No. 715,504. Patented Dec. 9, 1902.

J. H. PENDLETON.

GRINDING MILL.

(Application filed July 9, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

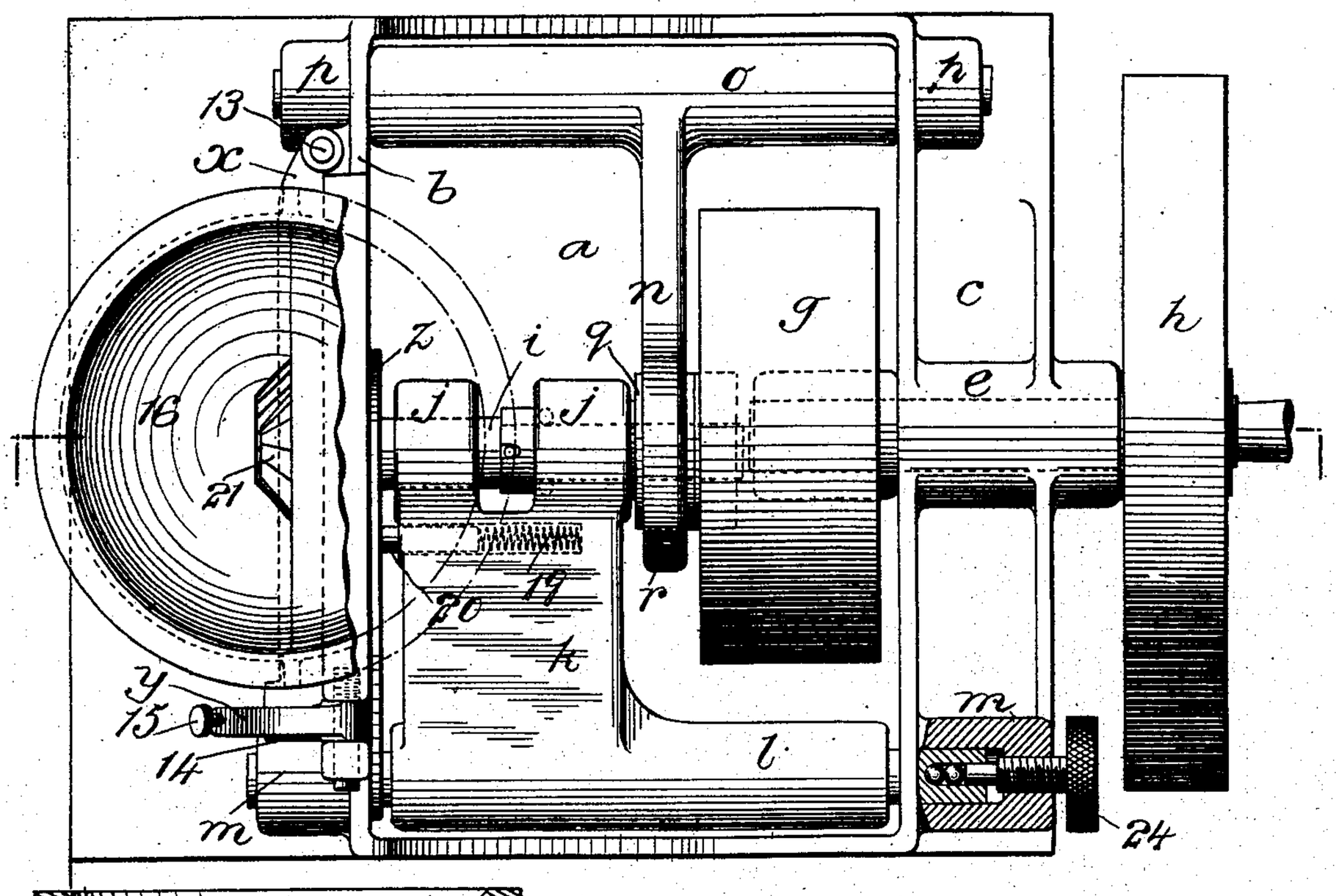
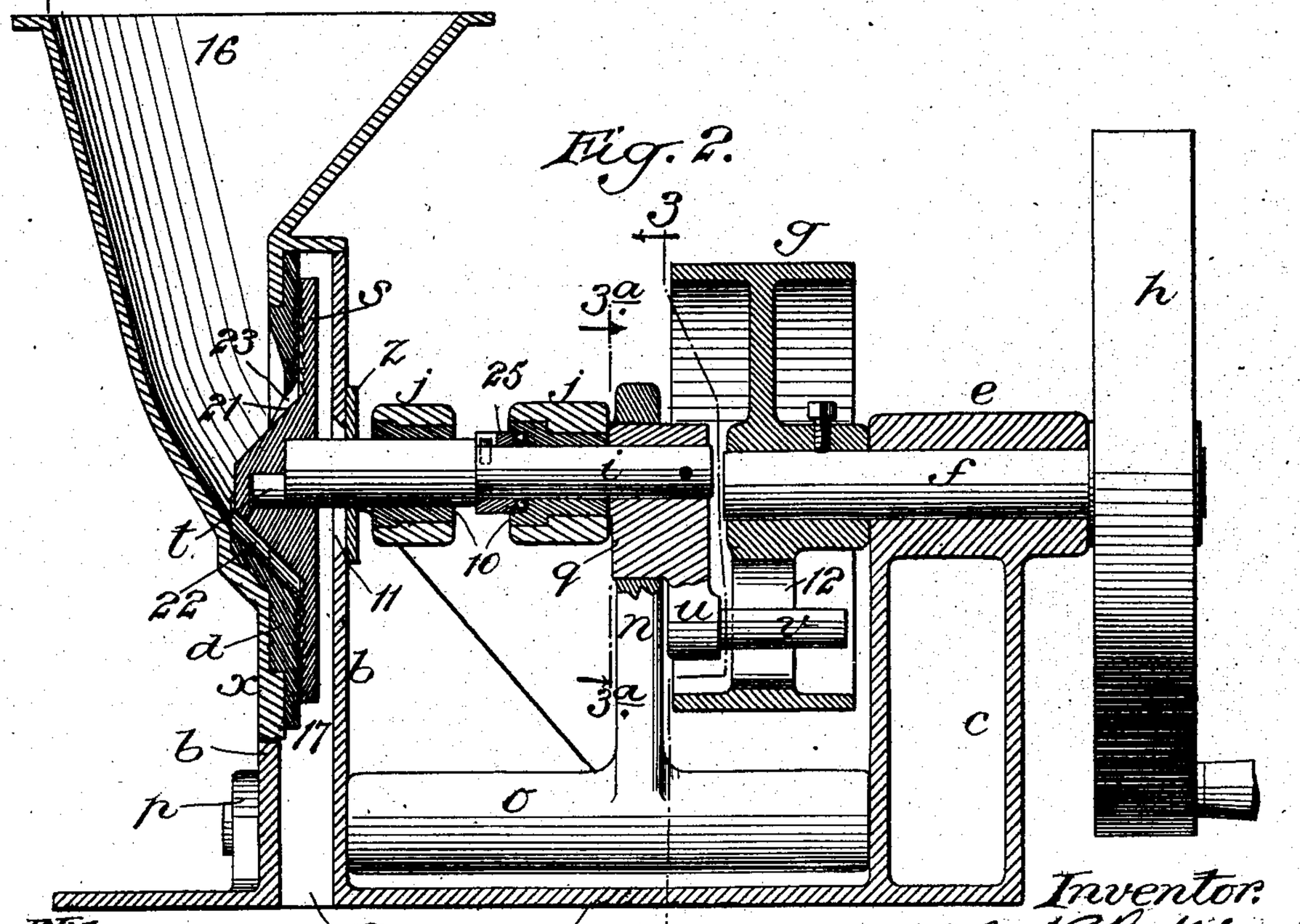


