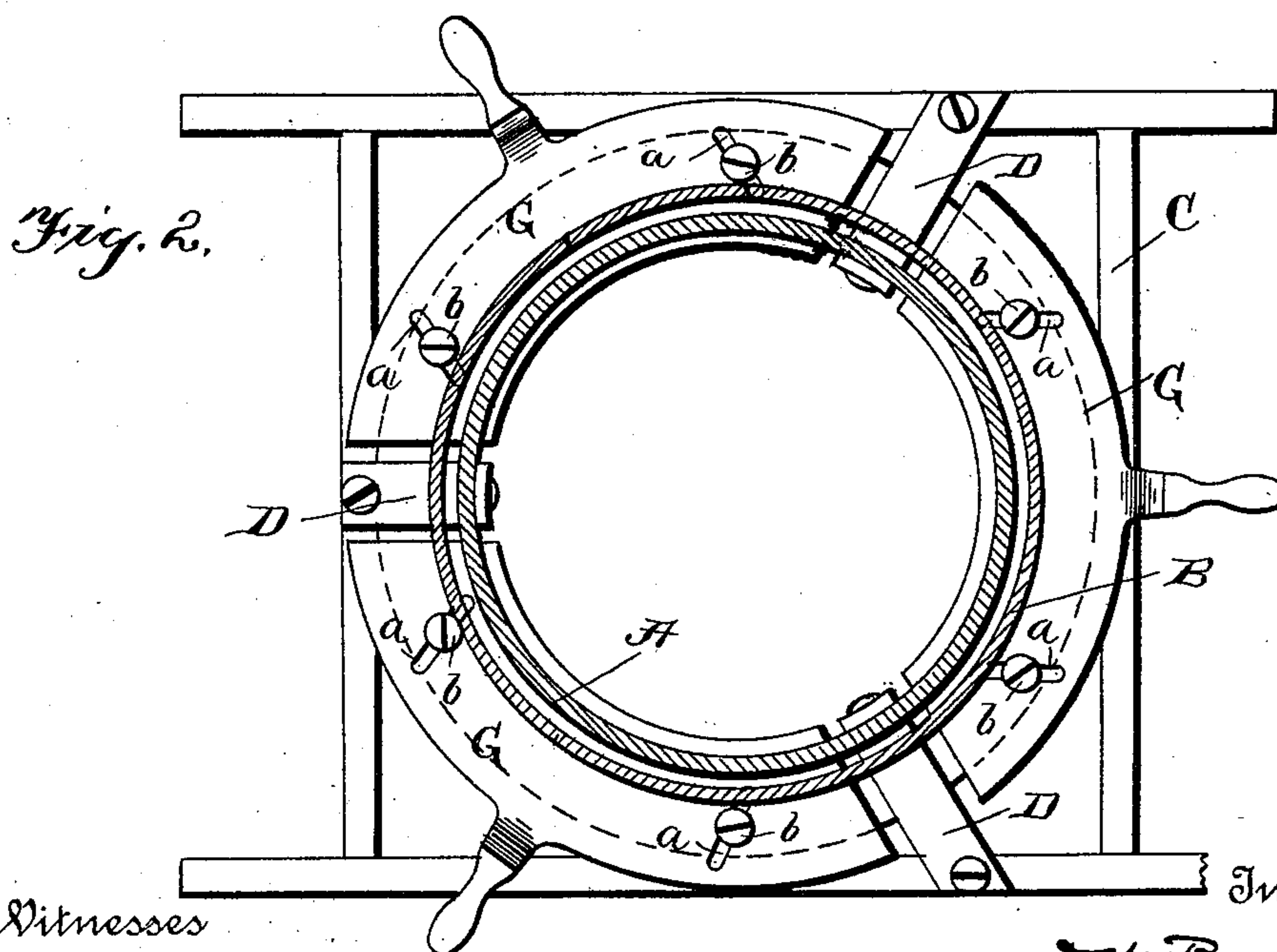
