A. W. Jackson.

Piston Packing.

No. 57,916. Patented Sep. 11, 1866.

Fig. 4.

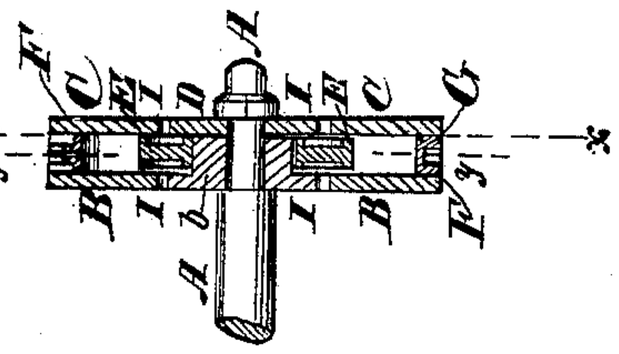


Fig. 3.

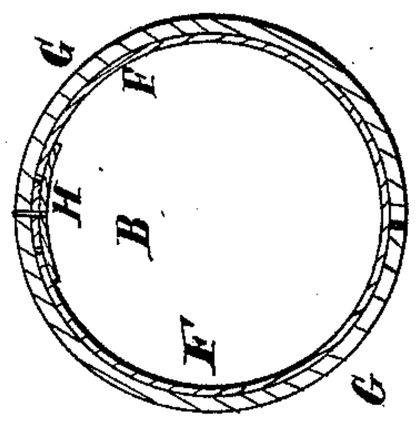


Fig. 2.

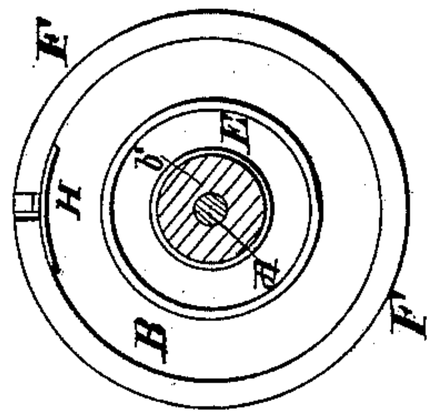
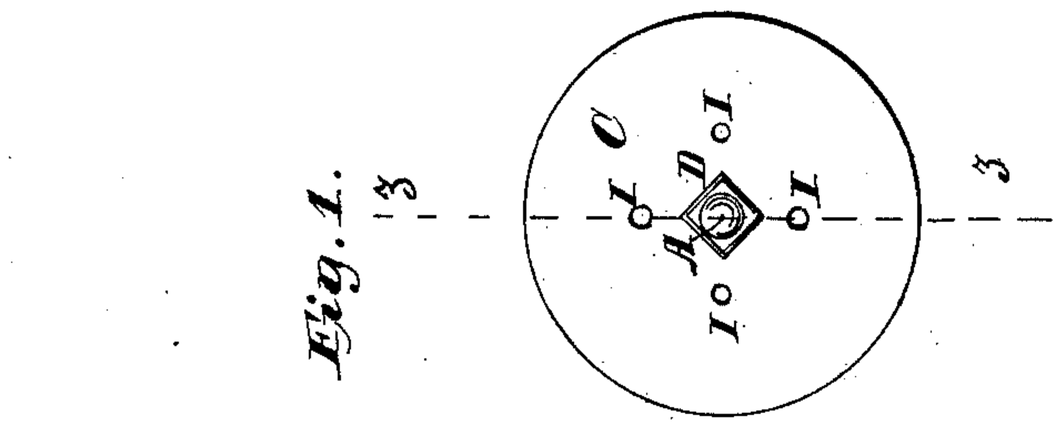


Fig. 1.



Witnesses:

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UNITED STATES PATENT OFFICE.

A. W. JACKSON, OF CENTRALIA, ILLINOIS.

IMPROVEMENT IN PISTON-PACKING.

Specification forming part of Letters Patent No. **57,916,** dated September 11, 1866.

To all whom it may concern:

Be it known that I, A. W. JACKSON, of Centralia, in the county of Marion and State of Illinois, have invented a new and useful Improvement in Piston-Packing; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side or face view of my improved piston. Fig. 2 is a section of the same, taken through the line *x x*, Fig. 4. Fig. 3 is a section of the same, taken through the line *y y*, Fig. 4. Fig. 4 is a cross-section of the same, taken through the line *z z*, Fig. 1.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an improved piston-packing, simple in construction and self-adjusting, in which the pressure of the packing against the inner surface of the cylinder shall be in exact proportion to the pressure of the steam upon the face of the piston; and it consists, first, of the packing-rings and cap or plate, constructed as hereinafter described, in combination with each other and with the face-plates; and; second, of the interior valve-ring, in combination with the face-plates, as hereinafter more fully described.

A is the piston-rod, to the lower end of which is solidly attached the plate B of the piston-head. C is the lower plate of the piston-head. This plate is secured in place either by being screwed upon the end of the piston-rod or by a nut, D, which is screwed upon the end of the piston-rod, as shown in Fig. 4.

The plates B and C are kept apart by a circular projection, *b′*, against which the plate C is firmly screwed.

E is the valve-ring, which fits loosely around the projection *b′*. This ring is furnished at its interior and exterior edges, on each side, with projecting flanges, as shown in Fig. 4. The flanges of the ring E do not project far enough to fill up the space between the plates B and C, which allows the ring to move back and forth as it is driven in either direction by the steam.

F is a ring, of such a breadth as to closely fit into the space between the plates B and C. Around the circumference of this ring F is formed a groove, equal in breadth to about one-third the breadth of the ring, and equal in depth to about three-fourths the depth of the said ring. Into this groove is fitted the ring G, as shown in Figs. 3 and 4. Both the rings F and G are cut open, and at the place where the ring F is cut the bottom of the groove is cut away, as shown in Fig. 3. The rings are then so arranged that the cuts in the two rings shall be opposite each other, as shown in Fig. 3.

H is a small plate fitting the interior surface of the ring F, and having a projection which fits into the hole formed by cutting away the bottom of the groove of said ring, as before described. This plate is secured to the ring G by one or more rivets, as shown in Fig. 3.

Through the face-plates B and C of the piston-head are formed holes I, opening into the grooves formed on the sides of the ring E by the flanges of said ring, as shown in Fig. 4. If, now, steam is admitted into the cylinder below the piston, it passes through the holes I in the plate C, forcing up the ring E against the plate B, which covers the holes in the said plate and prevents the escape of the steam through said holes. The steam then fills the space between the rings E and F, and forces out the rings F and G against the surface of the cylinder with a force exactly equal to the pressure of the steam. When the steam is cut off or exhausted from below the piston the pressure upon the ring F is diminished or withdrawn, and the piston continues its stroke with diminished friction. When the steam is admitted above the piston for the return-stroke the operation is exactly similar.

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

The combination and arrangement of the perforated plate C, perforated plate B, having projection *b′*, valve-ring E, grooved ring F, ring G, and projecting plate H, constructed and operating substantially as and for the purpose set forth.

A. W. JACKSON.

Witnesses:

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