

(No Model.)

W. H. DUNSHEE & C. H. CHANDLER.
PACKING FOR PISTON RODS.

No. 494,703.

Patented Apr. 4, 1893.

Fig. 1.

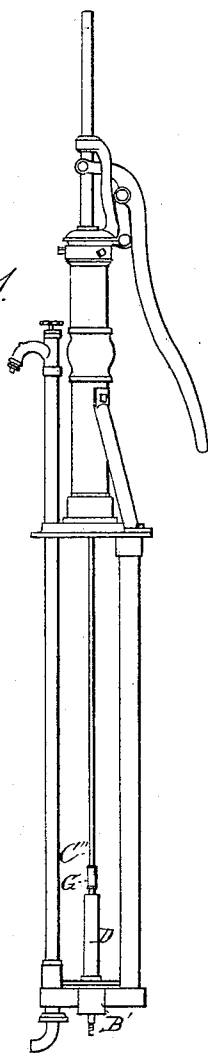
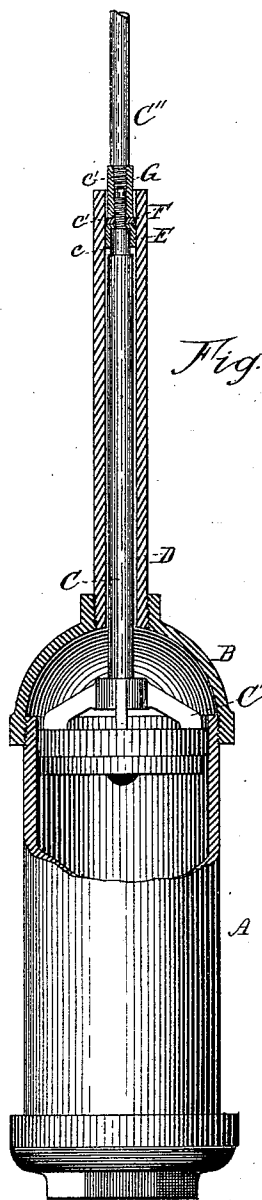


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PACKING FOR PISTON-RODS.

SPECIFICATION forming part of Letters Patent No. 494,703, dated April 4, 1893.

Application filed November 12, 1892. Serial No. 451,739. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. DUNSHEE and CHARLES H. CHANDLER, citizens of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Packing for Piston-Rods; and we do hereby 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.

This invention relates to the packing of piston-rods, and is designed to serve as a substitute for the ordinary stuffing-box, with particular reference to pumps and other apparatus not easily accessible, though from the nature of the device, applicable to piston-rods of nearly every character.

The object of the invention is to secure a substitute for the common stuffing-box, which shall be much more durable and require much less attention than the latter, and to this end, consists in the construction, combination and arrangement of parts, as hereinafter fully set forth and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a device embodying our invention, as applied to a "three-way" pump, and Fig. 2 is a sectional view, showing the device on an enlarged scale applied to a double acting cylinder.

Similar letters of reference indicate corresponding parts.

In the use of the common stuffing-box, as is well known, the greatest difficulty experienced is that of maintaining a tight packing around the rod, it being necessary to frequently set up the stuffing nut or gland to compress the packing more closely about the rod. This difficulty becomes a matter of great inconvenience in the case of pumps, the cylinders and piston packing of which are necessarily placed below the frost line under ground. As the operativeness of all force pumps depends upon the packing being kept tight at all points, it necessitates a frequent and troublesome operation in a wet and dirty pit, and often in the coldest and most inclement weather, to stop the leak around the pump-rod. Our invention is designed to remove

this difficulty, by providing a packing device which requires no adjustment, and is as nearly imperishable, probably, as a device for that purpose may be.

The device is very simple in its nature, as will be seen by reference to the drawings, and is briefly described as follows: In the cap B of a cylinder A is secured, as by screwing therein, a tube D, having a smooth and uniform bore, and as long as the stroke of the piston C' on the rod C. This tube might fit so closely to the rod as simply to allow its free movement, but in practice this is not necessary. It should, however, be but slightly larger than the rod, so that on the up-stroke of the valve or piston but very little of the contents of the cylinder is forced up the tube, since to the extent that this is done there is a waste of power in operating the pump, or whatever the apparatus may be. At a suitable point on the rod, corresponding in distance from the piston practically with the stroke of the same, or the length of the cylinder, is attached a packing-ring E, which in practice is a simple washer of tough leather or the like, similar in construction to the packing of an ordinary pump piston. This is slipped over a threaded stem c' at the upper end of this section of the rod, and held in place by the coupling G, in which is screwed the upper section of rod C''. A washer F, slightly smaller than the inside of the tube, is preferably placed between the leather and the coupling, though this might be dispensed with if the end of the coupling were faced true and smooth. It will be understood of course that the coupling should be somewhat smaller in diameter than the inside of the pipe. In order to accommodate the overlapping sides of the leather around the rod, and at the same time permit the rod itself to nearly fill the tube, as above specified, a portion of the rod below the threaded stem is shouldered down as shown, so that the periphery of the packing when in position extends but slightly beyond the periphery of the rod.

Fig. 1 shows the application of the device to an intermediate portion of the rod, the casting B' being coupled to a pipe of any desired length with a cylinder at the lower end,

this type of pump being known as a "three-way" pump.

We are aware of the common use of double pistons on a single rod, operating in two cylinders of different diameters, the function of the pistons in such cases being identical, that is, to force water, or the like, or to be forced back and forth, as by steam pressure. Obviously, however, such devices as now in use would be impracticable in this relation, where the only object is to pack the rod, with as little space around it in the packing tube for waste water as possible.

Having thus described our invention, we claim—

In a packing device for piston-rods, the combination with the cylinder terminal B, of the tube D, as long as the stroke of the piston, with a smooth, uniform bore but slightly

larger than the diameter of the piston-rod, the piston-rod C having a reduced portion *c* near the upper end, and the terminal, threaded stem *c'*, the packing-ring E, the flange whereof lies wholly outside the reduced portion *c*, whereby its extreme diameter is but slightly greater than the piston-rod, a coupling smaller in diameter than the bore of the tube, screwed on the stem *c'* and adapted to hold the packing-ring in position, and a connecting-rod C'', all substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM H. DUNSHEE.
CHARLES H. CHANDLER.

Witnesses:

D. W. ABERNATHY,
J. A. CHANDLER.