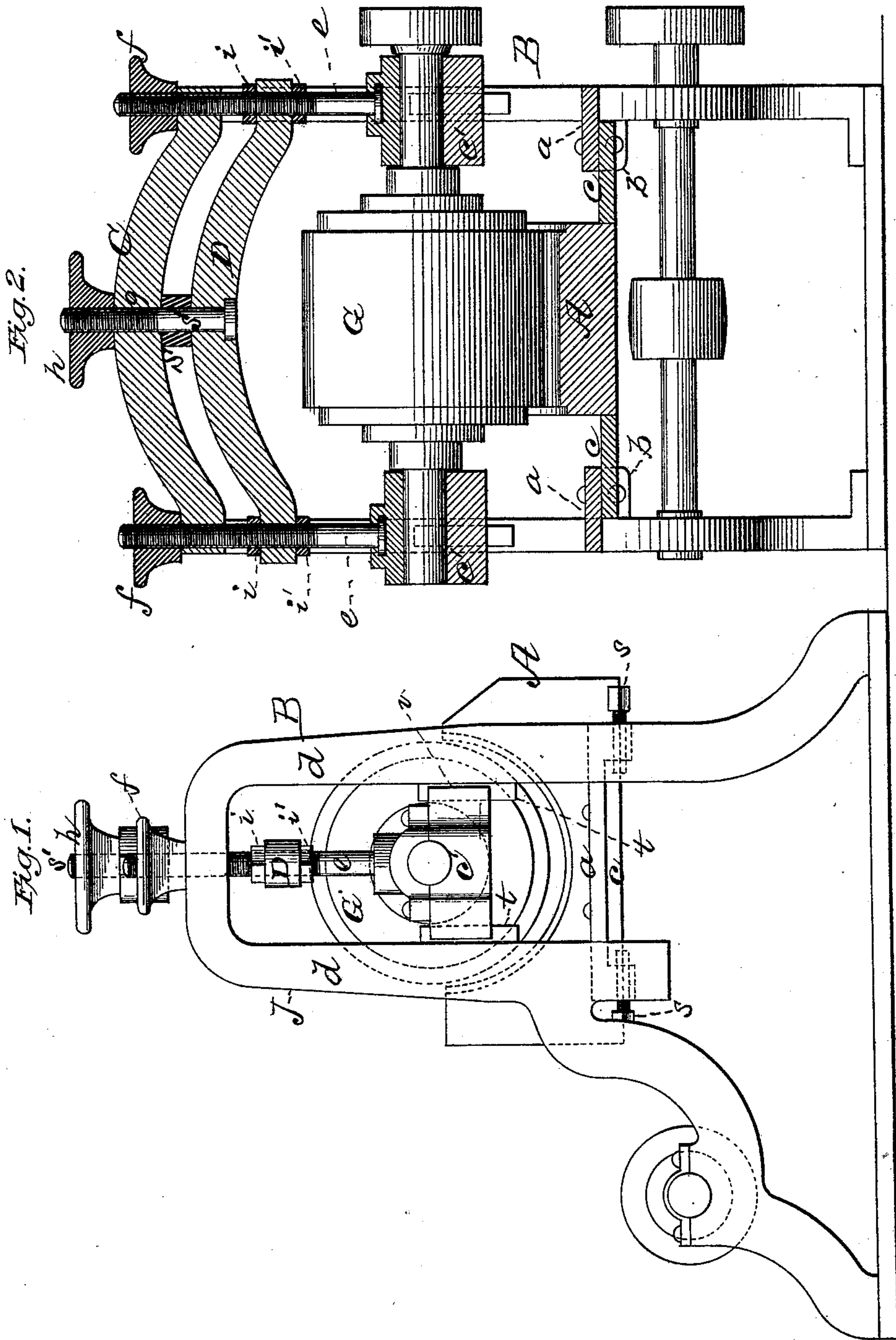


J. JONES.
Middlings-Grinding Mill.

No. 215,132.

Patented May 6, 1879.



Witnesses:
John A. Allen,
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UNITED STATES PATENT OFFICE.

JAMES JONES, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN MIDLINGS-GRINDING MILLS.

Specification forming part of Letters Patent No. **215,132**, dated May 6, 1879; application filed March 1, 1879.

To all whom it may concern:

Be it known that I, JAMES JONES, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and valuable Improvement in Grinding Middlings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of an end view of my improved middlings-grinder, and Fig. 2 is a vertical section of the same.

