

(No Model.)

2 Sheets—Sheet 1.

J. C. CHAPMAN.
METALLIC ROD PACKING.

No. 481,662.

Patented Aug. 30, 1892.

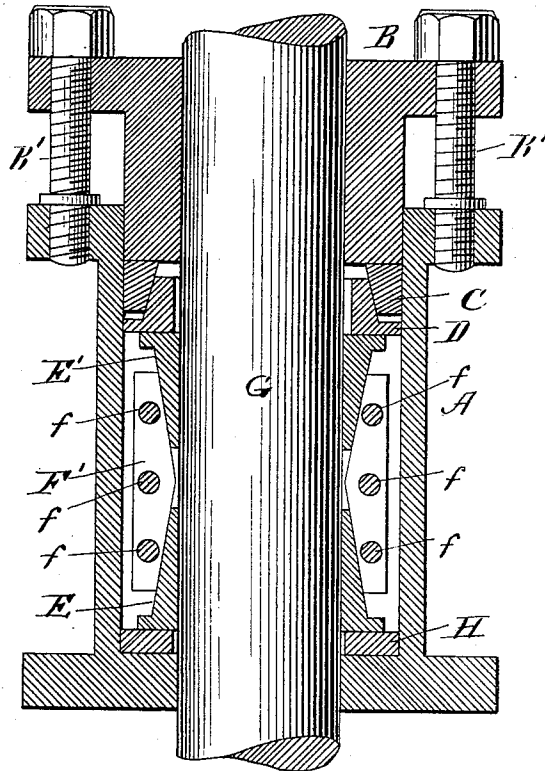


Fig. 1.

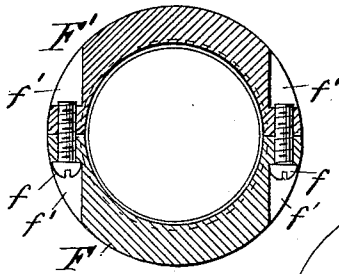


Fig. 2.

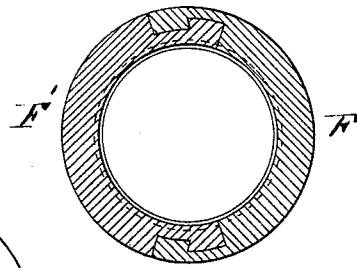


Fig. 3.

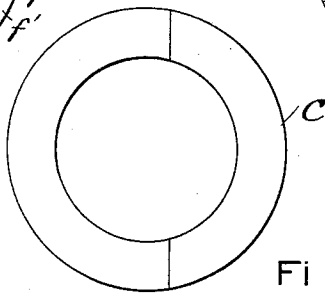


Fig. 4.

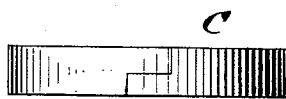


Fig. 5.

