

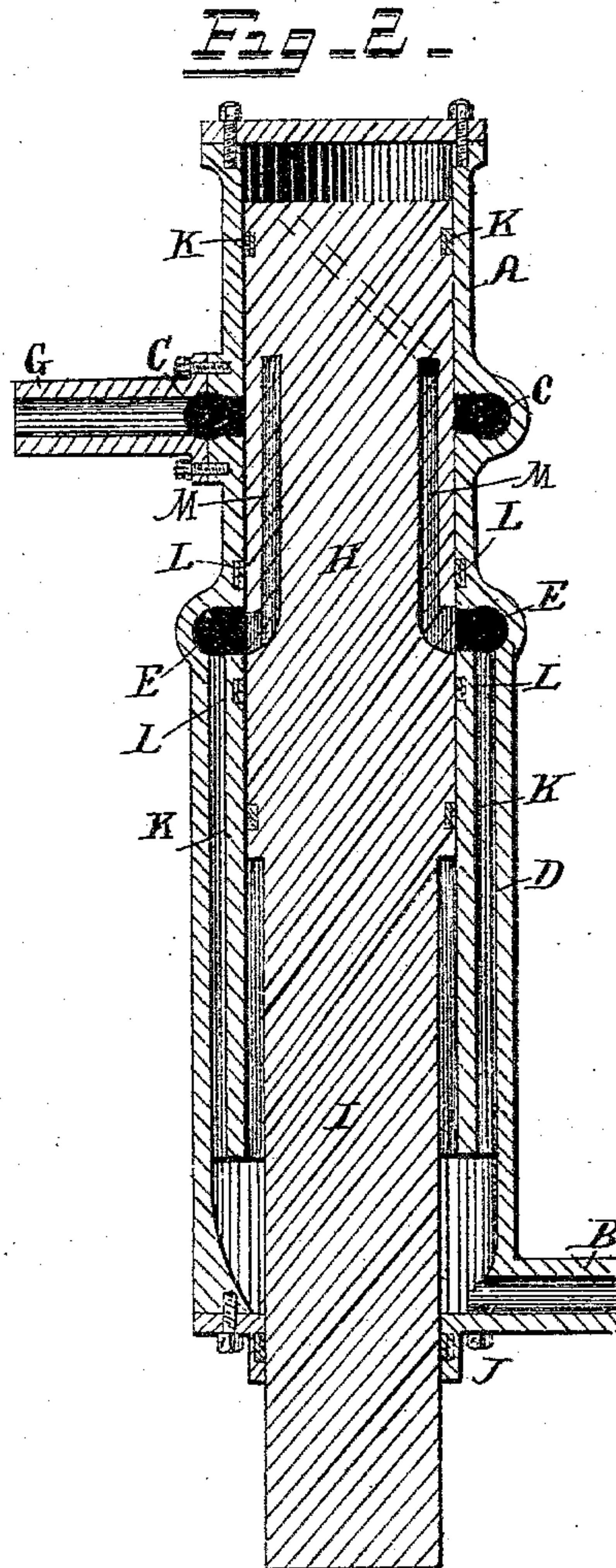
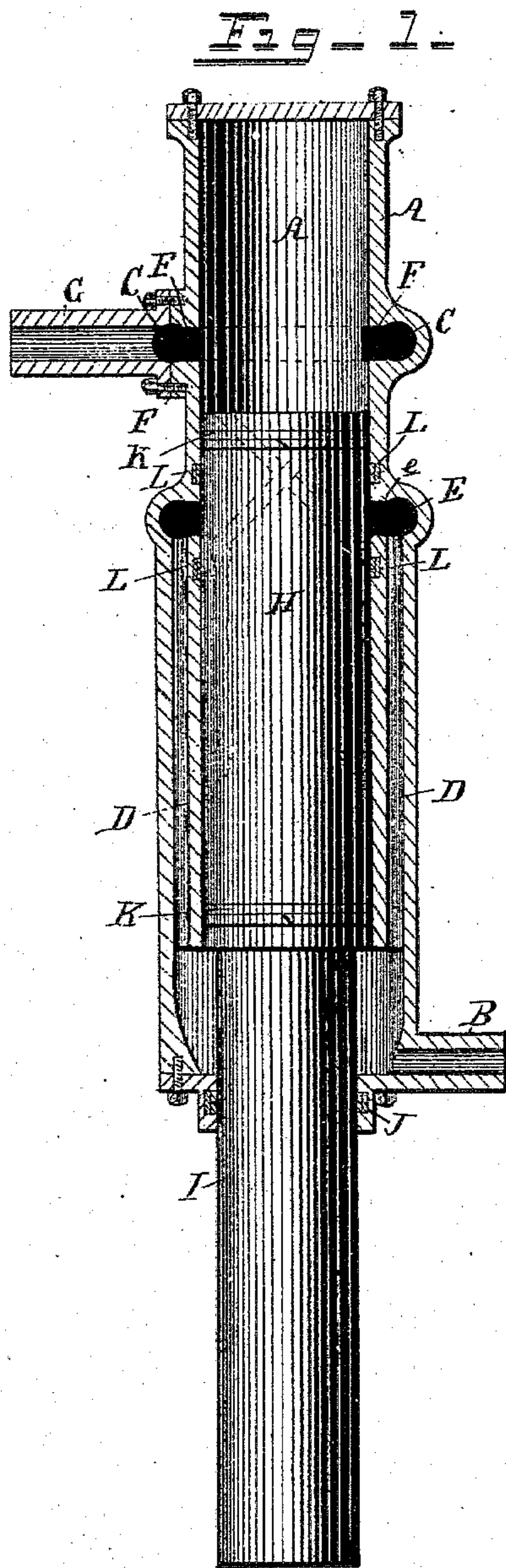
(No Model.)