Fig. 2.



Witnesses:—
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Henry Thieme.

Inventor:
John H. Pendleton
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3 Sheets—Sheet 2.

Fig. 3.

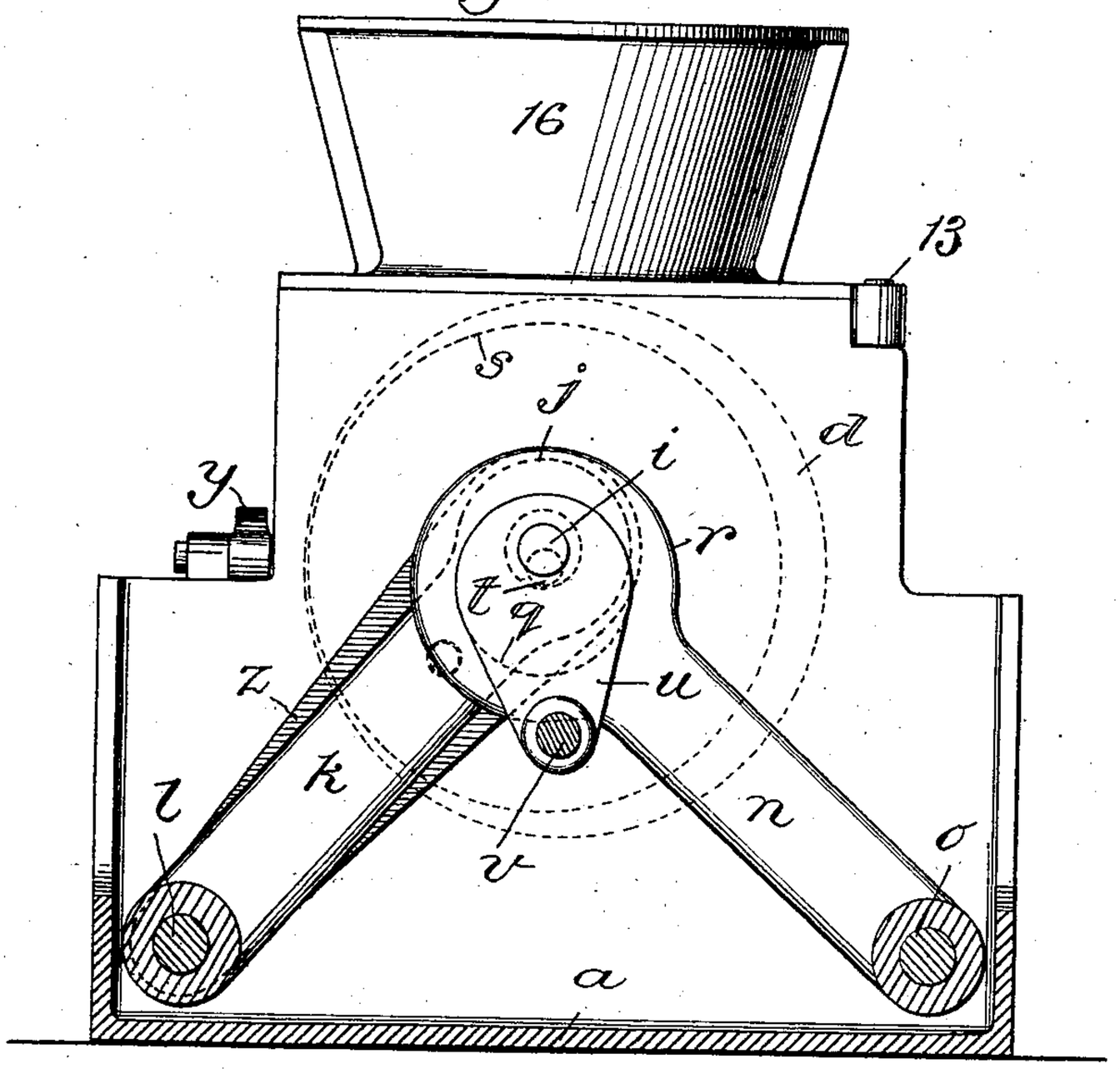


Fig. 3a.

