C. H. HUTCHINSON.

CYLINDER PISTON-PACKING.

No. 174,137. Patented Feb. 29, 1876.

Fig. 1.

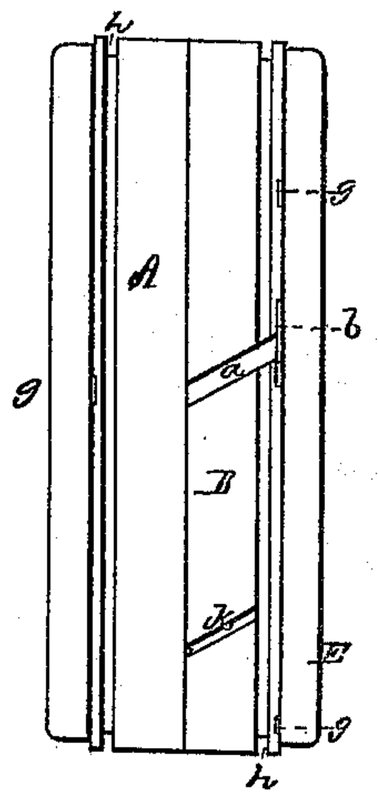


Fig. 2.

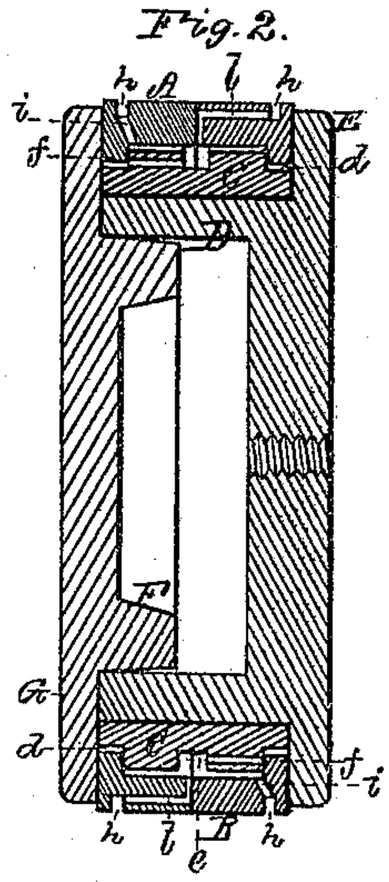


Fig. 4.

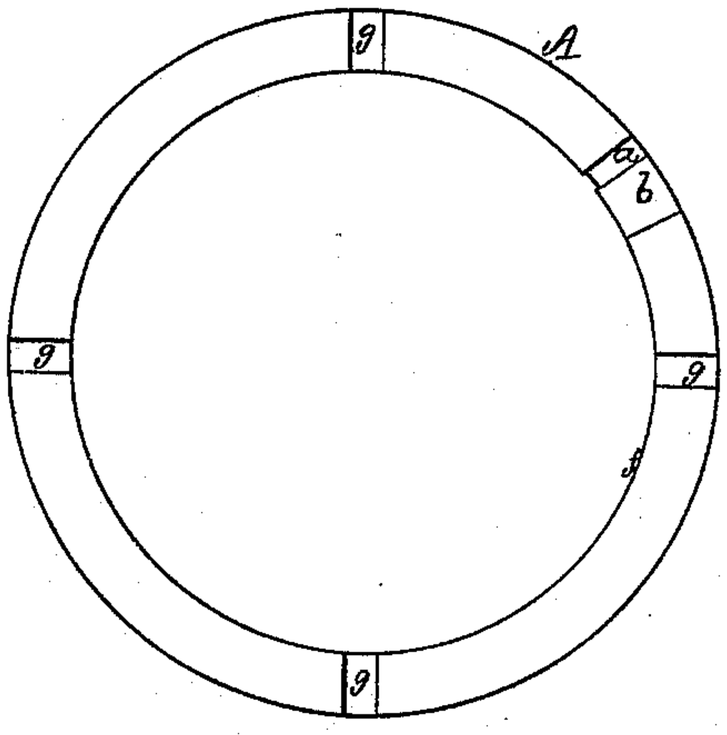


Fig. 3.

