

J. FOLEY.
Balancing Millstones.

No. 68,865.

Patented Sept. 17, 1867.

Fig. 1.

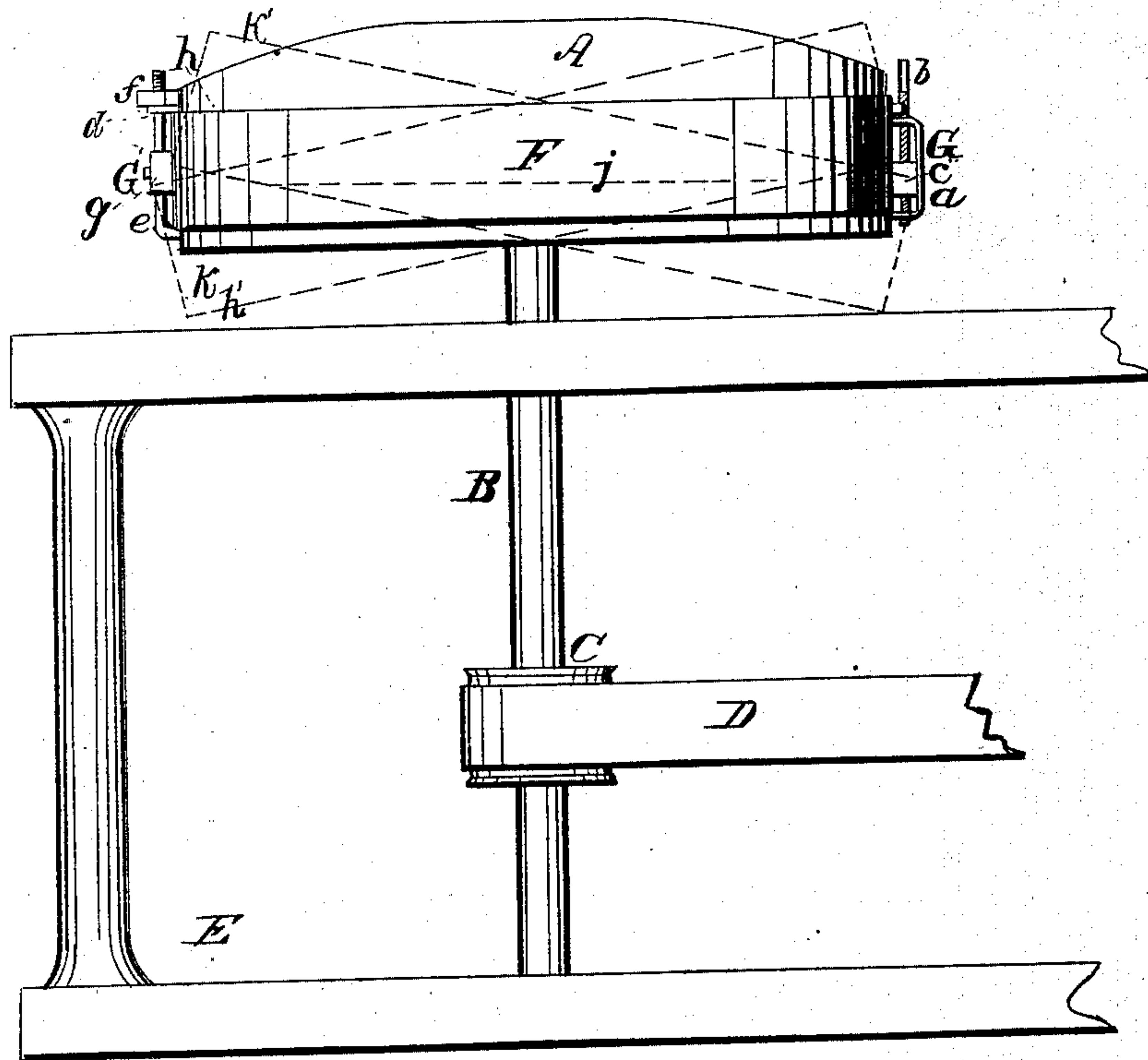


Fig. 2.

