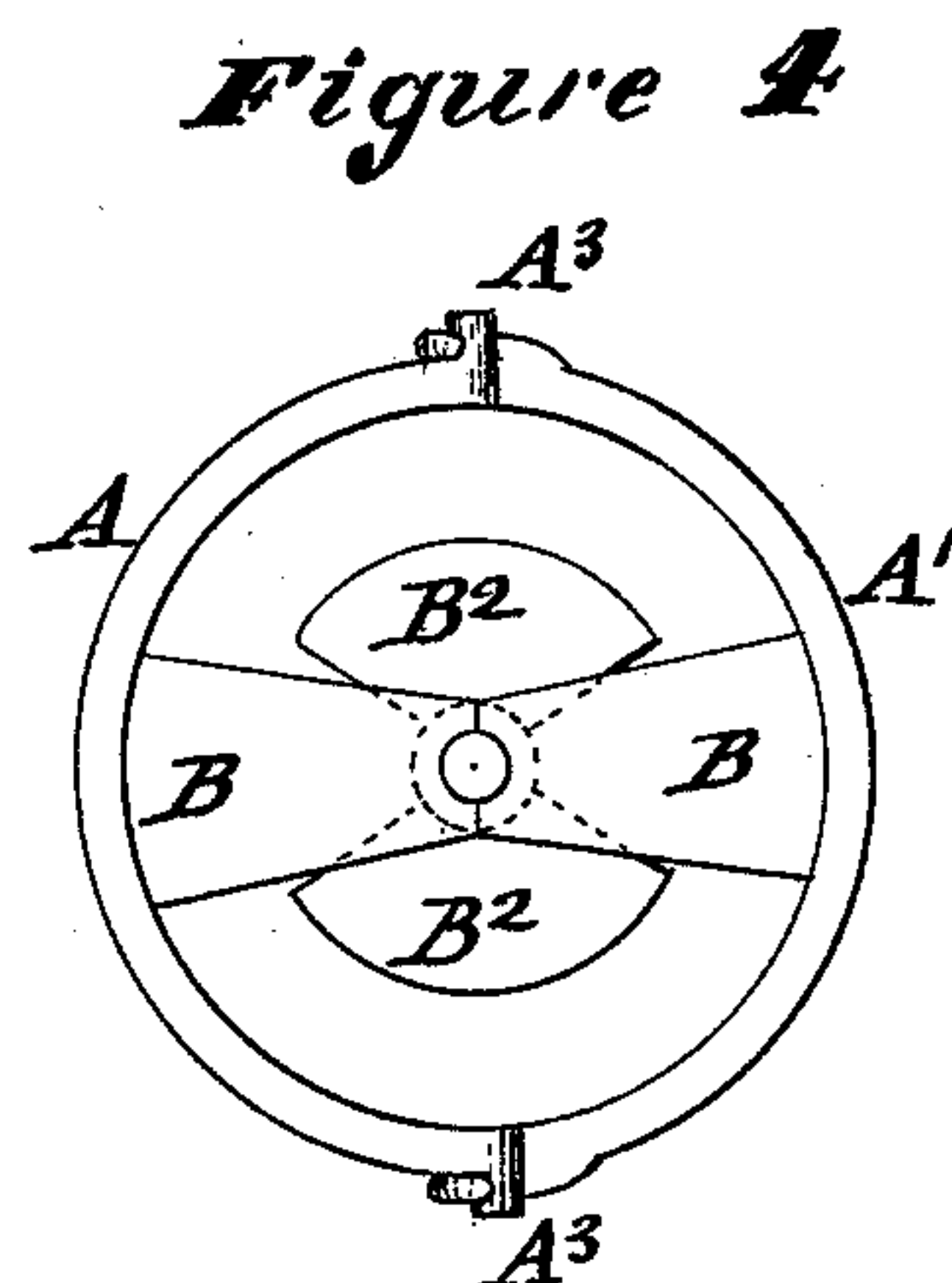
