D. W. Bell,

Pump Piston.

No. 112,768. Patented Mar. 21. 1871.

Fig. 2.

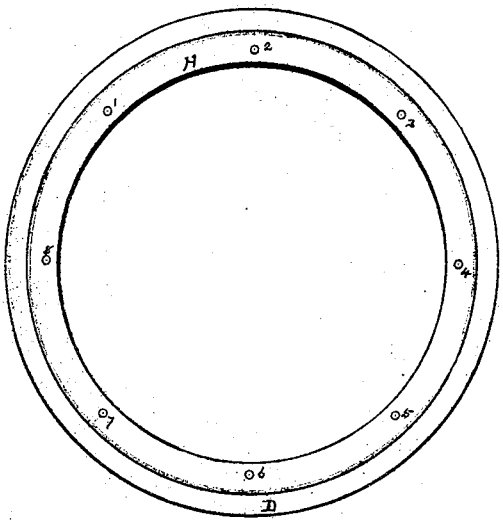



Fig. 3.

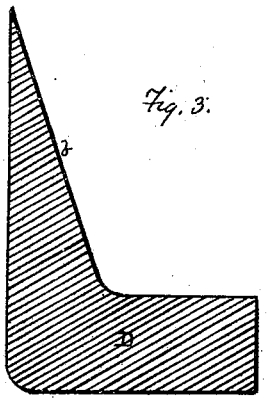
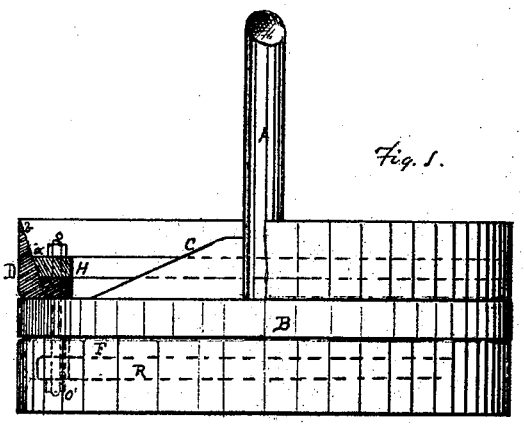



Fig. 1.




WITNESSES

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# United States Patent Office.

DANIEL W. BELL, OF ST. LOUIS, MISSOURI.

Letters Patent No. 112,768, dated March 21, 1871.

## IMPROVEMENT IN PUMP-PISTONS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, DANIEL W. BELL, of the city and county of St. Louis and State of Missouri, have invented a new and useful Improvement in Piston-head Packing, of which the following is a full, clear, and exact description, reference being had to the annexed drawing making a part of this specification, and in which—

Figure 1 represents a piston-head provided with my improvement.

Figures 2 and 3 represent, respectively, a plan and transverse sectional view of my packing.

Similar letters indicate like parts.

The object I have in view in my invention is to provide a packing for the piston-heads of hydraulic elevators specially, that may be efficient, easily adjusted, and durable, it having been found that the ordinary packing, when used with the muddy water of the western rivers, soon wears out, being so cut by the gritty particles in the water as in a short time to be useless. It is to overcome this objection, which has been almost fatal to the usefulness of such elevators, that my invention is designed.

A, fig. 1, represents part of a piston-rod;

B, the head; and

C, one of the braces, of which there are four or more above and below the head.

D, figs. 1 2 3, represents a ring of vulcanized rubber, made of the same diameter as the piston-head, so that its periphery may correspond with that of the head, and fit exactly upon it, as shown in fig. 1.

This being placed on the piston-head, an iron ring or follower, H, figs. 1 2, having its outer edge *a*, fig. 1, beveled to correspond to the inclination of the edge *b* of the ring D, is made to fit closely inside the projecting edge *b* of the ring D, resting on it, as seen clearly in fig. 1. This follower is not made as thick as the height of the edge *b*, as it is of importance that this should be allowed to play freely, for thus it makes a more perfect packing.

A second ring of rubber, F, and another follower, R, as indicated by the dotted line in fig. 1, may be placed on the other side of the piston-head, and then both are secured by bolts and nuts, as seen at *o o'*, fig. 1, the rings and followers being punched with holes for the purpose, as seen at 1, 2, 3, &c., fig. 2.

The advantages of this invention are, that the rubber made in this peculiar form presents an exceedingly elastic surface to the cylinder, making a most perfect contact with its sides, and preventing any water from passing above the head. It is not cut by the sand, as in the case with other kinds of packing used, and, unlike them, it can be molded in exactly the most desirable shape, which is that shown herein, and of any size to suit different piston-heads.

Another most important advantage, which is entirely peculiar to this substance and the manner I have applied it, is that when it becomes worn, so as to allow the piston to leak, it can be readily adjusted by simply tightening the screw or nuts, so as to make it tight once more; for it is evident that the harder the followers are pressed upon the rubber the closer will their edges be pressed against the cylinder. The advantage of this in saving time and labor and material is evident.

As it is plain that the piston can be used with one or two packings, or rather with one above and one below the head, I do not wish to limit myself to the use of both.

I of course do not claim any originality in using vulcanized rubber for the purpose above specified, as this substance has been long and extensively used for this and like purposes; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a packing, D, for piston-heads made of vulcanized rubber, substantially of the shape and form as shown and described.

2. The piston-head B, rubber ring D, having a beveled edge, *b*, and follower H, its edge *a* beveled to correspond to the bevel of *b*, the edge of the latter rising and playing freely above the follower, and the pressure of the follower on the ring maintained and adjusted by bolts and nuts, and all arranged and constructed for joint operation as and for the purpose shown and specified.

DANIEL W. BELL.

Witnesses:

SAML. S. BOYD,

LEWIS MYERS.