

(No Model.)

2 Sheets—Sheet 1.

F. F. GUETHS.
ROTARY FEED BEATER.

No. 432,186.

Patented July 15, 1890.

Fig. I.

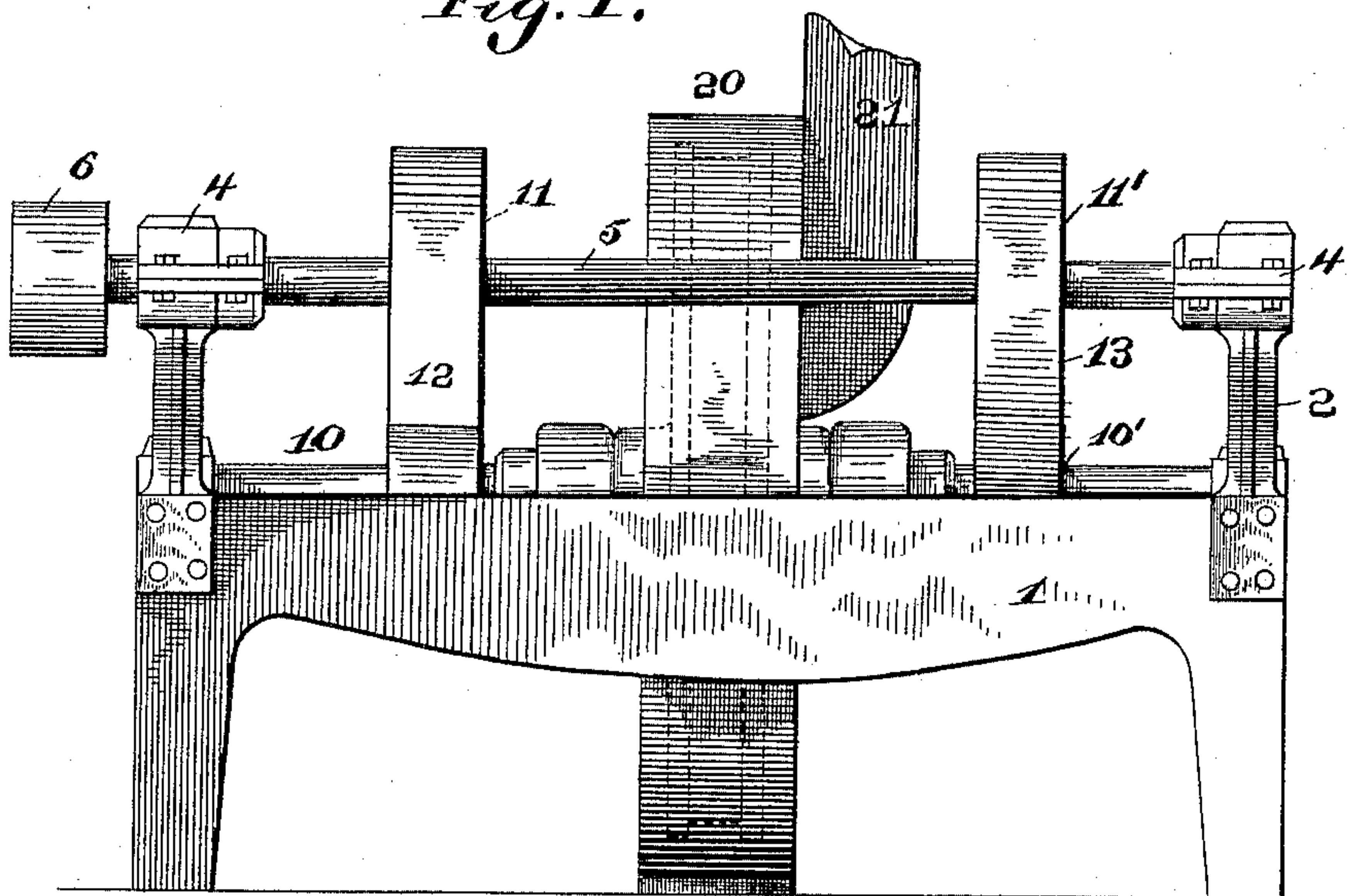
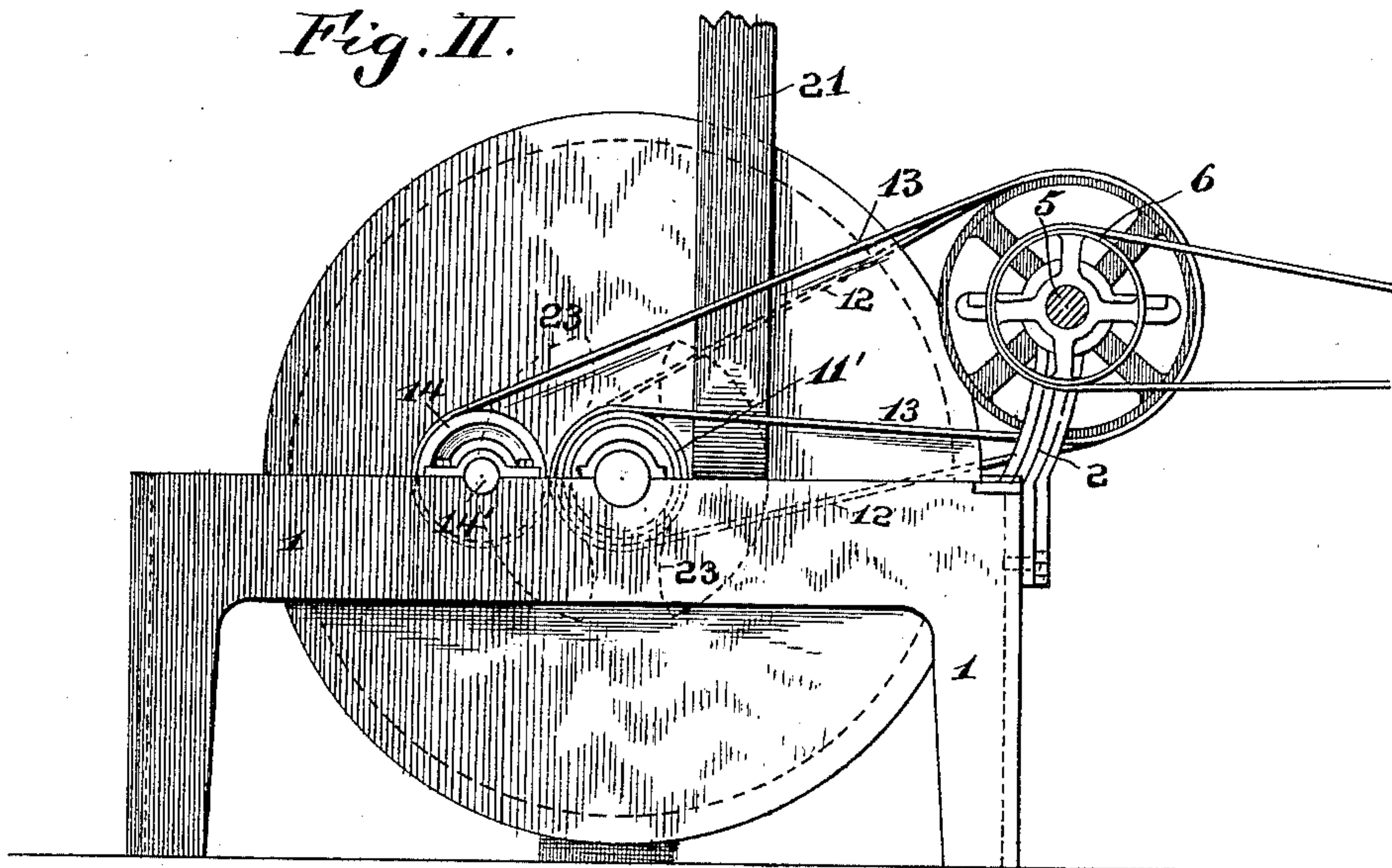