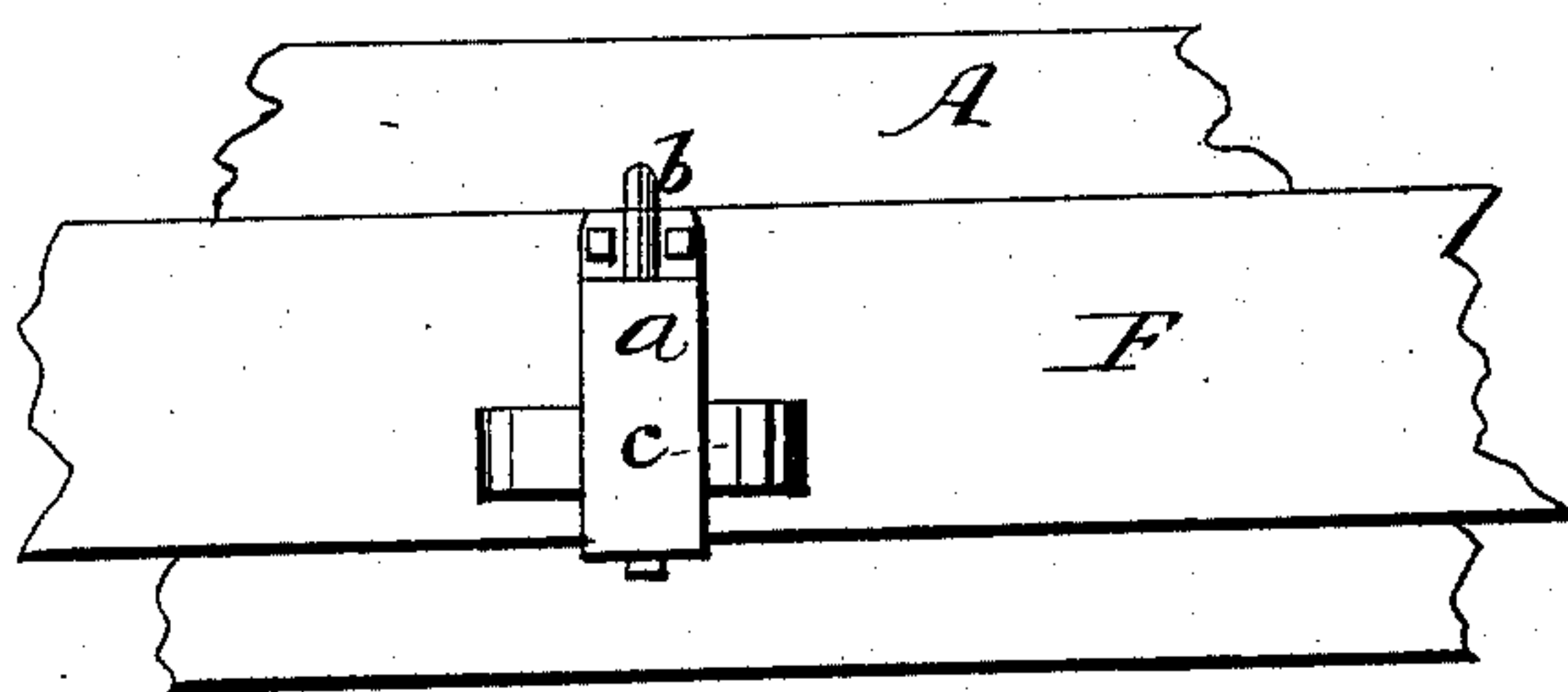
