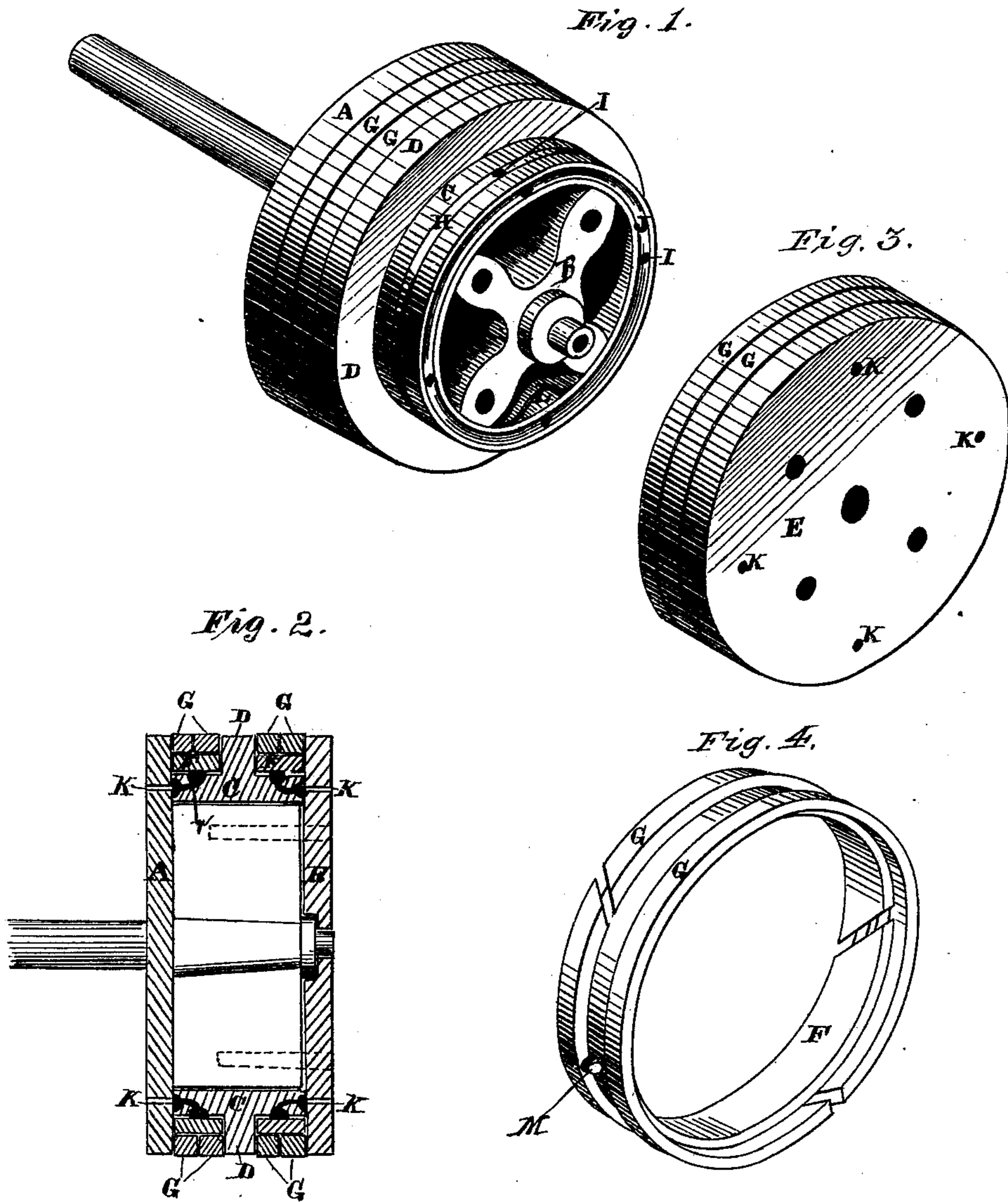


S. A. YOUSE.
Piston-Packing.

No. 214,862.

Patented April 29, 1879.



