A. H. SEARFOSS.

Grinding Mill.

No. 37,793. Patented Feb. 24, 1863.

Fig. 1.

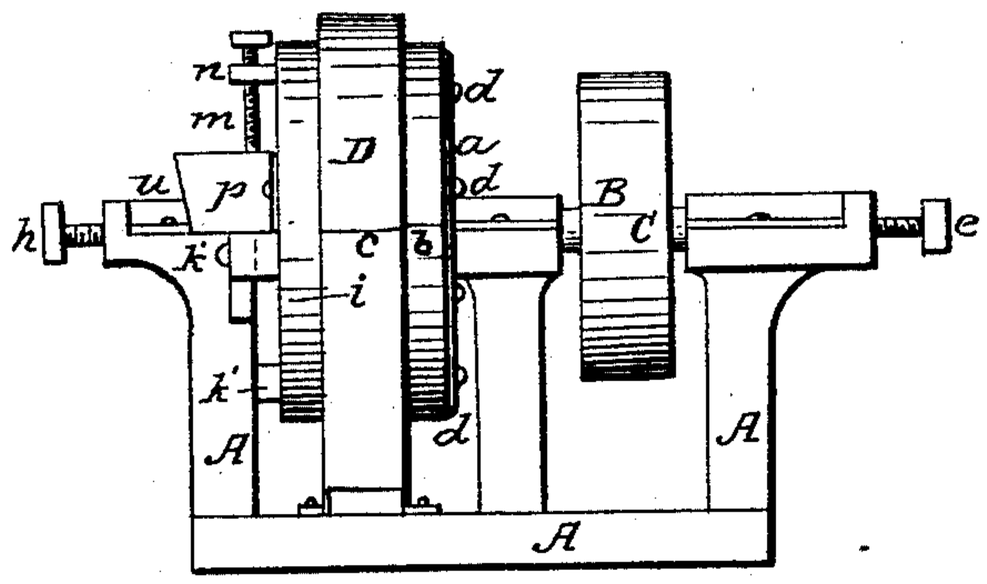


Fig. 2.

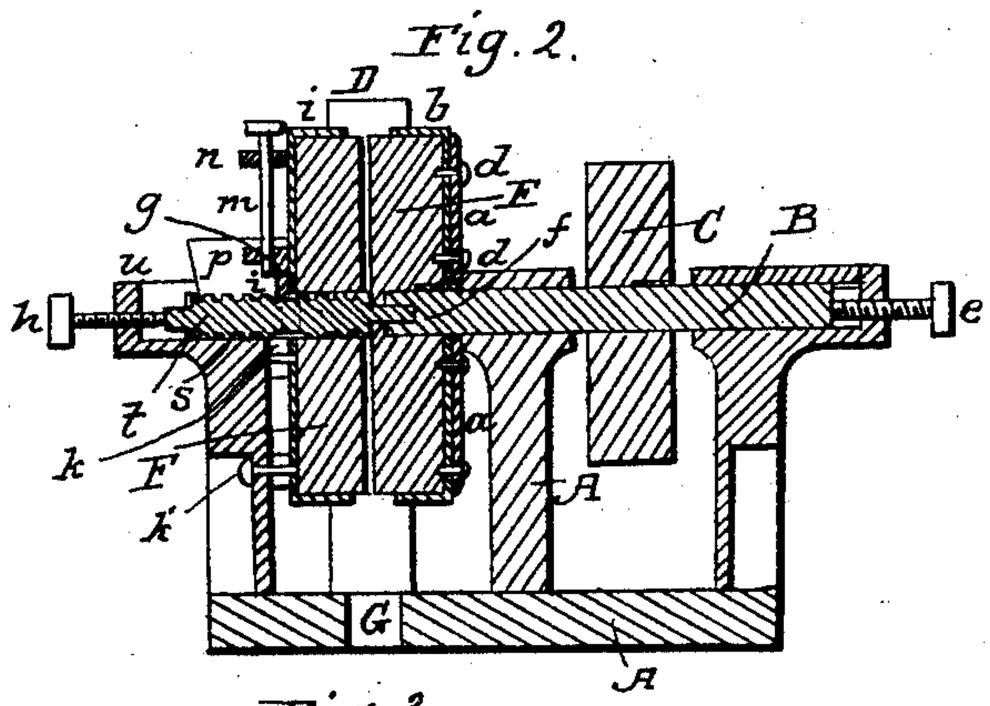
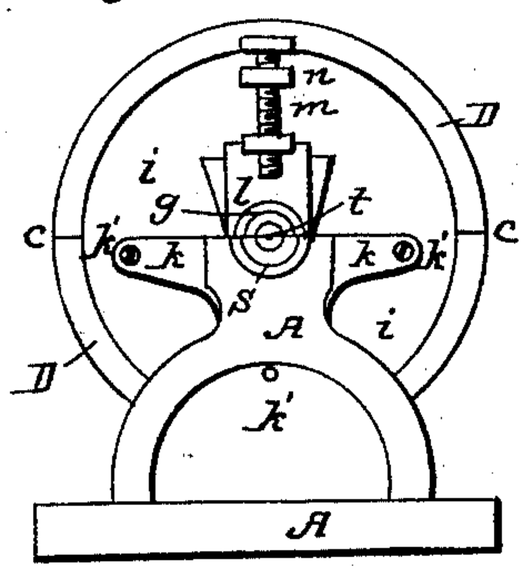


