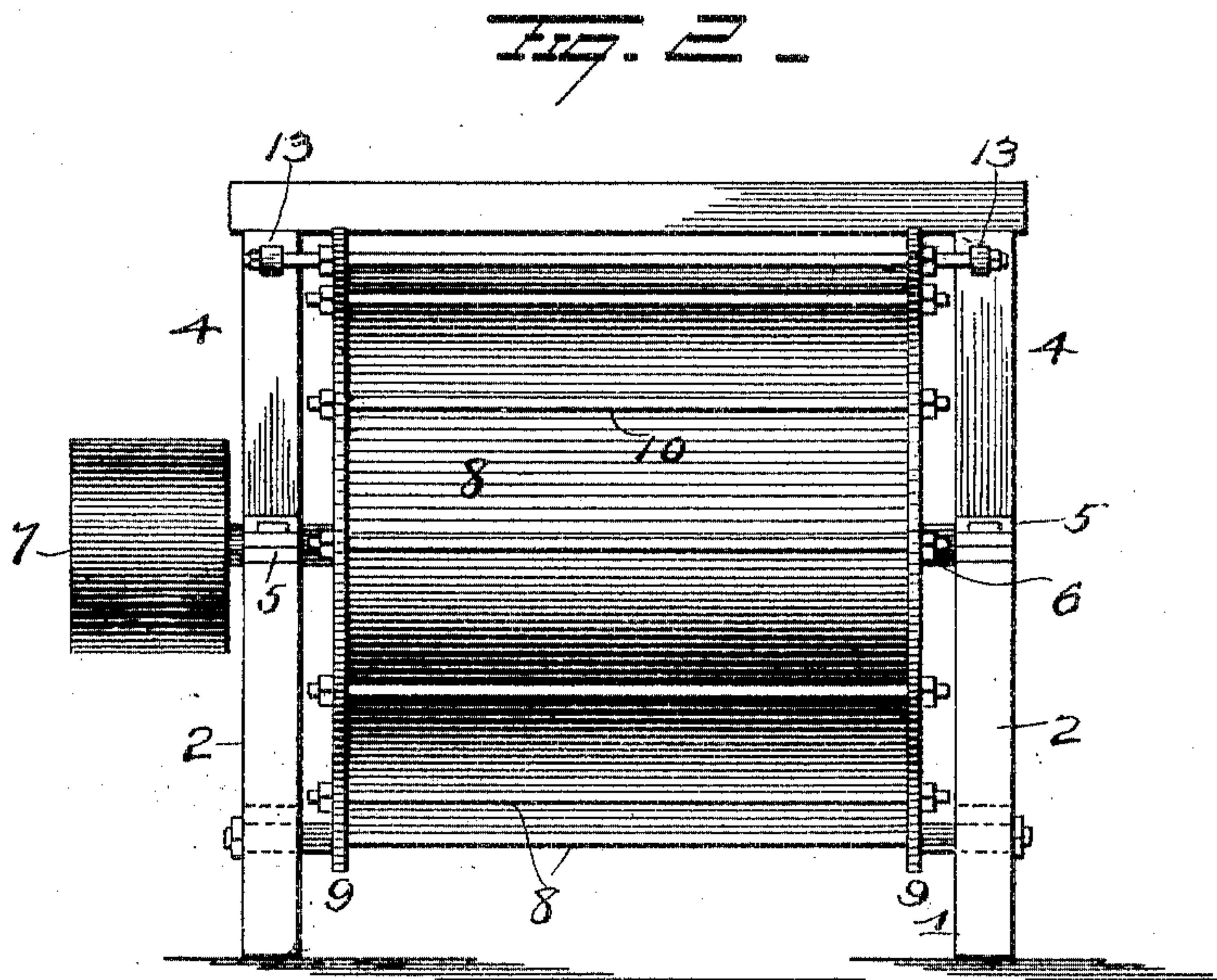
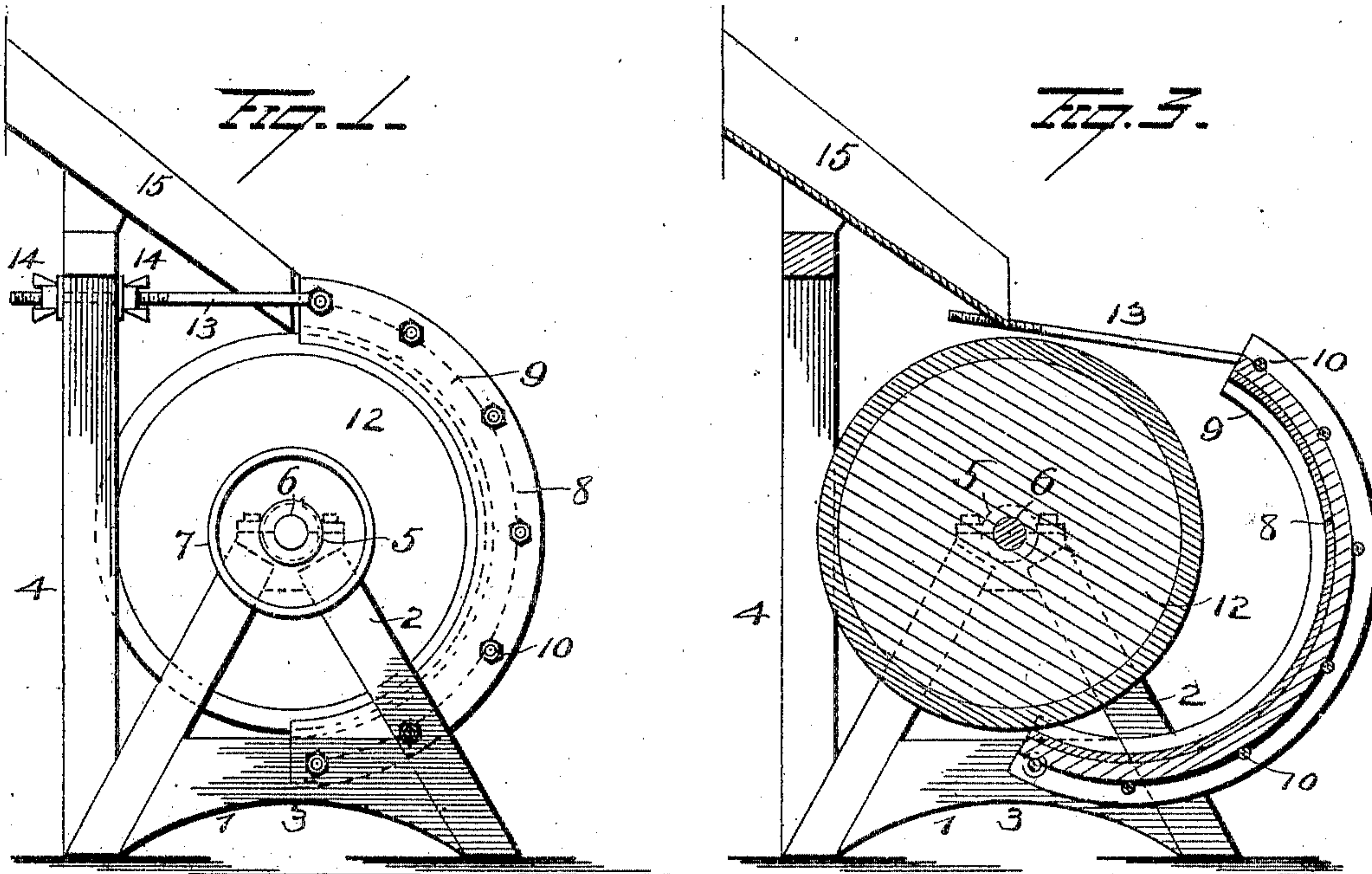


