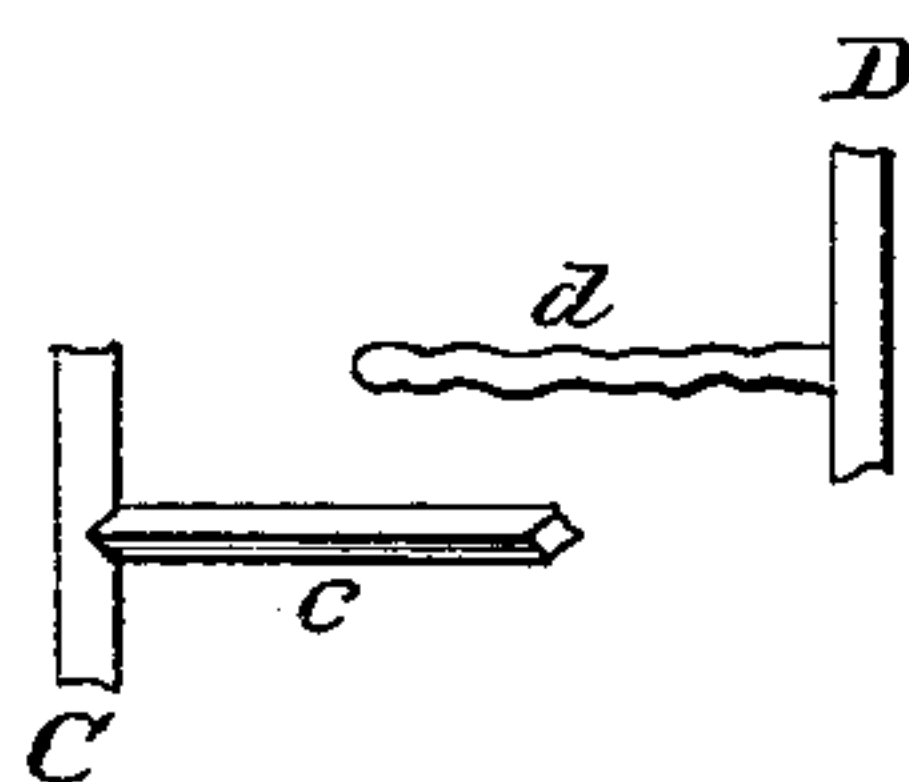