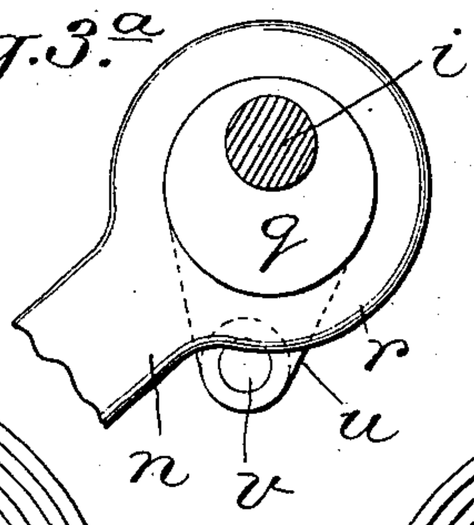


Fig. 4.

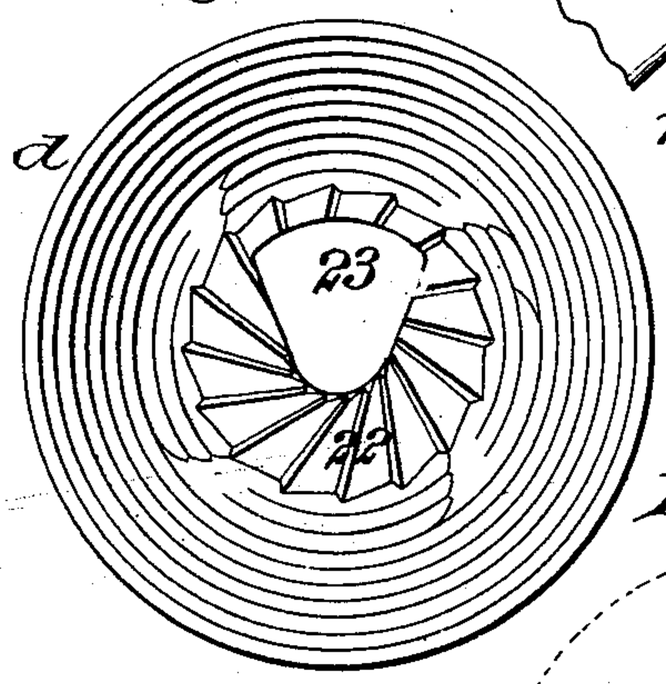


Fig. 5.

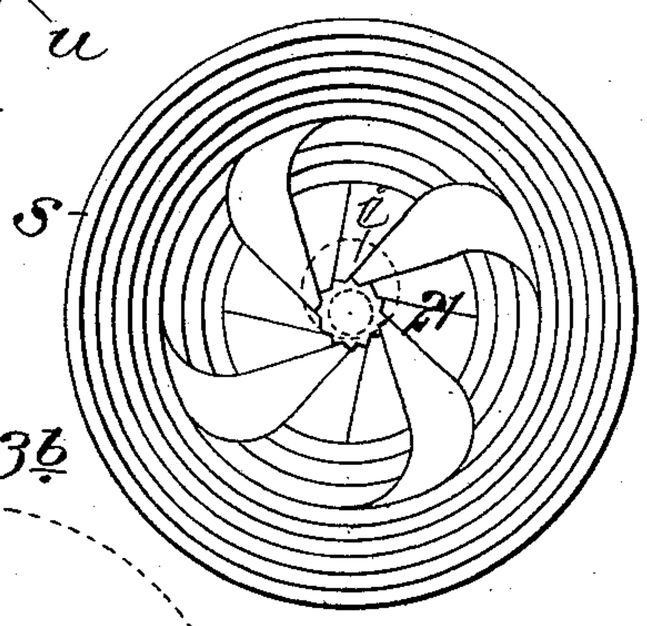
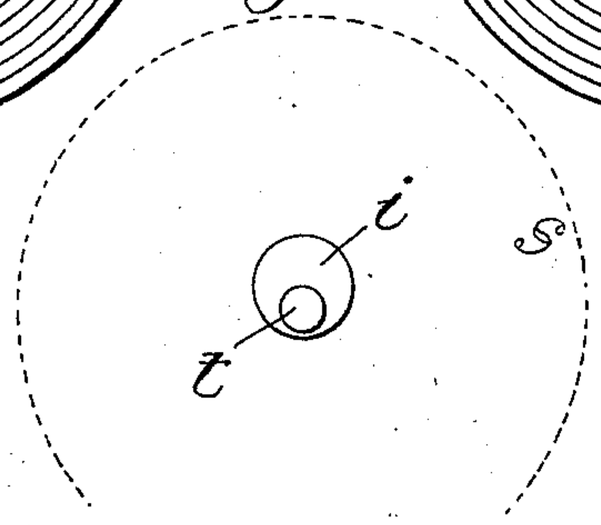


Fig. 3b.



