

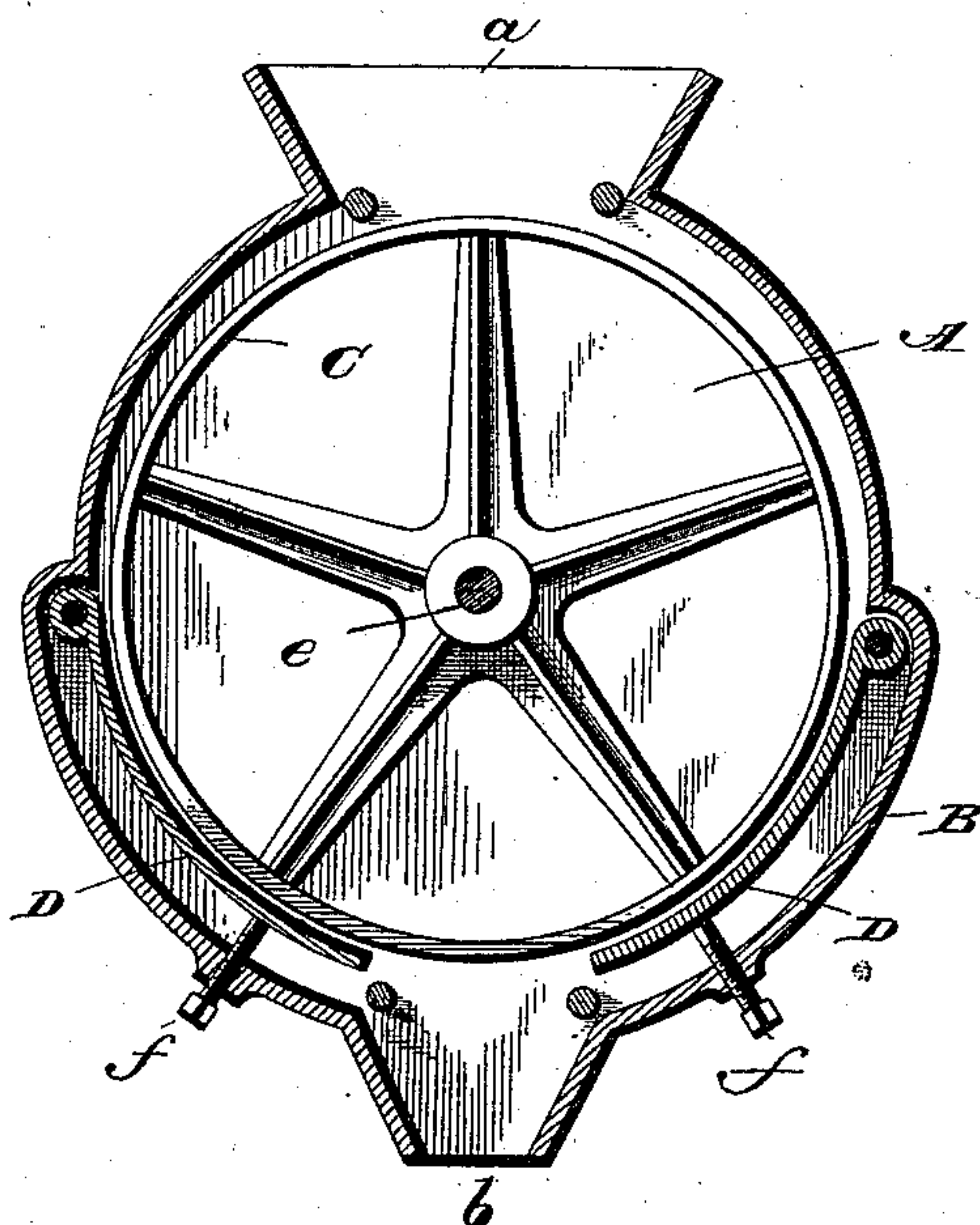
(No Model.)

