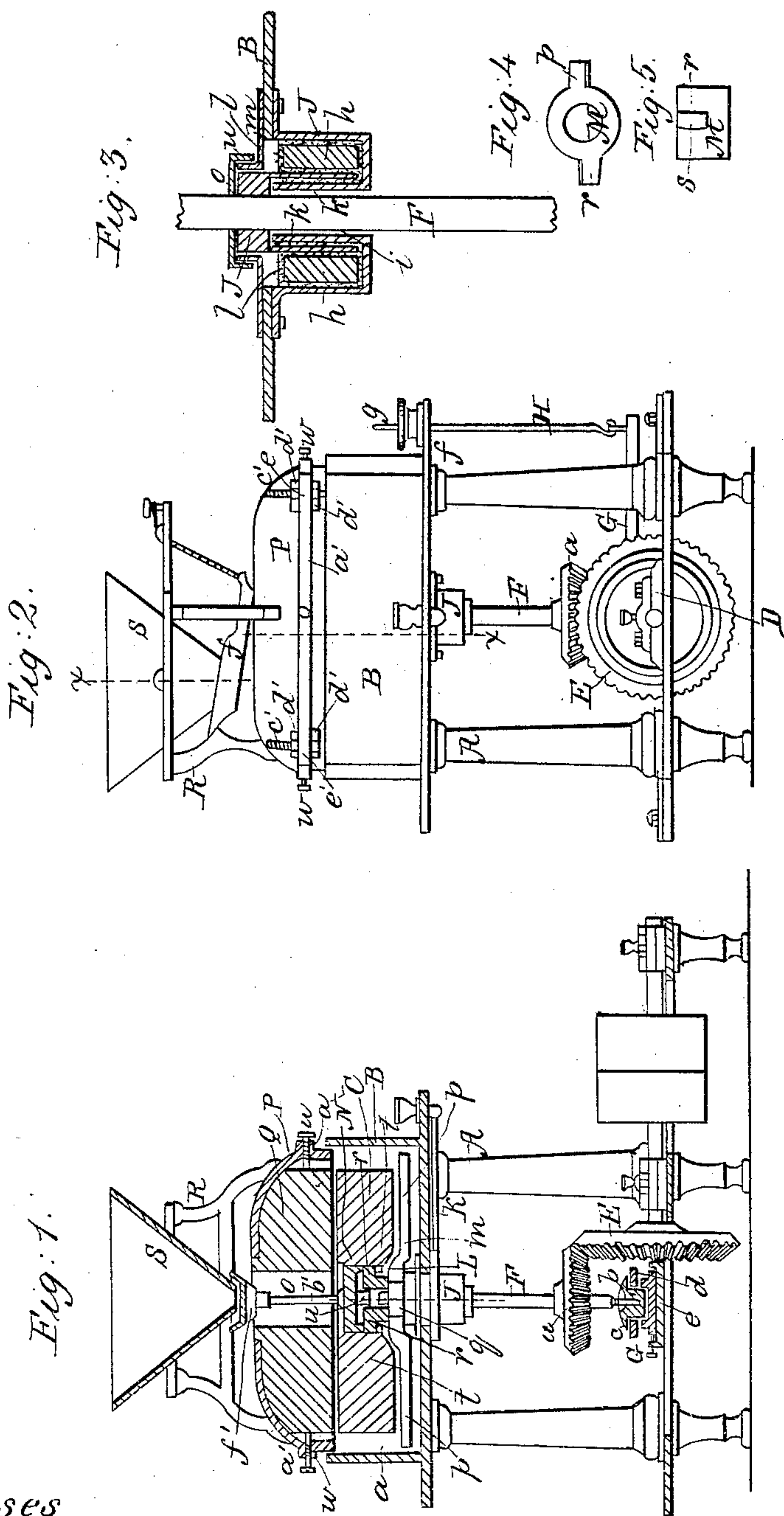


E. MUNSON.  
Grinding Mill.

No. 27,735.

Patented April 3, 1860.



Witnesses  
J. B. Loomis  
R. S. Spencer

Inventor:  
Edmund Munson  
per Munson & Co. Attorneys



# UNITED STATES PATENT OFFICE.

EDMUND MUNSON, OF UTICA, NEW YORK.

GRINDING-MILL.

Specification of Letters Patent No. 27,735, dated April 3, 1860.

*To all whom it may concern:*

Be it known that I, EDMUND MUNSON, of Utica, in the county of Oneida and State of New York, have invented a new and Improved Portable Grinding-Mill; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x, x*, Fig. 2. Fig. 2 an elevation of ditto. Fig. 3 a detached vertical section of the bush, taken in the line *y, y*, Fig. 1. Fig. 4 a detached plan of the driver. Fig. 5 an end view of ditto.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists, first, in an improved mode of hanging the runner, substantially as hereinafter fully shown and described, whereby the runner is allowed, as it rotates, to conform to the position of the stationary stone, and the parallelism of the two stones preserved.

The invention consists, second, in an improved bush, constructed with a view of keeping the spindle perfectly lubricated, and at the same time confining the oil within its chamber, and protecting the same, and the part of the spindle within the bush, from dust, and the admission of all other improper substances.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a cast-iron frame, on the upper part of which there is a cylindrical shell B, to receive the runner or under stone C. This shell is of larger dimensions than the stone C, so as to leave a space *a*, all around and underneath the stone C; as shown clearly in Fig. 1. The shell B has its upper edge made perfectly smooth and even, so that all points of its surface will be in one and the same plane. The shell is cast with the frame A in the same piece.

