(No Model.)

# L. FINLAY.

## DEVICE FOR ADJUSTING PISTON RODS AND PISTON HEADS IN CYLINDERS.

No. 408,381. Patented Aug. 6, 1889.

Fig. 1.

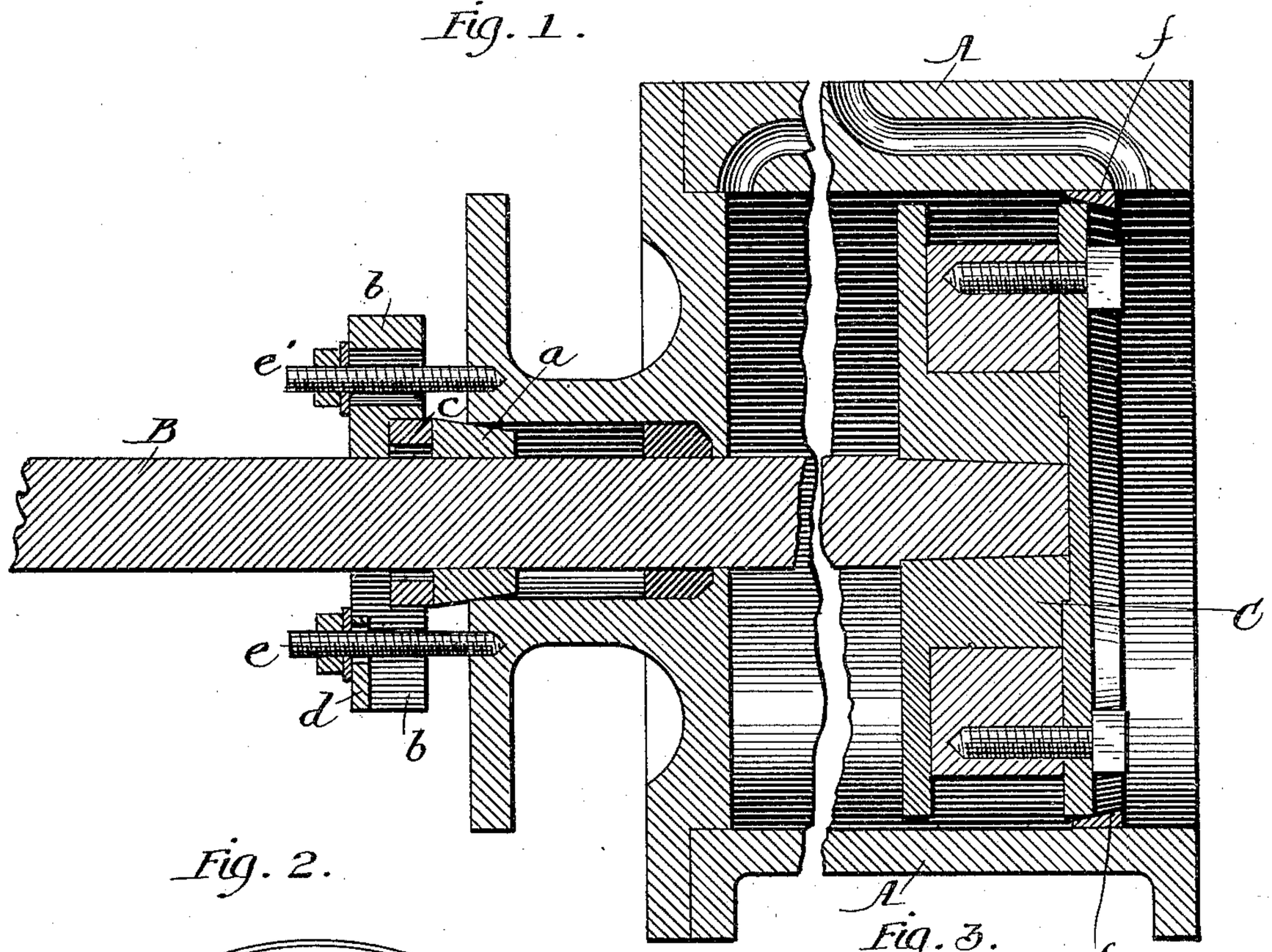



Fig. 2.

Fig. 3.

