(No Model.)

E. F. PEACOCK.

ROD PACKING.

No. 446,364. Patented Feb. 10, 1891.

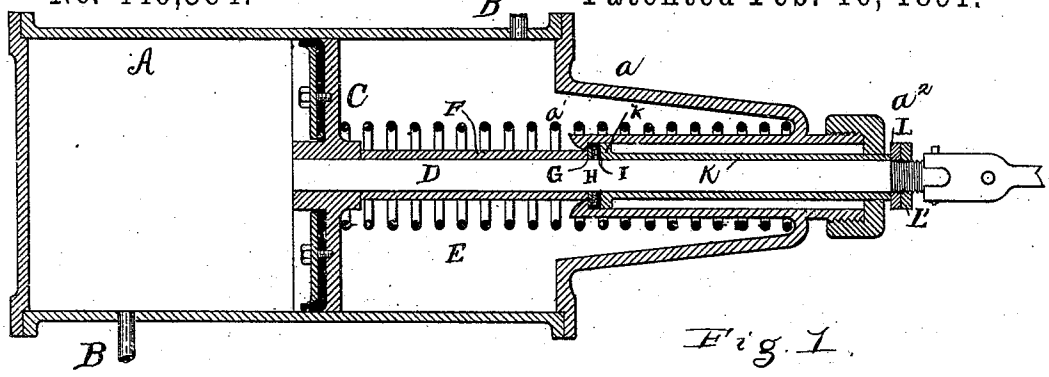


Fig. 1.

Fig. 2.

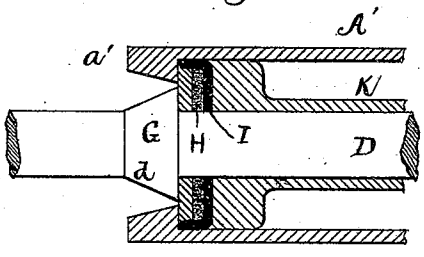


Fig. 3.

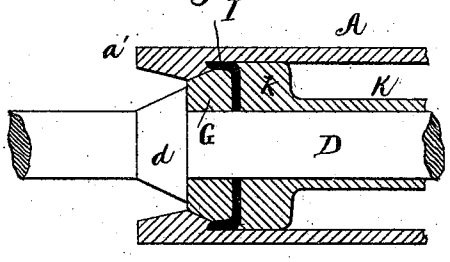


Fig. 4.

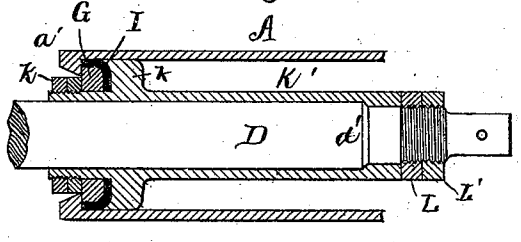
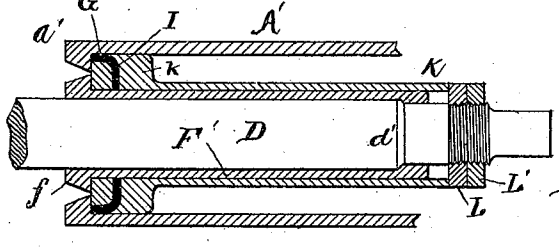


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWARD F. PEACOCK, OF PHILADELPHIA, PENNSYLVANIA.

ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 446,364, dated February 10, 1891.

Application filed June 27, 1890. Serial No. 356,986. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. PEACOCK, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Rod-Packing; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to packing for rendering air or steam tight the joint between a moving rod and the walls of the stuffing-box or other casing in which it plays. It is especially intended for the piston-rod of such as the Hanscom air-brake or other similar rods in which there is a pressure of air or other fluid on the back—that is, the piston-rod side—of the piston.

In the drawings, Figure 1 is a longitudinal section of the cylinder of a Hanscom air-brake with my improvements applied thereto. Figs. 2, 3, 4, and 5 are modified forms of packing all embodying my invention.

The cylinder A is provided with the pipes B B′ for the admission of fluid-pressure to the two sides of the piston, as clearly set forth in the patent to Hanscom, No. 326,646.

The piston C is attached to the piston-rod D, which extends out through the head *a* of the cylinder and is connected with the brake-rigging in the usual manner. Instead of passing the rod through an ordinary stuffing-box, I provide it with a packed collar arranged to reciprocate with the rod in a narrow cylinder A′, that is attached to or formed integral with the head *a* of the brake-cylinder. I prefer to make this cylinder A′ as shown in Fig. 1—that is, arranged centrally in a pocket in the inside of the head *a*, thereby forming an annular recess to receive the spring E, and at the same time serve to guide the spring in its movements as the piston reciprocates. The cylinder A′ may, however, be arranged in any suitable manner. Its inner end is open and is preferably provided with an internal annular seat *a′*. Its outer end may be closed by a cap a^2, screwed or otherwise secured upon it and having a central aperture for the rod D. When the piston C is at the inner end of its stroke, it stands at about the middle of the cylinder, as shown. At that point on the rod D which then lies adjacent to the seat *a′* on the cylinder A′, I form a packed collar adapted to bear against the seat and the inside of the cylinder and form with them a tight joint. The manner of constructing this collar is capable of many variations. I have shown five different modifications, each of which, however, contains an abutment on the rod, one or more valves adapted to make a flat, ball, or cone joint with the seat on the cylinder A′, a cupper-washer fitting the inside of the cylinder, and some means for clamping these parts together.

