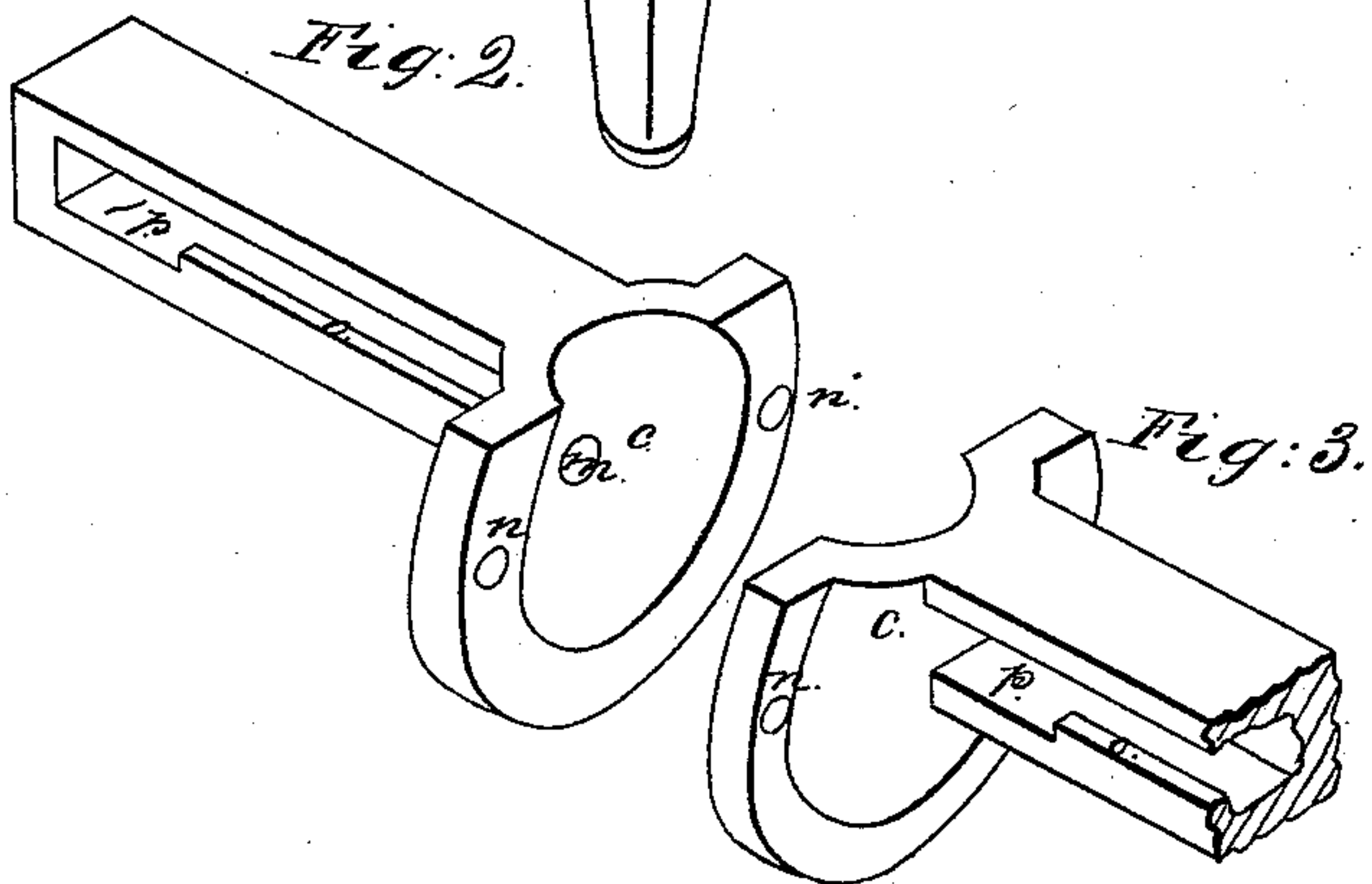