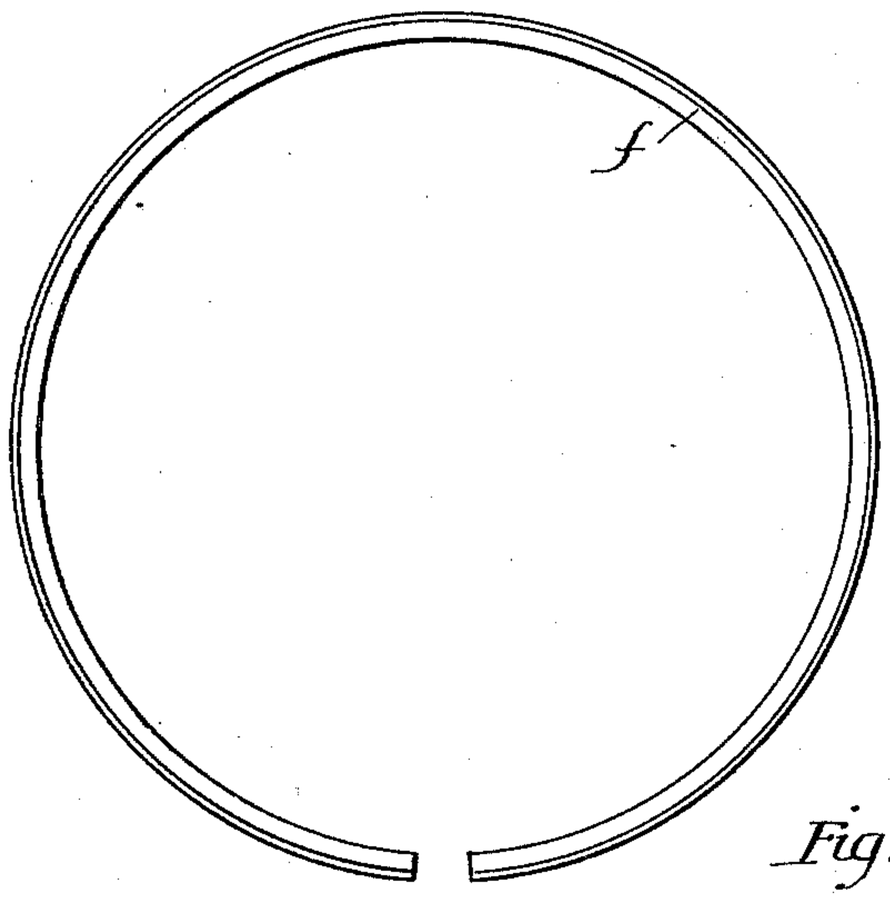
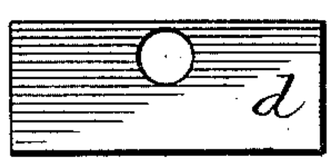



Fig. 5.



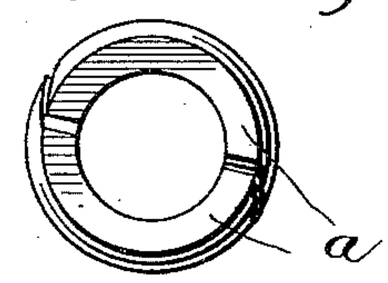
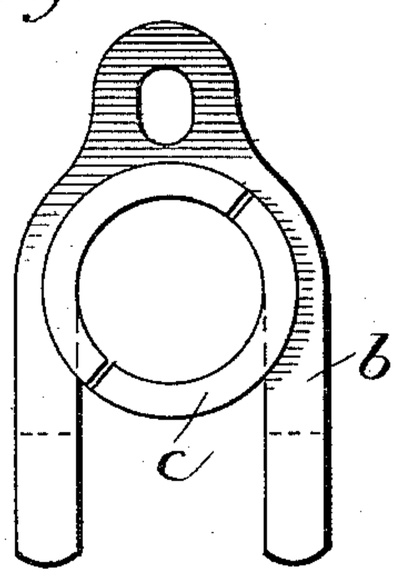




Fig. 4.

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Harry T. Jones.

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# UNITED STATES PATENT OFFICE.

LEONARD FINLAY, OF LITTLE ROCK, ARKANSAS.

## DEVICE FOR ADJUSTING PISTON-RODS AND PISTON-HEADS IN CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 408,381, dated August 6, 1889.

Application filed May 7, 1889. Serial No. 309,870. (No model.)

*To all whom it may concern:*

Be it known that I, LEONARD FINLAY, residing at Little Rock, in the county of Pulaski and State of Arkansas, and a citizen of the United States, have invented a new and useful Improvement in Devices for Adjusting Piston-Rods and Piston-Heads in Cylinders, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section. Fig. 2 is a plan of the beveled or inclined ring. Fig. 3 is an end view of a divided cone-shaped ring. Fig. 4 is a rear elevation of the forked gland and follower-ring. Fig. 5 is a detail, being an elevation of the cross-bar at the lower end of the forked gland.