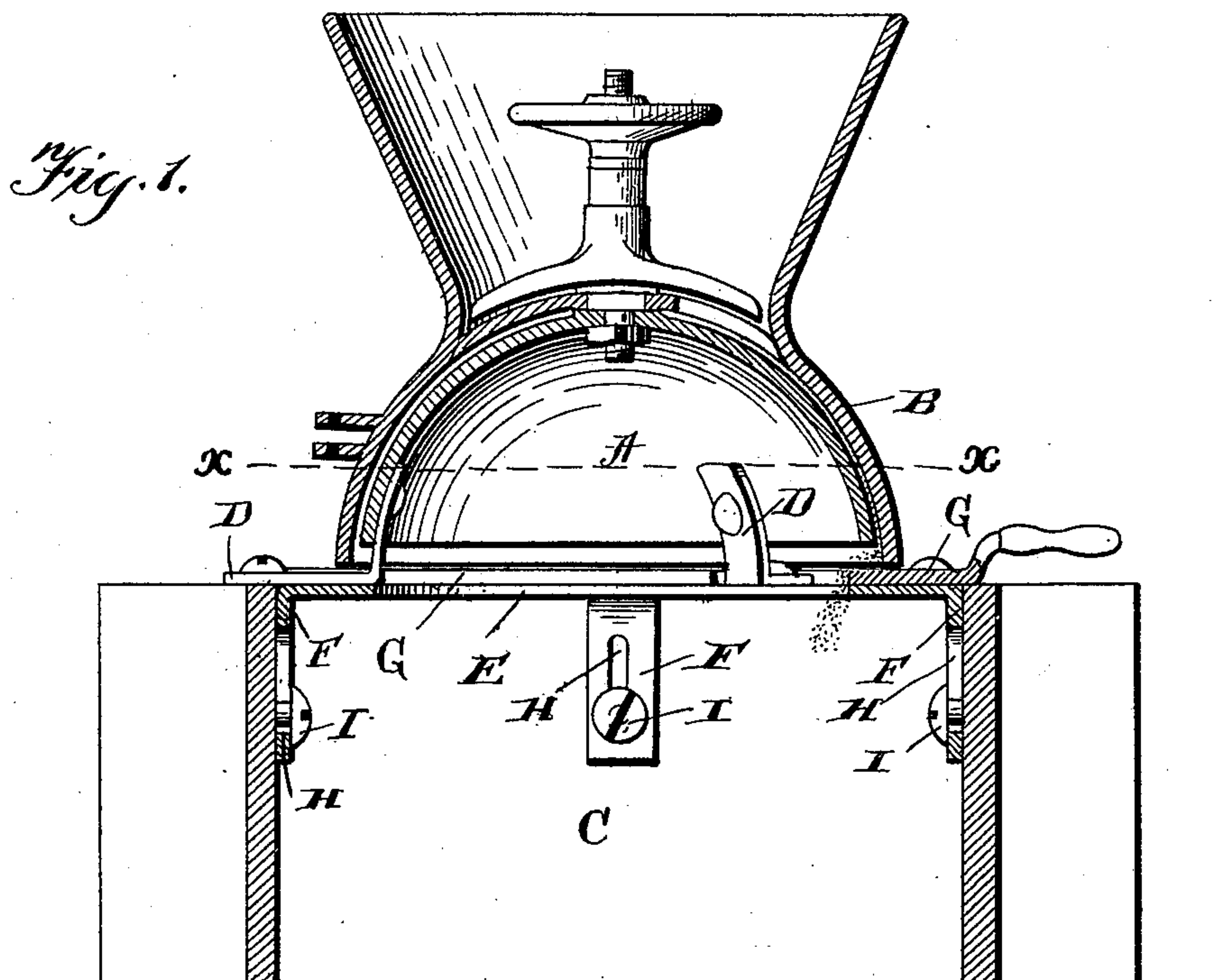