In the lower part of the frame A, there is placed a horizontal driving shaft D which has a bevel wheel E placed on it. This wheel E, gears into a bevel pinion *a*, on a spindle F, the lower end of which is stepped in a socket *b*, the upper end of which has a flanch *c*, around it. This socket is fitted within an adjustable box *d*, on a cross piece

*e*, of the frame A, and has a nut G, fitted on it, as shown clearly in Fig. 2. The spindle F, is provided with a collar I, which is fitted within a box J, attached to the under side of the shell B. This box J, is of cylindrical form, and concentric with the shell, and within it there are placed bearings *h*, which are adjusted snugly against the collar I, by keys, screws or other means. The collar I, is hollow, and open at its lower end, leaving a space *i*, all around, between it, and the spindle, the collar being connected at its upper end to the spindle, as shown at *j*, in Fig. 3. The box J, is provided with a central vertical tube *k*, around which the collar I, works, the tube *k*, passing up between the collar I, and the body of the spindle, as shown clearly in Fig. 3. The upper part of the collar I, is perforated with holes *l*, which are just above the bearings *h*, and below the upper end of tube *k*. K, is a tube which extends along underneath the shell B, and communicates with the upper part of the box J. This tube K, is shown clearly in Fig. 1, and it forms a means of supplying the box J with oil at any time. The collar I within the box J, forms the bearing surface of the spindle.

The box J is covered within the shell B, by a cap *m*, having a circular aperture at its centre, to allow the spindle F, to pass through said aperture having a flanch *n*, around it, which flanch is covered by a cap *o*, on the spindle, as shown clearly in Fig. 3.

On the upper end of the spindle F, there is placed a clearer L, this clearer is formed of two arms *p p*, attached to an eye *q*, which is fitted on the spindle and secured thereto by a feather and groove. The arms of the clearer L, extend nearly to the side of the shell B.

M, represents the driver which is fitted on the upper part of the spindle F, and like the clearer is secured to the spindle by a feather and groove. The driver M rests on the eye *q*, of the clearer, and the driver has two arms *r, r*, projecting from it at opposite points of its periphery, as shown clearly in Fig. 4. The arms *r, r*, are rounded at their face sides or bearing surfaces, the curvature being in a vertical plane, as shown clearly at *s*, in Fig. 5. The arms *r, r*, of the driver fit within recesses *t, t*, of a shell N, which is secured concentrically within the runner C, and has a pendant bearing *u*, which rests



on the apex of the spindle as shown clearly in Fig. 1. The damsel O, is attached to the upper surface of the shell N.

P, is a cast-metal cylindrical box, in which the upper stone Q, is secured by set screws *w*. This box is turned truly at its lower part, so that it may fit into the shell B, the box being provided with a shoulder or flanch *a'* all around it, which flanch is parallel with the lower edge of the box P. The stone Q, has an eye *b'*, made in it centrally, and the box P, secured in proper position, by means of screw rods *c'*, and nuts *d'*, the rods *c'*, being attached at the shell B, and passing through eyes *e'*, at the outer side of box P, as shown clearly in Fig. 2. On the box P, a hopper frame R is placed, containing the hopper S, and shoe *f'*, which may be arranged as usual.

It will be seen from the above description, that the runner C, will, in consequence of the arrangement of the driver M, relatively with the apex of the spindle F, be allowed to adjust itself within the stone Q, so that the parallelism of the faces of the two stones may be preserved as the runner C, rotates. This arrangement to wit: The having of the apex of the spindle in line with the bearing surfaces of the arms *r*, of the driver, as shown clearly in Fig. 1, admits of a universal-joint movement of the stone *c*, an effect which cannot be obtained by the ordinary arrangement which consists in having a bail fitted in the eye of the stone, so as to bring the point of suspension of the runner above the bearing points of the arms of the driver. My improvement, therefore, is an important one, for the faces of the stones are kept even or parallel and will perform good work as they can readily be kept in proper working order. The spindle F, also of this invention may always be kept properly lubricated, as oil

may be poured into the box J, at any time, and the oil within the box is retained therein, in consequence of the perforations *l*, in the upper part of the collar I. These perforations cause the oil which may have a tendency to rise in the space between the tube *k*, and collar I, to pass through the holes *l*, into the box, instead of passing over the top of the tube *k*, which extends above the holes or perforations *l*. This is an important feature of the invention as it effectually prevents the escape of oil from the box J, when the latter is not over supplied.

I am aware that the bearings of spindles have been fitted within boxes provided with oil, and I also am aware that oil-conducting tubes have been employed for keeping the boxes supplied with oil at any time. I therefore do not claim broadly such parts, but

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

1. The arrangement of the driver M, relatively, as shown, with the apex of the spindle F, to cause the apex of the spindle, and the bearing surfaces of the arms *r*, *r*, of the driver, to be in one and the same plane, and thereby admit of a universal adjusting movement of the runner C, to preserve the parallelism of the faces of the two stones, as set forth.

2. The collar I, attached to the spindle F, perforated with holes *l*, in combination with the tube *k*, attached to, and placed centrally within the box J, the perforations or holes *l*, being above the bearings *h*, and below the top of the tube *k*, to operate as, and for the purpose specified.

EDMUND MUNSON.

Witnesses:

DEXTER GILLMORE,  
S. J. BARROWS.