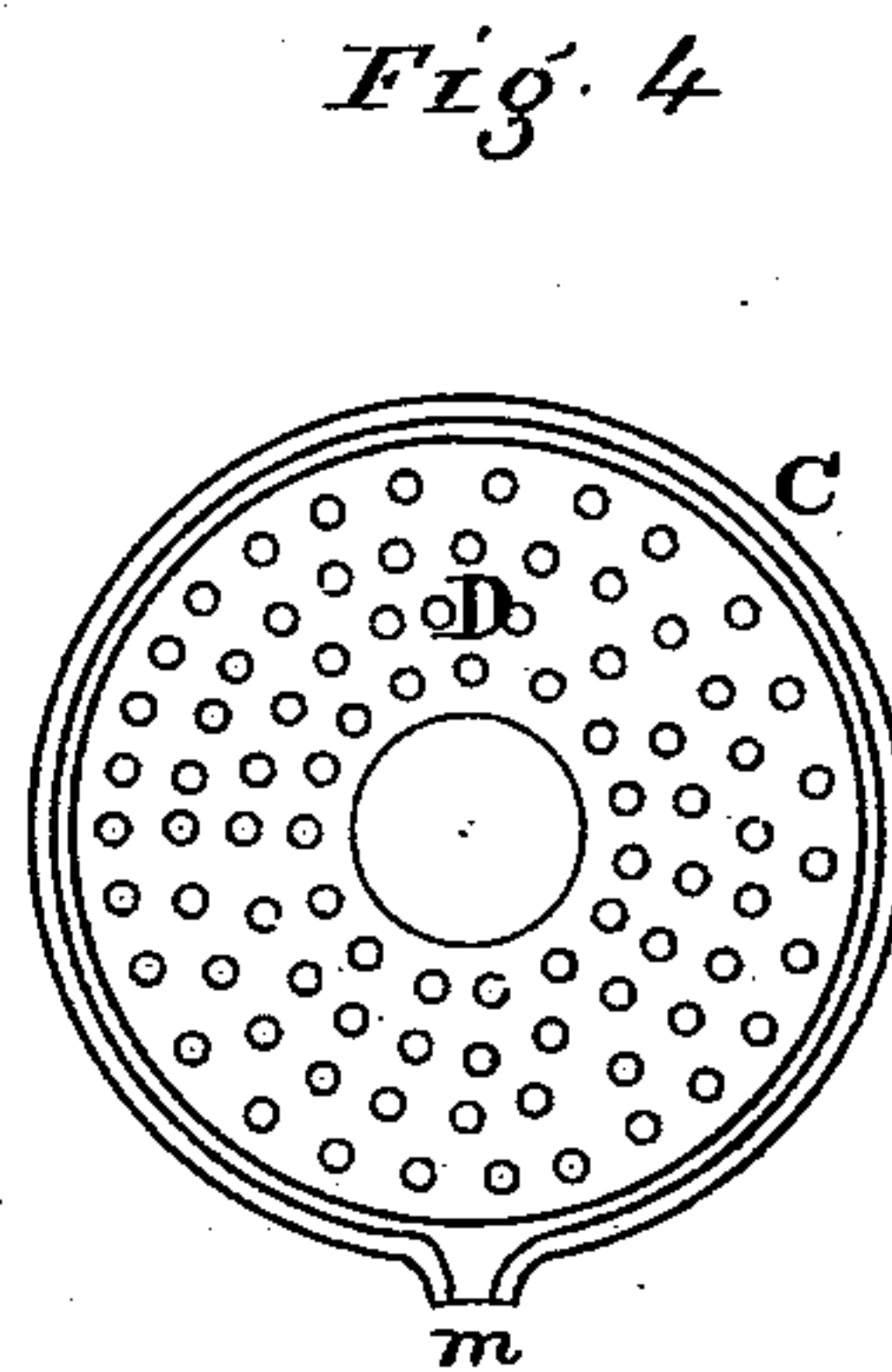
