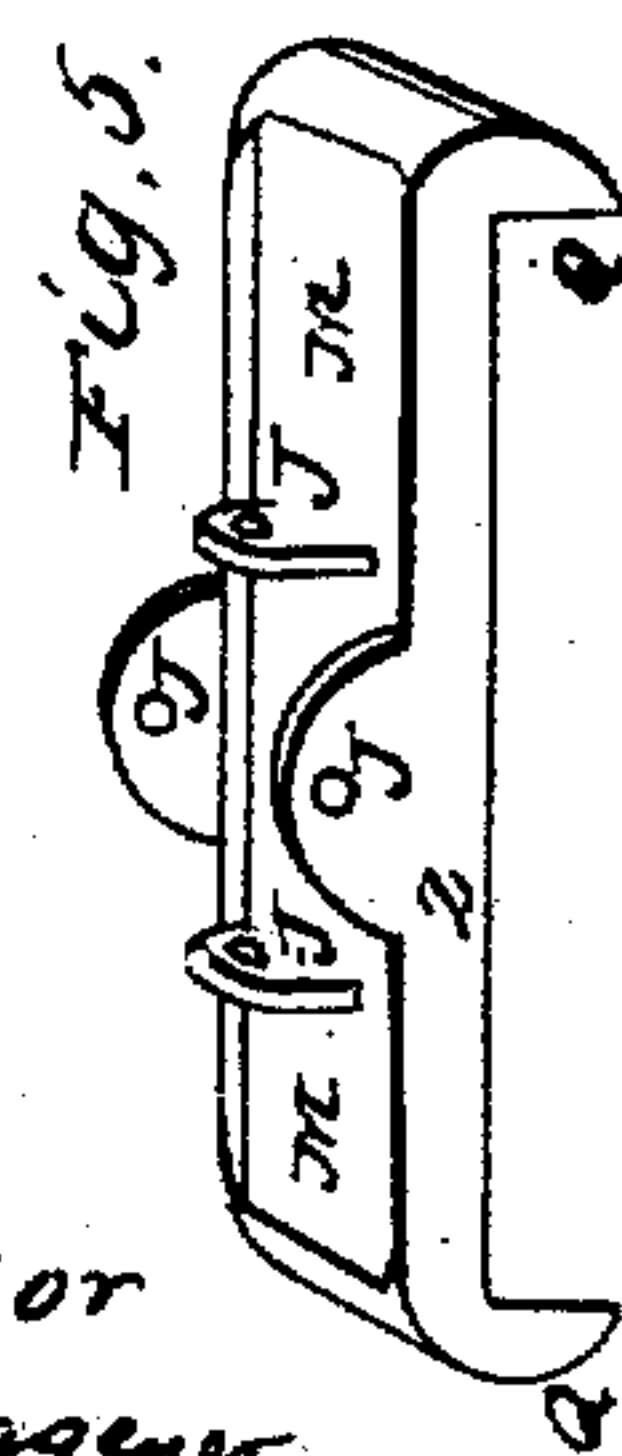
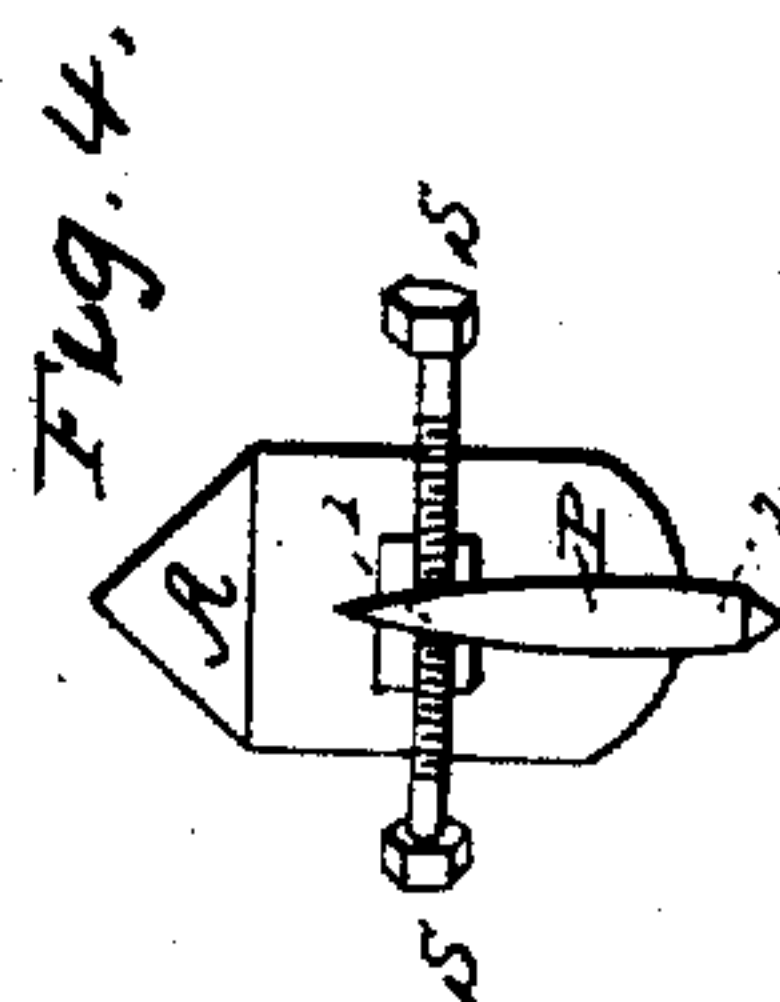
