

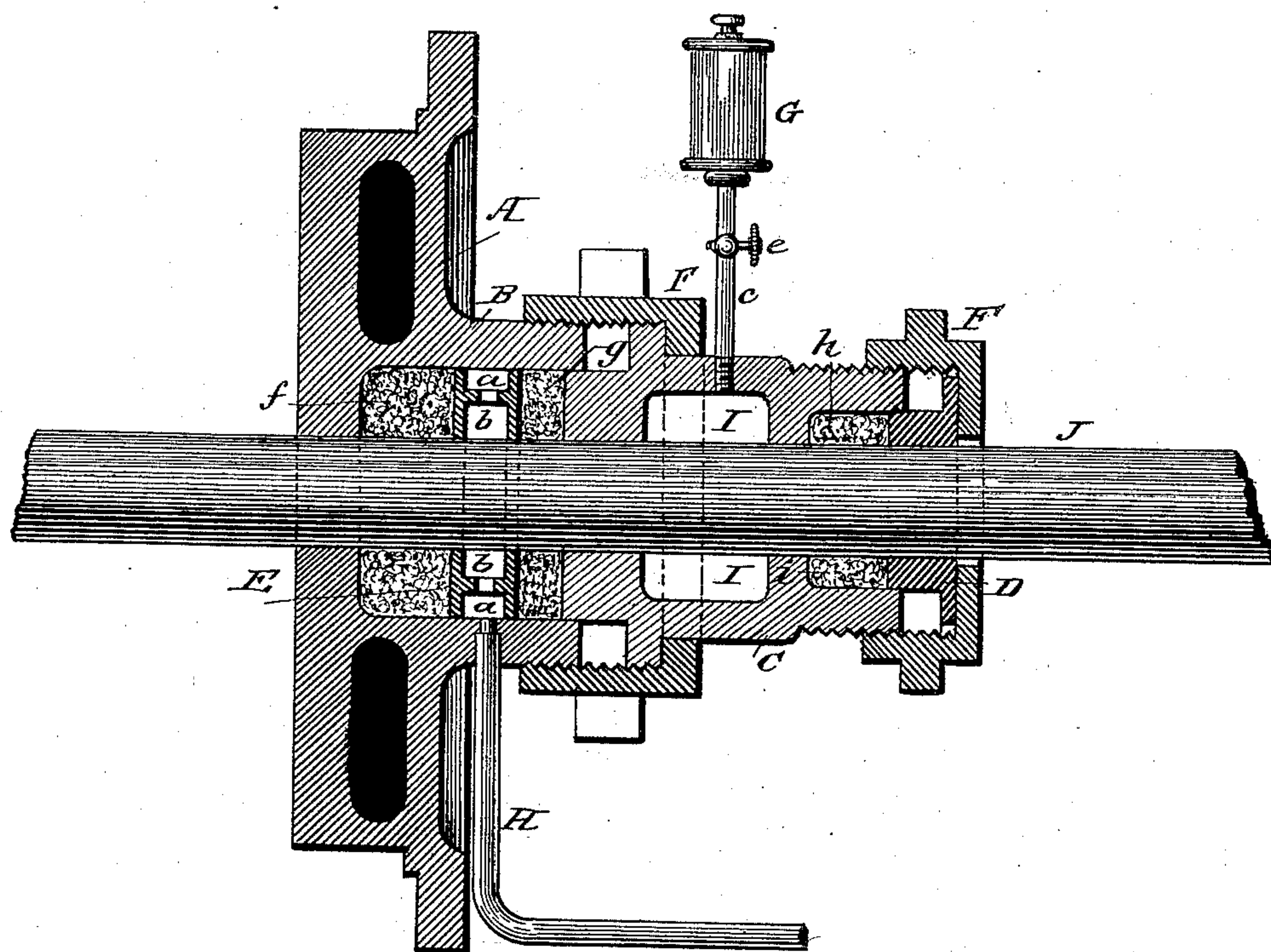
(No Model.)

W. S. COLWELL.

MEANS FOR PACKING PISTON AND VALVE RODS.

No. 313,180.

Patented Mar. 3, 1885.



WITNESSES:

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MEANS FOR PACKING PISTON AND VALVE RODS.

SPECIFICATION forming part of Letters Patent No. 313,180, dated March 3, 1885.