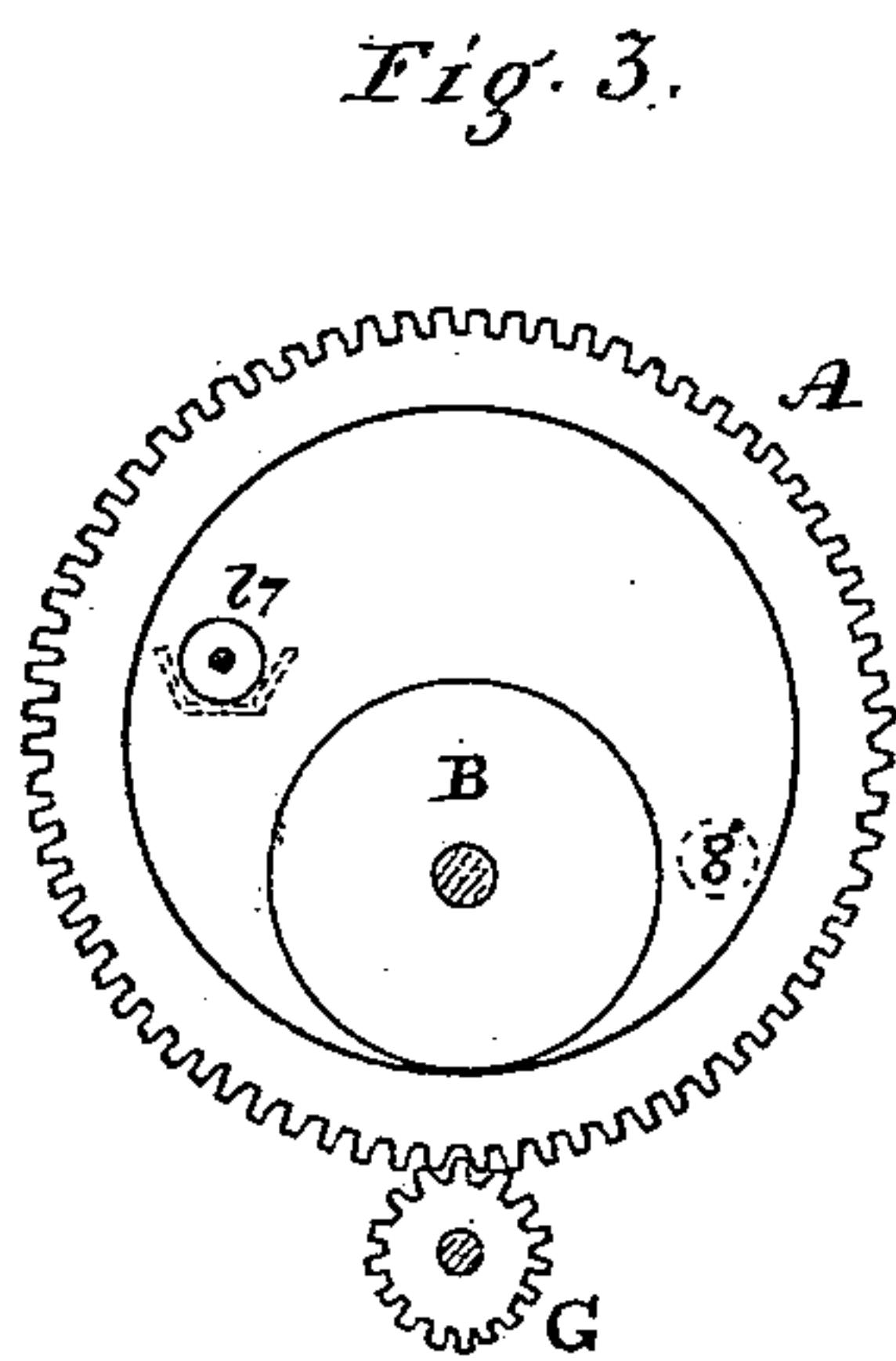
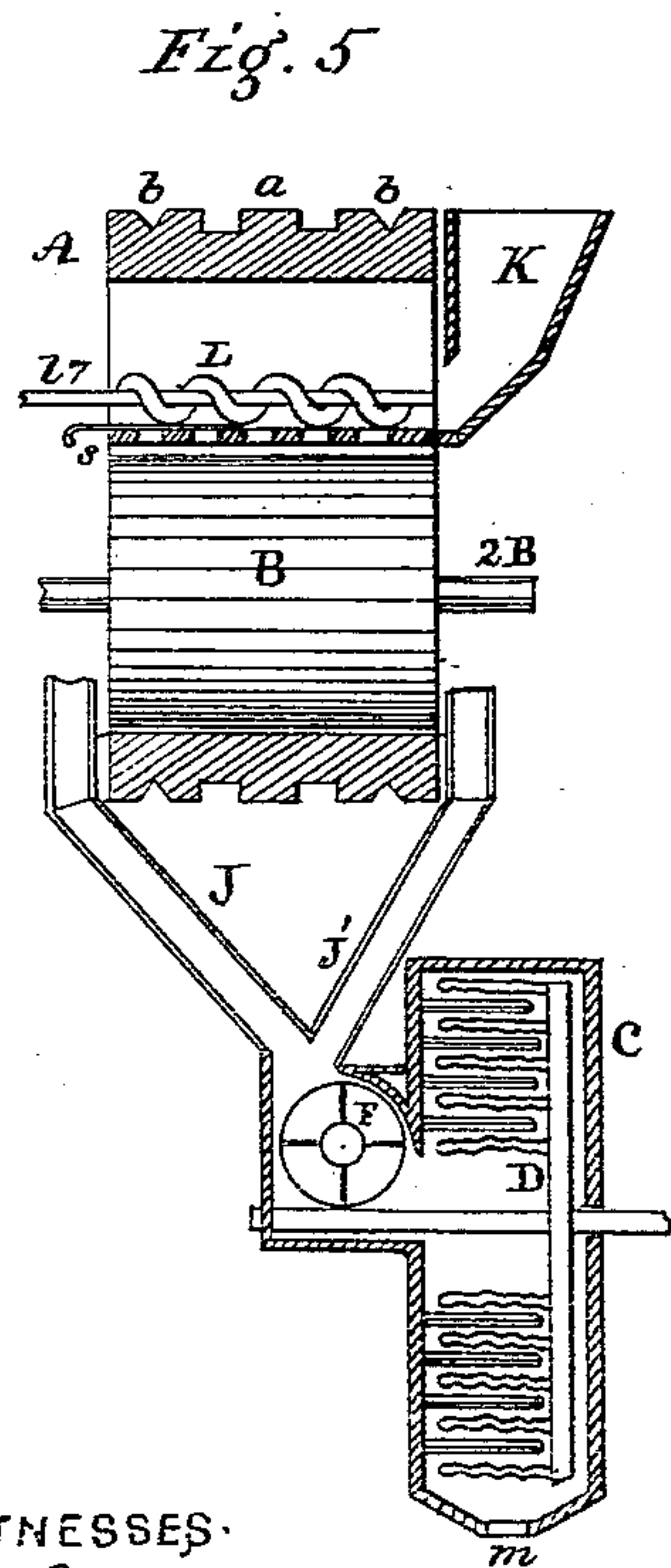
