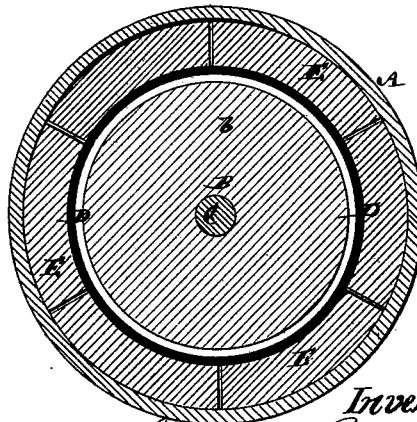
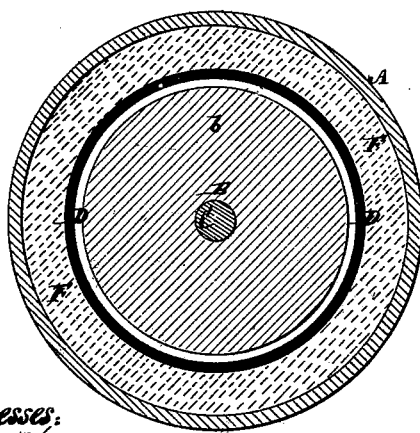
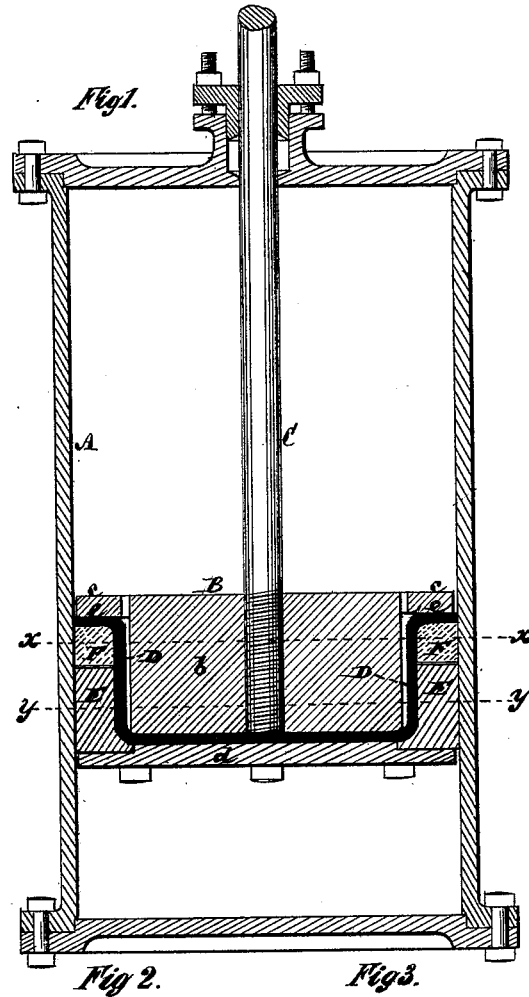


C. W. BALDWIN.
Packing for Pistons.

No. 220,784.

Patented Oct. 21, 1879.



Witnesses:
Fred. Noyes
J. H. Lane

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UNITED STATES PATENT OFFICE.

CYRUS W. BALDWIN, OF NEW YORK, N. Y., ASSIGNOR TO HYDRAULIC ELEVATOR COMPANY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PACKINGS FOR PISTONS.

Specification forming part of Letters Patent No. 220,784, dated October 21, 1879; application filed November 1, 1878.

To all whom it may concern:

Be it known that I, CYRUS W. BALDWIN, of the city and State of New York, have invented certain new and useful Improvements in Piston-Packings, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to piston-packings for various purposes, including the piston-packings of gas and steam engines; but it is more especially designed to be applied and will here be described more particularly with reference to the pistons of hydraulic apparatus or elevators.

The general object of the invention is to obtain a tight piston-packing which shall be free from excessive friction; and to this and other ends, the invention consists in the combination, with a piston having at one end a flange and at the other end a removable disk having a diameter equal to that of the flange, of a flexible cup-packing fitting over the body of the piston and having an external flange lying against the flange of the piston, and one or more expansible packing-rings arranged around the body of the cup and between the flange thereof and the removable disk, said piston having passages through which a liquid or fluid may have access to the interior of the cup at its flanged end only, whereby a very expansible and at the same time water and gas tight piston-packing is secured.

In the accompanying drawings, Figure 1 represents a longitudinal section of the working cylinder of a hydraulic elevator with piston therein and having my invention applied. Fig. 2 is a transverse section of the same on the line *x x*, and Fig. 3 a further transverse section thereof on the line *y y*.

A is the cylinder, and B the piston thereof, having a rod, C, which projects through the upper end of the cylinder. The water to operate the piston is admitted to and exhausted from the upper side of the latter, as in various hydraulic elevators, and by any suitable means. The piston B is composed of a body portion, *b*, having an upper externally-projecting flange,

c, and a lower follower or removable plate or disk, *d*, secured by screws to the body, and forming a lower support or clamp for the packing. D is a cup-packing of leather or other suitable flexible material. This cup-packing is fitted over the body *b* of the piston beneath the flange *c*, and it is constructed with an externally-projecting flange, *e*, corresponding to the flange *c* of the piston, beneath which and a ring-packing surrounding the body of the cup it lies. The outer edge-surface of this flange *e* is the only portion of the cup-packing that comes in contact with the cylinder, so that said cup-packing has a very diminished surface exposed to wear, and it may be kept set outward by the water, gas, or fluid in the cylinder entering by suitable passages within the cup or between it and the body of the piston, as in other cup-packing arrangements. Combined with said cup-packing are one or more ring-packings arranged to surround the body portion of the cup-packing and forming the main rubbing-surface of the piston in its contact with the cylinder. Such ring-packing or packings is or are arranged between the disk or plate *d* and the flange *e* of the cup-packing, and may be made either wholly of metal or of other materials separately or combined with metal.

The drawings represent both a surrounding metal ring-packing, E, and a surrounding packing, F, of rubber, hemp, or other elastic material interposed between the metal ring-packing E and the flange *e* of the cup-packing. Such compound form of ring-packing will be found very efficient, the elastic ring-packing F serving to secure a close but soft packing surface corresponding in a measure to that of the rubbing-surface of the flange of the cup-packing, and to give a flexible support to said flange, as well as to brace the cup-packing without impairing the expanding action of the latter when exposed to inside pressure, while the metallic packing E, which may either be a ring with a lap-joint or a ring composed of a series of segments, as shown in the drawings, operates to relieve the softer packing and flange of the cup-packing of excessive

wear. Perfect tightness, or comparatively perfect tightness, without unnecessary friction is also insured for the packing.

I claim—

The combination, with a piston having at one end a flange and at the other end a removable disk having a diameter equal to that of the flange, of a flexible cup-packing fitting over the body of the piston and having an external flange lying against the flange of the piston, and one or more expansible packing-

rings arranged around the body of the cup and between the flange thereof and the removable disk, said piston having passages through which a liquid or fluid may have access to the interior of the cup at its flanged end only, substantially as described.

CYRUS W. BALDWIN.

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