W. W. Lowerree and G. A. Sanderson's Improved

PISTON FACING MACHINE.

PATENTED JUL 4 1871

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Fig. 5.

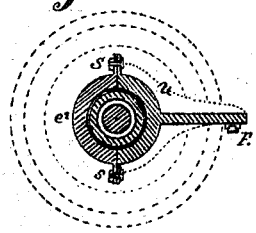


Fig. 2.

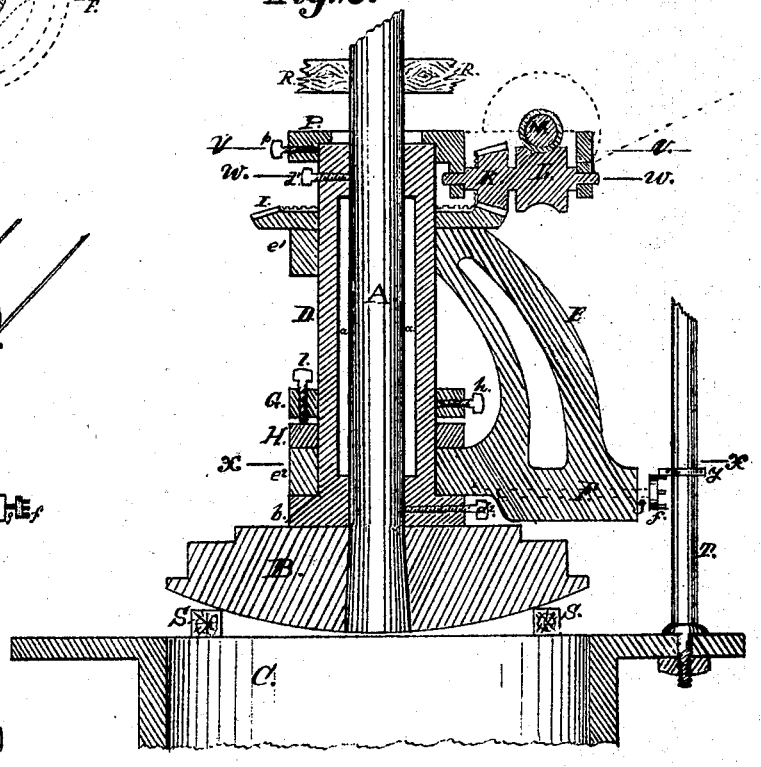


Fig. 1.

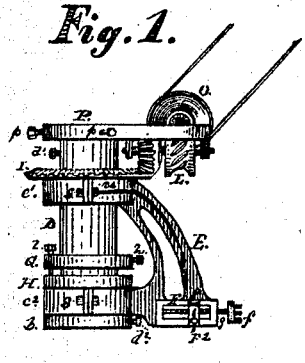


Fig. 3.

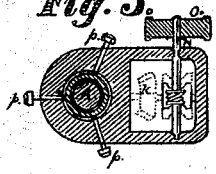
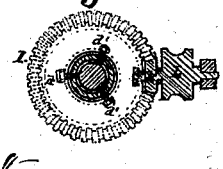


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM W. LOWERREE AND GEORGE A. SANDERSON, OF ALBANY, NEW YORK.

IMPROVEMENT IN PISTON-FACING MACHINES.

Specification forming part of Letters Patent No. 116,730, dated July 4, 1871.

To all whom it may concern:

Be it known that we, WILLIAM W. LOWERREE and GEORGE A. SANDERSON, of Albany, in the county of Albany and State of New York, have invented certain Improvements in Machines for Facing Pistons of Steam-Engines, of which the following is a specification:

The principal object of our invention relates to the arrangement and adaptation of a portable mechanism, by which the pistons of steam-boat or other large engines may be refaced when worn by the friction to which they are exposed when in use. By our novel and efficient arrangement we can reface any part of the piston, the ring surface, the packing-rings, or the follower, as may be required.

In the accompanying drawing, Fig. 1 is a side elevation of our improved apparatus. Fig. 2 is a vertical central section of the same as attached to a piston. Fig. 3 is a horizontal section of the head-block on the plane of a line, *v v*, in Fig. 2. Fig. 4 is a horizontal section on the plane of a line, *w w*, in Fig. 2. Fig. 5 is a horizontal section on the plane of a line, *x x*, in Fig. 2.