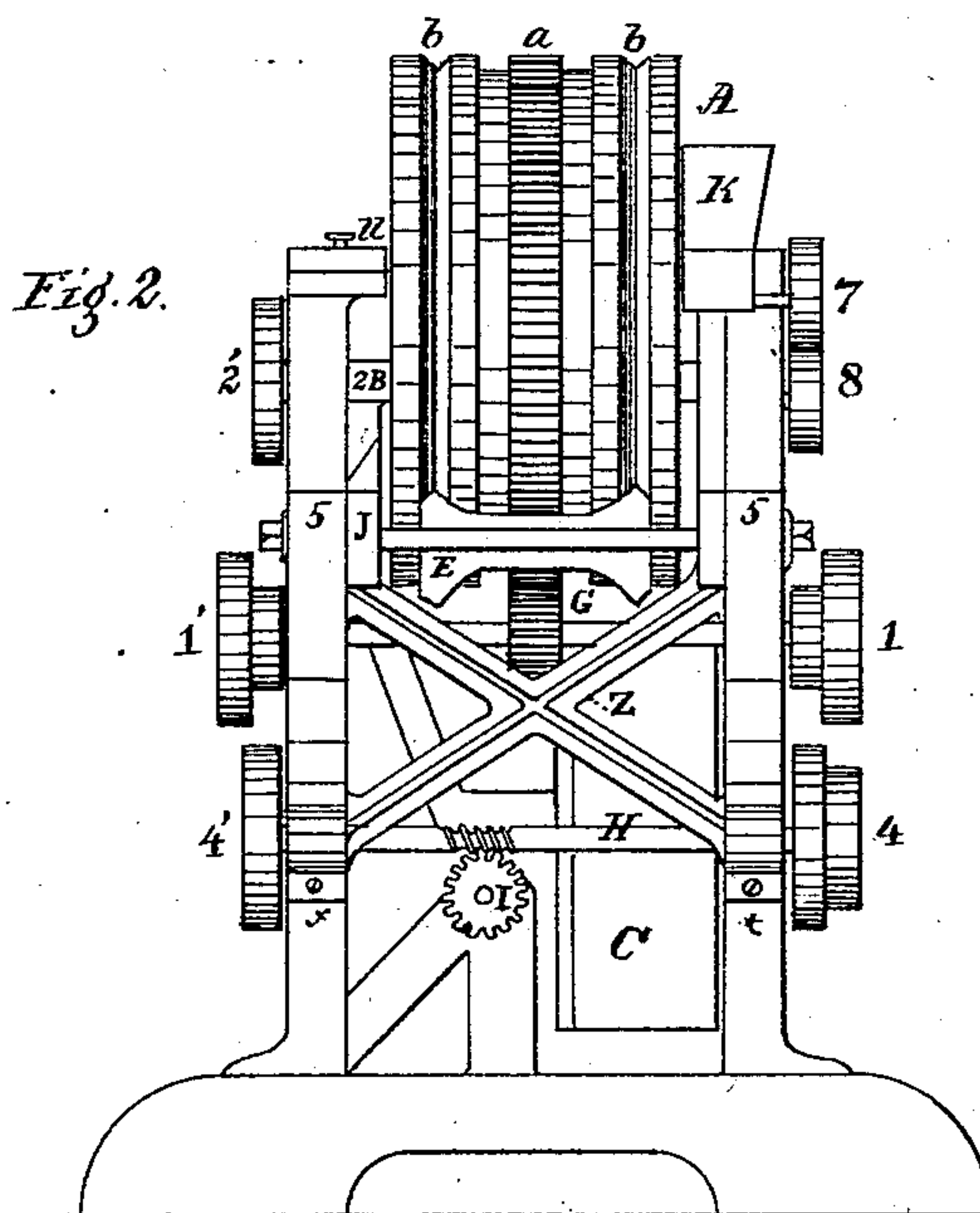