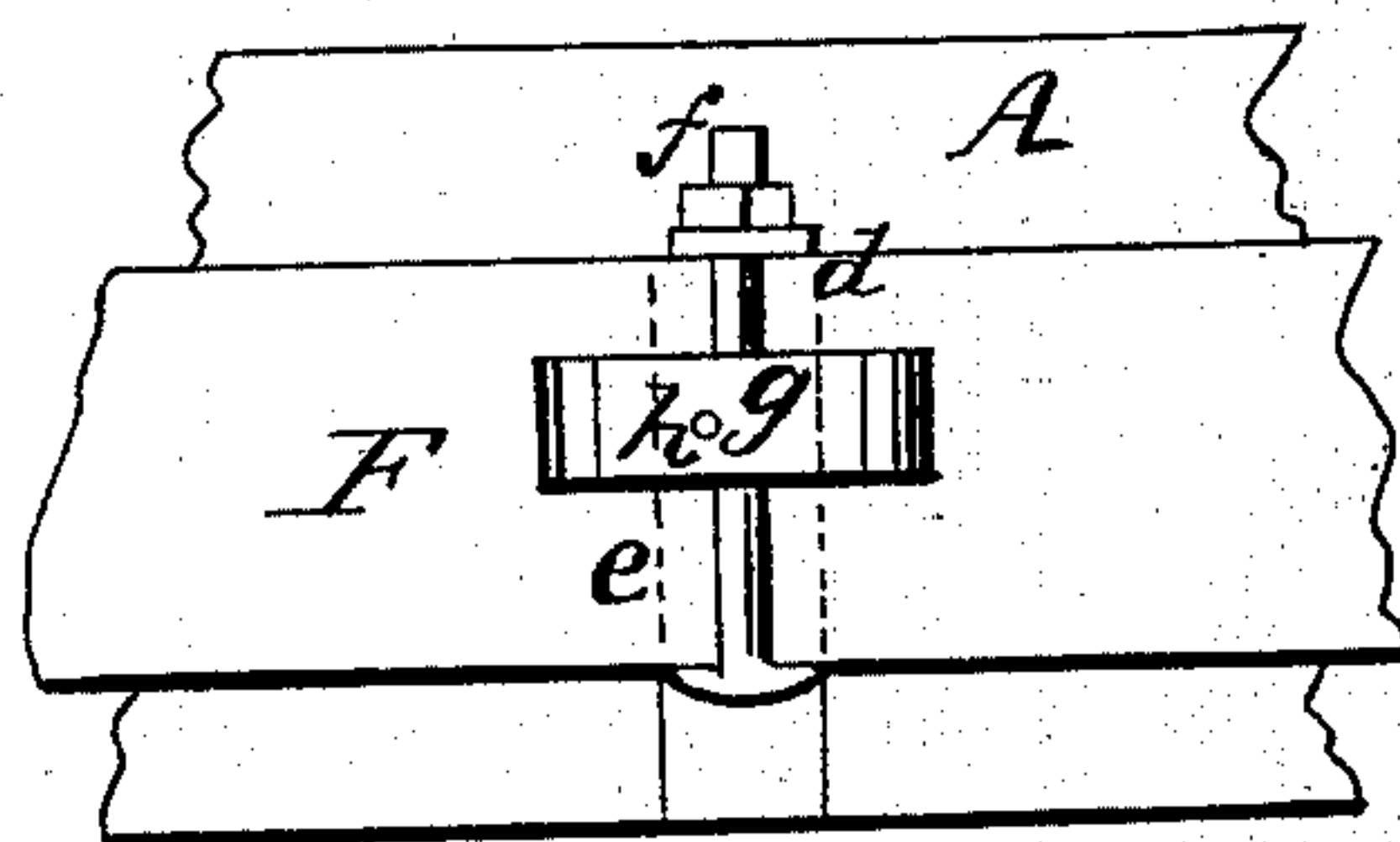


