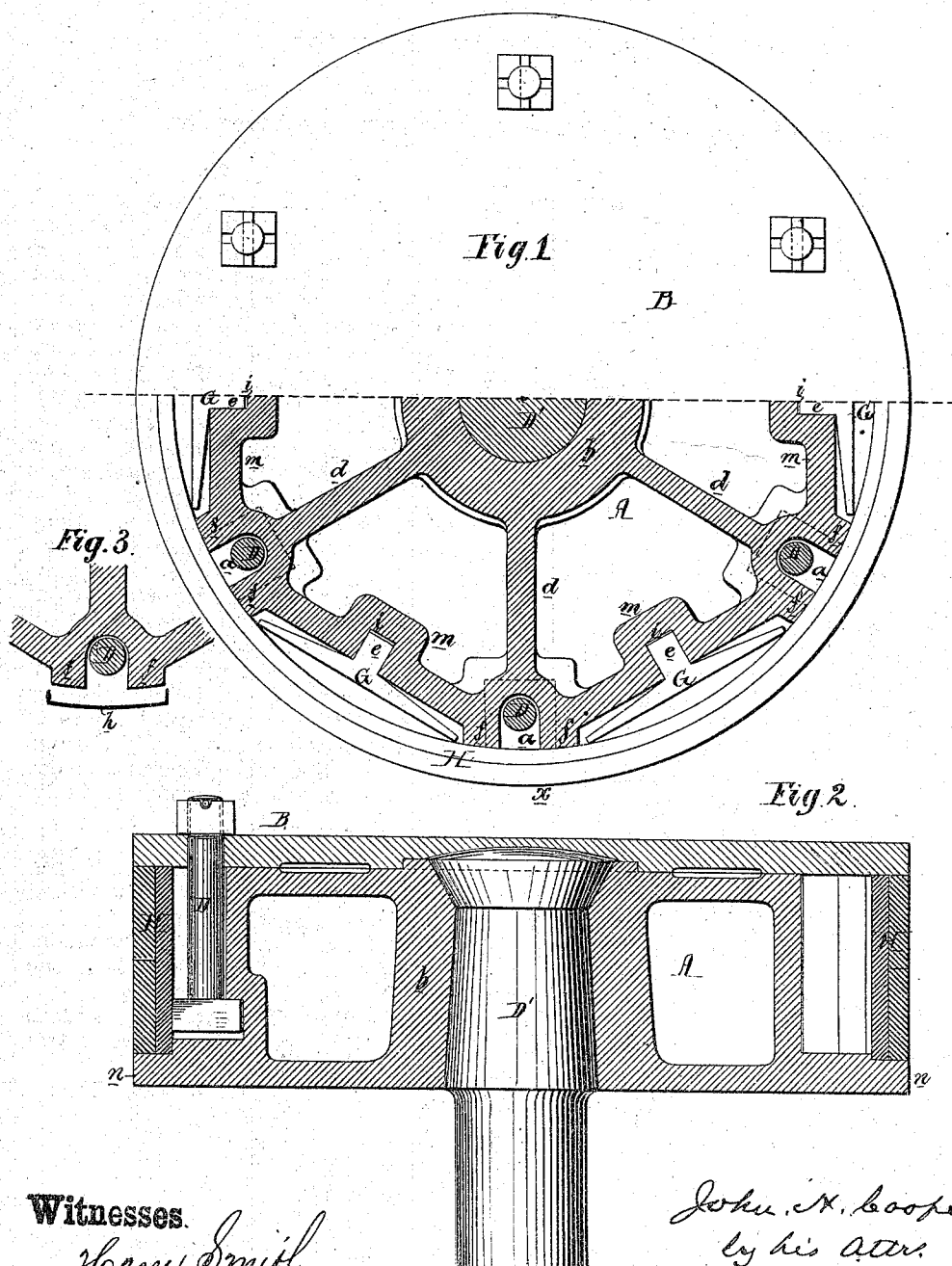


J. H. COOPER.

Improvement in Piston-Packing.

No. 129,793.

Patented July 23, 1872.



Witnesses.

Harry Smith
John R. Kestis

John H. Cooper
by his att.
Hawson and Son

UNITED STATES PATENT OFFICE.

JOHN H. COOPER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN PISTON-PACKINGS.

Specification forming part of Letters Patent No. 129,793, dated July 23, 1872.

Specification describing an Improvement in Pistons for Steam-Engines, invented by JOHN H. COOPER, of the city and county of Philadelphia, State of Pennsylvania.

Improvement in Pistons for Steam-Engines.

My invention has for its object economy in the construction of pistons for steam-engines, the increased efficiency of the same, and ready adjustment of those parts which demand adjustment. These ends I attain by several improvements, which may be briefly alluded to as follows, by way of introduction: First, the recesses *a* in the body of the piston are so formed as to receive ordinary cheap bolts *D* for confining the follower, in place of the more costly special bolts generally used; second, the springs *G*—best observed in the sectional plan, Fig. 1—for acting on the usual packing-rings *H*, are simple, readily introduced to their places, and easily and permanently set up to the packing-rings; third, the projections *f* of the body of the piston are well adapted for receiving packing-pieces *h* when and where the unequal wearing of the packing-rings demands them.

It will be seen from the above that my invention relates to details of the piston without any extended innovation of the general structure. The piston has, in fact, the usual body, *A*, composed of a central hub, *b*, to which the piston-rod *B'* is riveted; arms *d* radiating from this hub, and these arms being connected together by webs *m*, which are arranged in the peculiar manner shown in Fig. 1, so as to afford spaces for the reception of the springs *G*. Each spring is forged to the shape shown, its projection *e* fitting into a recess in the web *m*, within which recess a thin metal packing *i*, can be readily introduced when a spring has to be set up against the usual packing-

rings, *H*, the latter being confined, as usual, between a flange, *n*, on the body of the piston and the follower *B*. It has been the practice in constructing pistons to secure the follower by special bolts, nuts of brass being let into the body of the piston, and the heads of the bolts bearing against the follower. For these costly bolts I substitute those of ordinary construction, which can be purchased, ready-made, at any bolt works, the recesses *a* in the body of the piston being made of proper dimensions for receiving the heads and stems of these common bolts. In horizontal engines the lower portion of the piston—which may be supposed to beat *x*, Fig. 1—wears away faster than other portions, owing to the weight of the piston, and the piston-rod falls out of its proper line, so that it becomes necessary to set up the body of the piston from time to time. This I readily accomplish by the introduction of a thin strip, *h*, of tinned plate or sheet-iron, Fig. 3, between the projection *f* of the body of the piston and the packing-rings *H*, the ends of the strip being bent to the sides of the projection, and thereby retained in its place.

I claim—

1. Recesses *a*, formed in the body of the piston, in combination with common bolts, adapted to the said recesses, as set forth.
2. Springs *G*, each having a projection or rib, *e*, adapted to a recess in the body of the piston, as and for the purpose set forth.

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

JOHN H. COOPER.

Witnesses:

H. HOWSON,
WM. A. STEEL.