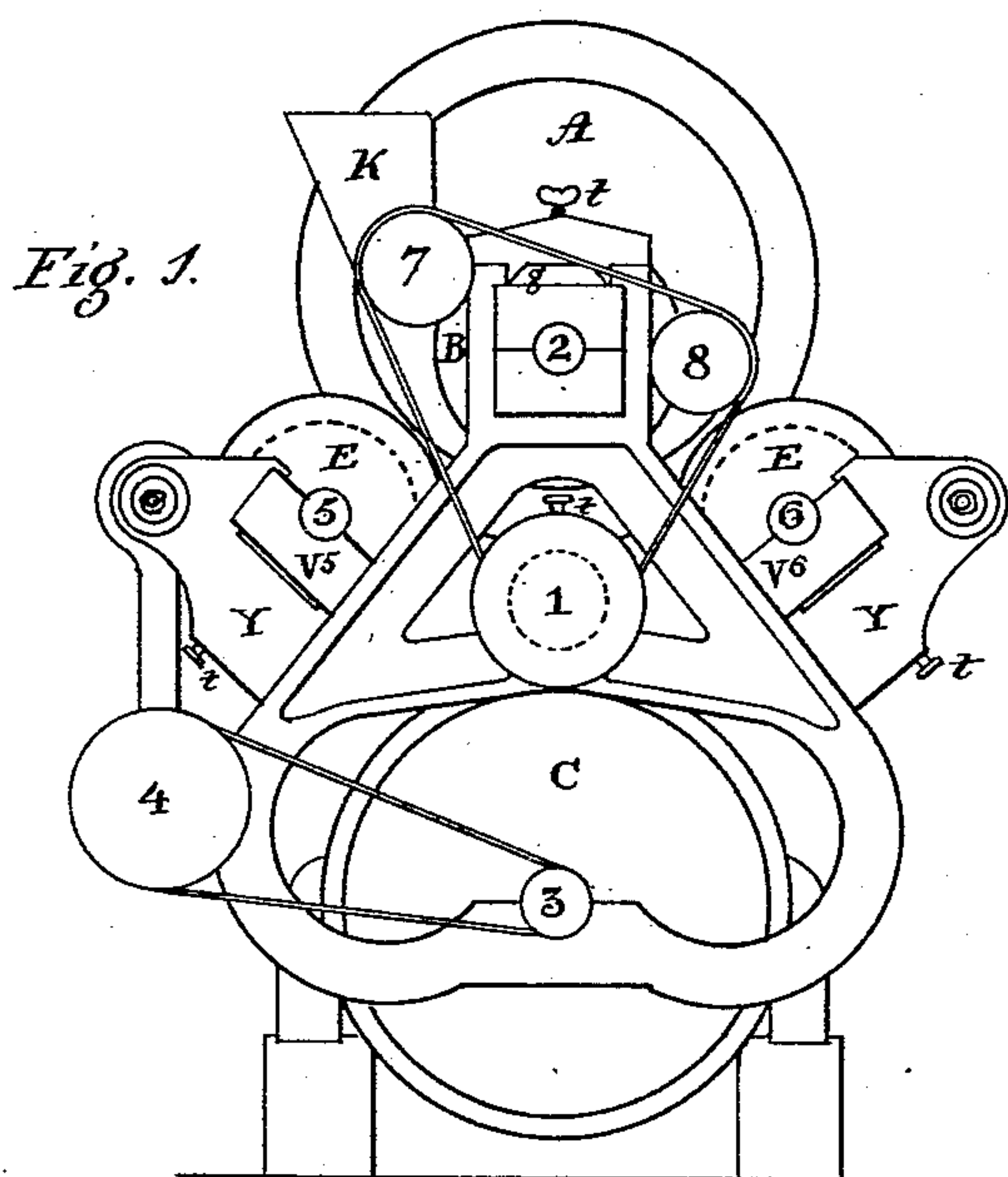