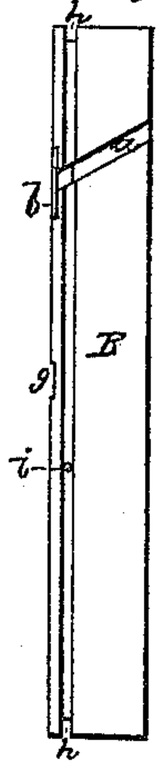


Fig. 5.

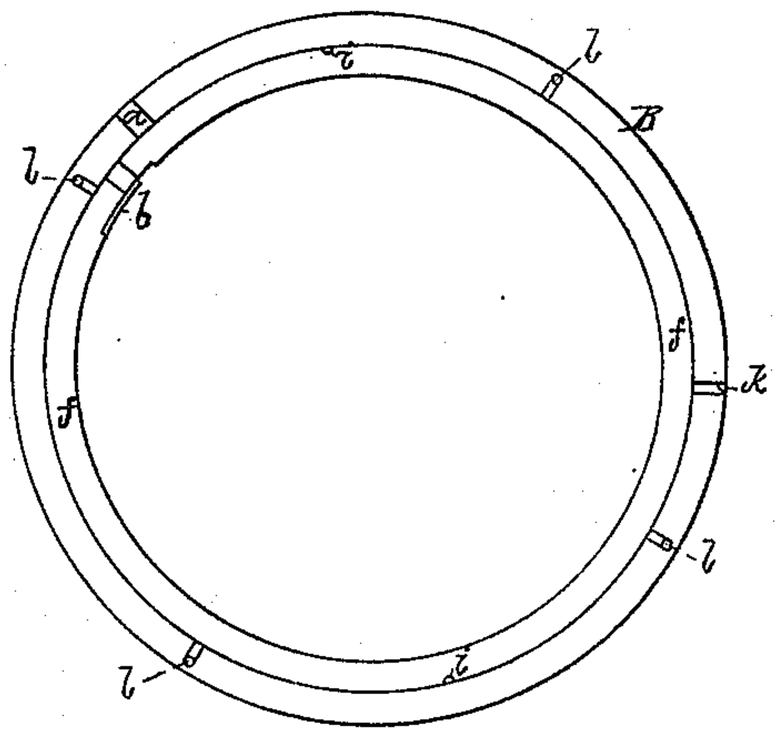


Fig. 6.

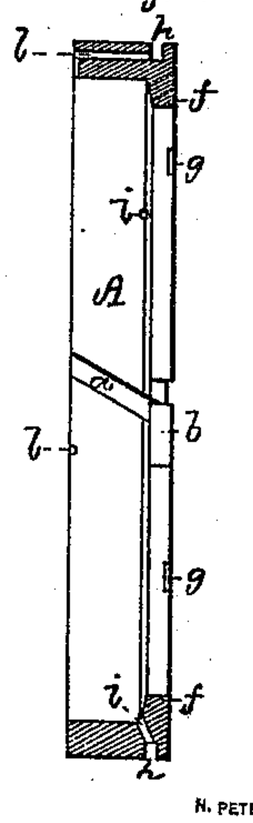
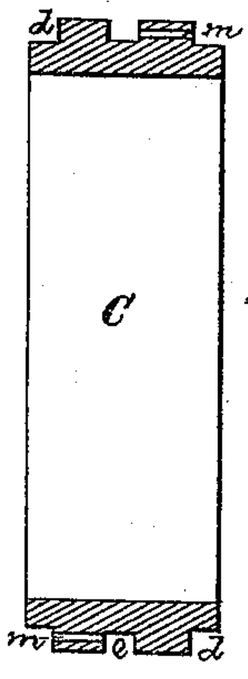


Fig. 7.