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(No Model.) 3 Sheets—Sheet 3.

Fig. 6.

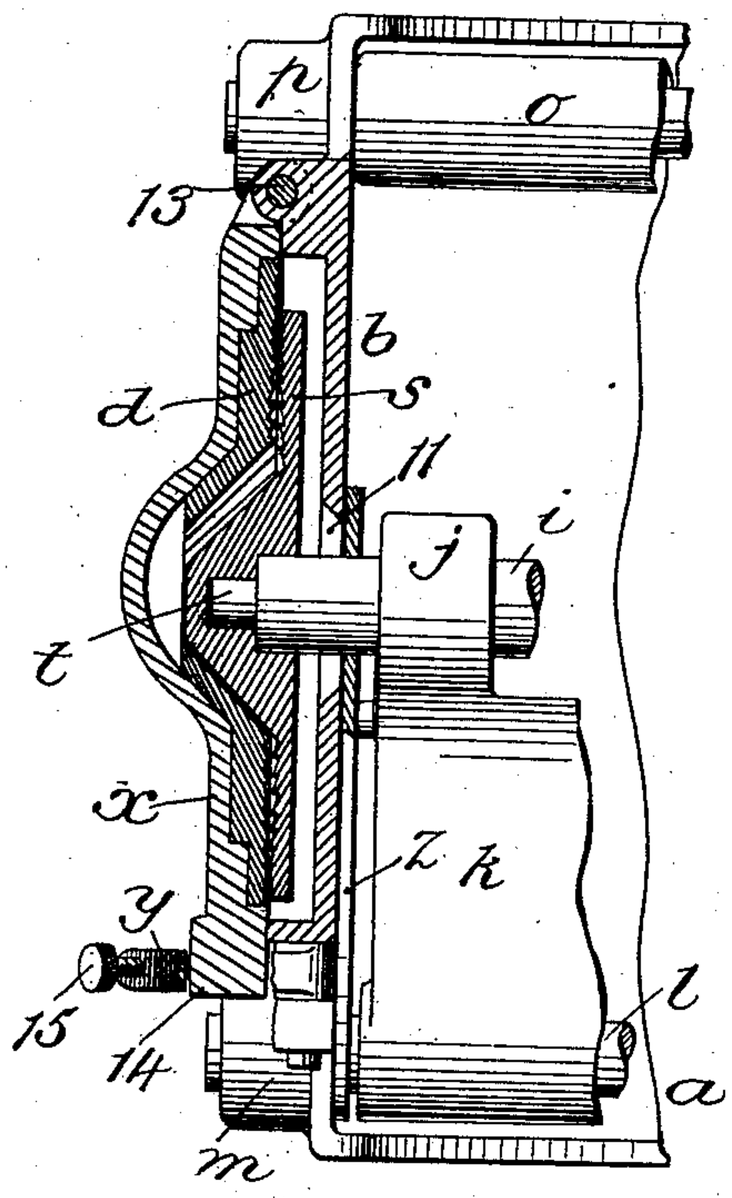


Fig. 8.