Witnesses

Geo. H. Strong.
Frank H. Brooks

Inventor

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UNITED STATES PATENT OFFICE.

SAMUEL A. YOUSE, OF SUTTER CREEK, CALIFORNIA.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. **214,862**, dated April 29, 1879; application filed December 28, 1878.

To all whom it may concern:

Be it known that I, SAMUEL A. YOUSE, of Sutter Creek, county of Amador, and State of California, have invented an Improved Piston-Packing; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to certain improvements in that class of engine-pistons in which the packing is effected by the action of steam under pressure, which is allowed to enter the interior of the piston at each stroke, and thus force the rings out to a bearing; and it consists in a novel combination and arrangement of a series of three-part external expandible rings upon an interior centrally-flanged body, which is in turn supported upon or surrounds the spider. This body has circular grooves surrounding it centrally beneath each broad ring, and these grooves receive steam through passages from each end of the cylinder, so that the rings upon that side of the central flange only will be expanded by the action of the steam during the portion of the stroke from that end of the cylinder.

My invention further relates to the employment of a spring at the bottom of the piston when moving horizontally, whereby the piston-head and follower are prevented from falling upon the side of the cylinder when running without steam, and thus wearing it out of true; and in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view, showing one set of rings in position. Fig. 2 is a vertical section. Figs. 3 and 4 are details.

A is the piston-head; B, the spider; and C is the body of the piston, which is provided with a central flange, D; and E is the follower, which, when bolted on, retains the parts in position.

The rings are composed of three parts each—a broad ring, F, which fits the body of the piston, and two outer rings, G, which are fitted upon the outside of the ring F. Each of these rings is made in a single piece with one cut, so as to make them elastic.

The body C has grooves H turned in it upon

each side of the central flange D. These grooves lie beneath the center of the rings F, and holes I are drilled so that the grooves H will connect with similar grooves J, which are formed in the edges of the part C. When the follower is in position, these grooves J will lie against the head A and follower E, respectively. Holes K through the head A and follower E admit steam to the grooves J, and from these the holes I admit it to the grooves H in the face of the body C. The ends where the rings are cut are made to break joints, so as not to leak steam; and as the ring F has its center over the groove H, the pressure will be central, and there will be no side pressure by reason of the steam being admitted beneath one side or the other of the ring. Being admitted centrally, it will be distributed equally outward from the groove, which is of advantage in steadying the rings and equalizing the pressure.

The flange D fills the cylinder like the piston-head and follower, and the rings are thus held in place, one set upon each side of this flange.

Steam being admitted to the cylinder, it will enter the small holes K upon that side of the piston, and, passing through the channel J, will enter the holes I and grooves H, thus expanding the rings upon that side of the flange, while the rings upon the opposite side will remain loose. The reverse action takes place upon the return of the piston. The interior rings F have each a pin, M, projecting from them, and the double outer rings have each a groove which fits the pin, and thus prevents the rings from changing their position.

In order to support the weight of the piston and prevent its dropping upon the side of the cylinder, where it will wear the cylinder out of true when running without steam, I employ a single adjustable spring, L, which is fitted within the spider, and it serves to keep the piston-head and follower up by its elastic ends resting upon the body C, as shown.

By my construction I am enabled to simplify the steam-packing, economize the steam employed by means of the grooves, produce a pressure outwardly from the center of the rings, which equalizes the pressure and the wear,

provide an improved compound ring, and reduce the wear of the piston and cylinder to a minimum.

Having thus described my invention, I do not claim, broadly, the employment of steam-packing through the medium of rings; nor do I claim a packing-ring composed of two or more parts, or two or more sets of rings upon the piston-face, as I am aware that such a construction is shown in previous patents; but

What I do claim as new, and desire to secure by Letters Patent, is—

In an expansible piston-packing, the body C, provided with grooves J H, connecting-ports I, and flange D, in combination with the split rings G G F, and head A, and follower E, each provided with ports K, substantially as set forth.

In witness whereof I have hereunto set my hand.

SAMUEL A. YOUSE.

Witnesses:

RAYMOND BREESE,
JACKSON DENNIS.