(No Model.)

D. W. BOVEE
GRINDING MILL.

No. 587,177.

Patented July 27, 1897.



Witnesses

Geo. C. French,

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UNITED STATES PATENT OFFICE.

DAVID W. BOVEE, OF WATERLOO, IOWA.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 587,177, dated July 27, 1897.

Application filed August 12, 1896. Serial No. 602,554. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. BOVEE, of Waterloo, in the county of Black Hawk and State of Iowa, have invented certain new and useful Improvements in Grinding-Mills; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

This invention has reference to grinding-mills, and relates more particularly to sweep-mills in which the grinders have their operating-surfaces arranged at about an angle of forty-five degrees. In order to grind corn and other grains, it has frequently been found necessary to set the grinders quite close together. Otherwise the grain will drop down from between them before being properly ground and crushed. Such grinding is faulty and incomplete, and in addition thereto the grinder-surfaces, owing to their close proximity and in many instances actual contact, soon become so worn as to be useless, putting the mill-owner to the expense of renewing them.

The object of the present invention is to obviate the objections above noted by arranging beneath the mill discharge a horizontal radially-adjustable sectional slide which accomplishes the twofold object or purpose of holding the grain between the grinders until brought to proper fineness, and also by its adjustment to regulate the mill product, causing the same to be ground either coarse or fine, and this without adjustment of the grinders proper.

In the accompanying drawings, Figure 1 is a vertical sectional view of a mill provided with my improvement. Fig. 2 is a sectional plan view on line *xx* of Fig. 1.

The mill proper consists of the inner-dome grinder A and the outer rotatable grinder B, the same being of any preferred form and construction and provided with any desired means for relative adjustment. The mill is supported in position over receptacle C by the angle-irons D, which depend from the interior of grinder A and are secured to the side walls of the receptacle, as shown. It

will be noticed that the outer grinder depends slightly beneath the inner or fixed grinder, and arranged directly beneath the grinder B is ring E. This ring is supported by means of downwardly-turned vertically-slotted lugs F, which serve to secure the ring to the inner side of the receptacle and at the same time afford the same vertical adjustment through the medium of the slots H and screws I. Upon the upper surface of ring E are the segmental slide-sections G, which are provided with transverse parallel slots, as indicated at *a*, and through these slots screws *b* extend from ring E. These slide-sections are adapted to be adjusted in and out beneath the outer grinder and directly in line with the discharge of the gripper-space between the grinders. The slides serve to bank up or clog the grain between the grinding-burs and to hold the same from discharging too freely. In this manner the grain is held from prematurely falling from the grinder before being properly crushed. By adjusting the slides still farther inward the ground and crushed grain is caused to crowd more in order to discharge from the adjustable slides, and thus greater fineness of the ground product is secured. This adjustment whereby the fineness of the product is regulated is accomplished without changing the relative positions of the grinders. The vertical adjustment provided for stationary ring E is found useful in quickly adapting the mills for grinding corn and other large grains after having been used for crushing wheat and rye, and vice versa.

The improvement for mills herein described is simple and inexpensive and may be readily adjusted to mills already in use.

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

1. The combination with vertical-cone grinding-surfaces, of a vertically and horizontally adjustable retainer supported below and adjacent the exit-space of the grinding-surfaces, for the purpose described.

2. The combination with vertical-cone grinding-surfaces, of a vertically-adjustable support situated below the exit-space of the grinding-surfaces, and a horizontally-adjustable retaining section or plate, situated be-

tween the supports and the exit-periphery of the surfaces and adjustable across said exit, for the purpose described.

3. The combination with vertical-cone
5 grinding-surfaces, of a vertically-adjustable ring situated below and adjacent the exit-space between the surfaces, and radial horizontally-adjustable sections carried by the said ring and situated between the ring and
10 the said grinding-surfaces, whereby the sections are adapted to move across the exit-space between the surfaces, for the purpose described.

4. A grinding-mill in which the fineness of
15 the ground product is regulated by obstructing the lower or discharge end of the space between the grinders and thus clogging the

ground product in said space, consisting of two grinding-surfaces terminating at their lower ends in different horizontal planes, and 20 retarding members adjustable horizontally beneath the grinders and in close proximity to the lowermost grinder, thus obstructing the discharge of the ground product by deflecting it in lateral course beneath the shorter 25 grinding-surface, substantially as shown and described.

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

DAVID W. BOVEE.

Witnesses:

JAMES P. SHERMAN,
WIRT P. HOXIE.