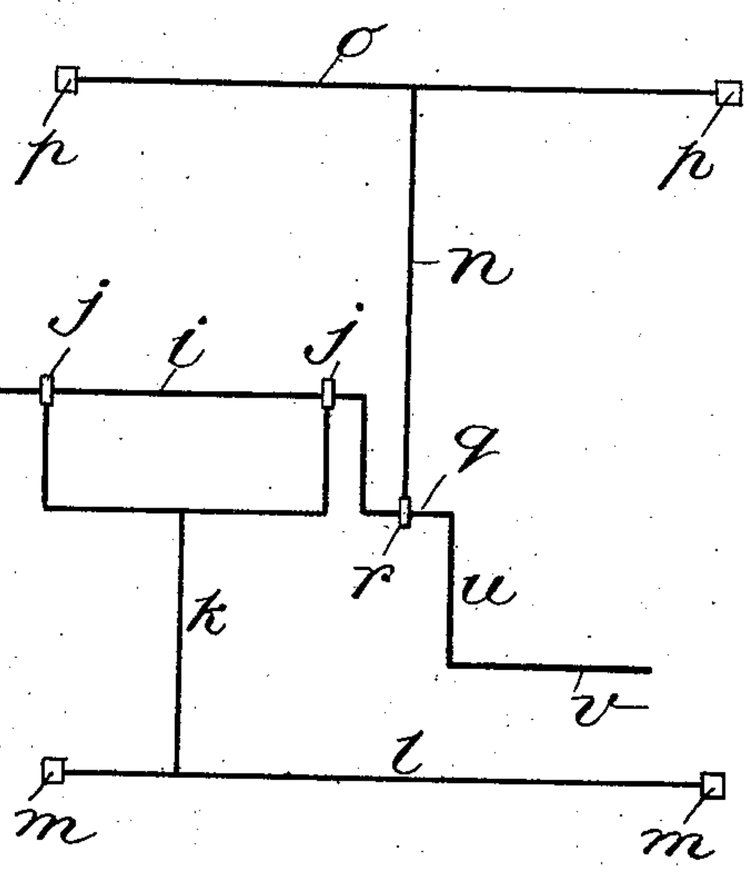
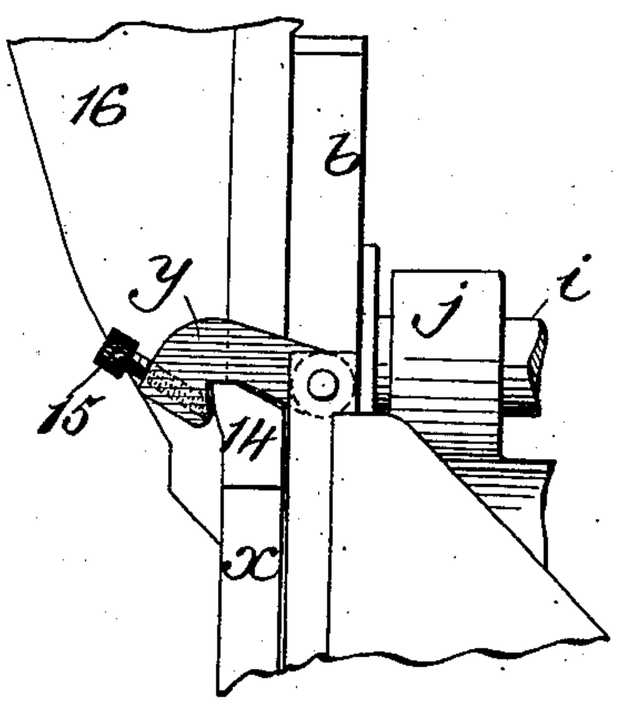


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN H. PENDLETON, OF JAMESBURG, NEW JERSEY, ASSIGNOR TO THE PENDLETON-TAPSCOTT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 715,504, dated December 9, 1902.

Application filed July 9, 1901. Serial No. 67,604. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. PENDLETON, a citizen of the United States, and a resident of Jamesburg, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Grinding-Mills, of which the following is a specification.

This invention relates to that class of grinding-mills which are known as "disk" mills; and it consists in a certain organization of such a mill and certain combinations of its details hereinafter described and claimed, whereby the efficiency of a mill of this class is greatly increased.