C. S. WENGER.  
 Mill for Crushing and Grinding Grain, &c.  
 No. 232,863.                      Patented Oct. 5, 1880.



WITNESSES:  
*W. B. Wiley*  
*Jacob Stauffer*

INVENTOR:  
*Clayton S. Wenger*



# UNITED STATES PATENT OFFICE.

CLAYTON S. WENGER, OF WEST EARL P. O., PENNSYLVANIA.

## MILL FOR CRUSHING AND GRINDING GRAIN, &c.

SPECIFICATION forming part of Letters Patent No. 232,863, dated October 5, 1880.

Application filed January 20, 1880.

*To all whom it may concern:*

Be it known that I, CLAYTON S. WENGER, of West Earl P. O., in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement in a Combined Cylinder and Roller Mill and Disintegrator (I do not claim any novelty in the disintegrator, which is not a necessary attachment) for the partial or entire reduction of wheat middlings, &c., in the process of flour-milling, of which the following is a clear and exact description; and to enable others skilled in the art to construct and use the same, I proceed to explain the same by referring to letters and figures on the accompanying drawings, which form part of my specification.

Figure 1 is a side or front elevation, showing the frame-work, boxes, pulleys, &c. Fig. 2 is one of the end elevations, showing the cylinder and gear and supports. Fig. 3 shows the position of the crushing-roller within the cylinder and driving-pinion and the flanged anti-friction supports of the cylinder. Fig. 4 shows part of the disintegrator case and disk. Fig. 5 is a central section of the cylinder and disintegrator, with the spouts and feed appliances, Fig. 6 shows the form of teeth or beaters of the disintegrator.