In Fig. 1 the abutment for the valve is formed by a sleeve F, fitting tightly around the rod D and extending from the hub of the piston to the proper point on the rod. The sleeve is of a suitable diameter to work freely through the annular seat *a′*. Against the end of the sleeve is placed a valve G, of leather, rubber, metal, or other suitable material. Next to this is a washer H of suitable material, either metallic or flexible, but differing from the valve G, so that one of the two will always be of a yielding and the other of an unyielding substance. These washers are preferably of less diameter than the cylinder A′, so that there is room between them for the flange of a cupper-washer I, of leather, rubber, or the like, which is held against the washer H by the flange *k* of a long sleeve K, tightly inclosing the rod D and projecting out through the cap a^2, where it is secured by some suitable device, such as a pair of lock-nuts L L′, engaging threads on the rod D and serving to compress the sleeve K firmly upon the cup I, thereby clamping the cup and washer and valve securely against the abutment offered by the end of the sleeve F. The area of the piston C is so much greater than that of the valve that the latter is held tightly to the seat *a′*, and thus the cup-packing is relieved from the direct pressure of the air. Moreover, the air-pressure tends to expand the rubber valve G or washer H, whichever one is made of the yielding sub-

stance. This forces it outwardly against the flange of the cup, which is thus held closely against the inside of the cylinder A′ and makes an impervious joint around the rod. When the air-pressure is reduced in the back end of the cylinder A, in order that the pressure in the front end may move the piston and apply the brakes, the reduction of pressure relieves the washers and cup also and leaves them more free to move with the rod, though still pressed air-tight against the cylinder A′, the flange of the cup being subjected to the direct air-pressure as soon as the valve leaves the seat a'. It will thus be seen that the packing becomes tighter as the air-pressure increases, but is proportionately relaxed when the air-pressure is reduced, so that there is no undue friction between the packing and the cylinder A′, and the wear is kept down to the minimum.

In Figs. 2 and 3 the abutment for the valve is formed by an enlargement d on the rod, either integral therewith or a collar secured thereto. In Fig. 3 a conical valve and seat are shown, and the washer H is dispensed with.

In Figs. 4 and 5 the abutment for the valve is formed by a sleeve which has an internal flange resting on a shoulder d' on the rod near its outer end. In Fig. 4 the sleeve K′ is locked against this shoulder by the lock-nuts L L′. It is provided with the flange k, that bears upon the cup I, and is extended in past the valve G and furnished with screw-threads to receive the nut or nuts k', by which the valve and cup are clamped against the flange k. In Fig. 5 the sleeve F′, that rests upon the shoulder d', has an annular rim or flange f to serve as the abutment for the valve, and the sleeve K is clamped upon the cup I, as before, by the nuts L L′ on the outer end of the rod.

It is evident that the various features of construction that are shown in these several modifications can be substituted one for the other and combined in many different ways without departing from the spirit of my invention, and I do not wish to be understood as confining myself to the precise constructions illustrated in the figures of the drawings.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a narrow cylinder having an internal seat at its inner end, of a rod passing through the same and having an abutment, a valve resting against the abutment and adapted to bear upon the seat, and means for clamping the valve to the abutment, substantially as described.

2. The combination, with a narrow cylinder having an internal seat at its inner end, of a rod passing through the same and having an abutment, a valve resting against the abutment and adapted to bear against the seat, a cupped washer above the valve, a washer between the valve and the cup, and means for clamping them to the abutment, substantially as described.

3. The combination, with the cylinder A, having the narrow cylinder A′, of the piston C, the rod D, having an abutment thereon, the valve G and washer H, one being of yielding and the other of unyielding material, the cupped washer I, and the sleeve K, substantially as described.

4. The combination, with the cylinder A, having the head a, of the cylinder A′, provided with the seat a', the piston C and rod D, the latter having an abutment, the valve G, the cup I, the sleeve K, and the lock-nuts L L′, substantially as described.

5. The combination, with the cylinder A, of the head a, provided with a pocket, the cylinder A′, centrally arranged in said pocket and having a seat a' at its inner end, the piston C, rod D, sleeve F, surrounding the rod, valve G, washer H, cup I, sleeve K, clamping the valve, washer, and cup against the end of the sleeve F, and the lock-nuts L L′, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD F. PEACOCK.

Witnesses:
J. D. CLARK,
JOSEPH THOMASSON.