This invention has relation to improvements in middlings crushers or grinders; and the nature of the invention consists in certain novel combinations of parts, whereby the cylindrical running stone may be adjusted to the concave bed-stone with extreme nicety, as will be hereinafter more fully set forth.

In the annexed drawings, the letter A designates the bed-stone, and B a strong upright frame, the side pieces of which are connected together at top by an arched brace, C. These side pieces, J, are usually of wrought or cast iron, and their upper portions are of the form of an inverted letter U, the arms thereof being braced at their lower portions by a brace, a. At each end of these braces, upon their under sides, are the downwardly-projecting lugs b, through which project the set-screws s. The bed-stone has projecting from its ends the extensions c, that are received between the lugs b. By setting up screws s their ends bear against the flat edges of the said extensions and support the bed-stone and casing, and the said stone may be made exactly level. This stone is concave, as shown in Fig. 1, the curve being in length about one hundred and twenty degrees, or one-third of the circumference of a circle. It is made of French burr-stone, and its concave grinding-face is smooth and highly polished, being absolutely without dress.

c' designates bearing-boxes, arranged, after the manner of a sash, in the space between the arms d of the U-shaped portion of the frame. The side walls of these boxes fit smoothly up against the inner faces of the said

arms, and are provided with a groove, v, in which is received a rib or tongue, t, of corresponding shape, on the said arms. They are thus vertically adjustable in absolutely parallel planes. Rigidly secured to these boxes, in any suitable manner, are the strong metallic and screw-threaded rods e, that pass up through the ends of an independent arch, D, and extend through the top of the frame, through an opening formed therein for the purpose, of sufficient size to allow the said rods free endwise motion.

f f indicate hand-wheels, applied on the screw-threaded ends of the said rods, and bearing on the top of the arch of the side pieces of the frame.

Above and below the lower or independent arch D, on the rods e, are applied the nuts i and i', respectively, the object of which is to connect the said arch and rods adjustably to each other, for a purpose hereinafter set forth.

At the highest point of the arch-brace is formed a vertical screw-seat, g, in which a screw, s', works. This screw is provided with an enlarged head, and is passed from below through the lifting and bracing arches D C. It is provided on its end projecting from the arch-brace with a hand-wheel, h.

The running wheel G is a perfect cylinder, and is made also of French burr-stone, having its periphery nicely polished, and without any dress whatsoever. The curvature of its perimeter is such that it fits snugly in the concavity of the bed-stone, the grinding-surfaces of the two stones being in contact at all parts when the running stone is in contact with the bed-stone. These stones are included in a suitable casing, (not shown in the drawings,) and the middlings are fed thereto through suitable hoppers, or their equivalents.

The operation is as follows: The bed-stone having been adjusted perfectly level—that is, with its longitudinal axis as near horizontal as can be—the running stone is lowered into the bed-stone, by means of the rods e and hand-wheel f, until it rests fairly therein. The lifting-screw s' is then raised by turning its hand-wheel h. The rods e moving freely endwise in the holes of the frame, the running stone is slightly raised, and being adjusted to grind as fine as may be desired, the hand-

wheels are run down until they bear upon the frame, thus preventing the runner from tipping into contact with the bed-stone. In this position the two stones are at no point in contact; consequently heating of the same is impossible, and all danger of fire is obviated.

The very finest and most accurate adjustment of the runner may be had by the devices above set forth. This is rendered necessary by the extreme fineness of the middlings.

Intermediate the lifting-arch and the arch-brace of the frame is a spring, S, arranged on the screw *s'*, and having its ends engaged in recesses on the top and bottom of the said arch and brace, respectively. This spring is compressed when the lifting-screw is raised in the act of raising the running stone, and reacts when the said stone is lowered, thus pressing the runner down toward the bed-stone and giving a yielding action to the runner.

The nuts *i i'*, above and below the lifting-arch, serve to hold the said arch in a fixed position relative to the rods *e*, and compel the said arch to move vertically in planes parallel to each other.

This device acts by crushing the middlings, not by grinding altogether, and operates to any degree of fineness.

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

The combination, with a frame having the U-shaped side pieces, J, provided with ribs *t* upon their opposite faces, the boxes *e'*, having grooves *r*, receiving the said ribs, a cylindrical running stone journaled in said boxes, and a concave bed-stone, of the vertical threaded rods *e*, the lifting-arch D, the nuts *i i'* above and below said arch, the hand-wheels *f* on the projecting ends of said rods, the arch-brace C, the lifting-screw *s'*, and hand-wheel *h*, arranged and operating substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES JONES.

Witnesses:

CHARLES W. GRIPP,

E. GRIPP.