Fig. II.



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Inventor:

Frank F. Gueths
By his Attorneys
Edson Bros.

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Fig. III.

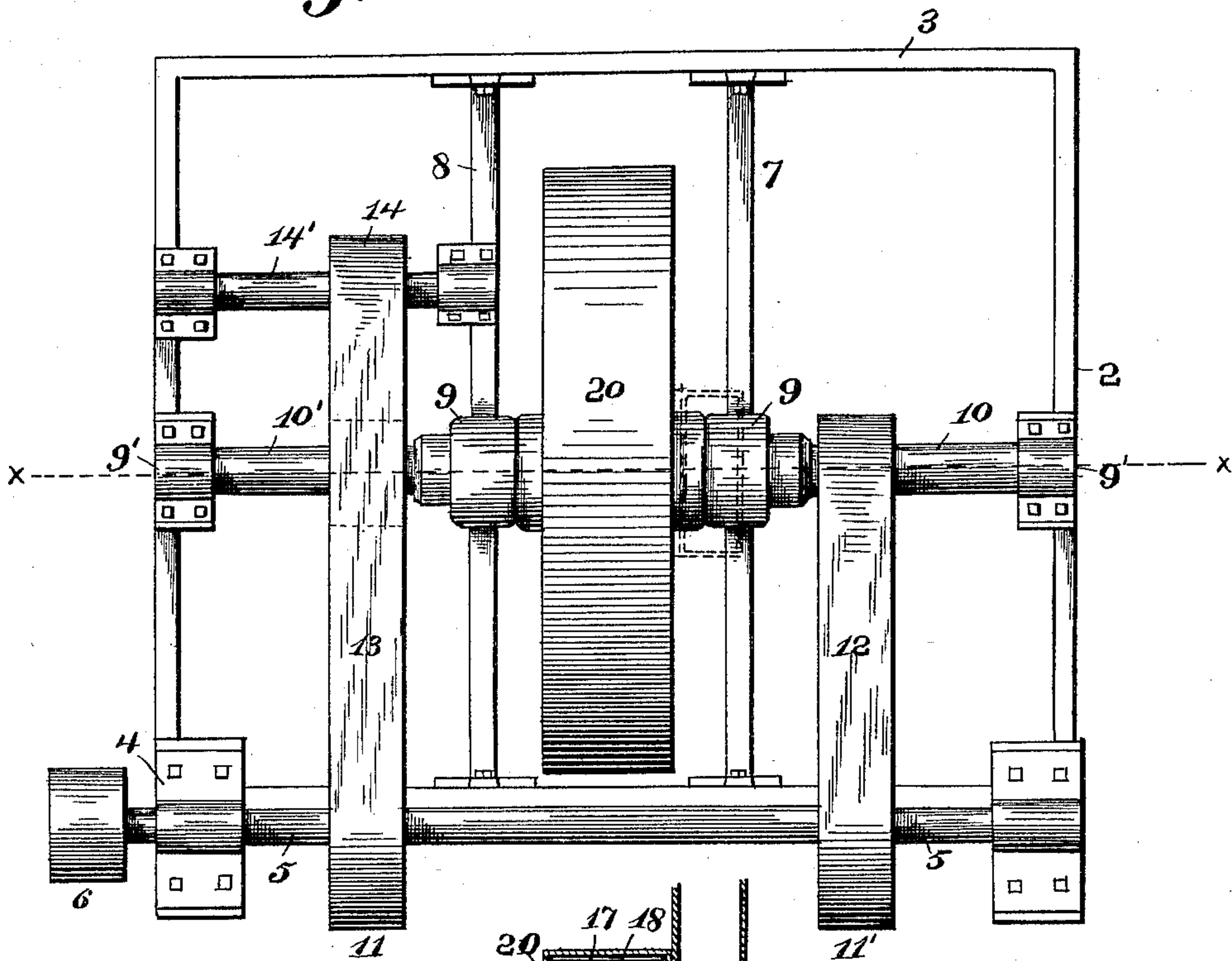


Fig. IV.