WITNESSES

Frank G. Parker
William Edison

INVENTOR

John C. Chapman

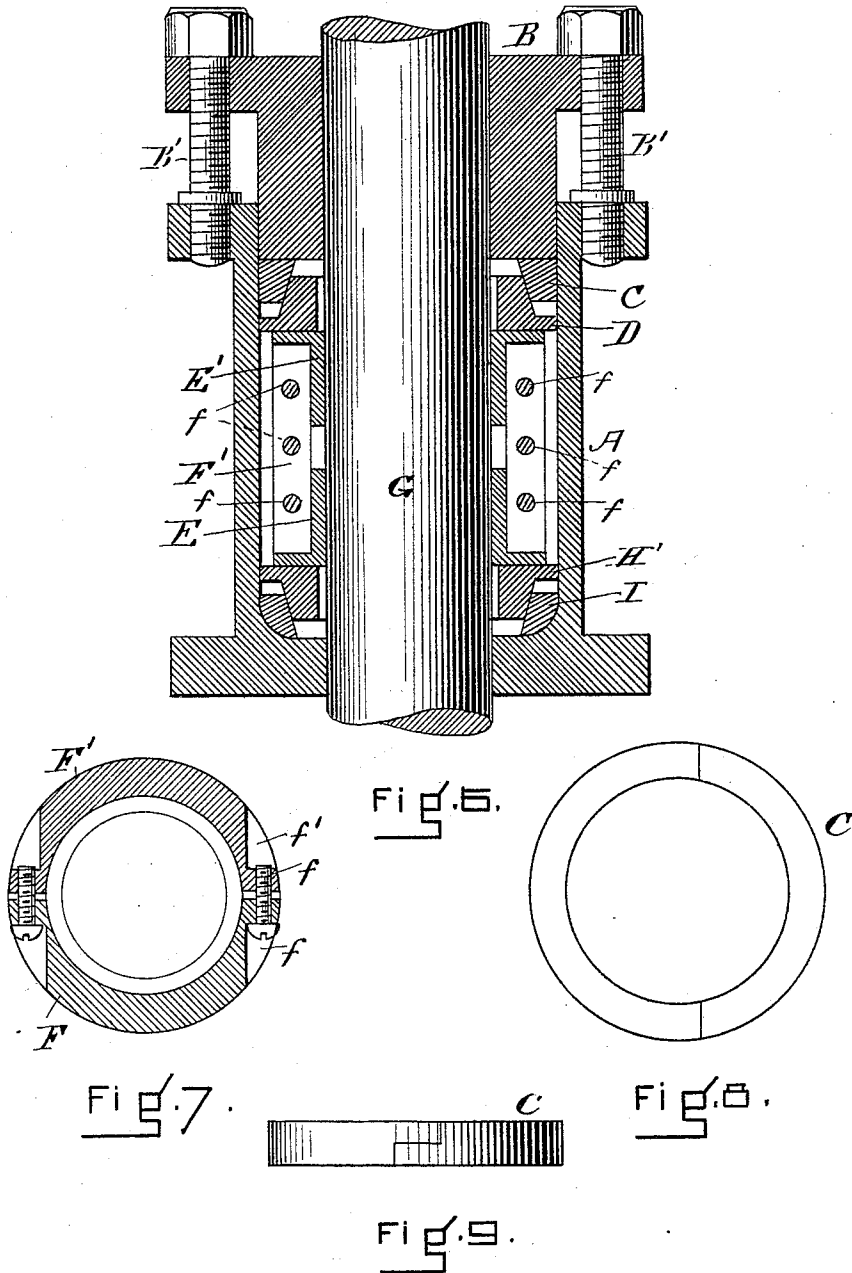
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2 Sheets—Sheet 2.

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INVENTOR.
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UNITED STATES PATENT OFFICE.

JOHN C. CHAPMAN, OF BOSTON, MASSACHUSETTS.

METALLIC ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 481,662, dated August 30, 1892.

Application filed October 15, 1891. Serial No. 408,828. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. CHAPMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Metallic Packing for Piston-Rods, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to so arrange the parts that hold the soft-metal packing-rings in a stuffing-box that they shall act automatically when the gland is adjusted to its proper place to not only firmly hold the said packing-rings in place, but to form steam-tight joints between said packing-rings and the stuffing-box.

This object I attain by mechanism shown in the accompanying drawings, in which—

Figure 1 is a view showing a piston-rod in full and its stuffing-box and packing devices in longitudinal section. Fig. 2 shows one of the clamping-rings in cross-section. Fig. 3 is a modified form of the clamping-ring. Figs. 4 and 5 are views of one of the rings which serves in connection with the gland to form a steam-tight joint between the packing device and the stuffing-box. Fig. 6 shows the same parts as those shown in Fig. 1, the metal packing-rings being modified in shape. Figs. 7, 8, and 9 are details, which may be best understood by reference to the full description.

Wherever I use the words "soft metal" in the following description I refer to a metal of such nature that it is readily compressible and plastic to such a degree that the pressure brought to bear upon it will cause it to fill the chamber inclosing it and close all openings, making, in fact, steam-tight joints upon all sides.

