J. E. BRISSON.

Grinding Mill.

No. 37,605. Patented Feb. 10, 1863.

Fig. 1,

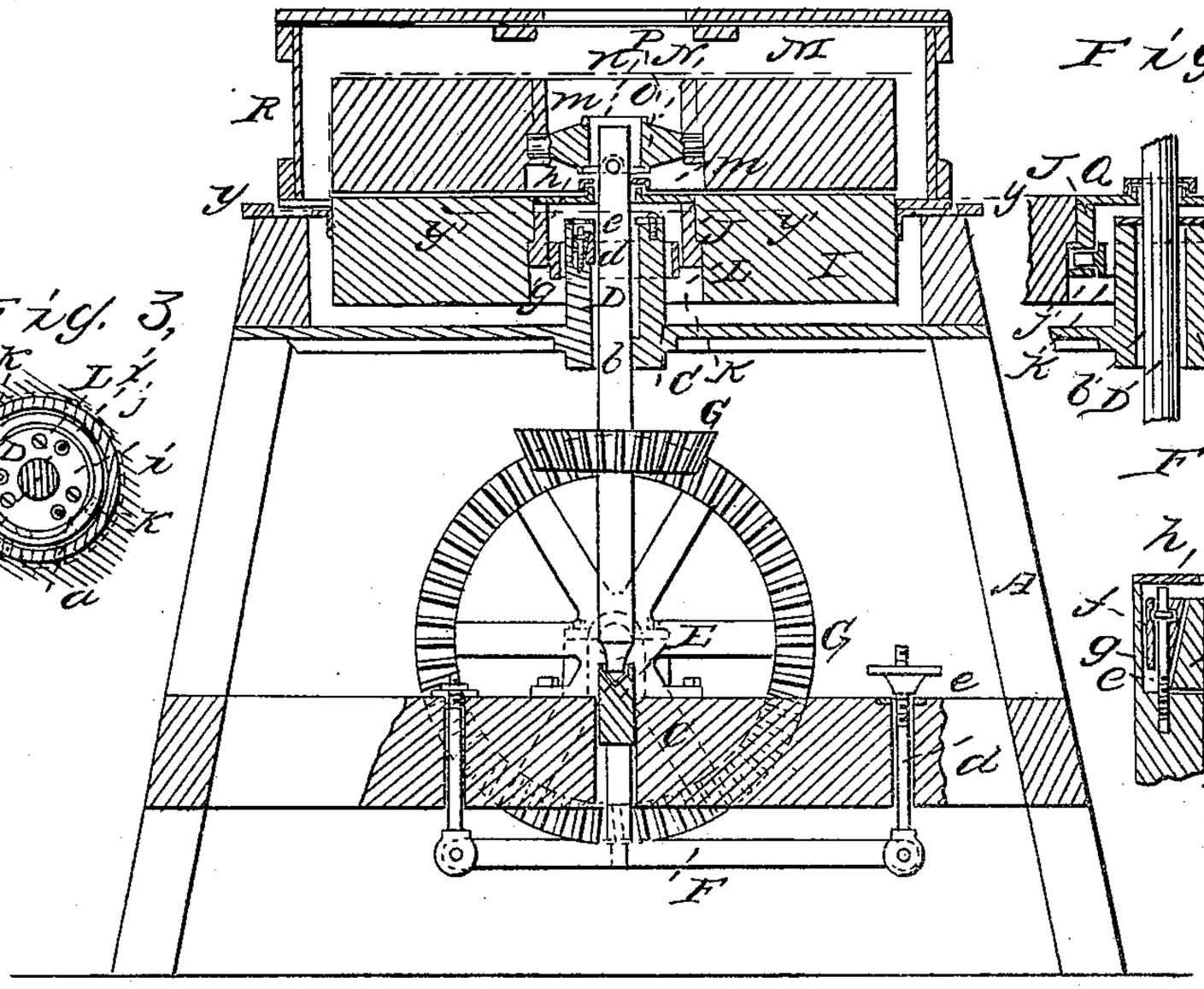


Fig. 2,

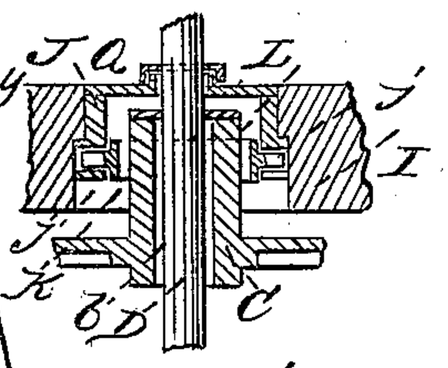


