(No Model.)

G. DELAGNEAU.

PISTON PACKING.

No. 327,666. Patented Oct. 6, 1885.

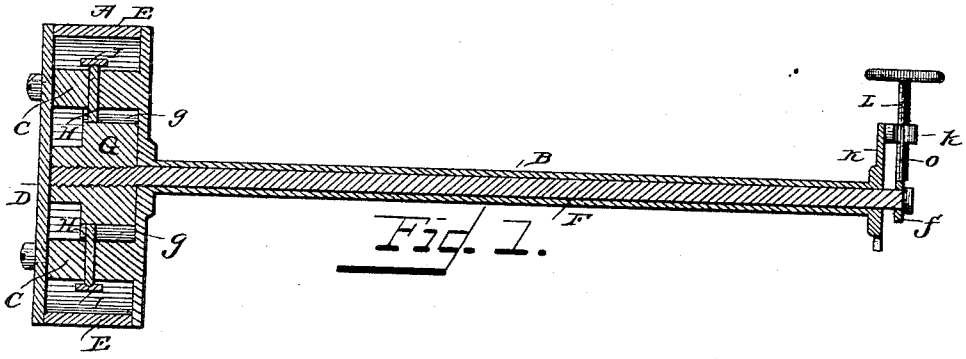
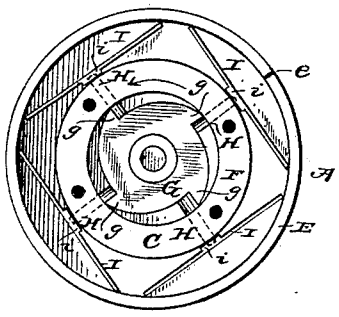


Fig. 1.

Fig. 2.



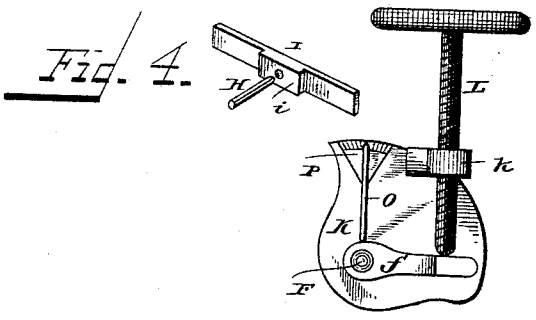


Fig. 4.

Fig. 3.

WITNESSES

C. W. Vashiell

E. G. Siggers.

INVENTOR

Geo. Delagneau.

By his Attorneys

C. A. Snow & Co.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE

GEORGE DELAGNEAU, OF HASTINGS, NEBRASKA, ASSIGNOR TO JOHN H. GRAHAM, OF SAME PLACE.

PISTON-PACKING.

SPECIFICATION forming part of Letters Patent No. 327,666, dated October 6, 1885.

Application filed February 24, 1885. Serial No. 156,827. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DELAGNEAU, a citizen of the United States, residing at Hastings, in the county of Adams and State of Nebraska, have invented a new and useful Improvement in Piston-Packing, of which the following is a specification, reference being had to the accompanying drawings.

My invention is an improved device for packing pistons; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a piston and rod with my improved devices attached thereto. Fig. 2 is a rear view of the piston, the rear piston-plate being removed. Fig. 3 is a front elevation showing the indicator and the set-screw for controlling the packing. Fig. 4 is a detailed view.

A represents the piston of a steam-engine, and B the piston-rod. From the rear side of the piston projects an annular flange, C, which is of smaller diameter than the piston and is arranged concentrically therewith. A plate, D, which corresponds in diameter to the piston, is bolted to the rear side thereof in the ordinary way.

E represents a metallic packing-ring, that is cut at *e*, and is thereby rendered expansible. This packing-ring is placed between the piston and the plate D, and is concentric with the flange C. The piston-rod is hollow, as shown, and through it extends a rod, F, to the rear end of which is fixed a cam-wheel, G, having the inclines *g*. A series of openings corresponding to the number of inclines on the cam-wheel is made through the flange C, and in these openings are placed push-pins H, the inner ends of which pins bear against the cams or inclines *g*, and the outer ends of which are pointed. Flat springs I are arranged around the flange C, and bear between said flange and the inner side of the packing-ring, and these springs serve to keep said packing-ring expanded against the inner side of the cylinder, and thereby pack the piston therein. Each of the springs is provided with a central seat, *i*, in which the pointed end of one of the pins H enters, as shown in detail at Fig. 4. By this construction it follows that if the rod F and cam-wheel are turned in the direction indicated by the arrow in Fig. 2 the pins will be forced outwardly by the inclines *g*, and the pressure of the springs against the inner side of the packing-ring be increased, so as to further expand said packing-ring and tighten it in the cylinder. To the outer end of the hollow piston-rod is attached a plate, K, from the upper right-hand corner of which projects a lug, *k*, through which is passed a vertical set-screw, L. To the outer end of the rod F is secured an arm, *f*, on the outer end of which arm bears the lower end of the set-screw. By turning the set-screw the rod F and cam G can be partly rotated, and thus expand the packing-ring to any requisite degree. In order to indicate exactly to what extent the packing-ring is expanded in the cylinder, I provide an indicator-hand or pointer, O, that is secured to the rod F and sweeps over a graduated scale, P, that is inscribed on the plate K.

By means of a packing device thus constructed I am enabled to keep the piston steam-tight in the cylinder without the necessity of stopping the engine and removing the cylinder-head, which is now necessary in steam-engines of the common construction, and thus I can effect a great saving of time and labor.

Having thus described my invention, I claim—

1. The combination of the piston having the annular flange and the hollow piston-rod, the expansible packing-ring, the rod passing through the hollow piston, the cam affixed thereto, push-pins bearing on the inclines of the cam and extending through the annular flange, the springs bearing between the inner side of the packing-ring and the push-pins, the arm secured to the outer end of the cam-rod, and a screw bearing on the free end of said arm, substantially as described.

2. The combination of the piston having the annular flange and the hollow piston-rod, the expansible packing-ring, the rod passing through the hollow piston-rod, the cam affixed thereto, push-pins bearing on the in-

clines of the cam and extending through the annular flange, the springs bearing between the inner sides of the packing-ring and the push-pins, the arm secured to the outer end of the cam-rod, the plate having the scale and the bearing-screw, said plate being secured to the hollow piston-rod, and the indicator-hand on the cam-rod, for the purpose set forth, substantially as described.

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

GEORGE DELAGNEAU.

Witnesses:
WARREN LETSON,
JAMES BROWN DALLAS.