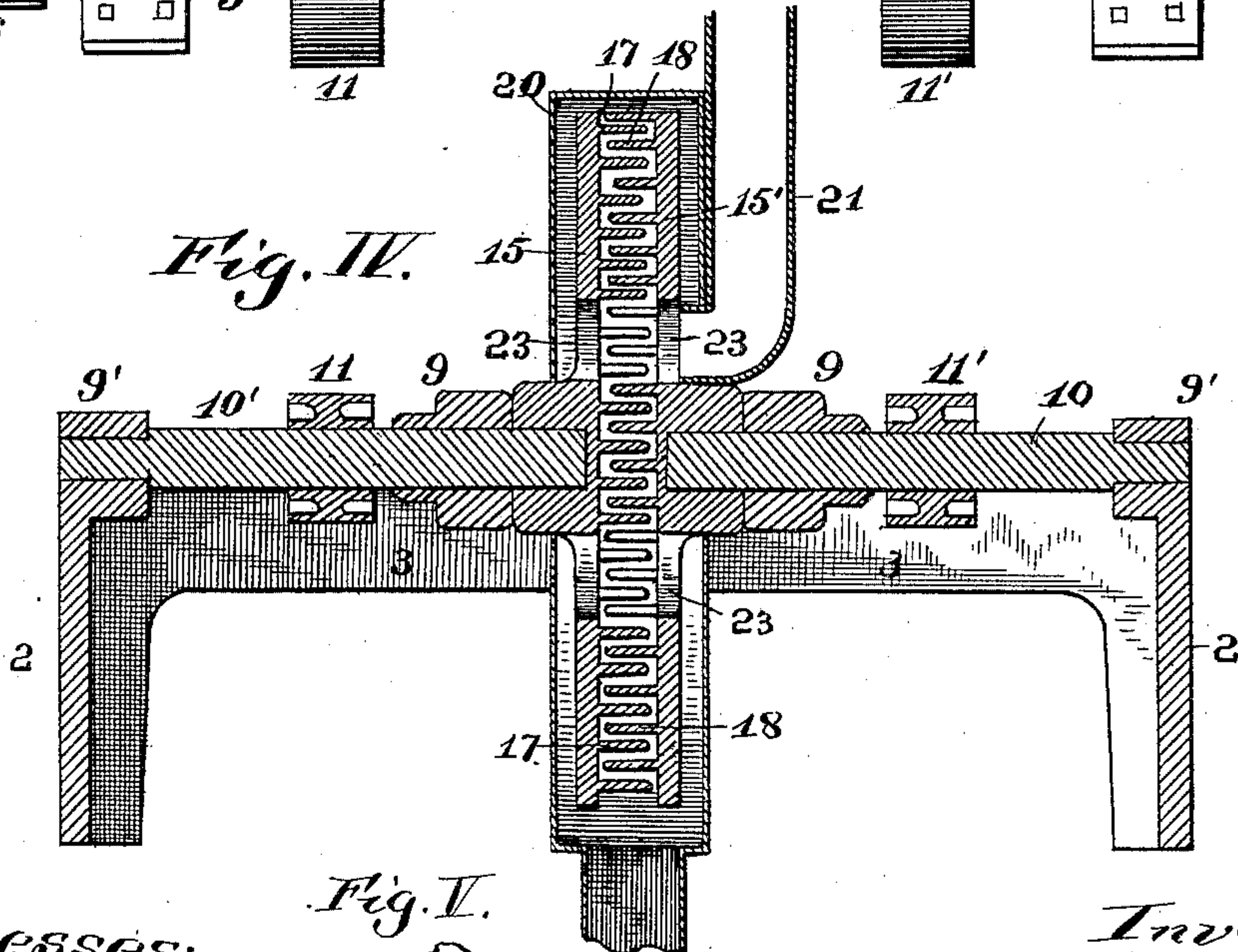


Fig. V.



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Inventor:

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UNITED STATES PATENT OFFICE.

FRANK. F. GUETHS, OF FOND DU LAC, WISCONSIN.

ROTARY FEED-BEATER.

SPECIFICATION forming part of Letters Patent No. 432,186, dated July 15, 1890.

Application filed April 26, 1890. Serial No. 349,587. (No model.)

To all whom it may concern:

Be it known that I, FRANK. F. GUETHS, a citizen of the United States, residing in Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Rotary Feed-Beaters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a feed-beater adapted for use in connection with feed-grinding mills; and the object of the invention is to provide a simple, inexpensive, and light-running apparatus adapted to receive the ground feed from a mill and comminute the feed or reduce it to very fine particles with expedition and economy.

My invention consists in the construction and arrangement of parts and novel combination of devices, as will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the same in the accompanying drawings, in which—

Figure I is a side elevation of a rotary beater embodying my invention. Fig. II is an end view thereof. Fig. III is a plan view. Fig. IV is a vertical sectional view on the plane indicated by the dotted line *xx* of Fig. III, and Fig. V is a detail view showing the teeth on the inner face of one of the disks.

Like numerals of reference denote corresponding parts in all the figures of the drawings.