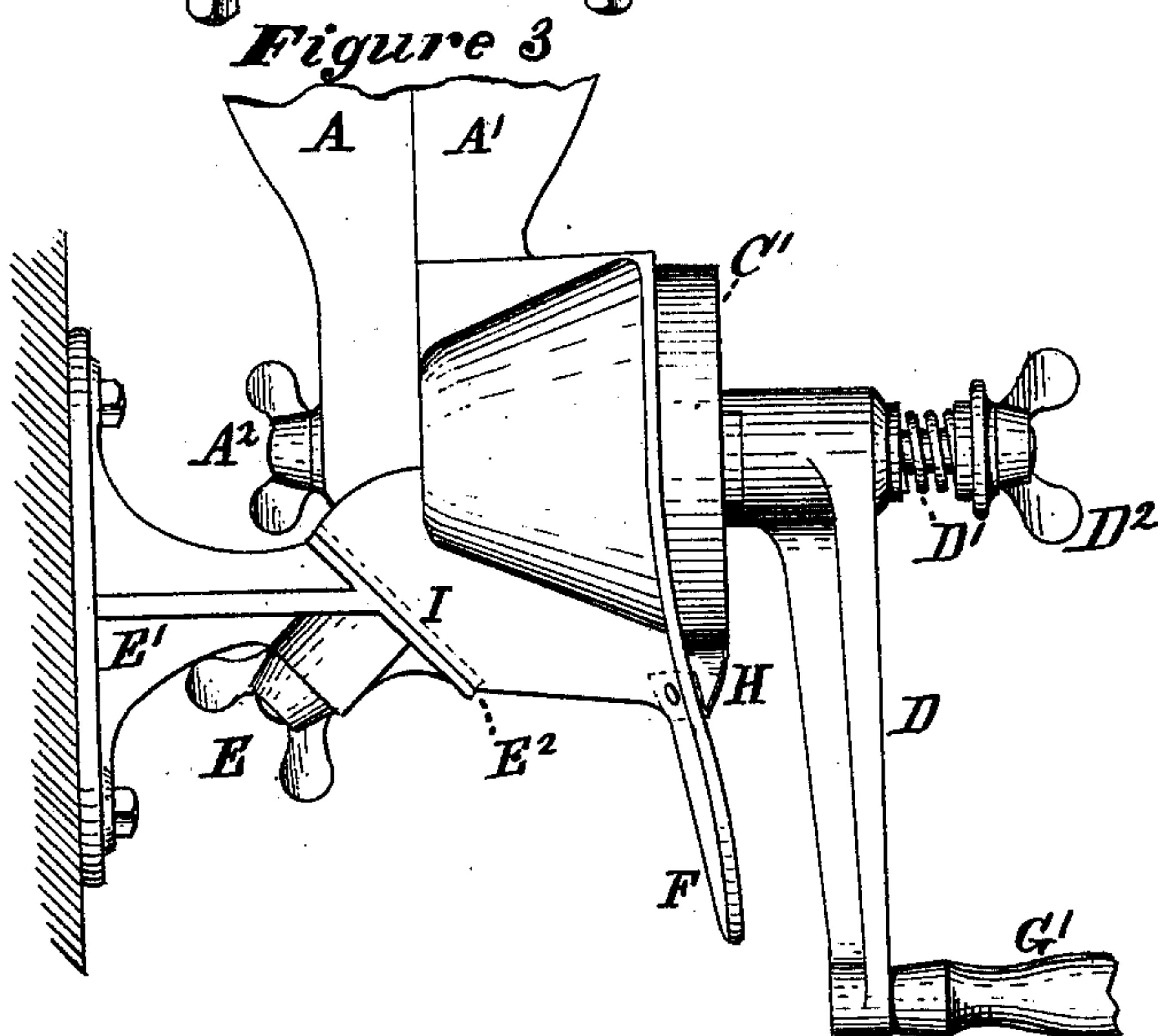