L. M. NETTLETON.  
GRINDING MILL.

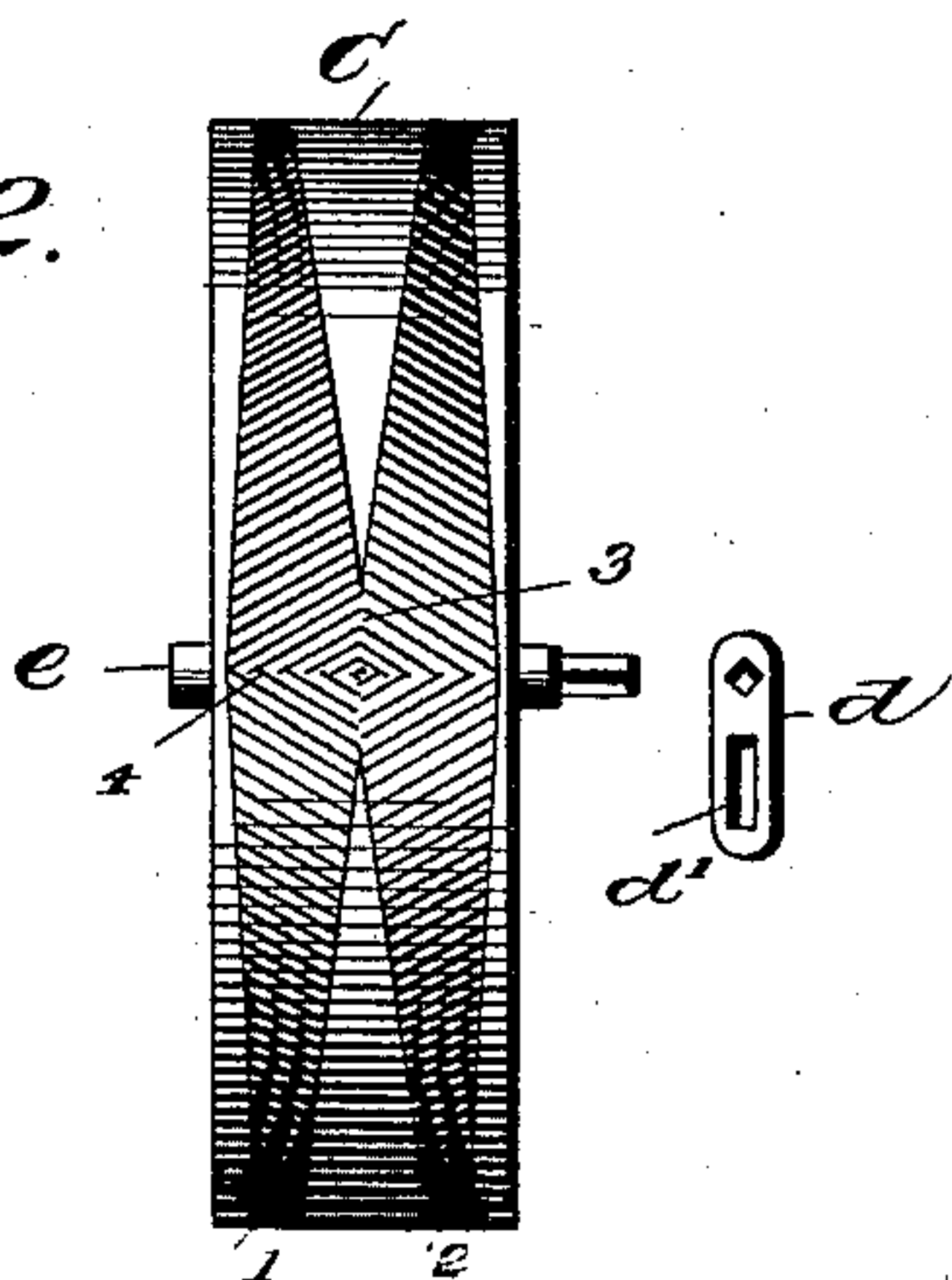
No. 418,623.

Patented Dec. 31, 1889.

