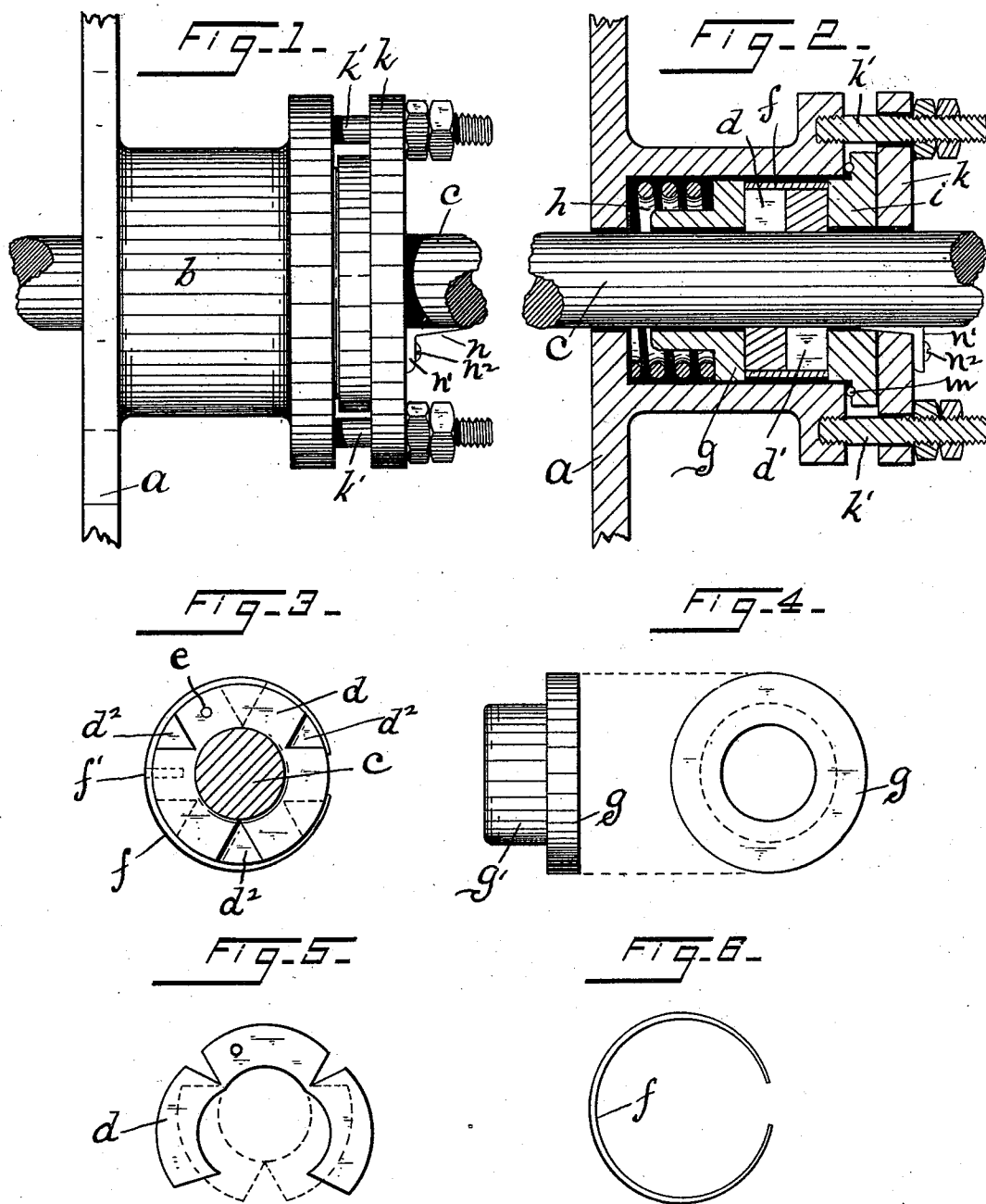


(No Model.)

E. F. LEWIS.  
PACKING FOR PISTON RODS.

No. 523,671.

Patented July 31, 1894.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## PACKING FOR PISTON-RODS.

SPECIFICATION forming part of Letters Patent No. 523,671, dated July 31, 1894.

Application filed October 30, 1893. Serial No. 489,526. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE F. LEWIS, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Packing for Piston-Rods, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings.

My present invention seeks particularly to provide an improved form of ring-packing for use with piston packings of the class patented to Frank T. Whaley and myself January 6, 1891, No. 444,002, to the end that more perfect and reliable steam joints may be made and that the ring segments may wear down thinner than heretofore and continue serviceable. I have also provided, for use with my improved packing, a simple device for wedging and locking piston-rods within the cylinder-head; to be brought into service in times of accident, as hereinafter fully explained.