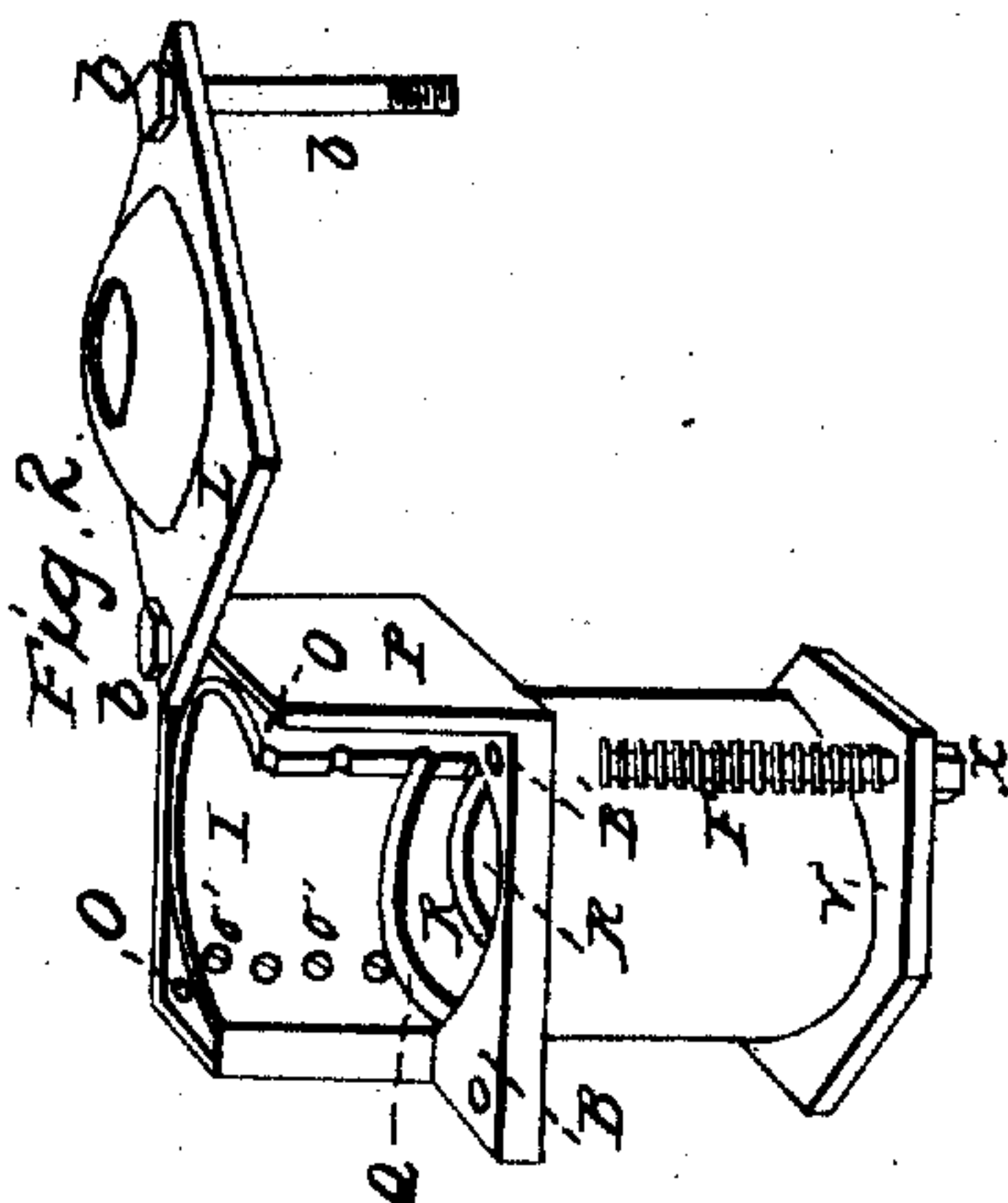