Fig. 3,

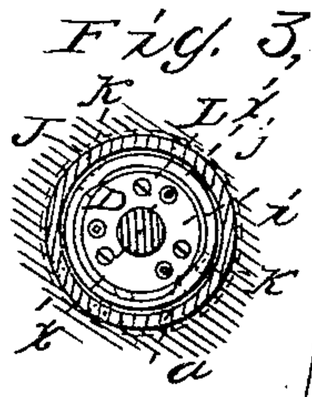


Fig. 4,

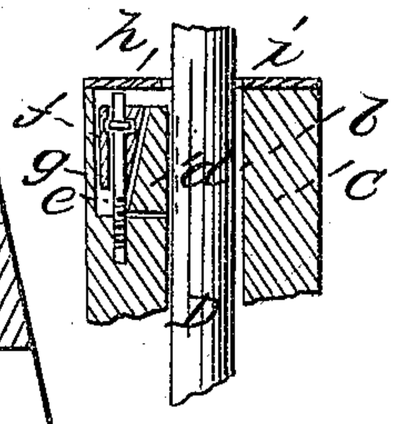
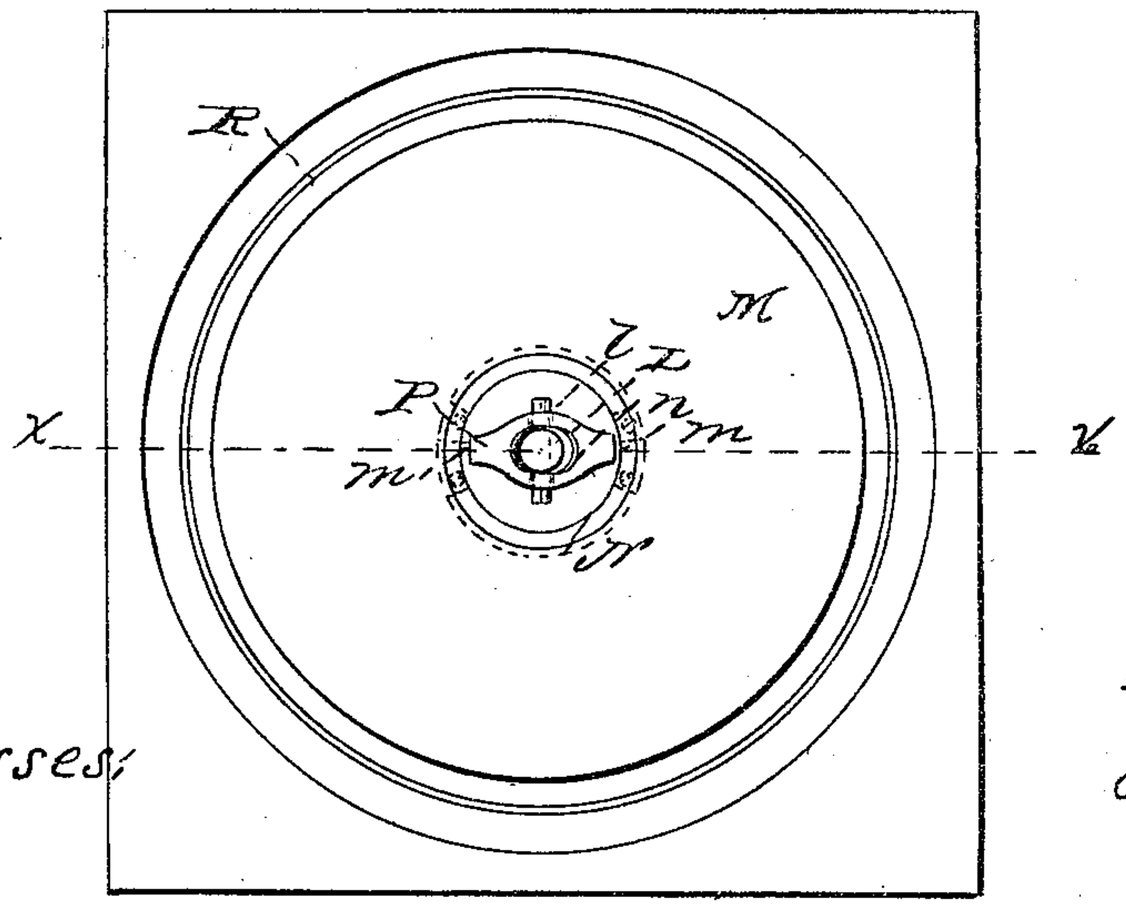