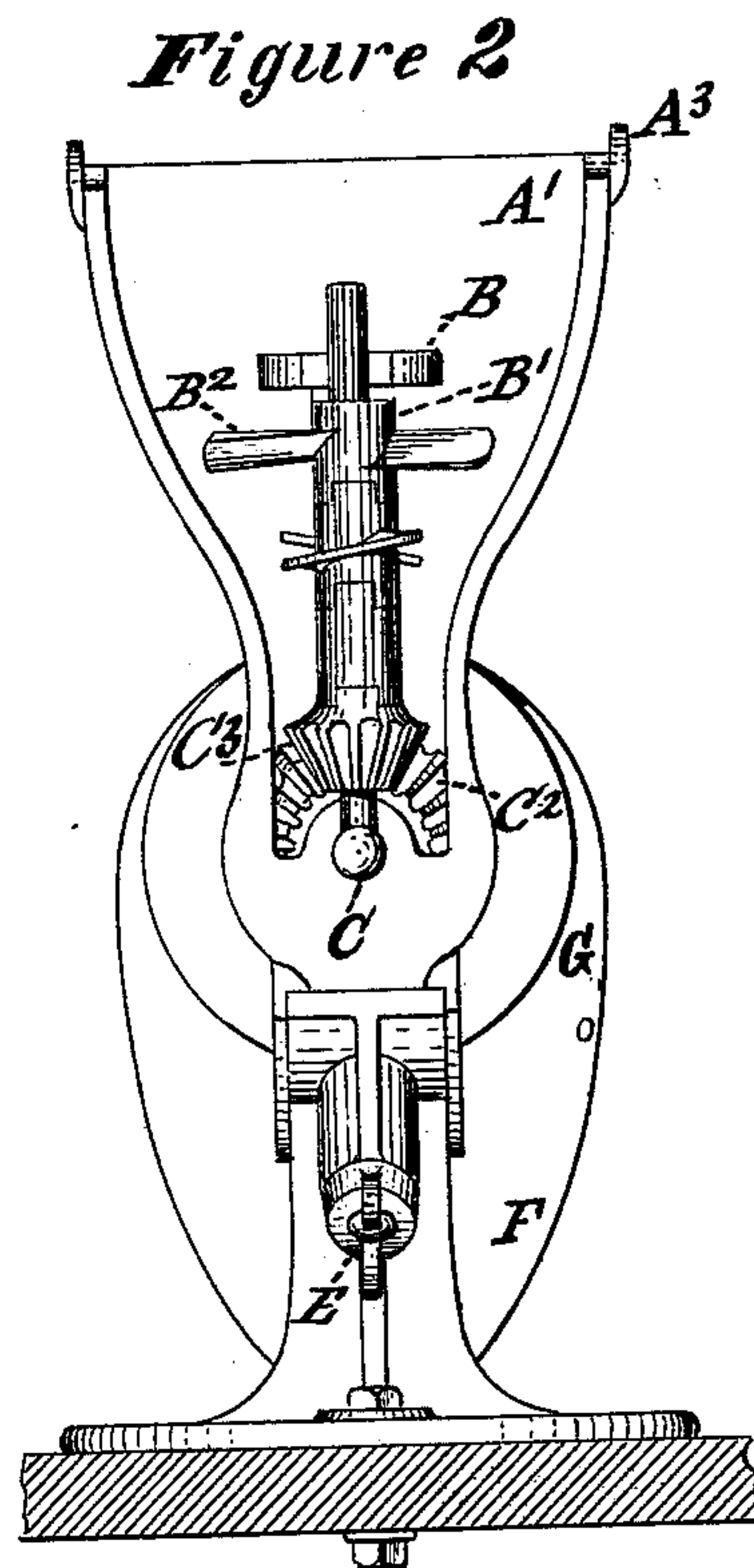
