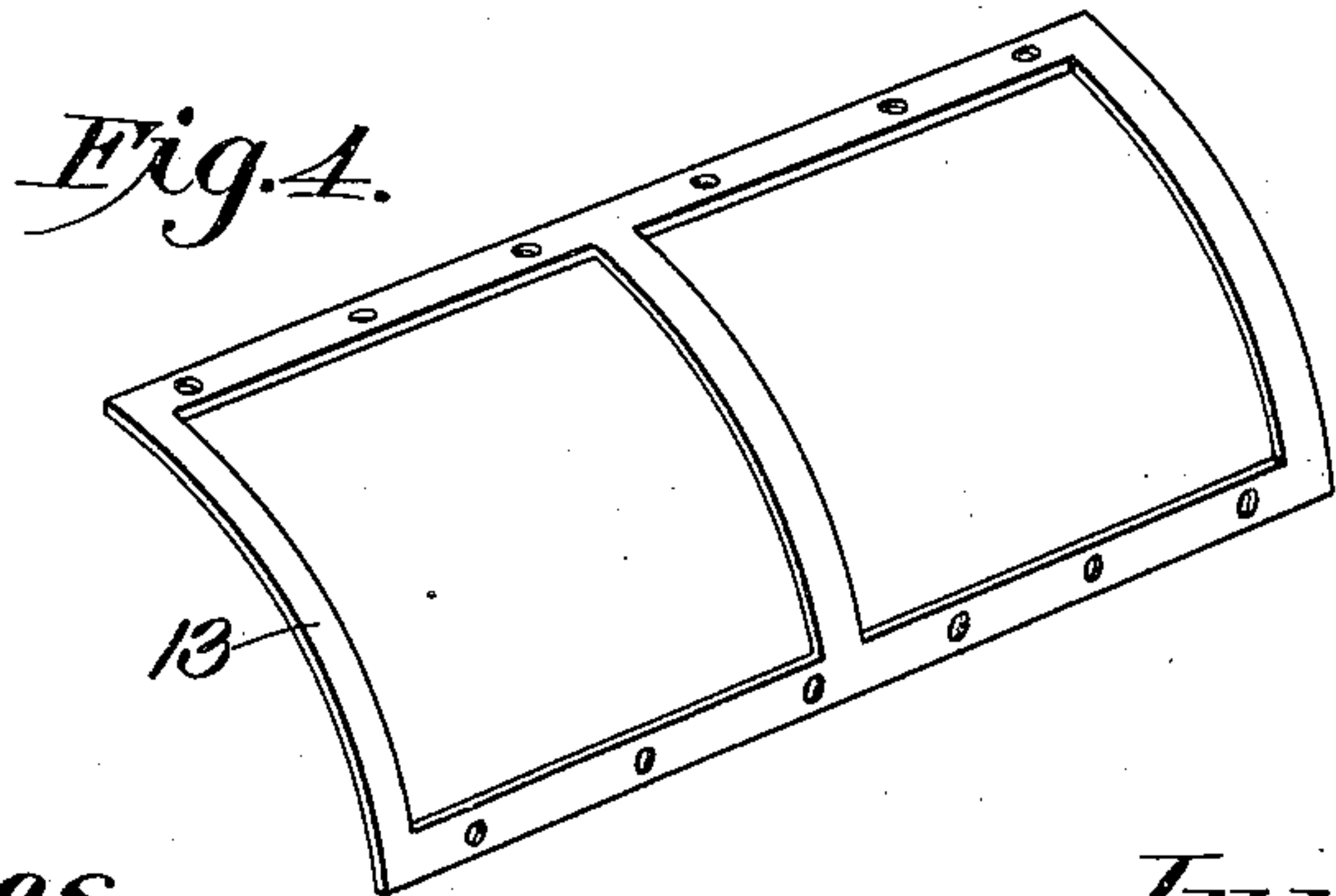