1 designates the main or supporting frame, consisting of the parallel side pieces 2 2, and the transverse or cross pieces 3 3, which are located at the ends of the side pieces, are suitably bolted thereto and extend across from one side piece to the other. The cross-pieces are raised above the plane of the side pieces, and they have the bearings 4 4, in which are mounted the driving-shaft 5, which shaft extends longitudinally of the machine. This driving-shaft has a pulley 6, by which motion from a suitable line of shafting or motor can be communicated to the shaft 5, and it operates, by mechanism to be presently described, to drive the rotary toothed disks of the beater in reverse directions to each other.

In the middle of the supporting-frame I provide two transverse horizontal bridge-trees 7 8, which are arranged parallel with and at a suitable distance from each other to permit the rotary beater-disks to be arranged between said bridge-trees.

In suitable bearings 9 9', rigid with the transverse pieces 3 3 and the bridge-trees 7 8, are journaled the two shafts 10 10', which are parallel with the driving-shaft 5 and lie at one side thereof. The driving and disk-bearing shafts are rotated simultaneously by means of pulleys 10 11' 10' 11 and the endless belts 12 13, the pulleys 10 11' and belt 12 being situated on one side of the bridge-trees 7 8. The other pair of pulleys 10' 11 and idler-pulley 14 and the corresponding belt 13 are situated on the opposite side of the bridge-trees to the other set of pulleys and belt, and the idler-pulley 14 is carried by a short shaft 14', arranged at one side of the counter-shaft and suitably mounted on the bridge-tree 8, the belt 13 passing over and around the idler-pulley and then over the pulley 11', so as to rotate the counter-shaft 10' in a reverse direction to the other counter-shaft 10.

15 15' designate the rotary disks, which are arranged parallel with each other and a short distance apart, to receive the rows or series of teeth on their inner opposing faces. The rotary disks are provided on their opposing faces with inwardly-projecting teeth 17 18, the teeth on one disk alternating with the teeth on the disk opposite thereto and arranged in concentric rows with relation to each other. These teeth are preferably square in shape; but any other form—polygonal or otherwise—of teeth may be adopted, and said teeth are arranged in the path of the feed when it is forced outward by centrifugal action of the rotary disks, whereby the teeth on the disks afford an obstruction or surface for the feed to impinge against when it is thrown violently outward by the rapidly-rotating disks of the beater. The feed is introduced to the beater from a chute 21, that leads from a grinding-mill, to conduct the ground feed to the beater for the purpose of reducing the feed to very fine particles. The feed from the spout or chute is drawn through apertures 23 in one of the beater-disks. The oppositely-rotating disks of the beater are

housed or inclosed within a suitable fixed case or shell 20, into which the discharge end of the feed-spout 21 opens, and this shell has a discharge-outlet 22 on its lower side for the
5 feed after it has been carried around within the shell and comminuted by the action of the teeth of the disks.

The operation of my invention is as follows: The driving-shaft is driven at a high rate of
10 speed from a suitable line of shafting or motor, and the belts operate to drive one counter-shaft and the rotary disk thereon in an opposite direction to the rotation of the other counter-shaft and its disk, the teeth on said
15 oppositely-rotating disks being alternately arranged so as to clear each other. The rapidly and oppositely revolving beater-disks create a strong current or suction of air, which operates to exhaust the air and feed from the
20 spout and chute that leads from the mill and to throw the feed violently (by centrifugal action) against the teeth on said disks, thereby economically and expeditiously reducing the feed to very fine particles before discharging it through the outlet 22.

I am aware that changes and modifications in the form and proportion of parts and details of construction can be made without departing from the spirit or sacrificing the ad-
30 vantages of my invention, and I would there-

fore have it understood that I reserve the right to make such alterations as fairly fall within the scope of my invention.

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

In a rotary feed-beater, the combination of a frame having the centrally-arranged bridge-trees, the stationary casing, the divided shaft
40 having its members journaled in the frame and bridge-trees and having their adjacent ends terminating within the casing, the toothed concentric disks fixed to the adjacent ends of said divided shaft and arranged with-
45 in the casing, a feed-spout for delivery of the grain, &c., centrally to the disks, the driving-shaft common to both members of the divided shaft, a belt passing around pulleys on the driving-shaft and one member of the di-
50 vided shaft, an idler-shaft journaled in the frame on one side of the casing, and another belt passing around pulleys on the idler-shaft, the driving-shaft, and the other member of the divided shaft, substantially as described.

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

FRANK. F. GUETHS.

Witnesses:

W. H. BOWE,

O. L. HELMOR.