A is a piston-rod, B the piston-head, and C the cylinder of a steam-boat engine. D is a sleeve about sixteen inches long and having an inner diameter of about six and a half inches, or a little larger than the piston-rod of a large engine. Said sleeve D is cored larger in its center, as shown at *a* in Fig. 2, to lighten it and that it may require less boring. The bottom of sleeve D is made with a flange, *b*, which forms a shoulder or bearing for the lower divided ring e^2, as well as the lower part of bracket E, as shown in Figs. 1 and 2. At the upper and lower ends of sleeve D are set-screws d^1 and d^2, by which sleeve D is adjusted and secured to the piston-rod A. E is a projecting arm or bracket, attached, by means of two divided rings, e^1 and e^2, at its upper and lower ends, to sleeve D. Said divided rings e^1 and e^2 are carefully fitted so as to revolve freely and smoothly outside of and around the sleeve D. F is a tool-carriage or holder fitted to move in or out upon one side of the lower part of bracket E, and is operated by a feed-screw, *g*, in the same manner as the tool-carriage of an iron-planing machine. F^2 is the cutting-tool. G and H are two independent rings, having set-screws in them, by means of which the lower part, ring e^2 of bracket E, is adjusted and retained in place upon sleeve D. I is a bevel-gear wheel secured by bolts or in any convenient manner to the upper part e^1 of bracket E. K is a bevel-pinion geared into wheel I. L is a worm-wheel secured to the shaft of pinion K. M is a worm or screw secured upon driving-shaft N. O is the driving-pulley by which the whole mechanism is operated. The inside of each end of sleeve D is bored out a little larger than the piston-rod. The outside of sleeve D is turned true at its lower end near flange *b*, and also near its top end at a point corresponding to the distance of ring e^1 from ring e^2. Set-rings G and H are used to keep the lower part of the machine down upon its bed—the flange *b* of sleeve D. Ring G is bolted fast to sleeve D by bolts *h*, and ring H is held down upon the lower divided ring e^2 by bolts *l* passing perpendicularly through ring G, as shown in Figs. 1 and 2. P is the head-block, which is secured by bolts *p* to the top of sleeve D. Said head-block P may be set in any position required to suit the location of the motive power employed. Divided rings, e^1 and e^2, respectively, at the top and bottom of bracket E, are held together by means of lugs and bolts in the usual manner, as shown at *s s* in Figs. 1 and 5. Wheel *f*, at the outer end of feed-screw *g*, is worked automatically by means of three projecting pins, as shown in Figs. 1 and 2, and a dog or striker, *y*, attached to any stationary object, such as an upright guy, T, as shown in Fig. 2.

It will be seen from the above that, in order to face up or true a steam-joint on a piston by our invention, it will be necessary to raise the piston out of its cylinder and prop it up by blocks *s s* across the top of the cylinder C and by braces R R against the piston-rod, so as to steady the same, having previously put sleeve D over the piston. Sleeve D is then adjusted and secured firmly to the piston-rod by bolts d^1 and d^2; then bracket E with its divided rings e^1 and e^2, and also the two independent rings G and H, are secured in their places upon sleeve D; lastly, the head-block P with its driving-gear is bolted or keyed onto the top of sleeve D. It will also be seen that sleeve D is fastened to the piston-rod, and that bracket E, with tool-holder F, is revolved around sleeve D. After the ring-surface of the piston has been refaced the packing-rings may be held in place by a strap or band and then trued up; the follower may also be refaced, if necessary.

By the use of our invention a great saving in

time, as well as of money, is effected. Heretofore it has been necessary to take the pistons away from the boats, and, having conveyed them to the machine-shop, they were mounted in a large lathe and there refaced; afterward they were returned to the boat, carefully hoisted to their places, and then reset. Now we need only raise and block up the piston across the top of its own cylinder and there true it up, after which we replace it within its cylinder.

What we claim as new, and desire to secure by Letters Patent, is—

The combination and arrangement of head-block P, sleeve D, bracket E, tool-carriage F, divided rings e^1 and e^2, and independent rings G and H with any suitable driving mechanism, substantially as and for the purpose herein shown.

WILLIAM W. LOWERREE.
GEORGE A. SANDERSON.

Witnesses:
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