Fig. 3.



Witnesses.

W. H. Burridge.
Frank Alden.

Inventor.

John. Foley

United States Patent Office.

JOHN FOLEY, OF CLEVELAND, OHIO.

Letters Patent No. 68,865, dated September 17, 1867.

IMPROVEMENT IN BALANCING MILLSTONES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN FOLEY, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Balancing Millstones; and I do hereby declare that the following is a full and complete description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the stone.

Figures 2 and 3 are enlarged sections to which reference will be had hereafter.

Like letters refer to like parts in the several views.

A, fig. 1, is the millstone, and is mounted upon the spindle B by a bail and spindle-head, as in the ordinary way. C is a drum, and D a belt by which the stone is driven. E is a section of frame, supporting the spindle and stone. F is a hoop or band surrounding the stone. G G are balancing weights attached to the band, and diametrically opposite each other. These weights are adjustable, and are constructed as follows: *a*, figs. 1 and 2, is a stay, the upper end of which is bent at right angles. The second angle is turned outwards and bolted to the hoop; the lower end is also at right angles, the second angle being turned inward and inserted between the hoop and stone. *b* is a screw, the lower end being secured to the stay, the upper end passing through the stay and terminating in a square for the purpose of working it. *c* is the weight, and is placed between the stay and stone. The screw passes through the weight, by the means of which it is raised upward and downward for the purpose hereafter shown. This raising and lowering the weight may be accomplished in another way, as shown in fig. 3. This consists of a yoke, *d*, which is passed between the hoop and stone. *e* is a rod; the lower end being fastened to the end of the yoke, the upper end projects through and is secured by a nut, *f*. *g* is the weight, and slides up and down on the rod. The inner side of the weight being of a quicker curve than the stone, it therefore touches it only at the ends, and is made by this means to act as a spring, the pressure of which prevents its falling when raised up. It is a well-known fact that millstones when first hung are not equally balanced, the difference in the specific gravity of the blocks comprising the stone being mainly the cause; hence it has been found necessary, in order to remedy this defect, to balance the stone by loading the light side with lead or other material of a suitable nature. For this loading we substitute the weight referred to, as follows: The tendency of all rotating bodies is to bring the centre of their greatest specific gravity in a level at right angles with the axis of rotation; hence should the greater weight of the stone be at the top at the point *h*, the stone in revolving would drop in the direction indicated by the dotted lines *h'*, until the point of its greatest weight or mass reaches the line passing through the point or centre of rotation indicated by the horizontal dotted line *j*, and would continue to revolve in this position, though when it was at rest, it would be in the position shown in the drawing, equally balanced in the fact of its gravity. Or, on the other hand, should the greatest weight be at the other side at *k*, the stone on revolving would rise up in the direction indicated by the dotted lines *k'*, until the point of its greatest weight or mass reached the horizontal line *j*, as in the former case, and would remain in this position as long as it continued to revolve; hence the face of the stone would not be parallel with the line of rotation, which it should be. In order to prevent this deflection of the face of the stone in its revolution, and cause it to rotate in the plane of the lower one, the weights above described are raised or lowered toward the line of rotation, as the case may determine, and in this way the weight is brought in a line parallel with the face of the stone, which is also in the line of rotation; hence by this means the nicest degree of equilibrium is obtained without in the least disturbing its centre of gravity. We here remark that the weight *g* is hollow, whereas the opposite one is solid. The reason for making the weight hollow is in order that it may be graduated to the unbalanced condition of the stone. This is done by adding more or less to the weight by placing it in the hollow or chamber of the weight, as the condition of the stone may demand. Were the weights equal, the balancing of the stone could not be so nicely adjusted as in this way, for both acting conjointly we are thereby enabled to balance the stone to the least possible degree. To aid in securing the weight at any point on the rod, a set-screw, *h*, is provided, which effectually prevents the weight from slipping.

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

The employment of the solid and chambered weights *c g*, with their respective devices for adjusting them, applied externally to the hoop F, the whole arranged and operating in the manner and for the purpose described.

Witnesses:

W. H. BURRIDGE,
FRANK ALDEN.

JOHN FOLEY.