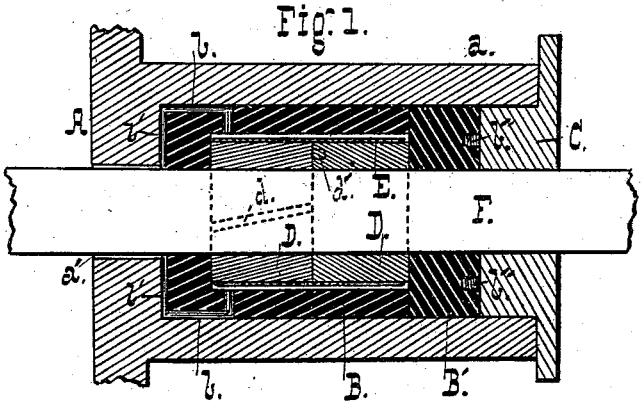
L. SAYLOR.
Piston-Rod Packing.

No. 213,301 Patented Mar. 18, 1879.

Fig. 1.



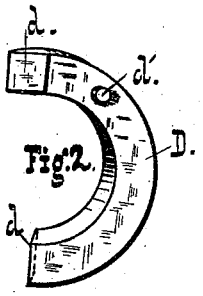
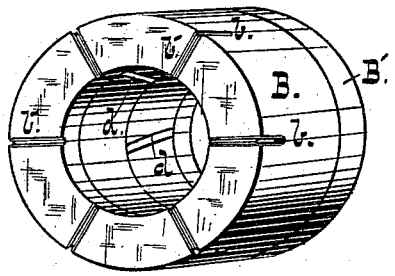




Fig. 2.

Fig. 3.




Witnesses,
W. A. Bertram.
DeLancy C. Beasley.

Inventor
Livingston Saylor.
by
R. D. Williams.
Attorney.

# UNITED STATES PATENT OFFICE

LIVINGSTON SAYLOR, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN PISTON-ROD PACKINGS.

Specification forming part of Letters Patent No. **213,301**, dated March 18, 1879; application filed February 7, 1879.

*To all whom it may concern:*

Be it known that I, LIVINGSTON SAYLOR, of the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Piston-Rod Packings; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the device. Fig. 2 is a perspective view of one of the parts of a packing-ring, and Fig. 3 is a similar view of the complete device separate from the box upon the cylinder-head.

This invention relates to what are known as "piston-rod packings," designed to prevent the escape of steam between the piston-rod and the box through which it reciprocates, and it consists in a device of the class named, constructed as hereinafter described, and designed to secure a practically steam-tight joint with the piston, while, as incidents of its construction, friction and wear are lessened and facility afforded for renewing worn or defective parts.

In the accompanying drawings, A is the cylinder-head, upon which is cast or secured the box *a*. The orifice *a'* for the piston-rod F is made somewhat larger than the piston-rod, for the purpose of admitting steam to the interior of the box.

The stuffing-box proper consists of a metallic shell, B, having a cap, B', the joint between them being ground true and smooth. The shell B is grooved radially at *b' b'* across its interior face, the grooves extending a short distance upon the cylindrical surface and communicating with orifices *b b* leading to the interior of the shell. Within the latter are the packing-rings D D, preferably two in number, made, respectively, of composition metal and brass. Each ring is made in two parts, (see Fig. 2,) the ends *d d* being beveled, as shown, in opposite directions, and each part is somewhat shorter than the true half of the ring, so that when in place an open joint results. The rings are arranged to break joints, as shown in Fig. 3; and in order to prevent either from turning upon the other, one is provided with a dowel-pin, *d'*, which enters a recess on the other.

The rings are made to exactly fill the shell B, so that endwise play is impossible, while they are free to approach and recede from the piston-rod. A spring, E, embraces the rings and lightly presses them against the piston-rod.

The cap B' is provided with two or more threaded recesses, *b''*, to facilitate its withdrawal when it is desired to renew the rings. C is the gland, secured upon the box in the usual way, the bolts being, however, not shown in the drawings.

The operation of the device is as follows: Pending the pulling stroke of the piston the steam finds entrance to the box through the opening *a'*, channels *b'*, and orifices *b*, and compresses the rings closely against the piston-rod, effectually preventing leakage. On the return stroke the rings are simply held against the rod by the spring E, as the steam escapes through the exhaust-port. As the rings wear away the joints *d* gradually become smaller, until finally the parts of the ring are in contact, when it becomes necessary to remove the ring and slightly bevel or cut away one of the joint-faces. To remove the ring the gland C is taken off, and, suitable threaded rods being screwed in the holes *b''*, the cap B' is thereby pulled out of the box *a*. This affords access to the interior of the stuffing-box, when the spring and rings may be readily extracted.

The object of making the parts of the ring break joints is to secure a steam-tight contact with the piston all around, it being, of course, impossible to take up wear on the line joining the faces *d d*. These faces are beveled, to prevent the formation of a rib on the piston-rod.

The device described is obviously equally adapted for use in packing pump-rods, valve-stems, &c.

What I claim as new is—

1. In a piston-rod packing, two or more two-part rings radially divided, having plane faces and beveled ends *d*, and arranged to break joints, as described, and for the purpose set forth.

2. In a piston-rod packing, two or more two-part rings, immovable as regards each other, and having open beveled joints, as set forth.

3. In combination with the shell B, having steam-ports, as described, the two-part rings D, having beveled ends *d*, and arranged to break joints, as set forth.

4. In combination with the shell B and cap B′, secured by the gland C, the rings D, having beveled ends, and adapted to exactly fill the shell and to break joints, as described.

5. In combination with the shell, having steam-ports *b*, and cap and gland, constructed as set forth, the rings D, arranged to break joints, and the spring E, as set forth.

6. In combination with the shell B, having rings, as described, the cap B, secured by the gland, and having recesses *b″*, as and for the purpose set forth.

7. In combination with the box *a*, the shell and cap, of uniform diameter, adapted to be secured therein by the gland, and provided with the radially-divided beveled rings and spring, constructed and arranged to operate substantially as set forth.

LIVINGSTON SAYLOR.

Witnesses:

R. D. WILLIAMS.

J. C. GITTINGER.