Witnesses.

S. W. Pipes.

L. W. Miller

Charles H. Hutchinson

by his attorney.

R. H. Eddy

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES H. HUTCHINSON, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN CYLINDER-PISTON PACKINGS.

Specification forming part of Letters Patent No. **174,137**, dated February 29, 1876; application filed February 7, 1876.

To all whom it may concern:

Be it known that I, CHARLES H. HUTCHINSON, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Cylinder-Piston Packing; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a side view, and Fig. 2 a transverse section, of a piston-head with my invention, which specially relates to the metallic-ring packing.

The packing, as represented in the drawings, consists of two expansive rings, A B, encompassing a single ring, C, that surrounds a hollow cylinder, D, projecting from a disk, E. Another such, but shorter cylinder, F, extended from another disk, G, fits into the cylinder D. Each disk is a little less in diameter than the expansive ring next to it, the said expansive rings being between the two disks, which, with the inner ring C, constitute a piston-head, to be affixed to a rod.

Each expansive ring is split transversely and obliquely through it, as shown at *a*, and provided with a bridge, *b*, fastened near one end to the ring, and extending across the opening in the ring, all being as shown.

In carrying out my invention I provide the inner ring C with two rabbets, *d d*, extending around it at its ends, there being midway between such rabbets a groove, *e*, in and around the said ring. Furthermore, I provide each of the expansive rings A B with an internal flange, *f*, to enter the next adjacent rabbet of the inner ring. The outer edge of each expansive ring has also one or more shallow passages, *g*, made across it, as shown in Figs. 3 and 4, the first of which (figures) is a side view, and the second an edge view, of one of such rings, Fig. 5 being an inner edge view, and Fig. 6 a transverse section, of the ring. Each expansive ring is also grooved around its circumference, as shown at *h*, the distance between the said groove *h* and the next adjacent or flanged side of the ring being less than the thickness of the flange *f*. One or more holes, *i*, lead from the groove *h* into the interior of the expansive ring and back of the flange. There is also an oblique groove, *k*, leading across the ring from the groove *h*, and also across the inner edge of the ring. There are also sundry holes *l* from the groove *h* leading transversely through the ring to its inner edge, and from thence inward to the inner periphery of the ring. Furthermore, there are also one or more holes, *m*, leading from each rabbet of the inner ring into the groove at the middle of such ring, such being as shown in Fig. 7, which is a transverse section of the inner ring C.

The main object of my improvement is to cause the steam when expanding either ring A or B to exert its pressure, not on the entire inner surface of the ring, but mostly, if not entirely, upon the periphery of the flange *f*. The steam to expand the ring enters through the shallow passages *g*, and, acting on the inner edge of the flange, presses the ring outwardly. Should steam escape by the outer edge of the ring, such steam will flow into the groove *h*, from whence it will escape into the groove of the inner ring C, and from thence through the lateral passages *m* leading from the groove *e* to the rabbet in advance, and thence through such.

The grooves *h* in the rings A B serve to intercept any surplus steam escaping, and thereby prevent collapsing of the rings, the pressure on the flanges being greater than on the parts of the rings that are between the grooves and outer ends of the rings.

When steam is pressing on one of the rings A B to expand it, the other will allow the leaked steam, if any, to escape into the exhaust.

I claim—

In a piston-packing, the combination of the inner ring C, provided with the groove *e*, the two rabbets *d*, and their connecting-passages *m* with the two expansive rings A B, provided with the flanges *f*, circumscribing-grooves *h*, induction-passages *g*, and one or more passages leading from each of the said grooves, both to the internal periphery and inner side of its ring, all being substantially as specified.

CHARLES H. HUTCHINSON.

Witnesses:

R. H. EDDY,

J. R. SNOW.