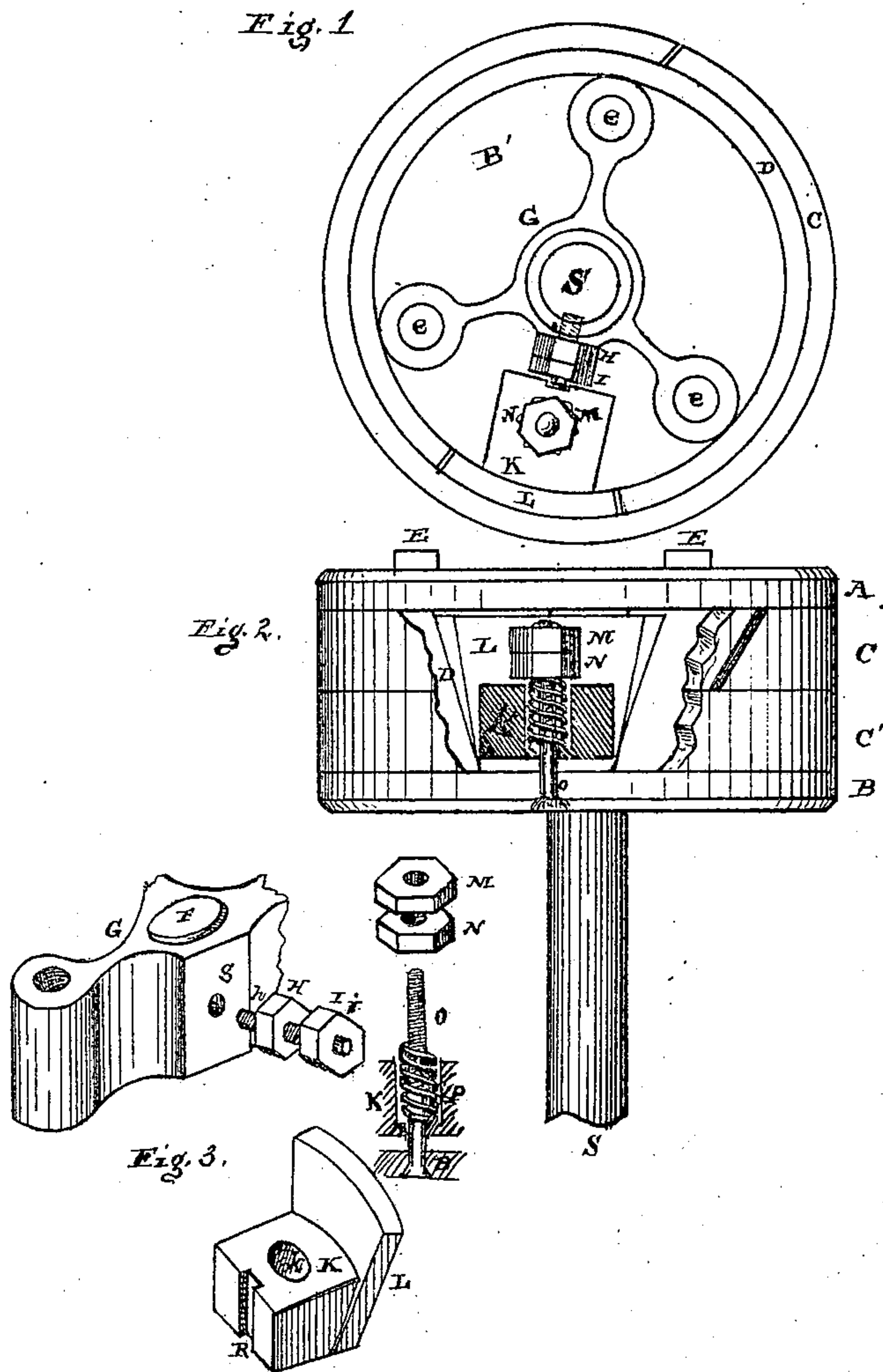


J. M. CLAY.
Piston-Packing.

No. 133,519.

Patented Dec. 3, 1872.



Witnesses.
Jno. H. Amweg
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Inventor.
John M. Clay

UNITED STATES PATENT OFFICE.

JOHN M. CLAY, OF LANCASTER, PENNSYLVANIA.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. 133,519, dated December 3, 1872.

To all whom it may concern:

Be it known that I, JOHN M. CLAY, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in the Adjustment and Expansion of Piston-Heads for Steam-Cylinders, of which the following is a specification:

This invention relates to the interior arrangement of the piston-head, and manner of expanding the rings and centralizing the bearing of the piston-rod.

The accompanying drawing illustrates my improvements in place of an ordinary piston-head, with its open rings, follower, &c., also shown.

Figure 1 is a top view of the interior arrangement with the cap or follower removed. Fig. 2 is a side elevation with portions of the rings removed or broken out to show the key or segmental flange and plug in place. Figs. 3 are detached portions shown in perspective.

The piston-rod S and head, composed of cut or open rings C C' and D, with the hub G and radiating arms, and base B, and cap or follower A, are not novel, and require no further description. I show a hub, G, with three radiating arms. These may be increased according to the size or diameter of the cylinder; or on a small piston a central screw may hold the cap or follower A in place. On the lower side of the hub G I show a flat face, *g*, cut for a screw, *h*, which screw is provided with a head, I, having a nipple centrally on its outer face, marked *i*, rounded so that it may turn, but be confined in the slot R of the key-plug K, against which it acts. There is a jam-nut, H, to hold the adjustment when made. In horizontal cylinders, the lower portion of the piston-head is inclined to wear off faster by the gravitating force added to the friction; hence this screw is made to enter the thread cut in the hub G, under the center of the piston-rod, the screw supporting the same, so that when worn below it is easily again centralized and adjusted from time to time. The expansion of the rings is effected by a new device, which consists of the plug or spring-box K, having an open shouldered central cell, *k*. Upon the bottom or shoulders

of this cell there rests a stout spiral spring, higher than the plug. The whole sits over or embraces a screw shaft or stud, O, affixed to the bed-plate B. This plug K has a flange, L, curved with the radius of the inner ring D, (supplying the segment cut out,) made wedge-shaped, of the thickness of the ring, but so much lower as to allow, say, one-third wedging-space. This flange or segment fits into the section cut out of the inner ring, being alike bevel, so as to sit in the ring above like a key-stone. The wedging for expanding the rings is performed by means of a nut, N, screwed down upon the top of the spring in the cell of the plug. This spring rests upon the shoulder or flange of the cell, and presses the plug K with its raised wedge-flange or segment L down, and consequently expands the inner ring D, which, at the same time, expands the outer rings C C'. There is also a jam-nut, M, to hold the adjustment when made.

Fig. 1 shows the piston S in the center of the hub G, the screw-head I with its nipple *i* fitting in the groove R of the key-plug K, and its flange wedge or key L with the nuts and jam-nuts H M N. In Fig. 2 the cell and spiral spring are shown, which arrangement for centralizing the piston-rod and expanding the rings for the purpose of adjusting piston-heads comprises my invention, and which I believe to be novel; the utility is fairly tested and proved. I am aware that various devices are employed to the same end, but they differ substantially in the construction and arrangement, and are more complicated or less efficient.

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

The combination of the ring D having wedge-shaped opening, the flange L, spring-box K, cell *k*, spring P, and screw-stud O with the centralizing-screw *h* having head I, nipple *i*, and jam-nut H, all constructed, arranged, and operated as and for the purpose set forth.

JOHN M. CLAY.

Witnesses:

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