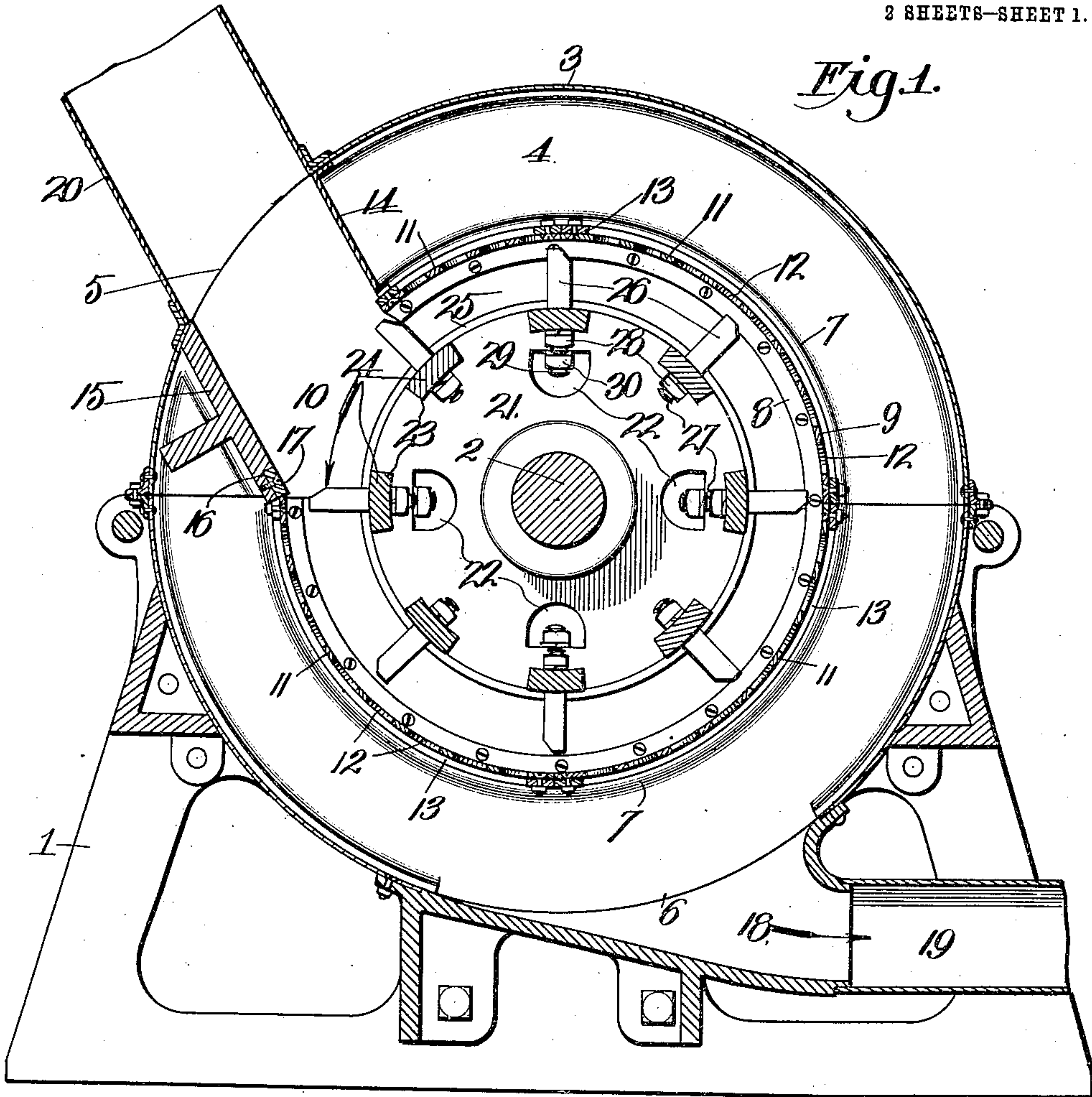