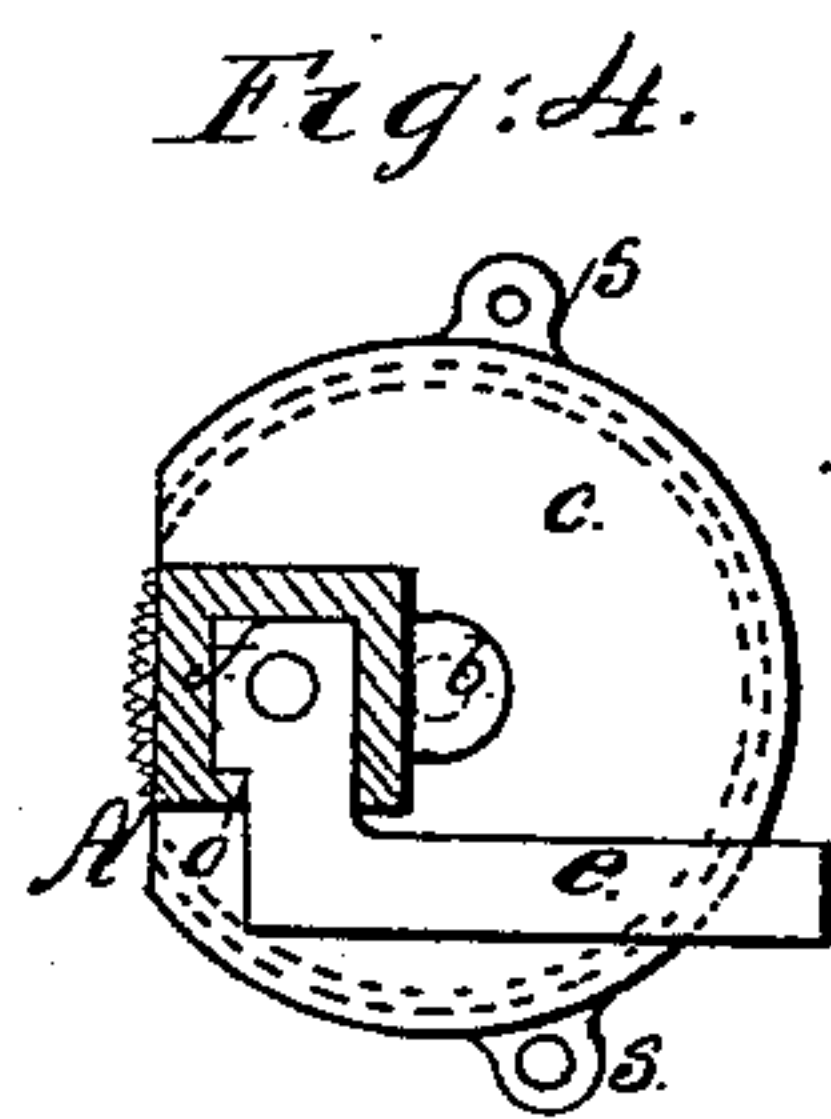