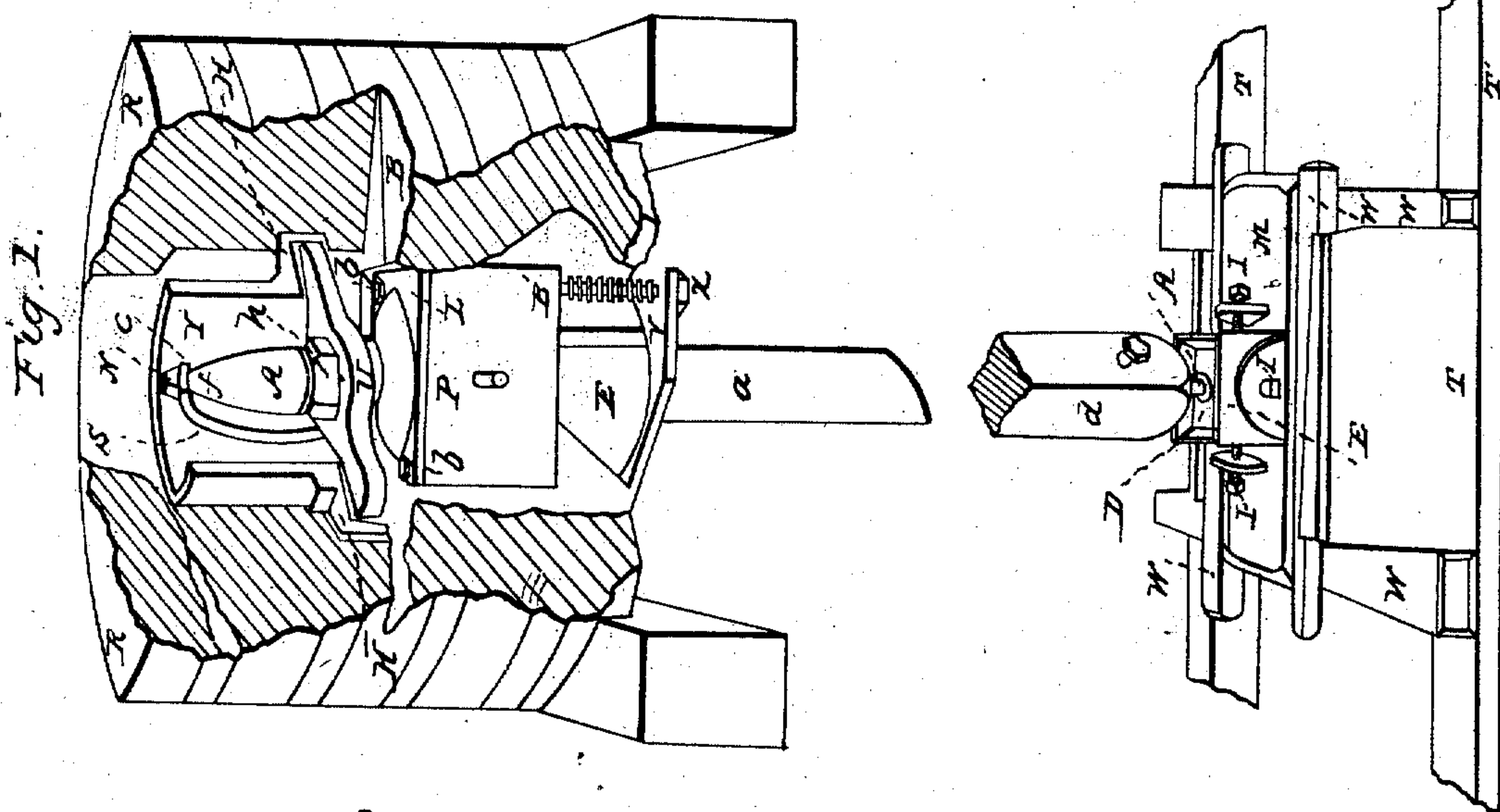
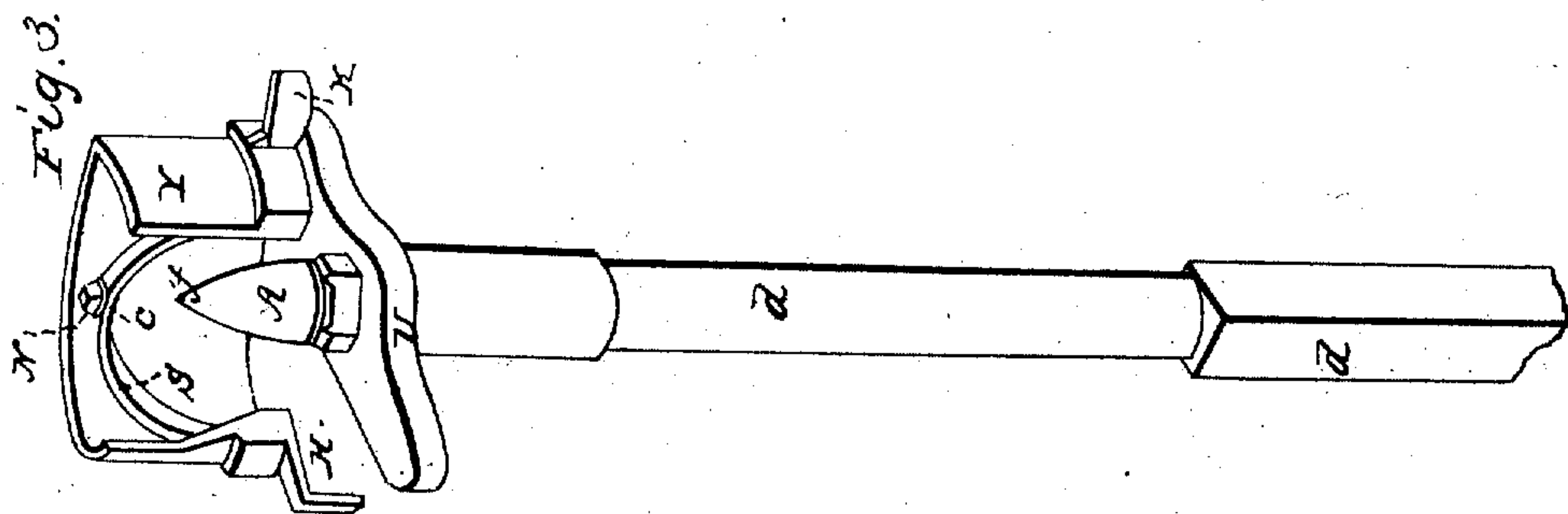


