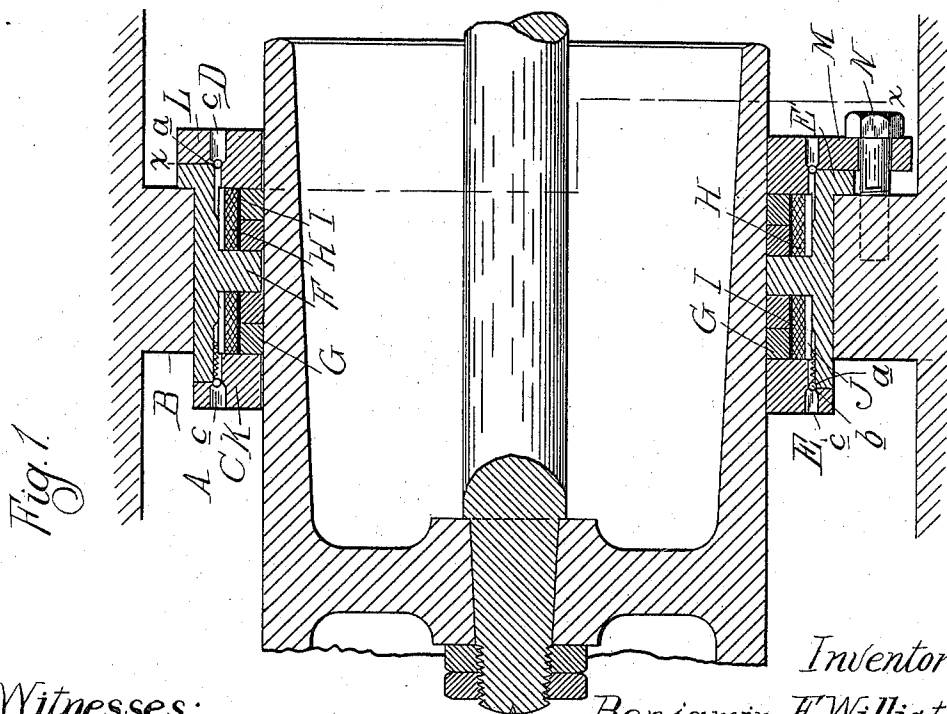
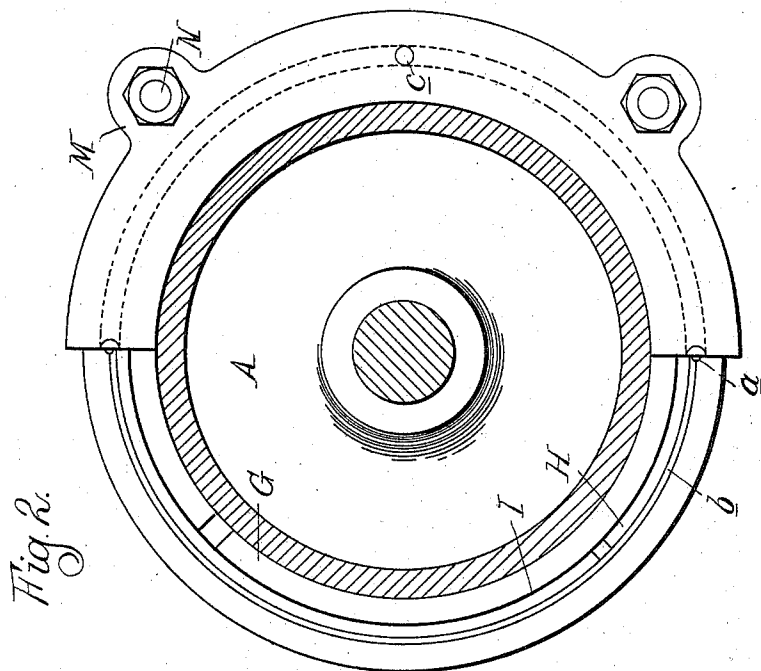


(No Model.)

B. F. WILLISTON.
PACKING FOR PUMP PLUNGERS.

No. 577,570.

Patented Feb. 23, 1897.



Witnesses:
Otto H. Bantel
M. J. Murphy

Inventor:
Benjamin F. Williston,
By *Wm. S. Magnusson*
Attorneys

UNITED STATES PATENT OFFICE.

BENJAMIN F. WILLISTON, OF JACKSON, MICHIGAN.

PACKING FOR PUMP-PLUNGERS.