Figure 1, of the annexed drawings, is a side elevation of a portion of a cylinder-head, having an extended boss which forms the housing of my packing and also shows a portion of the piston-rod seated therein. Fig. 2 is a central, longitudinal, sectional, view of the same parts. Fig. 3 is a detached, end, view of the sectional ring-packing and its compressing spring, the latter being shown detached in Fig. 6. Fig. 4 illustrates side and end views of a washer against which the rear end of the ring-packing abuts when the several parts are assembled for use and Fig. 5 is a detached view of one section of the packing proper, illustrating the manner in which said packing is bent and opened to slip it over the piston-rod.

In Figs. 1 and 2 the letter *a* denotes a portion of a cylinder-head, having its boss *b* bored to receive the piston-rod *c* and counterbored to receive the ring packing and its supports.

The packing proper is formed of two rings *d d'*, of soft metal, each having several circumferential V shaped grooves *d<sup>2</sup>* one only of which is cut entirely through said ring. When it is desired to assemble the various parts the rings *d d'* may be readily bent and opened

(see Fig. 5) until they may be slipped over the piston-rod. They are then bent back into their original form and are placed end to end, with the V shaped grooves offset from each other, to break joints, a dowel pin *e* being used, preferably, to prevent any subsequent displacement of the rings relatively to each other. Around the rings *d d'* is then placed an open spring *f* which is thickest opposite its open side and is of a width equal to, or slightly greater than, the combined thickness of the two abutting rings *d d'*.

In the rear of the described ring-packing is a washer *g* whose central opening is considerably larger than the piston rod. This washer is shouldered, and extended at its rear end, as at *g'* and around this extension is coiled a spring *h* one of whose ends abuts the bottom of the counterbore in boss *b*. Spring *h* seeks constantly to expand and thus forces the washer *g* into close engagement with the ring *d* and the rear edge of the compression spring *f*, insuring at all times a steam-tight joint at the rear of the ring-packing.

Immediately at the front of the ring *d'* is a gland *i*, of ordinary form, that is held in place by a plate *k* which is clamped to the boss *b* by screws or bolts *k'*. A ring *m*, of soft metal, as copper, may be inserted between the outer end of boss *b* and the inner face of gland *i* which, as the gland is forced home, will be flattened and insure a tight joint. It should be noted that the compression spring *f* is firmly clamped between the gland and the washer *g* and that the opening of said spring breaks joints with the V shaped cuts of both rings *d d'* so that no steam can escape between the packing and the gland. A dowel-pin *f'* may be provided to prevent slipping of spring *f* on the sectional rings.

I will now describe a simple device for locking the piston-rod within the cylinder-head, asking reference to Figs. 1 and 2 of the drawings. It often occurs, with locomotive engines, that one side of the driving mechanism becomes disabled through accident and such engines are run, for a time, by the driving mechanism of one side only and it is desirable then that the piston and valve mechanism of the disabled side shall be so locked that they

will not jar loose and move about aimlessly and, to accomplish this desirable result, I have provided a lock, of wedge form, as seen at  $n$ , having an angle plate  $n'$  that may be fastened  
5 by a simple screw  $n^2$  to the plate  $k$ . When not in use this locking piece is clamped to the outer face of plate  $k$ , with its wedge  $n$  extending outward, as in Fig. 1, but whenever  
10 it is desired to utilize said piece, to lock the piston-rod against displacement, screw  $n^2$  is removed and the end of the wedge is reversed and forced between the piston-rod and the wall of the opening in plate  $k$ , as seen in Fig.  
2. Screw  $n^2$  is then inserted and screwed  
15 home, forcing the wedge before it and thus firmly clamping the piston-rod against end-wise movement. The wedge piece adds practically nothing to the cost of an engine, is always within convenient reach when needed  
20 and is quite as effective as expensive dogs or

clamps now commonly used for the same purpose.

Having described my invention, I claim—  
The herein-described packing for piston rods, consisting of two rings, each having circumferential grooves and so arranged relatively to each other that the grooves of each will be opposite the solid parts of the other, a spring encircling said rings, a spring-pressed washer at one side of the rings, a gland at the  
25 otherside of said rings, designed to be clamped to the boss of the cylinder head, and a compressible ring designed to be located between the inner face of said gland and said boss, substantially as described and for the purposes  
30 specified.

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Witnesses:

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