Fig. 3.



Witnesses:

W. Benjamin

John Thatcher

Inventor:

Amos. H. Searfoss

UNITED STATES PATENT OFFICE.

AMOS H. SEARFOSS, OF NEWARK, NEW JERSEY, ASSIGNOR TO ANNA MARIA HYDE, OF SAME PLACE.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **37,793**, dated February 24, 1863.

To all whom it may concern:

Be it known that I, AMOS H. SEARFOSS, of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Grinding-Mills; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of mills the grinding-surfaces of which are vertical or not horizontal, and my improvements in vertical mills consist, first, in securing the running adjustable stone upon one end of the driving-shaft, and holding said stone as described; second, in the employment of this shaft for supporting and holding one end of an independent feeding shaft or screw for carrying the material to be ground between the grinding-surfaces, and for rotating said feed-shaft, as described; third, in the manner of holding the stationary or bed stone in a fixed position; and, fourth, in the employment of the frame-work of the mill for a recess for the feed-screw for supplying the material to be ground; and, fifth, the regulating such supply to the screw by an adjustable sliding gate, operated as described. (See drawings.)

Figure I shows a vertical side elevation of the mill. Fig. II shows a section through the same; and Fig. III shows an elevation of the feeding end of the mill, partly in section.

A shows the frame-work, which I cast whole; B, the running-shaft; C, the driving-pulley; D, the outer covering of the mill, made to separate in the middle, as shown at *c*. E shows the running-stone, F the stationary or bed stone, and G the outlet for the pulverized material.

a shows the carrier-plate for the running-stone, secured to the driving-shaft by a key and slot. The stone being fixed in a curb, *b*, by plaster-of-paris or other proper cement, I then fasten the curb to the carrier-plate by means of the screw-bolts *d*. The outer shaft, B, takes against an adjusting-screw, *e*, for regulating the product. Into the inner end of this shaft I form a flat-sided recess, *f*, for receiving the inner end of the screw feed-shaft, *g*, which end is made to fit the recess *f*, by which it is supported and rotated. This screw-shaft passes through the eye of the bed-stone, and is exten led beyond it to a proper distance into a channel or recess, *s*, formed in the frame-work of the mill, and is provided with a proper journal, *t*, at its outer end, which rests in a bearing in the end of the recess. This journal takes against an adjusting-screw, *h*, similar to that at the other end of the mill. It follows that by the turning of the driving-shaft the screw is also rotated. *u* shows a cap covering and confining the outer end of the screw, by the removal of which (with the hopper-box) the screw may be readily withdrawn for removing the stones for dressing, when necessary. The stationary or bed stone is secured in a carrying curb, *i*, similar to that for the running-stone in the curb *b*, but this curb and stone are held stationary and fast by means of the horizontal arms *k*, and by the studs and screw-bolts *k'*, secured to the frame-work.

The regulation of the feed I effect as follows: At *l*, I show a vertical sliding gate in proper guides attached to the stationary curb *i*, and covering, when closed, a great part of the orifice in the curb outside of the feed-screw, the thread of which is cut away immediately under and around at the point below the gate, as shown at *o*. This gate is provided with a horizontal projection for receiving the vertical screw *m*, by which the gate is regulated up or down, as necessary. *n* shows a guide and beam for the upper end of the screw, where is also shown the thumb-piece by means of which the screw is turned. *p* shows the hopper, which is removed in Fig. III, as is also the cap covering the outer end of the screw.

What I claim as new, and desire to secure by Letters Patent, is—

1. Constructing a vertical mill, with its bed-stone secured and held to the frame-work in the manner described, combined with a feeding-screw and feeding apparatus, arranged, constructed, and operated as described.

2. The employment of a feed-screw for a vertical grinding-mill when such screw is made distinct from the driving-shaft, but is to be rotated thereby, and being at the same time adjustable and removable, and arranged as described.

AMOS H. SEARFOSS.

Witnesses:

JOHN THATCHER,

C. W. BENJAMIN.