SPECIFICATION forming part of Letters Patent No. 577,570, dated February 23, 1897.

Application filed September 24, 1896. Serial No. 606,831. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. WILLISTON, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Packing for Pump-Plungers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention consists in a novel construction, arrangement, and combination of parts constituting a packing for a pump-plunger, all as more fully hereinafter described, and shown in the drawings, in which—

15 Figure 1 is a vertical central longitudinal section through the cylinder and plunger of a well-known form of steam-pump, showing my improved packing applied to the plunger thereof. Fig. 2 is a cross-section on line *xx*,
20 looking toward the left.

A represents the plunger of a steam-pump of the well-known character, in which the cylinder is provided with an apertured partition or bridge B, forming two chambers C and
25 D on opposite sides thereof, into which the water is alternately admitted and expelled therefrom by the reciprocative movement of the plunger in the well-known operation of the pump, the construction of which may be
30 otherwise of any known form.

My invention has reference to a packing secured in the bridge around the plunger, and the construction of which is as follows: A bushing E, which is fitted in the aperture
35 of the bridge and extends through it, is formed with annular recesses in the opposite ends, which recesses are separated by a standing flange F in the center of the bushing. In each recess are fitted side by side two or more
40 metallic packing-rings G, which are adapted to fit around the plunger and by being split open in the usual manner provide for the wear of the plunger. The packing-rings G in each recess are inclosed within another
45 packing-ring H, which has the combined width of the packing-rings G, and interposed between this ring and the rings G is a gasket I of lead, block-tin, or other like compressible material. The packing-rings H are also of
50 metal and split open, so that they may freely contract with the rings G if the plunger wears away. The recesses in the bushing are large

enough to receive these several packing-rings and also to leave a space J in each recess back of the rings all around. The packing-rings 55 are confined in these recesses by means of flanged packing-glands K and L, the former being screw-threaded into the end of the bushing and the latter being formed with ears M for the reception of bolts N, by means 60 of which said gland is directly bolted to the bridge B, and as the bushing E is formed on the same side with an annular flange E' these bolts also hold the bushing in position in the bridge. The annular spaces J behind 65 the packing-rings are in communication with the pump-chambers C and D, respectively. To this end circular orifices *a*, formed by means of complementary half-circular grooves in the meeting faces of the glands and bush- 70 ing, communicate into annular circular channels *b*, formed in a similar manner by means of complementary half-circular grooves in the vertical meeting faces of the glands and bushing, and these again communicate by en- 75 larged orifices *c* through the flanges of the glands into the chambers C and D, respectively.

In practice, the parts being constructed and arranged as shown and described, it will be 80 seen that as the plunger reciprocates one or the other set of packing-rings in the bridge will be firmly compressed around the plunger by the pressure of the water which acts through the orifices and the spaces J against 85 the outer rings I, which are thereby contracted around the inner rings G and hold the latter firmly around the plunger, while at the same time the gasket between is firmly 90 compressed and closes all the joints between the rings and the walls of the recesses, so that no leakage of water can take place from one chamber into the other.

My packing does not create any undue friction, and whatever friction it produces is pro- 95 portionate to the pressure of the water and is distributed equally all around. While thus very efficient it is very simple and durable and can be quickly adjusted or repaired, it being possible to remove or renew either 100 set of packing-rings independently of the other.

What I claim as my invention is—

1. In a packing for plunger-pistons, the

combination with the pump-cylinder and
bridge dividing the same into two chambers,
of a bushing recessed in opposite ends, a set
of metallic packing-rings in each recess, spaces
5 formed behind the packing-rings communi-
cating through orifices with the chambers of
the pumping-cylinder, and glands secured in
the ends of the bushing to hold the packing-
rings in position, one of said glands being
10 directly secured by bolts to the bridge to de-
tachably hold the packing in position in the
bridge.

2. In a packing for plunger or piston, the
combination with the pump-cylinder and
15 bridge dividing the same into two chambers,
of the bushing E formed with recesses in op-

posite ends, a set of metallic packing-rings in
each recess, composed of two or more inner
rings and an outer ring inclosing the same, a
gasket between the outer and inner rings, 20
the packing-glands in the recesses of the
bushing securing the packing-rings inde-
pendently removable, and the spaces I back
of the said packing-rings communicating
through orifices *a b* and channels *c* with the 25
chambers on opposite sides.

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

BENJAMIN F. WILLISTON.

Witnesses:

M. B. O'DOHERTY,
OTTO F. BARTHEL.