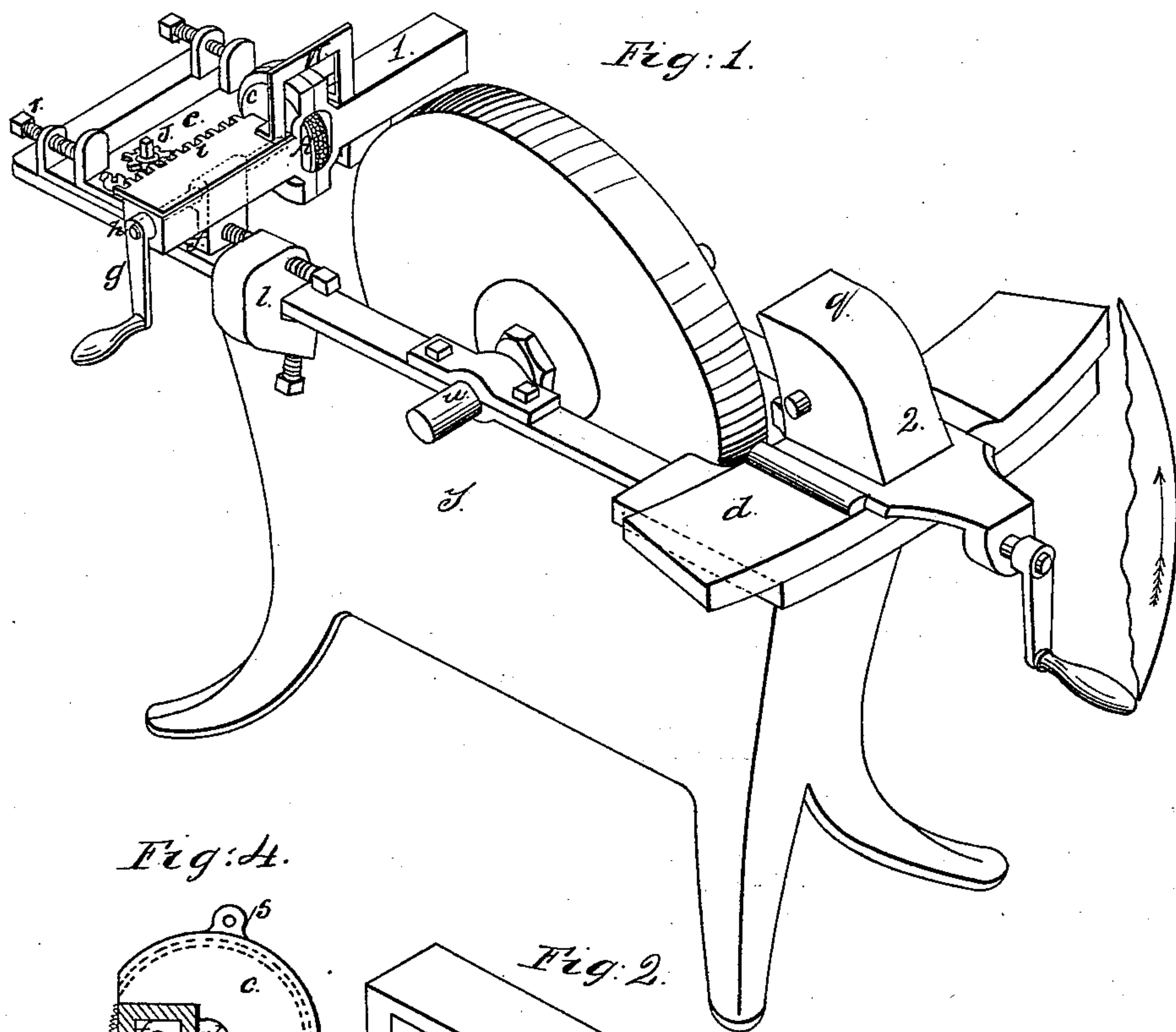