It is frequently necessary to line up or otherwise repair the cross-head and guide-bars of a locomotive or other engine, and it is difficult to properly adjust the piston-rod and the piston-head to the center line while such work is being done.

The leading object of my invention is to provide mechanical devices by the use of which the piston-rod and piston-head of a locomotive or other engine can be adjusted to the center line of the cylinder and stuffing-box and held firmly in such position while the cross-head and guides are being repaired, which I accomplish as illustrated in the drawings and hereinafter described.

That which I claim as new will be pointed out in the claims.

In the drawings, A represents the cylinder of a steam-engine.

B is a piston-rod.

C is a piston-head.

The stuffing-box gland has been removed from the box in Fig. 1, and the devices which I use for adjusting the piston-rod and piston-head in line are shown in this figure in the position which they occupy in actual use.

*a* is a cone-shaped ring, which, as shown, is divided into two parts. This ring is on the piston-rod and its inner end enters the stuffing-box and serves the office of holding the piston-rod in the center line.

*b* is a forked gland.

*c* is a follower-ring.

*d* is a cross-bar at the lower end of the forked gland, through which bar the screw *e* passes. This screw *e* and the screw *e'* hold the forked gland in position, and by means of this gland and the follower *c* the cone-shaped ring *a* can be held in the stuffing-box. This forked gland is used as a substitute for the regular gland of the stuffing-box when the bolts of the regular stuffing-box gland are not of sufficient length to allow the gland to be placed directly against the cone *a*. The follower *c* is only necessary when the forked gland is used.

*f* is a ring the under side of which is beveled or inclined. This ring is cut in two, or a piece is cut out from it after it has been turned, as shown in Fig. 2, which permits the adjustment of the ring to cylinders somewhat differing in diameter. This ring is placed in the cylinder at or near its inner end and is designed to receive the end of the piston-head, which will be held by the ring in the center of the cylinder.

The two principal parts of my devices are the cone-shaped ring *a* and the beveled ring *f*. The cone-shaped ring *a* serves the office of holding the piston-rod in the center line of the stuffing-box, and the beveled ring *f* serves the office of holding the piston-head in the center line of the cylinder.

The forked gland *b* and follower *c* are necessary parts of my devices when the regular stuffing-gland cannot be used to hold the cone-shaped ring *a* in place. The cone-shaped ring *a* might be divided into three sections instead of two to allow it to adjust itself to the piston-rod and the interior of the stuffing-box when pressed forward by the gland.

My devices are when used to be removed after the repairs have been completed.

In some cases it will not be necessary to use the beveled ring *f*, but for nice work it is necessary. These devices can be used while building as well as while repairing engines.

In use the cone-shaped divided ring is to be placed upon the piston-rod and forced into the stuffing-box to center the piston-rod. When the beveled ring is used, it is first to be inserted in the cylinder, and the piston-head being forced into this beveled ring it will be brought to the center of the cylinder. Machinists who are not experts can with the use

of the cone-shaped ring and beveled ring accurately center a piston-rod and piston-head while making ordinary repairs.

The forked gland can be used without removing the regular stuffing-box from the piston-rod and without unkeying the cross-head. As shown, the line of division of the cone-shaped ring is inclined.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. A cone-shaped ring divided into two or more sections and adapted to be placed upon a piston-rod in the stuffing-box of a steam-cylinder for the purpose of centering the piston-rod in the stuffing-box, substantially as specified.

2. A cone-shaped ring divided into two or more sections, in combination with a divided ring beveled on the inside for the purpose of centering the piston-rod and piston-head in the stuffing-box of a steam-cylinder, substantially as specified.

3. A cone-shaped ring divided into two or more sections for the purpose of centering the piston-rod in the stuffing-box of a steam-cylinder, in combination with a piston-rod and stuffing-box of a steam-cylinder, substantially as and for the purpose specified.

4. A cone-shaped ring divided into two or more sections for the purpose of centering the piston-rod in the stuffing-box of a steam-cylinder, in combination with a forked gland *b* and a follower *c*, substantially as and for the purpose specified.

5. A cone-shaped ring divided into two or more sections for the purpose of centering the piston-rod in the stuffing-box of a steam-cylinder and a divided bevel-ring *f*, in combination with the piston-rod and piston-head of a steam-cylinder, substantially as and for the purpose specified.

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