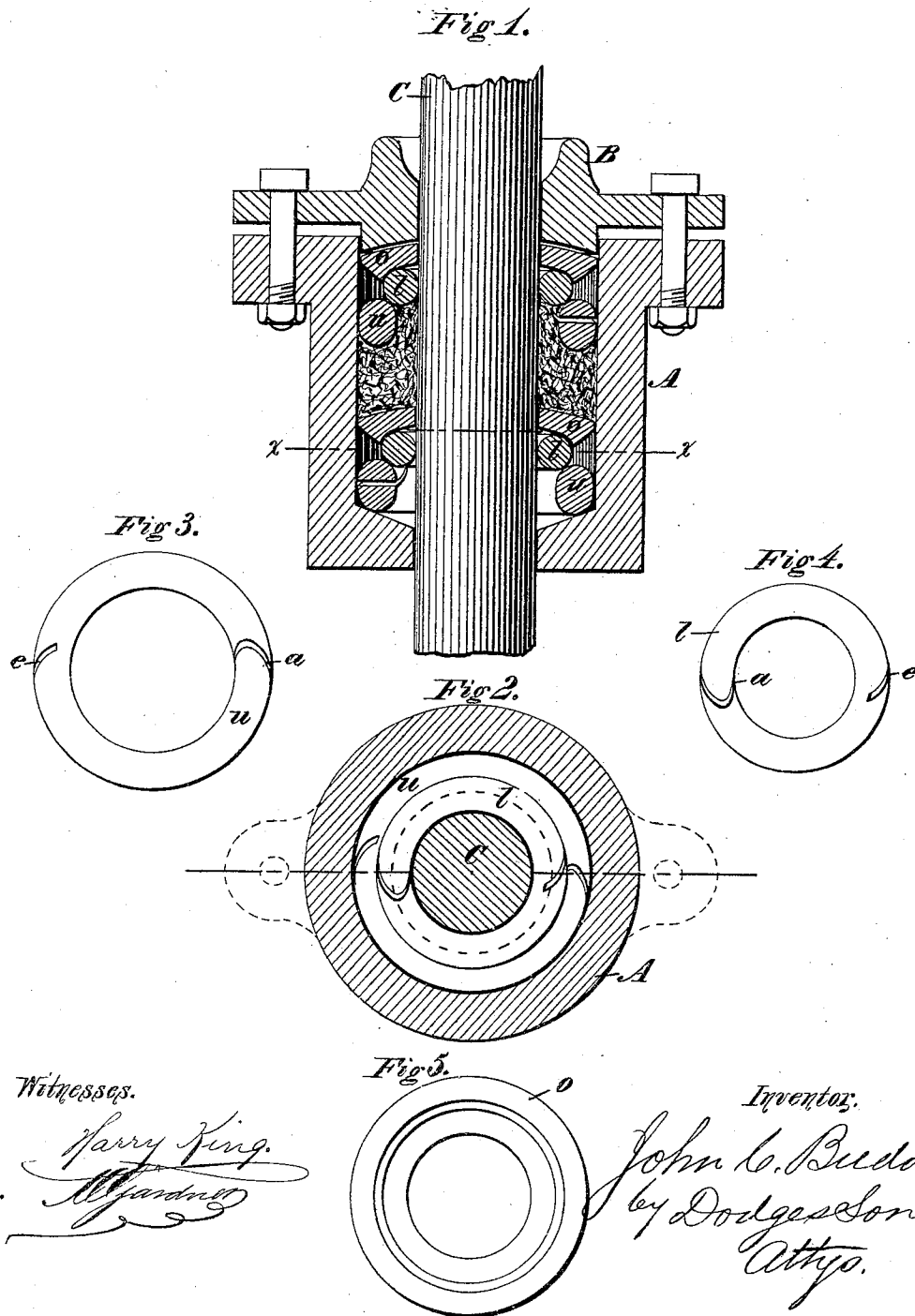


J. C. BUDD.
Piston-Packings.

No. 143,057.

Patented September 23, 1873.



Witnesses.

Harry King.
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UNITED STATES PATENT OFFICE.

JOHN C. BUDD, OF UNION TOWNSHIP, BERGEN COUNTY, NEW JERSEY.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. **143,057**, dated September 23, 1873; application filed March 3, 1873.