No. 776,973.

PATENTED DEC. 6, 1904.

R. L. WATSON.  
GRINDING APPARATUS.  
APPLICATION FILED DEC. 14, 1900.

NO MODEL.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

ROBERT L. WATSON, OF MEMPHIS, TENNESSEE.

## GRINDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 776,973, dated December 6, 1904.

Application filed December 14, 1900. Serial No. 39,904. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT L. WATSON, a resident of Memphis, in the county of Shelby and State of Tennessee, have invented certain  
5 new and useful Improvements in Grinding Apparatus; 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  
10 use the same.

My invention relates to an improvement in grinding apparatus, and more particularly to an apparatus for grinding cotton-seed hulls and cotton-seed products, the object of the invention being to provide an apparatus of this character which can be readily adjusted to grind the material into different degrees of fineness.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is an end view illustrating my improvements. Fig. 2 is a side elevation, and Fig. 3 is a view in section of the same.

1 represents a supporting-frame which comprises at each side an inverted-V-shaped standard 2, the respective members thereof connected by horizontal bars 3 and said standards connected by braces, as shown. To the lower end of one member of each standard uprights 4 are secured, and suitable bearings 5 are provided at the upper ends of standards 2, in which is mounted a shaft 6, carrying at one end a driving-pulley 7, and has secured thereon between the standards a cylinder or grinding-roller 12, provided with a coating of emery or other like material. A concave 8 is disposed around one-half of the roller, and its inner face is curved in practically the same arc of a circle as the cylinder and provided with a covering or coating of emery or like  
45 material.

Plates 9 are secured to the respective side edges of the concave 8 by means of rods 10 and are adapted to overlap the ends of the

roller 12 to prevent the escape of material being ground, and the lower ends of said plates 50 are pivotally connected to the opposite bars 3, as shown.

Rods 13 are connected at one end to the upper ends of the plates 9 and are screw-threaded at their other ends and disposed in bearings 55 in the uprights 4, and nuts 14 are located on the threaded ends of the rods 13 at opposite sides of the uprights to secure the upper end of the concave against movement, but which will permit of the rods 13 being adjusted in 60 the uprights to move the concave toward and away from the roller, and hence vary the space between the roller and concave to regulate the fineness with which the material is ground.

A suitable hopper 15 communicates with 65 the upper face of the roller for feeding material to be ground thereto, the ground material being discharged at the lower end of the concave.

Various slight changes might be resorted to 70 in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, 75 but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters 80 Patent, is—

In a grinding-machine, the combination with two standards spaced apart, an upright adjacent to each standard and projecting above the same, and a cross-bar mounted at its ends 85 upon the uprights, of a drum or roller mounted between the standards and having an abrading periphery, a semicircular concave at one side of the drum or roller and having a continuous abrading-face adjacent to the roller 90 and extending from a point directly over the axis of the roller to a point directly under said axis, curved plates disposed against the ends of the concave, bolts connecting said curved plates, pivots connecting the lower 95 ends of said plates to the standards under the

axis of the drum or roller, threaded rods piv-  
otally attached to the upper ends of said plates  
and passing through the standards, nuts on  
said rods, and a hopper disposed on the cross-  
5 bar on the uprights and disposed to discharge  
onto the top of the drum or roller adjacent to  
the upper end of the concave.

In testimony whereof I have signed this  
specification in the presence of two subscrib-  
ing witnesses.

ROBERT L. WATSON.

Witnesses:

B. F. BOOTH,

P. H. PHELAN, Jr.