Application filed August 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. COLWELL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Means for Packing Piston and Valve Rods; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which represents a longitudinal vertical section, and to the letters of reference marked thereon.

My invention relates to the packing of piston and valve rods of engines, particularly bisulphide-of-carbon engines; and it consists of a vacuum formed around a part of a piston or valve rod, and surrounding another part with oil and other parts with a packing, as will hereinafter more fully and at large appear.

To enable others skilled in the art with which my invention is most nearly connected to make and use it, I will proceed to describe its construction and operation.

In the accompanying drawing, which forms part of this specification, A represents a section of a cylinder-head of an engine, having a packing-chamber, B, in which, around the piston J, is placed a packing, *f*, and then a ring, E, having recesses *a b*, which communicate with each other by a series of openings. The ring E is followed with packing *g*, and it by packing-glands C D, having a chamber, I, and cavity *h*, in which is a packing followed by a packing. The packing-glands C D are forced against the packing *f g i* by means of the screw-caps F F. The chamber I communicates with an oil-reservoir, G, by means of a pipe, *e*, having a valve, *e*. The recesses *a b* of the ring E communicate with a pipe, H, which may communicate with an exhaust mechanism of any known construction for causing a vacuum in the recesses *a b*.

By reference to the accompanying drawing, in connection with the foregoing description, the skillful mechanic will be enabled to construct my improvement. I will therefore proceed to describe the operation. The reservoir G is filled with oil, and the valve *e* is then opened, thereby filling the chamber I with oil. The exhaust mechanism mentioned being put into

operation, a vacuum or partial vacuum is formed in the recesses *a b* of the ring E. Now, by properly compressing the packings *f g i* around the piston-rod J through the medium of the screw-caps F F, all leakage of vapor will be prevented, and by the peculiar arrangements of the several parts described the pressure of the atmosphere will always be exerted toward the joints.

The advantage of the hereinbefore-described method for packing piston and valve rods in a bisulphide-of-carbon engine will be apparent to persons conversant with the operations of vapor-enginery.

Having thus described my improvement, what I claim as of my invention is—

1. In a rod-packing, the combination of a head provided with a packing-chamber and a ring interposed between the strata of packing material, and a separate chamber containing a liquid packing, substantially as described.

2. In a rod-packing, the combination of a head provided with a chamber for containing a solid packing, a ring interposed between the strata of the solid packing, and a gland provided with a liquid-packing chamber, substantially as described.

3. In a rod-packing, the combination of a head provided with a chamber for containing a solid packing, and a gland having two chambers, one for a body of liquid in which the rod reciprocates and the other for solid packing, substantially as herein described.

4. In a rod-packing, the combination of a head provided with a chamber for containing a solid packing, a ring interposed between the strata thereof, and a gland provided with a liquid and a solid packing chamber, substantially as herein described.

5. In a rod-packing, the combination of a head provided with a chamber containing packing material, and a ring interposed between the strata of packing, provided with chambers surrounding the rod and adapted to be put in communication with a vacuum-producing device, substantially as herein described.

6. In a rod-packing, the combination of a head provided with a chamber containing packing material, and an interposed ring provided with a chamber or chambers adapted to

be put in communication with a vacuum-producing device, and an oil-chamber surrounding the rod, substantially as herein described.

7. In a rod-packing, the combination of a
5 head provided with a chamber containing packing material, and a chamber adapted to be put in communication with a vacuum-producing device, with a gland provided with an oil-chamber surrounding the rod, and a res-
10 ervoir, substantially as herein described.

8. In a rod-packing, the combination of a head provided with a chamber containing packing material, a ring interposed between the strata of the packing, a separate oil-cham-
15 bersurrounding the rod, and a packing-chamber beyond the oil-chamber, substantially as herein described.

9. In a rod-packing, the combination of a head provided with a chamber containing
20 suitable packing material, a ring interposed

between the sections of packing, and having chambers adapted to be put in communication with a vacuum-producing device, a gland provided with a chamber for containing a liquid packing, and a solid packing beyond said
25 liquid-chamber, substantially as herein described.

10. In a rod-packing, the combination of a head provided with a chamber containing a packing in two sections, a ring interposed be-
30 tween said sections, a gland having two packing-chambers, and suitable connections for securing the gland to the head and the outer gland to the main gland, substantially as herein described.

WILLIAM S. COLWELL.

Witnesses:

JAMES J. JOHNSTON,
WM. E. DYRE.