To all whom it may concern:

Be it known that I, JOHN C. BUDD, of Union township, in the county of Bergen and State of New Jersey, have invented certain Improvements in Packing for Piston-Rods, Journals, &c., of which the following is a specification:

My invention relates to piston-packings; and it consists in arranging with the packing-box a series of metal disks and rings in such a manner as to hold between them a quantity of asbestos or other fibrous material, and allow the latter to be compressed around the piston-rod, as hereinafter more fully described.

Figure 1 is a longitudinal section; Fig. 2, a transverse section; and Figs. 3, 4, and 5 are views of the rings and disks detached.

In the drawing, A represents the packing-box, of which B is the cover or gland. In constructing my improved packing, I provide a pair of metallic disks or washers, *o*, of suitable diameter to fit loosely in the packing-box, with a hole through their center for the piston-rod C, these washers *o* being made concave on one side and convex on the other, as shown in section in Fig. 1, Fig. 5 being a face view of the concave side. I then provide a pair of soft-metal rings, *l*, of such size as to fit within the concavity of the washers *o*, as shown in Fig. 1, the ring being represented detached in Fig. 4. I also provide another pair of rings, *u*, larger in diameter than the rings *l*, these rings *u* and the washers *o* being made of brass or other hard metal. Both pairs of rings, *l* and *u*, are cut obliquely entirely across, as shown at *a*, Figs. 3 and 4, and partially through on their opposite sides, as shown at *e*, for the purpose of rendering them elastic, or permitting them to yield to pressure somewhat, and thus adjust or seat themselves more perfectly than they otherwise would. Having provided the rings and washers, and a suitable quantity of asbestos or other fibrous material, with which I preferably mix more or less black lead or graphite, I proceed to arrange the packing as shown in Fig. 1—that is to say, I place in the bottom of the packing or stuffing box one of the hard-metal rings *u*, and on that one of the soft-

metal rings *l*, and on that place one of the washers or disks *o*, with its concave side next to the ring *l*. I then insert the fibrous material, and on that I place another of the large rings *u*, then one of the soft-metal and smaller rings *l*, and over these another washer, *o*, with its concave side downward or next to the ring *l*, and then screw on the gland B, as shown clearly in Fig. 1, the piston-rod C, of course, being in place, as usual, and as represented in the drawing. The washers *o* and the rings *u* I make of hard metal, preferably of brass, and the smaller rings *l* of babbitt-metal, or some similar alloy of soft metals. In practice these latter or soft-metal rings are the only parts subjected to wear to any considerable extent, and can be easily and cheaply reproduced.

The object of the soft-metal rings is twofold: First, they are used for the special purpose of retaining the asbestos in place, as it is found impossible to fit hard-metal rings so as to prevent the asbestos from working past them on the rod. The soft metal yielding to the pressure applied in screwing the parts up, they fit themselves to the parts with which they come in contact, and thus so pack or close the space between the rod and the hard-metal rings as to keep the asbestos from escaping, which is of vital importance. Second, as these rings are arranged, they are the ones that come in contact with the rod, and consequently receive all or nearly all the wear resulting from use, and they are much cheaper and easier to replace than the hard-metal rings; and thus it will be seen that the packing may be used for a long time with no other cost or trouble than merely replacing the soft-metal rings when worn. The other parts will last for an indefinite length of time, and the whole, therefore, forms a very durable, cheap, and efficient packing.

It is equally applicable to steam, water, or hot air, and in all cases where a packing is required for a piston or journal rod.

Having thus described my invention, what I claim is—

1. A cut metallic ring, constructed substantially as described, for packing piston-rods, as set forth.

2. The soft-metal ring *l*, arranged, in rela-

tion to the rod C and washer *o* and ring *u*, substantially as described, whereby the soft-metal ring is compressed upon the rod to prevent the escape of the packing material, and to receive the wear caused by the friction of the rod, as herein set forth.

3. The herein-described packing for piston-rods, consisting of the washers *o* and the rings

l and *u*, with the fibrous material, all constructed and arranged to operate substantially as set forth.

JOHN C. BUDD.

Witnesses:

JOHN ROSE,
LINN S. SMITH.