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APPLICATION FILED OCT. 11, 1909.

979,063.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.



Witnesses
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H. C. Rodgers.

Inventor
H. C. Edwards
By George J. Thorpe Atty.

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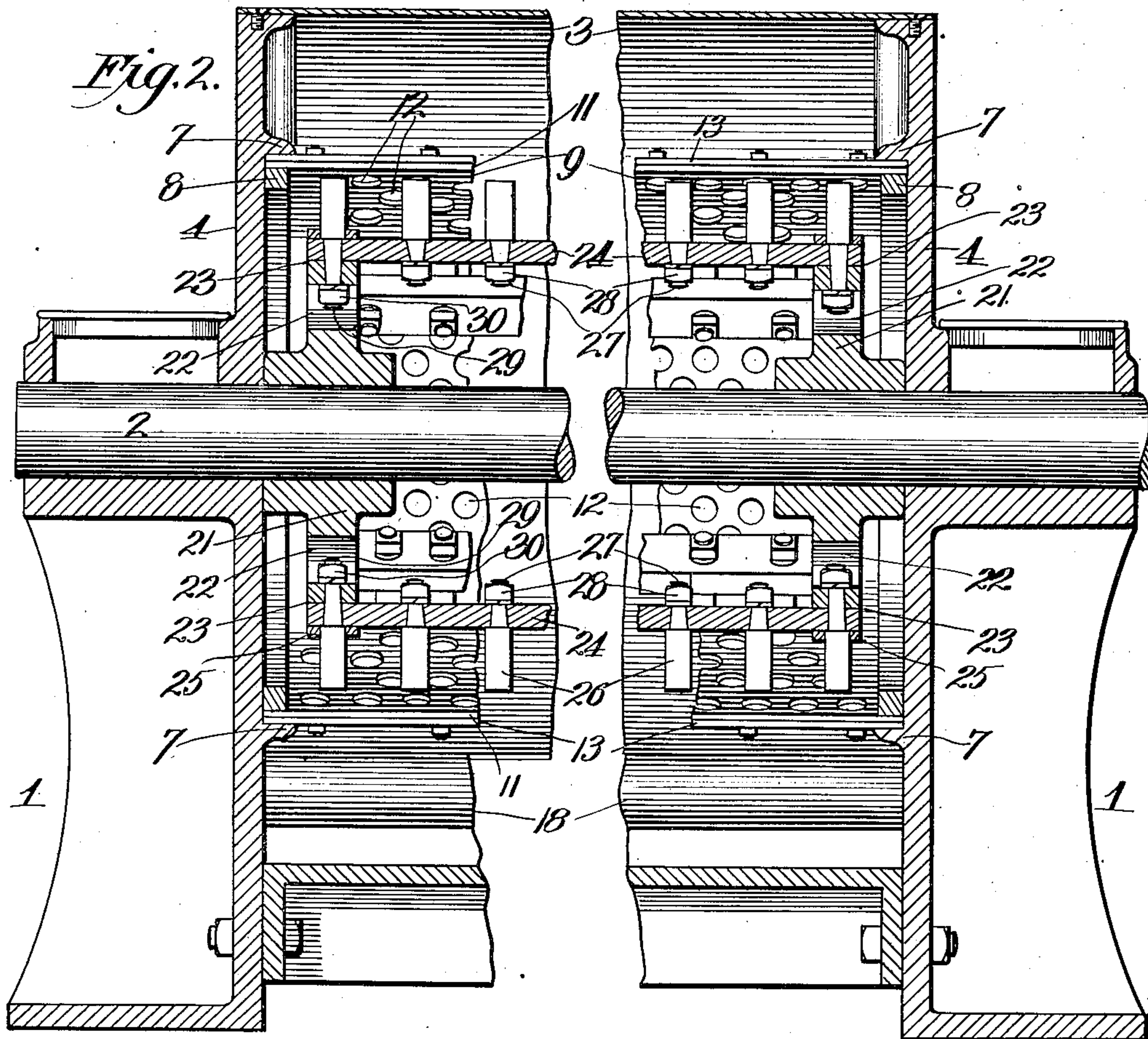
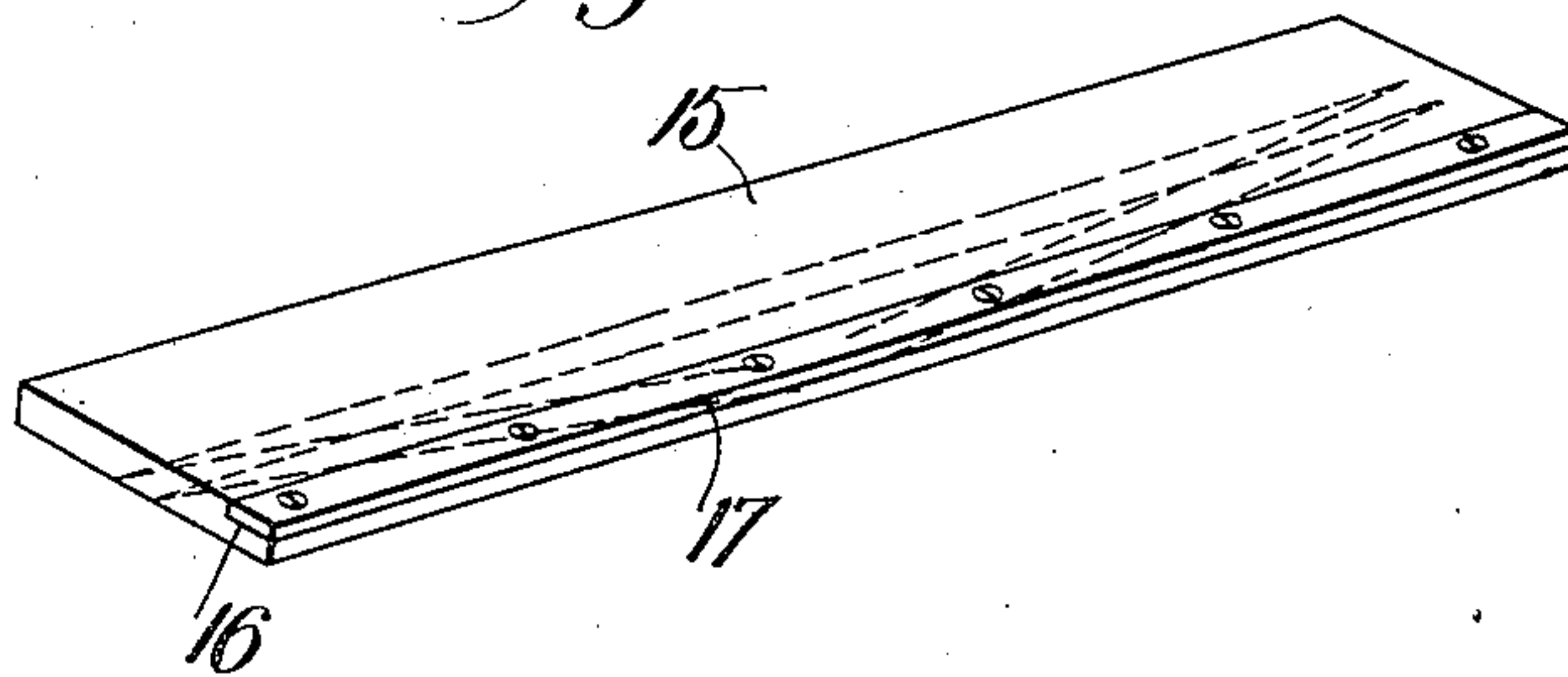