Grist Mill.

Patented Jan'y 8, 1839.



Witnesses:
J. Hampden Field
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Inventor
David D. Wagner

UNITED STATES PATENT OFFICE.

DAVID D. WAGENER, OF PITTSBURGH, PENNSYLVANIA.

GRIST-MILL.

Specification of Letters Patent No. 1,065, dated January 8, 1839.

To all whom it may concern:

Be it known that I, DAVID D. WAGENER, of the city of Pittsburgh, county of Allegheny, and State of Pennsylvania, have invented a new and Improved Mode of Packing and Gearing Mill-Spindles; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists, 1st, in the sustaining of the stepping in a metal carriage placed and movable, by means of screws, in any horizontal direction upon the bottom of a metal box, which box is fastened upon the bridge-tree by means of keys that render it, also, movable in any horizontal direction. 2dly, in the attachment of the spindle to the bedstone by means of a cast metal bush containing within it packing similar to the packing of a steam engine piston, which can be compressed or relaxed at will by a follower moved from without by screws. 3dly, in the employment of a metal eye which is firmly cemented into the eye of the runner; and in the connecting in one solid casting that metal eye, a metal rynd or spindle bail and the metal driver boxes.

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

I construct my stepping in any of the known forms, as represented in the diagram D, Figure 1, I support it in a carriage E Fig. 1, upon the bottom of a metal box M Figs. 1 and 5. Both the carriage and box are movable horizontally in any direction; the motion of the box being upon the bridge-tree T, Fig. 1, and governed by the keys W, Fig. 1, which act upon the clasps Q, Fig. 5, and the two sides the one of which is marked Z, Fig. 5, the motion of the carriage being upon the bottom of the box and governed by four screws, having their action directly toward the center of the carriage where the lines of action form four right angles. Of these screws three are represented in Fig. 1, and marked I.