Fig. 5,



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UNITED STATES PATENT OFFICE.

E. BRISSON, OF ORLEANS, FRANCE.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **37,605,** dated February 10, 1863.

To all whom it may concern:

Be it known that I, E. BRISSON, of Orleans, in the Empire of France, have invented a new and useful Improvement in Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same, taken in the line *y y*, Fig. 1; Fig. 3, a horizontal section of a portion of the same, taken in the line *y' y'*, Fig. 1. Fig. 4 is a vertical section of a portion of the same, taken in the line *x' x'*, Fig. 3; Fig. 5, an enlarged vertical section of the parts pertaining to the lower stone, as shown in Fig. 1.

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

This invention consists in hanging both the runner and the stationary stone of a pair of millstones in such a manner that the parallelism of the two stones will always be preserved and the stones made to operate much more efficiently than hitherto, producing better work, the flour not being liable to be heated, or "scratched," as it is technically termed, and the stones also prevented from being worn unevenly.

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

A represents a framing, which may be constructed in any proper manner; and B are metal arms, which are horizontally and permanently secured in the framing at its upper part, said arms, of which there may be four or more, radiating from a cylindrical upright hub or projection, C, which is provided at its periphery with two horizontal pins, *a a*, which project from it at opposite points, as shown clearly in Fig. 4. This hub C has a circular opening, *b*, made centrally through it to admit of a spindle, D, being fitted in it. The lower end of this spindle is stepped in a bar, E, which is fitted in a cross-bar, *c*, of the framing A, said bar being allowed to rise and fall in the cross-bar *c*, and attached at its lower end to a bridge-tree, F, which is adjusted by a screw, *d*, and nut *e*, as shown in Fig. 1, This bridge-tree arrangement is precisely the same as that used in all grist and flouring mills for adjusting the stones to grind coarser or finer. The spindle D is driven by gearing G G from a driving-shaft, as usual.

The opening or hole *b* in the hub C is somewhat larger in diameter than the spindle D, and the latter is "bushed" or fitted snugly in said opening or hole by means of wooden blocks *d*, which are inserted in recesses *e*, made vertically in the upper end of the hub C, and behind which blocks metal wedges or keys *f* are placed. In each of these wedges or keys *f* a screw, *g*, is fitted provided with a shoulder, *h*, and having their lower ends passing into the hub C and working in internal screw-threads. (See Fig. 5.) The front surfaces or face sides of the wooden blocks *d* are made of concave form in their horizontal or transverse section, so as to conform to the spindle D, and the back surfaces of the blocks *d* are made of beveled form, increasing in thickness from their upper ends downward, while the inner surfaces of the wedges or keys *f* are beveled in a reverse manner. By this arrangement it will be seen that by screwing the screws *g* downward the wedges or keys *f* will be forced downward and the blocks *d* pressed against the spindle, forming a bearing for the same. It will also be seen that by this arrangement the spindle D may be adjusted and kept in a vertical position. On the top of the hub C there is secured a plate, *i*, having holes made in it in line with the screws *g*, to admit of a key being adjusted on the tops of the screws for the purpose of turning them.