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRY C. EDWARDS, OF KANSAS CITY, MISSOURI.

ALFALFA-GRINDING MACHINE.

979,063.

Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed October 11, 1909. Serial No. 522,118.

To all whom it may concern:

Be it known that I, HARRY C. EDWARDS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Alfalfa-Grinding Machines, of which the following is a specification.

This invention relates to alfalfa grinding machines of that class embodying a stationary casing having a feed opening and an exit spout, a stationary foraminous casing within the first-named casing and provided with a feed opening, and a revolving cylinder provided with cutting teeth to cooperate with the edges of the opening or interstices of the foraminous casing in cutting or grinding alfalfa to the required degree of fineness, and my object is to produce a machine of this character which will perform its function efficiently and reliably when lightly as well as when heavily or fully charged.

A further object is to produce a machine of this character of simple, strong, durable, compact and comparatively inexpensive construction.

With these objects in view and others as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1, is a central vertical longitudinal section of an alfalfa grinding machine, embodying my invention. Fig. 2, is a central vertical transverse section of the same. Fig. 3, is a detail perspective view of a shredder bar forming part of the invention. Fig. 4, is a detail perspective view of one of the frames for strengthening the perforated plates forming the foraminous casing.

In the said drawings where like reference characters indicate corresponding parts in all the figures, 1 indicates standards spaced a suitable distance apart and forming journals for a suitably-driven shaft 2, and said standards also form the lower halves of the heads of a sheet metal casing 3, the upper halves 4 of said heads resting upon the lower halves and being removable. Above and to one side of the axis of the shaft, the casing 3 is provided with a feed opening 5 and below its axis with an exit opening 6. Said

heads are provided with inwardly projecting ribs 7 which are nearer the center of the heads at one end than at the other and describe somewhat less than a full convolution, and secured to said heads inward of and parallel with said ribs are strips 8. Fitting in the grooves formed by and between said ribs and strips and preferably embracing the latter, is a foraminous casing 9, having a slot 10, for its full length which coincides in width with the space between the adjacent ends of the spiral rib, so as to form a feed opening for the foraminous casing. This foraminous casing which is of gradually increasing radius from one side of slot 10 to the other, consists preferably, of a series of sheet metal plates 11 provided with perforations 12 and in order to stiffen said perforated plates, skeleton segmental frames 13 are fitted against the outer sides of and secured to said plates and snugly within the ribs 7, said plates being also secured in any suitable manner, not shown, in rigid relation to the heads.

14 is a plate extending from one head to the other in the plane of the upper edges of opening 5 and slot 10.

15 is a bar arranged substantially parallel with plate 14 and extending from the lower edge of opening 5 to the lower edge of slot 10 and secured in a recess 16 in the inner lower corner of bar 15 is a shredder bar 17, this arrangement permitting said shredder bar to be removed when it is desired to replace it with a new one.

18 is a tapering spout secured to cylinder 3 and adapted to receive the discharge therefrom through the exit opening 6 and said spout communicates with a pipe or conduit 19 through which the meal or finely ground alfalfa is drawn by suction in any suitable manner, to the point desired.

20 is a chute or tube secured to and communicating with the feed opening for conducting alfalfa to be ground, into the inner casing.

Secured rigidly upon the shaft 1 and therefore concentrically within the casing 3, is a cylinder constructed as follows: 21 is a series of disks provided at opposite sides with openings 22 and in the radial planes of said openings and at equi-distant points between them with peripheral notches 23 for the reception of peripheral bars 24, and shrunk upon said disks or otherwise rigidly secured thereto and bridging said notches

23, are metal bands 25. 26 are radial teeth bearing at their inner ends against bars 23 and provided with reduced threaded stems 27 extending through said bars and engaged at their inner ends by clamping nuts 28. Each alternate tooth in the plane of one of the disks 21 has a similar but longer stem 29 which extends through the outer portion of the disk and into the registering opening 22 where it is engaged by a nut 30, the nuts 28 and 30 therefore clamping the teeth rigidly in position. The teeth are of uniform length so that their outer ends shall be disposed some distance inward of the foraminous cylinder at the lower edge of its slot 10, at which point said cylinder is of greatest radius. In the revolution of the teeth in the direction indicated by the arrow, they gradually approach nearer to the foraminous cylinder and as they pass downward adjacent to the upper edge of slot 10, they almost scrape the casing.

Heretofore in machines of this character in which the teeth or knives are arranged concentrically within the foraminous casing, difficulty was encountered in grinding the alfalfa hay sufficiently fine if the machine was fed below its grinding capacity or in performing the grinding operation without frequent chokage if the machine was fed to its complete capacity, and I have found that by providing a casing which surrounds the cylinder in such a manner that, as the alfalfa is cut, the space between the casing and teeth gradually diminishes; the alfalfa can be evenly and finely ground whether fed to the full or below the full capacity of the machine and that danger of chokage is practically eliminated because, when the alfalfa is properly ground, the suction through the spout 18 keeps the cas-

ing 3 practically clear so that the ground alfalfa may pass freely under pressure and centrifugal force, through the perforations of the foraminous casing.

From the above description it will be apparent that I have produced an alfalfa grinding machine possessing the features of advantage enumerated, and I wish it to be understood that I do not desire to be restricted to the exact details of construction shown and described as obvious modifications will suggest themselves to one skilled in the art.

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

An alfalfa grinding machine, comprising a cylindrical casing having a feed opening, and an exit opening in its periphery, a perforated casing within the first-named casing provided with a slot opposite said feed opening, the said perforated casing being of gradually increasing radius from one side of said slot to the other, a plate extending from the side of said slot where the perforated casing is of least diameter to the corresponding side of said feed opening of the first-named casing, a bar extending from the other side of said slot to the other side of said feed opening and provided at its inner edge with a notch, a shredder bar fitting in said notch, and a rotatable toothed cylinder arranged within the perforated casing and concentrically with respect to the first-named casing.

In testimony whereof I affix my signature, in the presence of two witnesses.

HARRY C. EDWARDS.

Witnesses:

M. A. O'DONNELL,
G. Y. THORPE.