(No Model.)

L. SHOOK.

PISTON ROD PACKING.

No. 315,350. Patented Apr. 7, 1885.

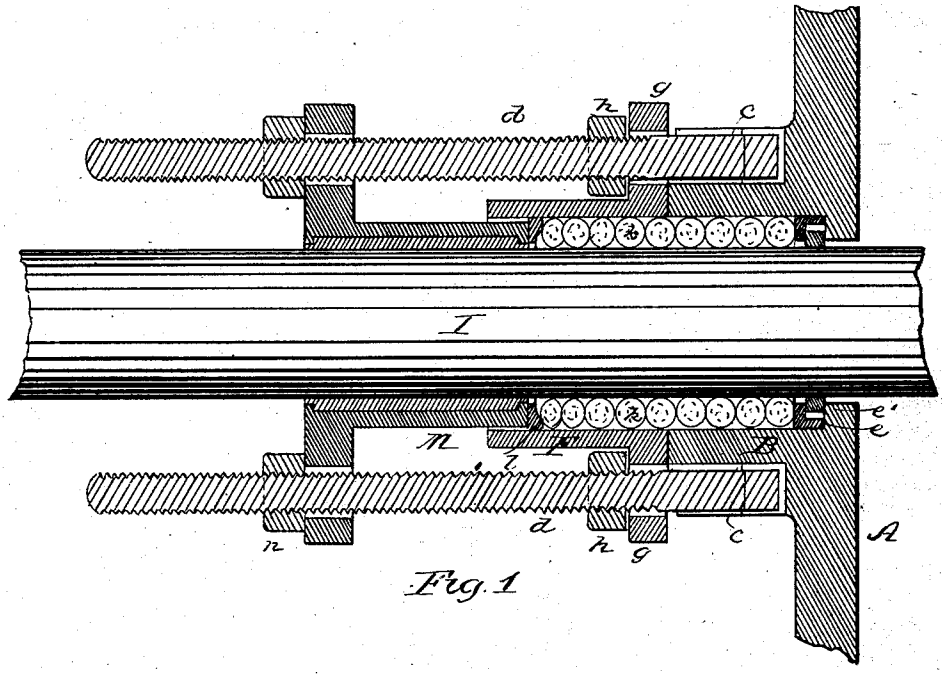


Fig. 1

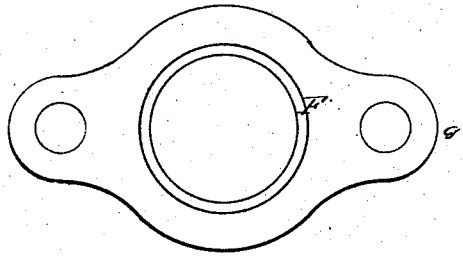


Fig. 2



Fig 3

WITNESSES:

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UNITED STATES PATENT OFFICE.

LEVI SHOOK, OF PITTSBURG, PENNSYLVANIA.

PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 315,350, dated April 7, 1885.

Application filed October 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, LEVI SHOOK, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Piston-Packings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to piston-packings; and it has for its object the provision of means for avoiding excessive tightening of the packing, and for allowing all desirable freedom of vibration of the piston-rod without destroying the steam-tight joint. These features are especially useful and desirable in all engines having very long connections between the cylinder and the crank or walking-beam—such as are generally used on steam-vessels.

The invention consists in the novel construction and arrangement of parts, as hereinafter fully described and claimed.

In these very long connected engines, especially horizontal engines for stern-wheel boats, the frame of the deck is difficult to brace with sufficient stiffness to give a durable stability to the engine-setting, and from use the setting becomes disturbed. This of course affects the operation of the piston-rod, making it bind in the stuffing-box on one side and get more or less loose on the other. In this event the packing must be very tight and distributed over a considerable surface of the piston to make a steam-tight joint. The consequence is great heating of the rod, increase of friction, and, frequently, a permanent "set" appears in the rod.

My invention is as follows: Figure 1 is a vertical longitudinal section of my improvement, and Figs. 2 and 3 details of the same. A is the cylinder-head, and B its usual stuffing-box, having in its walls the T shape recesses *c c* for the reception of the T-shaped headed bolts *d d*, two or more, as shown. Bolts *d* are threaded nearly throughout. On the shoulder at the bottom of box B are placed the two guard-rings *e e'*, as usual. The outer end of the box B is surfaced off true, and against this I place the extension-box F, having lugs *g*, perforated for the passage of the bolts *d* freely. Nuts *h* are then run down on bolts *d* till they bind the box F against box B, as shown, but not so tightly that the former cannot slide laterally across the face of the latter.

I is the piston-rod. Its packing *k* is put on and pushed into the stuffing-box B, and partially filling the extension-box F. Then a ring, *l*, is pushed in, whose outer rim fits the box F, but whose inner edge is clear of the rod I. This holds the packing from slipping. Its outer face is flat, and against this bears the end of the gland or follower M, which is babbitted to fit the rod I. This follower fits the rod exactly, and, when the rod tends to vibrate or get out of line, the motion is taken up by the extension-box F, which, as stated, is adapted to slide upon the face of box B, and the packing accommodates itself. The result of this construction is that the packing is only moderately compressed, and the joint kept steam-tight without excessive friction and consequent heat. The absence of heat from tight packing and excessive friction in vibrating entirely does away with the use of cold water, which has become so common, and which only damages the piston-rod and hastens its permanent set. Any amount of vibration may occur in my packing without requiring setting up of the gland.

I claim as my invention—

1. In piston-rod-packing devices, the combination, with the ordinary stuffing-box, of an additional stuffing-box attached thereto, and adapted to slide laterally thereon in conformity with the vibrations of the rod, substantially as described.

2. The combination, with box B, of the extension-box F, bolts *d*, nuts *h*, ring *l*, rod I, babbitted follower M, and nuts *n*, and the packing, substantially as described.

3. In piston-rod-packing devices, the box F, adapted for movable attachment to an ordinary stuffing-box, upon which it moves or slides laterally, the ring *l*, and the adjustable follower M, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

LEVI SHOOK.

Witnesses:

GEO. W. BACKOFEN,

ALVA A. MOORE.