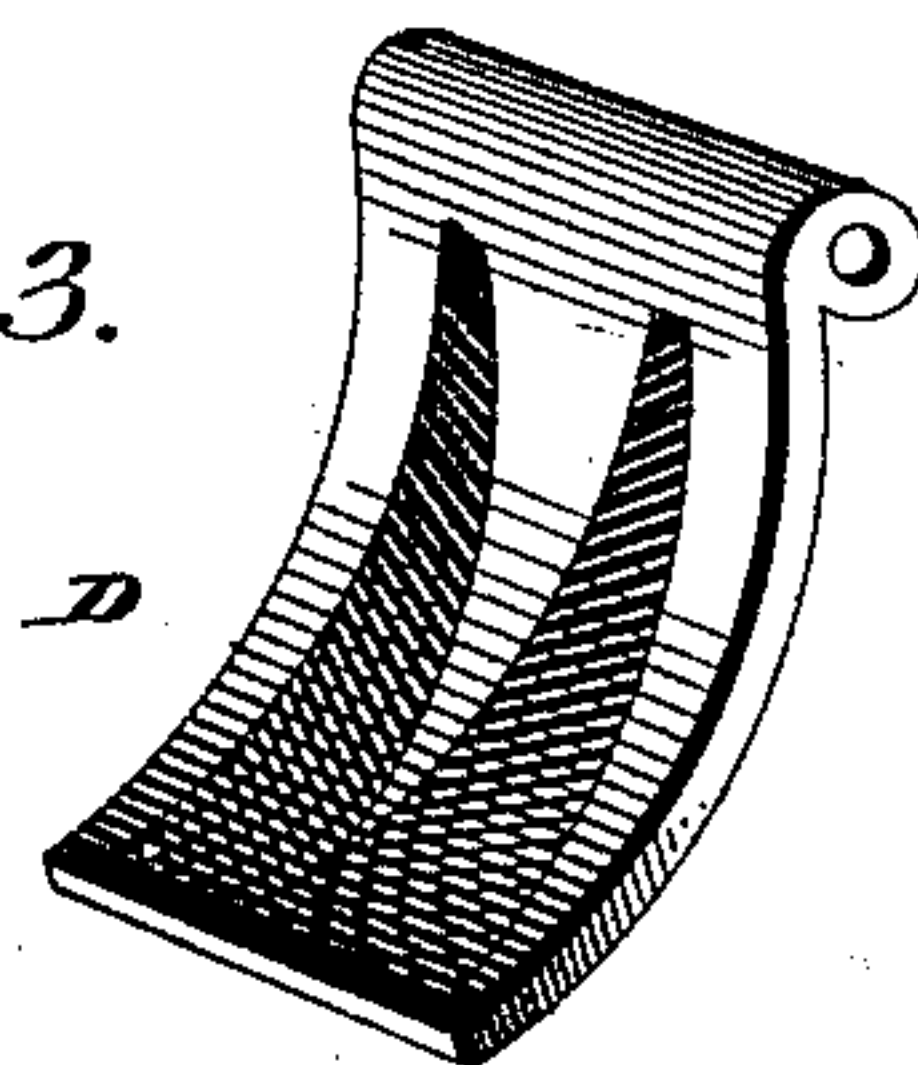
*Fig. 1.*



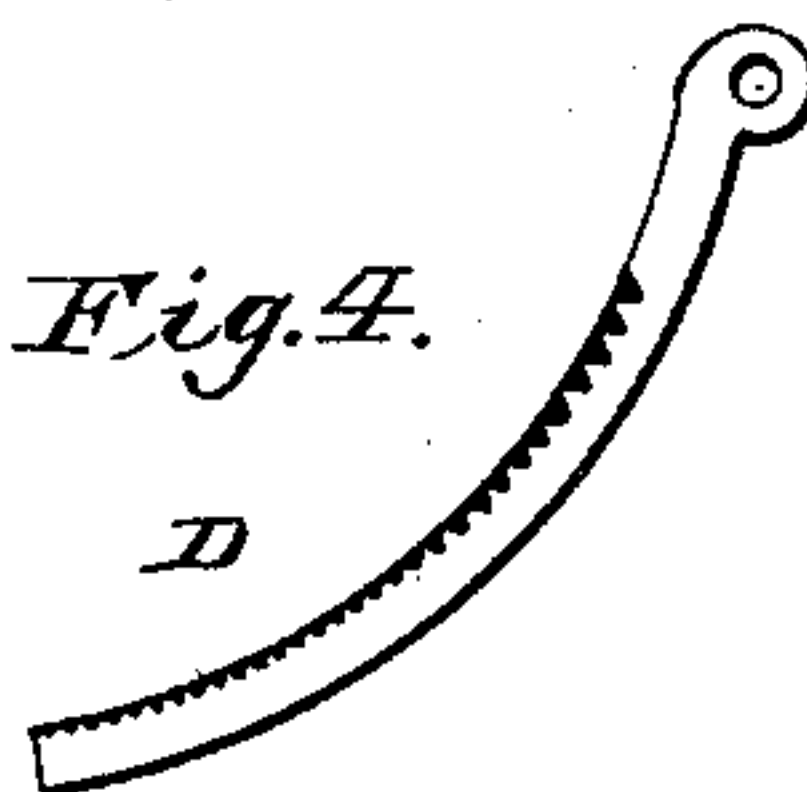
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses

*L. S. Elliott,*  
*M. Johnson*

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Inventor

By his Attorneys

*[Signature]*



# UNITED STATES PATENT OFFICE.

LUTHER M. NETTLETON, OF BURLINGTON, COLORADO.

## GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 418,623, dated December 31, 1889.

Application filed October 10, 1889. Serial No. 326,542. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER M. NETTLETON, a citizen of the United States of America, residing at Burlington, in the county of Kit Carson and State of Colorado, 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention has reference to grinding-mills; and it consists in the improved construction, hereinafter described and set forth, whereby an efficient arrangement is provided that will readily grind grain for feed, and is specially adapted to be operated from a windmill.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view of a grinding-mill embodying my improvements, the side plate being removed. Fig. 2 is an end view showing the peripheral dress of the cylinder. Fig. 3 is a detail view of one of the plates, showing its relative reduction-surface. Fig. 4 is a sectional detail view taken longitudinally through one of the reduction-plates and in the plane of one of the series of channels therein.

The main or containing case consists of side plates A, of the general form shown by the outline in Fig. 2, and end plates B, bent or curved to coincide with the outline of the side plates. At the top the case has the hopper *a* and at the bottom the discharge *b*. A shaft *e* transversely pierces the casing, so that it bears in the sides thereof, and mounted upon the shaft, so as to revolve therewith, is a drum or reduction-cylinder C. By reference to Fig. 2 it will be noted that the periphery of this cylinder is furnished with a peculiar dress, consisting of a series of diagonally-arranged grooves or channels 1 2 in two series, which intersect each other at a point represented by a central line 3 on the periphery of the cylinder. Each series of grooves or channels 1 2 extends in both direc-

tions. Commencing at a point represented by a line 4, the grooves or channels continue, but become gradually of reduced length, until they finally converge to a point. The grooves or channels 1 2 aforesaid are formed in the surface of the periphery, so that they are below the level of the marginal portions thereof, and the grooves grow shallower as they increase in length. In each of the lower offset recesses of the casing is located a reduction-plate D, which is curved concentric with the curvature of the cylinder and has its inner face provided with a dress similar to that of the cylinder. The direction in which the dress extends is in a direction opposite to that of the portion of the cylinder-dress adjacent. The end of the shaft *e* is provided with an arm *d*, having a slot *d'*, enabling an adjustable connection by means of a wrist-pin of a pitman extending from a windmill. The plates D are each seated upon an adjusting-bolt *f*, extending through the end plate of the casing and enabling its relative adjustment with reference to the cylinder.

In operation the grain is drawn in by the cylinder, the coarse dress of which serves to bite and crack the coarser particles thereof. The increasing length and decreasing depth of the grooves 1 2 serve to cause the grain to spread itself as it travels around within the machine, and also secure the reduction of the finer particles. As will be well understood, the cylinder does not revolve, but oscillates, so that the series of channels 1 2 in each direction are alternately brought into play.

It will be obvious that the machine is simple and effective in operation and readily accessible for cleaning and repair.

A suitable arrangement of valves or cut-offs may be used.

I claim—

1. The combination, with the casing and shaft mounted thereon, of a reduction-cylinder mounted on said shaft and provided peripherally with a series of diagonal channels 1 2, decreasing in width from one side of the cylinder to the other, substantially as set forth.

2. The combination, with the casing and shaft mounted therein, of a reduction-cylinder

der mounted on said shaft and provided peripherally with a series of diagonal channels 1 2, of decreasing width and increasing depth, substantially as set forth.

- 5 3. The combination, with the inclosing-case and shaft mounted therein, of a cylinder provided with a peripheral dress comprising diagonal channels extending in opposite directions and of decreasing width and increasing

depth in both directions, and reduction-plates 10 D D, located in opposite sides of said casing, substantially as set forth.

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

LUTHER M. NETTLETON.

Witnesses.

H. E. METTEY,

W. S. TORBERT.