It is apparent that the spindle may be easily and accurately geared or bought to the true perpendicular by tightening, or slackening the screws as necessity may require; and that the inconvenience and inadequacy of wedges, as now commonly employed to move and gear steppings upon bridge-trees, which so frequently cause the spindle to be urged over or within the true

plumb line, are, by this arrangement simply and successfully avoided. It will still further be readily perceived that the whole frame may easily be set, being movable separately or in composition in a longitudinal or transverse direction, because it is attached to the bridge-tree by keys; and that hence any advantage from wedging, where wedging may be of any advantage, can be obtained by wedging the whole frame.

I construct my metal bush, Fig. 2 and P, Fig. 1, of any convenient size. It is a box. Its outward figure is rectangular. The lid L Figs. 1 and 2, is above and fastened permanently down by screws b, Figs. 1 and 2. The follower F, Figs. 1 and 2 is inserted in below, through the orifice Q, Fig. 2, and is attached to a hexagonal metal plane V, Figs. 1 and 2. The follower is graduated by two screws, one of which is represented at X, Figs. 1 and 2. They pass freely through the hexagonal metal plane at opposite angles of it, and have their females contained in the lower superior corners of the bush marked B', Figs. 2 and 1, where the metal for about one inch in thickness is, excepting those females, solid, after which it is a box or tube, O O, Fig. 2, the bore of which is greater than the diameter of the screws. These boxes or tubes are separated from the interior of the bush by metal but have connections with it by means of several small passages, marked O', Fig. 2. They are filled with oil, which, passing through the passages, constantly lubricates whatever the interior of the bush may contain.

Through the follower, the interior of the bush and the neck of the lid, the collar of the spindle passes, as exhibited in Fig. 1, the naked spindle being represented in juxtaposition in Fig. 3. Packing, similar to steam engine packing is placed in the interior of the bush above the follower and, it is evident will be tightened or slackened as the screws of the follower are driven or drawn. When the follower and spindle do not exactly fit, a ring R, Fig. 2, may be employed.

The metal eye Y Figs. 1 and 3 is firmly cemented into the runner. Its form is cylindrical. Its driver boxes are projections H H at the two terminations of the same diameter of the cylinder. There are, also, two other projections, terminating that diameter of the cylinder which is at right angles to the one before mentioned; so that perpendicular lines through the centers of

the four projections would divide the circle of which the cylinder is composed into quadrants, externally. S S is the bail. With the eye and the driver boxes it forms one
 5 solid casting. f is one pole of the spindle's axis. Immediately above f and below its center in the bail is c , the spindle's center of motion or cock-head; and above the cockhead
 10 and upon the top of the bail is a projection which is square and acts as a nut or tenant upon a mortise which terminates the lower extremity of the dempsel; so that the dempsel revolves with the metal eye and with the runner to which the metal eye is firmly
 15 cemented.

The driver is marked U, Figs. 1 and 3. It is, also, made of metal and fits accurately in the metal driver boxes. About its center a hexagonal mortise is cut, capable of being
 20 accurately adapted to the hexagon which occurs on the part of the spindle marked n , to which part the driver pertains and about which the metal box (eye) is placed as represented in juxta-position in Fig. 1 and 2.

25 It will be readily perceived from the solid connection of the bail, the eye and the driver boxes, from the unmovable nature of their attachment to the runner, in the direction in which the action of the machine naturally
 30 opposes that attachment as well as from its firmness in every direction, from the manageability of my packing about the spindle

and within the bush, from the extreme availability of an accurate gearing of the stepping and its solid metal support, that only
 35 the wearing of the cockhead remains, of all those causes, which when wood, cement or stone, as now in common use are employed, occasion excessive friction, derangement in the position of the runner, (commonly
 40 termed lopsided action); cavities which detain the grain in feeding and not unfrequently, most destructive fire in mills.

What I claim as my invention and desire to secure by Letters Patent are:

1. The employment of the metal box attached to the bridge-tree by keys and movable longitudinally and transversely upon it, in combination with the mode of adjusting, by means of screws, the carriage which
 50 holds the stepping of the lower pole of the spindle, the whole as herein described.

2. The employing of a metal bush containing packing; through which the spindle is permitted to revolve; which packing
 55 may be tightened or slackened, even while the machine is in motion, by a follower, acted upon by screws movable from without as herein described.

DAVID D. WAGENER.

Witnesses:

I. HAMPDEN FIELD,
 THOMAS CASSWELL.