In this device the piston-rod G is supposed to pass through a stuffing-box A of ordinary construction, having a gland B held in adjustable position by clamping-bolts B' B'. The lower part of this box is sometimes formed interiorly with a flat bottom, as shown in Fig. 1, upon which rests the leveling-ring H, and sometimes formed as shown in Fig. 6, in which case a compound ring T H' is used, so as to adapt this part of the stuffing-box to receive the other parts.

I have shown these two forms of stuffing-boxes for the reason that in applying my im-

proved devices to old machines I have found these two kinds of stuffing-boxes in use and have been obliged to make my leveling-rings of different styles—that is, like the ring H or the compound ring H' I—to fit my packing into the said old stuffing-boxes.

The pieces E' E (see Fig. 1) are made coneshaped exteriorly, as shown in Fig. 1, or cylindrically, as shown in Fig. 6, as may be desired, their particular shape not being essential. These parts are made of soft metal—like babbitt, for instance—and are each divided radially, so that they may be placed onto the piston-rod without disconnecting it from the cross-head. The other rings used in connection with my device are also made sectional, so that they may be readily applied to the piston-rod without disconnecting the same with its cross-head, although in case of new work the several rings may be made whole.

The soft-metal packing-pieces E' E are surrounded by a clamping-ring F F'. (See Figs. 2 and 3.) The parts of this clamping-ring may be fastened together by means of screws f, as shown in Figs. 1 and 2, or by dovetailed joints, as shown in Fig. 3.

The holding-ring D, Figs. 1 and 6, is made of two semicircular parts and of substantially the shape shown in section. This ring D should be made, preferably, of a hard firm metal turned comparatively true and adapted to fit the interior of the stuffing-box, as shown.

Above the ring D, I have a soft-metal ring C, made in two parts, each part being cut away at its ends, so as to form lap-joints, as shown in Figs. 8 and 9. The interior of this soft-metal ring is coned, as shown in Figs. 1 and 6, to correspond with the exterior cone periphery of the ring D, and is so constructed and proportioned in relation to the ring D that when pressed upon by the gland B it will be expanded, so as to form a perfectly steam-tight joint with the walls of the stuffing-box A. The pressure exerted by the gland B will also force the ring D down against the soft-metal packing-pieces E' E and force them to form a steam-tight joint, the rigid metallic rings F F' preventing these soft packing-rings E' E from being expanded outward.

It will be noticed that the clamping-ring F F' that holds the packing-ring E' E in place is smaller in diameter than the interior of the

stuffing-box. This is so made for the purpose of allowing for variation of the position of the piston-rod G in the stuffing-box A—that is, the piston-rod is not always centrally located within its stuffing-box, and by my making the clamping-ring F F' smaller than the interior of the said stuffing-box it will still be adapted for use in a stuffing-box, although the piston is not centrally located therein.

10 The device for forming a level base for the packing to rest upon is varied to suit the different shapes of the bottom of the interior of the stuffing-box, as has already been intimated. In case this interior has a flat bottom, as stuffing-boxes recently constructed have, then I can use a simple flat leveling-ring, as shown at H; but in case the bottom is rounded or coned or of any irregular shape, as shown in Fig. 6, then it is necessary to place in it a soft-metal ring I and a leveling-follower H', as shown in Fig. 6.

20 It is obvious that the part or parts that form the base for the packing proper to rest upon in the stuffing-box may be varied to suit the requirements of the particular case.

I claim—

1. In a stuffing-box, the combination of a piston-rod packing device consisting of a clamping-ring F F', smaller than the interior of said stuffing-box, and soft-metal rings E E', with a soft-metal follower C, and an expanding ring D, all operating together substantially as described, and for the purpose set forth.

2. In a stuffing-box, the combination of a piston-rod packing device consisting of a clamping-ring F F', smaller than the interior of said stuffing-box, and soft-metal rings E E', with a leveling-ring H, soft-metal follower C, and an expanding ring D, all adapted to operate together substantially as described, and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 14th day of October, A. D. 1891.

JOHN C. CHAPMAN.

Witnesses:

FRANK G. PARKER,
WILLIAM EDSON.