I represents the lower or bed stone, which has a metal thimble, J, secured permanently in its eye K, and within this thimble J there is fitted a metal socket, L, the latter being hung on trunnions *j j* and allowed to swing freely within the thimble. (See Figs. 1 and 4.) In the lower edge of the socket L there are made two recesses, *k k*, to receive the pins *a a* of the hub C. These recesses are in a line, which is at right angles with the line of the trunnions *j j*, and the stone I therefore is hung on what may be termed a "universal joint" and is allowed to swing in any direction.

The spindle D projects a short distance above the top of the hub C, and has a pin, *l*, passing horizontally through it, the use of which will be presently explained.

M is the upper stone or runner, which also

has a metal thimble, N, secured permanently in its eye O. Within this thimble N there is placed transversely a bar, P, the ends of which are provided with journals *m m*, that are fitted in bearings in the thimble N and allowed to rotate or turn freely therein. (See more particularly Fig. 1.) The bar P is considerably thicker at its center than at any other part, and has an opening, *n*, made vertically through it, through which opening the spindle D passes. The bar P, at its under surface, adjoining the opening *n*, has two recesses, *o o*, made in it to receive the pin *l*, which supports the stone M, the pin *l* and recesses *o o* being in a line at right angles to the pin *l*. By this arrangement the upper stone, M, is also suspended on what may be termed a "universal joint," and said stone, like the lower stone, I, is allowed to swing in any direction at the same time. The spindle D carries the stone M around with it in consequence of the pin *l* fitting in the recess *o o* of the bar P, while the lower stone, I, is held stationary in consequence of the pins *a a* of the hub C fitting in the recesses *k k* of the socket L.

Thus, by this simple arrangement the parallelism of the two stones is always preserved, as one is allowed to adjust itself to the other, and the grinding is consequently performed in a perfect manner and the stone kept in good working order, and the spindle D may always, by adjusting the blocks *d*, be kept in a vertical line, so as to prevent unnecessary friction and the heating of the spindle.

I would remark that this invention does not involve the necessity of the upper stone being the runner or rotating one. With a slight modification the lower stone may be made the rotating one. All that is required to effect this is the application of the parts shown in the eye of the lower stone, I, (with the exception of hub C,) to the exterior of the upper stone, M, the parts shown in the eye of the upper stone being fitted in the eye of the lower one, merely reversing the position of the parts as applied to the two stones, the principal parts in the lower stone being transferred to the exterior of the upper one, the thimble J being secured to the exterior of I and swinging on or within the socket L, which has journals working on bearings in a line at right angles to the bearings of the thimble J, this arrangement being precisely like that of a compass-box.

I would further remark that the eye K of the lower stone, I, is covered by a plate, Q, to prevent the ingress of grain or flour into it, and that the upper stone is inclosed by a curb, R, as usual.

I am aware that it is not new to hang mill stones upon gimbal or universal joints, and do not wish to be understood as claiming this principle, broadly; but

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The mode of bushing or securing the spindle D in the eye K of the lower stone, I, to wit: by means of the cylindrical hub C, provided with recesses *e* in its upper end, and having wooden blocks *d* and wedges or keys fitted therein, the latter being adjusted by the screws *g*, so as to press the blocks *d* against the spindle, which passes through the hub C, as set forth.

2. The hanging or suspending of both stones I M on universal joints, one stone (the runner) being connected with the spindle D by means of the pin *l*, passing through the latter, and having the turning bar P fitted upon it, into or through which bar the spindle passes, and the other stone fitted on the pins *a a* of the hub C, or equivalent bearings, through the medium of the thimble J and swinging socket L, these latter-named parts, with the exception of hub C, being applied, if desired, to the outer surface or exterior of stone I, and the parts in the eye K of stone I fitted in the eye O of stone M, substantially as and for the purpose set forth.

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