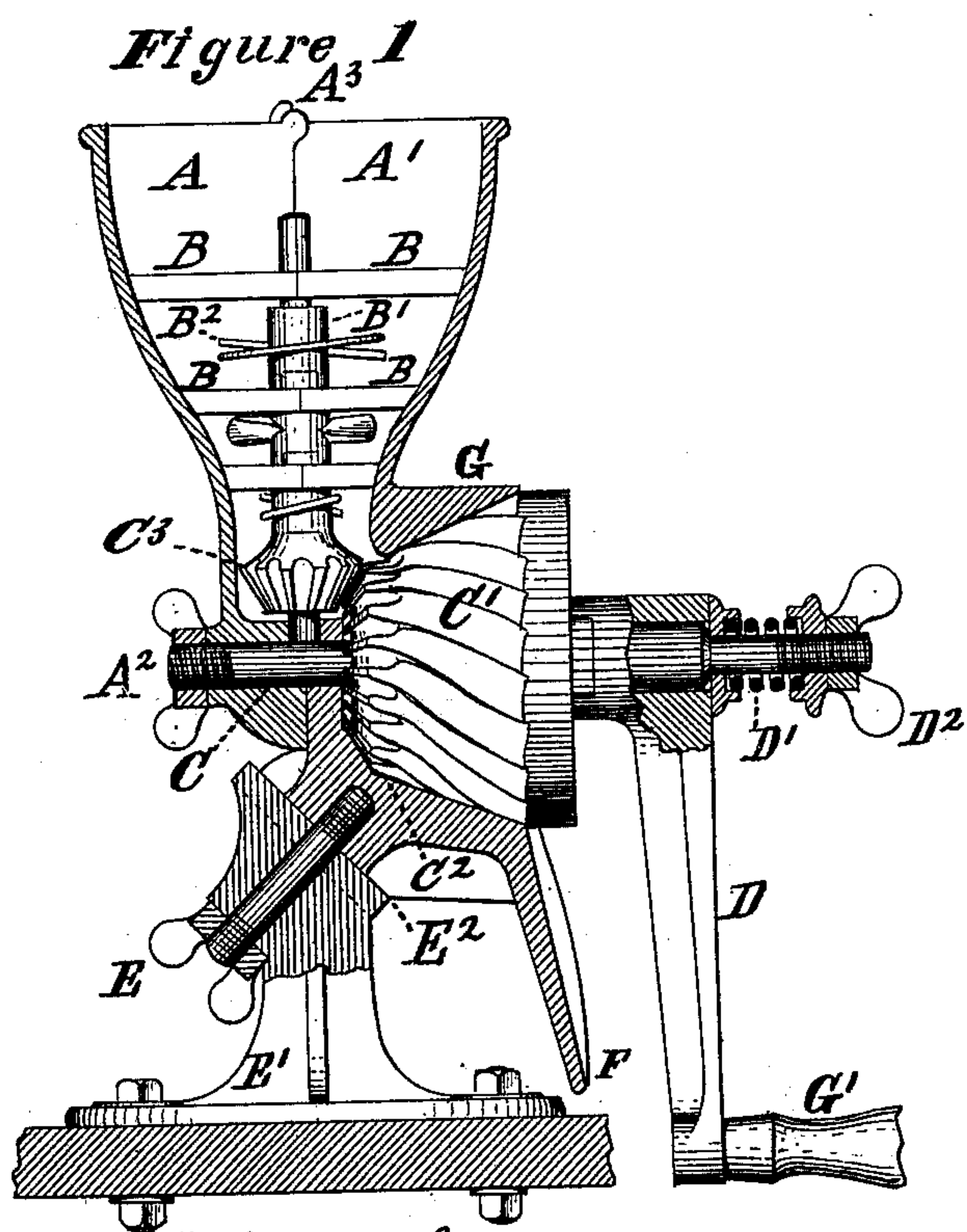


