed reinforcing member, the strips, and the packing strips.

In testimony whereof I hereunto affix my signature, this 16 day of January 1918.

MILTON F. WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."