Figure 1 is a plan view of a mill embodying my invention; Fig. 2, a central vertical sectional view of the same. Fig. 3 shows a transverse vertical section in the line 3 3 of Fig. 2 viewed in the direction of the arrows on said line; Fig. 3^a, a transverse section in the line 3^a 3^a of Fig. 2 viewed in the direction of the arrows on said line; Fig. 3^b, a front end view of the shaft of the rotating disk; Fig. 4, a face view of the stationary grinding-disk; Fig. 5, a face view of the rotary grinding-disk; Fig. 6, a horizontal section of the grinding-disks and their immediately-connected parts, taken approximately at the level of the axis of the rotating disk; Fig. 7, a detail view which will be hereinafter explained; Fig. 8, a diagrammatic plan view illustrating a modification.

a b c designate a framing comprising a bed-plate and standards *b c*. The standard *b* carries the stationary grinding-disk *d*. The standard *c* has in or on its upper part a stationary bearing *e* for the horizontal main or driving shaft *f*, which is arranged with its axis opposite the center of the disk *d*. This shaft is represented as furnished with a driving-pulley *g* and a fly-wheel *h*. Between the driving-shaft *f* and the stationary disk there is arranged with its axis parallel with that of *f* a horizontal shaft *i*, which carries the rotary grinding-disk *s*. This shaft *i* runs in bushings 10 in a forked bearing *j j* in the arm *k* of a rock-shaft *l*, which is arranged at one side of but below the shaft *f* in bearings *m m* in the lower parts of the standards *b* and *c*. The said shaft *i* has affixed upon it at its end nearest the shaft *f* an eccentric *q*, which is fitted to turn in a bearing *r* on the arm *n* of another horizontal rock-shaft *o*, which is arranged, similarly to *l*, but at the other side of the shaft *f*, in bearings *p p* in the standards *b* and *c*. The other end of the said shaft *i*, which carries the rotary grinding-disk *s*, passes through an opening 11 in the standard *b* and has formed upon it an eccentric or crank-pin *t*. The said disk is concentric to this pin *t*, and consequently eccentric to the shaft.

Rotary motion may be given to the shaft *i* by any suitable means. In the example illustrated the said shaft is furnished for this purpose with a crank *u*, the wrist *v* of which works in a radial slot 12 in the driving-pulley *g*. The rotary motion of the said shaft, by reason of its eccentric *q* working in the bearing *r* of the rock-shaft *n*, causes both rock-shafts and their arms *n* and *k* to rock, and the shaft *i* is caused to have, in addition to its rotary motion, a movement bodily in an arc described from the center of the rock-shaft *l*, and the centers of the eccentrics *q t* are caused to receive regular circular or more or less irregular gyratory movements, according to the degree of their eccentricity. For example, with properly-determined eccentricity and that of *t* being half that of *q* the gyration may be made approximately circular.

The stationary grinding-disk *d*, though carried by the standard *b*, is not attached directly thereto, but is attached to a door-like plate *x*, which is hinged on one side to the said standard, as shown at 13 in Figs. 1 and 6, and is fastened thereto at the other side by any suitable detachable fastening—for example, a hook *y*, which is pivoted to the standard, as shown in Figs. 1 and 7, and drops over a lug 14 on the said plate *x*, where it is secured by a screw 15, which screws through said hook and presses on said lug. This swinging plate or door *x* carries at the back of the grinding-disk *d* a hopper 16, through which the material to be ground is fed between the two grinding-disks. These disks when the door *x* is closed and the mill is in operative condition are both contained in a cavity 17 formed within the standard, the said

on said shaft, a second rock-shaft and an arm thereon containing a bearing for said eccentric, bearings for the two rock-shafts, a crank on said shaft, a rotary shaft having a stationary bearing, and a slotted member on the latter shaft receiving the wrist of said crank, substantially as herein described.

6. In a mill, the combination of two facing grinding-disks, a rotary shaft carrying one of said disks, a rock-shaft and an arm thereon containing a bearing for said rotary shaft, an eccentric on said shaft, a second rock-shaft and an arm thereon containing a bearing for said eccentric, bearings for said rock-shafts, and an adjusting-screw applied to the end of one of said rock-shafts for adjusting the proximity of the grinding-disks, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 12th day of April, 1901.

JOHN H. PENDLETON.

Witnesses:
FREDK. HAYNES,
L. M. EGBERT.