F. A. GARDNER.  
 Mill for Grinding Tortilla, Green Corn, &c.  
 No. 220,525.                      Patented Oct. 14, 1879.



Witnesses.

A. G. Thum  
 R. W. Russell

Inventor  
 Frederick A. Gardner.

By James Sangster  
 Att'y



# UNITED STATES PATENT OFFICE.

FREDERICK A. GARDNER, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF AND ROBERT DUNBAR & SON, OF SAME PLACE.

## IMPROVEMENT IN MILLS FOR GRINDING TORTILLA, GREEN CORN, &c.

Specification forming part of Letters Patent No. **220,525**, dated October 14, 1879; application filed August 20, 1879.

*To all whom it may concern:*

Be it known that I, FREDERICK A. GARDNER, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Mills for Grinding Tortilla, Green Corn, or other similar material, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a vertical section through a portion of the mill, showing the grinding-cone, the means for adjusting it, and the feeding mechanism; also, the base attached to a table, bench, or other horizontal support. Fig. 2 represents a back view with the removable portion of the hopper taken off; Fig. 3, a side elevation of the lower portion of the mill, showing the base attached to a vertical support or wall; and Fig. 4 represents a plan or top view of upper part of the mill.

The object of this invention is to produce a mill that is simple and durable, and that may be conveniently attached either to a vertical or horizontal support, and be easily put together or taken apart, so that all the parts can be readily reached and washed, as will be more clearly understood by reference to the drawings, in which—

A A<sup>1</sup> represent the mill-hopper. The part A is kept in place by the thumb-nut A<sup>2</sup> and hooks and pins A<sup>3</sup>. Each part of the hopper is provided with projecting pieces B, to embrace the shaft B<sup>1</sup> of the feeding device B<sup>2</sup>, so as to hold it and allow it to turn when both parts are in place, as shown in Figs. 1 and 4. The removal of the part A releases the feeding mechanism B<sup>1</sup> B<sup>2</sup> and grinding-cone shaft C. The cone C<sup>1</sup> and shaft B<sup>1</sup> are geared together at C<sup>2</sup> C<sup>3</sup>, so that the gearing is inside of the mill, as shown. The grinding-cone C<sup>1</sup> is arranged to turn easily on the shaft C, and

is connected with the handle D, so as to turn with it, and be easily detached when necessary. It is kept in place by a spring, D<sup>1</sup>, and thumb-nut and screw D<sup>2</sup>, the arrangement being such that the cone will yield as the material is forced through it by the spirally-arranged wings or blades B<sup>2</sup> of the feeding device and the operation of grinding.

E represents a thumb-nut and screw for connecting the mill to the base E<sup>1</sup>. That portion of the base to which the mill is attached is formed at an angle, E<sup>2</sup>, and the lower part or foot, I, of the mill is made to correspond, so that it may be connected to a horizontal support, as in Fig. 1, or to a vertical support, as in Fig. 3, so that the mill can be used in either position, as shown.

The material to be ground being soft, the gearing C<sup>2</sup> C<sup>3</sup> is not obstructed by it, but assists in the grinding. F is a mouth or lip over which the material passes as it leaves the mill, and H represents a spring-scraper. G is the case or concave for the grinding-cone.

I claim as my invention—

1. The concave G and grinding-cone C<sup>1</sup>, having a suitable handle for operating it, and provided with the gearing C<sup>2</sup> at the smaller end, as shown, in combination with the shaft B<sup>1</sup>, arranged within the hopper and provided with the gearing C<sup>3</sup> and two or more spirally-arranged wings, B<sup>2</sup>, for the purposes described.

2. The hopper consisting of the removable parts A and A<sup>1</sup>, each provided with the holding-pieces B, adapted to form bearings for the shaft B<sup>1</sup>, in combination with the shaft C and thumb-nut and screw A<sup>2</sup>, for holding the several parts together, substantially as specified.

FREDERICK A. GARDNER.

Witnesses:

JAMES SANGSTER,  
ROBERT DUNBAR.