I. D. Buck,

Piston.

No. 108,682. Patented Oct. 25. 1870.

Fig. 1.

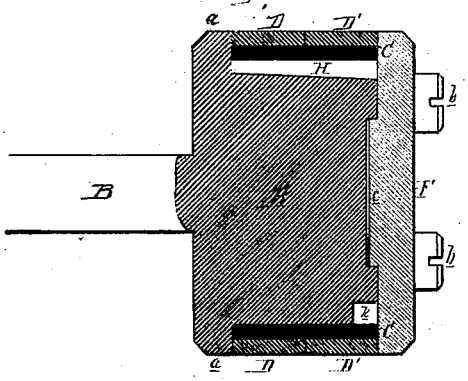


Fig. 2.

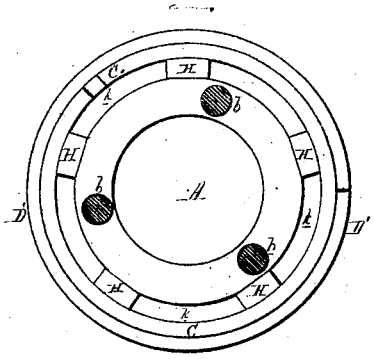


Fig. 3.

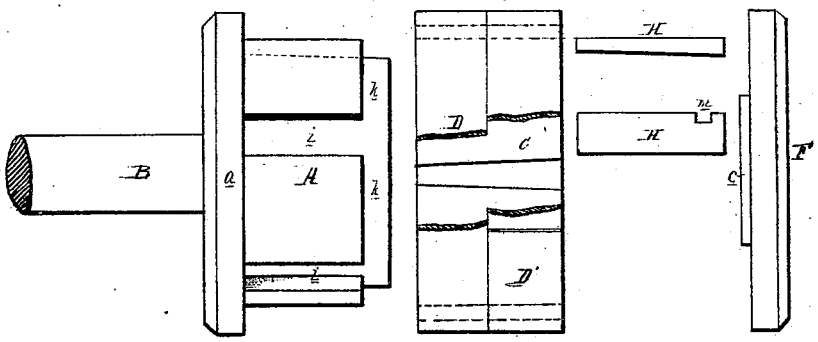


Fig. 4.

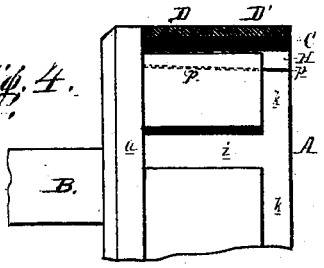
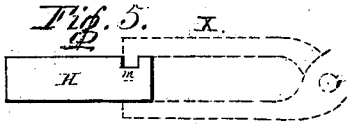


Fig. 5.



Witnesses { Wm. A. Steel
John Parker

Isaiah D. Buck
by his Attys.
Howson and Sons

United States Patent Office.

ISAIAH DAVIS BUCK, OF CONSHOHOCKEN, PENNSYLVANIA.

Letters Patent No. 108,682, dated October 25, 1870.

IMPROVEMENT IN PISTONS.

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

I, ISAIAH DAVIS BUCK, of Conshohocken, county of Montgomery, State of Pennsylvania, have invented an Improved Piston, of which the following is a specification.

Nature and Object of the Invention.

My invention consists principally in the employment of tapering keys or wedges for expanding the packing-rings of pistons; also in certain improvements, fully described hereafter, in the construction of pistons.

Description of the Accompanying Drawing.

Figure 1 is a sectional view of my improved piston;

Figure 2, an end view of the same with the follower removed;

Figure 3, represents the several parts of the piston detached from each other;

Figure 4 is a side view, partly in section; and

Figure 5, a view of one of the wedges for expanding the piston.

General Description.

The body of the piston consists of a head or stock, A, which, in the present instance, is cast in one piece with the piston-rod B.

This stock is cut away for the reception of the split packing-rings C, D, and D′, which are retained between the flange *a* of the stock, and a disk or follower, F, which is secured to the end of the piston by bolts or screws *b*, and which has a central enlargement or projection, *c*, adapted to a recess in the stock, as best observed in fig. 1.

This latter arrangement serves to adjust the follower to a central position, and to relieve the strain upon the bolts or screws *b*.

For the purpose of expanding the packing-rings I employ tapering keys or wedges H, which, in the present instance, are five in number, and are adapted to the recesses *i*, formed in the stock A beneath the said packing-rings. The stock is also cut away, at *k*, to a depth corresponding to that of the recesses *i*, in order that the ends of the wedges may project from the said recesses. This enables the wedges, which are notched at *m*, to be seized by tongs X, or other suitable instrument, and withdrawn from their recesses after removing the follower F.

In order to facilitate the introduction and withdrawal of the wedges, the latter might be tapered on all four sides, instead of upon two sides only, as shown in the drawing.

After the wedges have been driven in to their full extent, and it becomes necessary to still further expand the rings, thin strips of metal *p* may be inserted beneath the wedges, as shown in fig. 4.

It will be observed, on reference to fig. 3, that the opposite ends of the split ring C are tapered, so as to form a wedge-shaped space between them. This enables a wedge to be driven into the said space, after the piston has been fitted to the cylinder, for the purpose of determining the extent of the expansion of the rings.

If the expansion has been too great, the ring will not yield to the wedge, while, if it is not great enough, the wedge will readily enter. This forms a ready test for the proper adjustment of the wedges H.

It will be seen that, after the plate F has been secured to its place, bearing against the end of the head A, the wedges H will be confined between the follower and rim *a*, and will be incapable of further motion, so that the piston is solid throughout, without loose parts, or parts which can become loose, and permit the unequal wear of the rings.

Claims.

1. The stock A, its flange *a*, and recesses *i*, in combination with the follower F, fitting against the head of the stock, the rings C D D′, and wedges H, immovably confined between the follower and flange *a*, as and for the purpose described.

2. The said stock, recessed at *i*, in combination with the said wedges, recessed near their outer ends, as and for the purpose specified.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ISAIAH D. BUCK.

Witnesses:

JOHN O'BRIEN,

CHARLES H. HENNITS.