G. C. Howard,
Dressing Stone.

N^o 61,738.

Patented Feb. 5, 1867.



Witnesses:
Chas. H. Hain
Saml. Howard

Inventor:
G. C. Howard

United States Patent Office.

GEORGE C. HOWARD, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 61,738, dated February 5, 1867.

IMPROVEMENTS IN DRESSING GRINDSTONES.

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, GEORGE C. HOWARD, of Philadelphia, in the county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements on Machines for Dressing Grindstones; 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, in which—

Figure 1 is a view of grindstone and box, with machine attached.

Figures 3 and 2 are perspective views of the two parts which form the case for the cutter-wheel; and

Figure 4 is an end view of the cutter-wheel case and post.

The nature of my invention consists in an improved method in traversing and adjusting the machine, and making its details in such a shape that the sand, dust, and grit are effectually prevented from entering the working parts of the apparatus.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The cutter-wheels A, which fit tight on the journal *b-1*, fig. 1, and *b*, fig. 4, (dotted,) are placed in a case, *c*, which allows only so much of the cutters to protrude as is necessary to bring them in contact with the stone, and prevents the grit and sand from entering the journals. The "traverse sliding surfaces" are protected from dirt by the U-shaped projection on the case *c*, by the plate *d*, or other suitable means. Different methods for traversing the cutter-wheels across the face of the stone have to be adopted to suit the various shapes of grindstone boxes and different forms of the face of stones.

1. Fig. 1 is a machine for dressing straight faces. Its details are as follows: *e* is a base-plate, which has posts *ff*, on which the case *c* is traversed by means of the crank *g* and screw *h*, (dotted,) which works through a nut in one of the posts *f*, or by the rack *i* and pinion *j*, or other suitable devices. As the stone wears down, the machine is either drawn toward it by the screw *h*, which passes loosely through the clamp *l* and screws into the base-plate *e*, or it may be pushed forward by the set-screws *r r*. After it has been set in contact with the stone, it is fastened securely to the box *y* by the bolt *z*. The case *c* has holes *m* (fig. 2) bored in it, to receive the journals of the cutter-wheels, and is made in two sections (figs. 2 and 3) fastened together by bolts passing through the holes *nn*. Should the stone happen to run in the direction of the arrow, fig. 4, it would lift the case from the posts *ff*. To prevent this, projections *oo* (figs. 2, 3, and 4) are made on the case *c*, which bear against corresponding projections on the posts *ff*. The projections *oo*, however, do not extend the full length of the case, but spaces *pp*, corresponding in width to the posts *ff*, are left in such a manner that when both sections (figs. 2 and 3) are bolted together the distance between the space in fig. 2 and the space in fig. 3 will be equal to the distance between the posts *ff*, so that the case *c* may be dropped on; the screw *h* will then enter the nut in that post, which has entered through the space nearest to the cutter-wheels, (fig. 3;) by turning the screw the case slides on the posts *ff*, and the projections *oo* move under the corresponding projections on the posts *ff*. (The centre of the cutting-wheels and the centre of the traversing screw are not in the same line, as shown in fig. 4, by which we are enabled to make the bearings for the cutting-wheel journals as long as desired without taking up any space inside the traversing slide.) Where economy in space is desirable, ears or bosses *ss* are made on the case *c*, (fig. 4,) sliding in or on guides, which latter are stationary, so that the dressing apparatus can be traversed across the face of the stone without ever having any of its parts projecting over the side of the grindstone box.

2. Fig. 1 shows the arrangements for dressing curved-faced grindstones. *q* is the case, which encloses the cutter-wheel; it slides in dove-tail grooves upon the curved rest *d*, which moves around an imaginary or real centre, or slides in annular grooves, to suit the desired convexity or concavity of the stone. The rest *d* is traversed usually by a toothed sector and pinion, similar to the rack *i* and pinion *j* on machine 1, fig. 1; but a worm-wheel and tangent-screws may be advantageously substituted in some cases. Either the "U-slide form," the "slide-rest form," (both shown in fig. 1,) or the form in which the case *c* slides by its ears or bosses on guides, as described above, may be used for dressing curved-faced grindstones. The piece *w*, on the top of 1, fig. 1, is a rest for grinding tools.

The operation of the machine is as follows: When the stone has worn irregular, the apparatus is set forward, by the means described, until it is in contact with the stone; then it is traversed across the face, as above explained, and a regular, perfectly circular stone will be the result. Instead of traversing the apparatus by hand, a pulley may be put in place of the crank *g*, and connected with another pulley on the shaft *u* by a belt, so that by means of any one of the many devices for obtaining a rectilinear reciprocating motion the case can be traversed automatically across the face of the stone.

I claim as my invention, and desire to secure by Letters Patent—

The combination of long bearings for cutting-wheel *b*, the rests *F*, the lip *o*, and ears *s*, as set forth and for the purposes described.

GEO. C. HOWARD.

Witnesses:

SAML. B. HOWARD,
G. W. EDWARDS.