In the accompanying drawings, A, Fig. 1, is a hollow cylinder or jacket, made of suitable material, open at both ends, and mounted on anti-friction rolls or supports E E, having journals 5 and 6 resting and turning in boxes  $v^5$  and  $v^6$  in the frame at  $y y$ , said boxes being made adjustable for the leveling of the side bearing-rolls by screws  $t t$ , (it is at the journals of turning in these boxes that the momentum of friction caused by the revolving of the cylinder A is overcome,) the inner periphery of the cylinder A to be finished smooth or corrugated, to suit the reduction of the several materials to be acted upon. Into the bore or hollow of the cylinder is placed a roll, B, (two might be used,) finished around its circumference to correspond with the inner surface of the cylinder A, having journals 2 at both ends, resting and turning in adjustable boxes  $w$ , placed in the frame opposite each end of the cylinder A, the point of contact of the roll B with the cylinder A being at the bottom—i. e., where the inner surface of the cylinder passes

its lowest point—both cylinder and roll revolving uniform or otherwise when constructed with the proper gear to effect the same.

K represents the hopper, from which the necessary arrangement to effect an even and steady flow of material the entire length of the cylinder A and roll B is operated. At  $g$ , Fig. 3, is shown a small conveyer placed within cylinder A at the side where the material passes from under the roll B, constructed so as to convey the ground or crushed material out at both ends of the cylinder from its middle or center of its length.

J J', Fig. 5, are the side spouts, placed at each end of the machine, so as to receive the material discharged from within the cylinder by the conveyer  $g$ .

C, Fig. 1, shows the case of the disintegrator when attached.

The motive power is applied, by belt or otherwise, to pulley 1, Fig. 1, on shaft G, Fig. 2, upon which is placed a cogged pinion, 1, Fig. 3, engaging into a belt of cogs around the circumference of the cylinder at  $a$ , Fig. 2. There is also a small pulley on shaft G, inside of pulley 1, Fig. 1, from which a belt is attached to pulleys 7 and 8, thereby giving motion to the feed and discharge apparatus.

1', Fig. 2, is a double pulley, from which power is transmitted by belt to pulley 4' on shaft H, supported by rack or frame Z, from which, by pulley 4, Fig. 1, a belt is placed on pulley 3, driving the disintegrating-disk D, Fig. 5. The spiral on shaft H, Fig. 2, drives the toothed wheel 1, thereby operating the feed to disintegrator. Frame Z, Fig. 2, with its shaft, pulleys, &c., is made detachable from machine in case the disintegrator is not used. From pulley 1', Fig. 2, a belt is also applied to pulley 2, on one end of roll-journal J E, when differential speed of the cylinder and roll is desired. Otherwise the roll B will be caused to revolve by its contact with the inner face of the cylinder A.

The operation is as follows: The material is passed from the hopper K by the feed or distributing conveyer between the inner periphery of the revolving cylinder A and roll B, and after having passed from between them by their revolving—say to left, as in the drawings—it is discharged from the cylinder by the discharge-conveyer  $g$  into the side spouts, J J',



Fig. 5, leading to the feed arrangement F, by which the material to be still further reduced is fed into the disintegrator, from which it is discharged at *m*. Otherwise the material is discharged from the side spouts to the necessary conveyers, &c., to be conveyed to the necessary bolts and dressing-machines.

I am aware of an invention for crushing quartz combining a cylinder constructed of chilled-iron staves, &c., and revolving on side rolls with dies placed within for crushing the ore. Such a machine I could not use, nor would it be recognized as a flour-milling machine.

I am also aware of a machine invented for grinding corn, &c., constructed with two disks, one within the other, and caused to rotate in

different or opposite directions, the larger disk being closed at one end and attached to a shaft, the grinding-surfaces of which are rasped or dressed similar to those of a file. Such a machine could not be used for the purpose I specify.

What I claim, and for the use specified, is—

In combination with hollow rotary cylinder A and crushing-roll B, driven by friction therewith, the feed-screw L and discharging-conveyer *g*, said parts B, L, and *g*, being located within the said cylinder, substantially as and for the purpose set forth.

CLAYTON S. WENGER.

Witnesses:

ALLAN A. HERR,  
J. E. HERR.