W. S. SHARPNECK.

STEAM POWER STAMP.

No. 296,789.

Patented Apr. 15, 1884.



WITNESSES.

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NICHOLS MANUFACTURING COMPANY, OF SAME PLACE.

STEAM-POWER STAMP.

SPECIFICATION forming part of Letters Patent No. 296,789, dated April 15, 1884.

Application filed December 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SHARPNECK, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Steam-Power Stamps, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of this invention is to make a steam-power stamp that will use the same steam on both sides of the piston, thus working on the same principle as the compound engine; and the invention consists in the construction, arrangement, and combination of
15 parts, hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 shows a vertical cross-section of a power-stamp constructed according to my invention with
20 the piston in elevation; Fig. 2, a similar view, wholly in section, with the piston in another position.

A represents the cylinder, provided with an
25 inlet-port, B, and exhaust-port C. The inlet-port opens directly into the lower end of the cylinder, and communicates by one or more passages, D, with the circular steam-port E. Above this is formed the annular exhaust-port
30 C, connected with the cylinder by the passages F, and communicating with the exhaust-pipe G.

H is the piston, provided with a large-sized rod, I, to the lower end of which is to be se-
35 cured the stamp-drill or other tool, (not shown,) which rod works through packing-rings J or a stuffing-box, as desired.

At K K are packing-rings of any known description set in grooves in the piston, and
40 L are also packing-rings set in grooves in the cylinder.

M M represent ports formed in the piston, beginning about one-third of the length of the cylinder above the bottom thereof and termi-
45 nating at the top, so as to open into the cylinder. These passages may be straight; but I prefer to make them as shown, with their upper ends curved around or set diagonally, as shown in the drawings, for a purpose herein-
50 after explained.

The operation of the stamp is as follows:

Steam being admitted at B, passes up the steam-ports D and enters the annular steam-port E. At the same time the pressure underneath the piston H raises the same until
55 the steam-ports M M in the piston H communicate with the annular steam-port E, when steam rushes in through said steam-ports M, formed in piston-head H, to the top end of the cylinder, and the great difference in the area
60 of the top and bottom end of the piston H allows the steam that is admitted at the top end of the cylinder K to force the piston H and its rod I down below the exhaust-port C until it is arrested by the rock or other substance
65 which may be below the head (not shown) attached to the lower end of the piston-rod.

When it is desired that the piston shall have vertical motions only, the steam-passages M may be perpendicular; but when the engine
70 is to be used for stamping ore or for rock-drilling, it is advisable that the piston shall turn between each stroke, and for this purpose I give the upper ends of the passage a turn partly round the upper part of the piston, so that as the steam strikes the inclined
75 part of the passage it will cause the piston to turn on its axis, and thus the position of the stamp or drill will be changed at each stroke. It will thus be seen that by the arrangement
80 of the piston, cylinder, and ports the steam is made to turn the piston, and that steam can be cut off at two or three inches of the stroke, and that the expansion of the steam and the weight of the piston and rod carries said piston and rod down below the annular exhaust-
85 port until the stamp on the bottom of the piston-rod hits the rock or other material, after which, as the steam above the piston is exhausted through exhaust-port C, the piston is
90 again raised by the steam under it.

I do not limit myself to the exact construction shown, as it is evident that a single side passage, D, in the cylinder and a single pas-
95 sage, M, through the piston will be sufficient.

It is also evident that the inlet-port B might open directly into the port E, if preferred.

What I claim as new is—

1. The combination, in a steam-stamp, of a piston, having an enlarged rod to give heads
100 of different areas, with a cylinder, both cylinder and piston provided with ports arranged,

substantially as described, to allow the steam to first raise the piston, and at the same time give it a partial rotary movement, and then expand above the same and drive it downward, as set forth.

2. The combination, in a steam-stamp, of a piston provided with a passage, M, commencing at the side and terminating at the top of a cylinder provided with the inlet-port E, opening substantially in the center of the cylinder, and exhaust-port C, substantially as described.

3. The combination, with a cylinder, A, having inlet and exhaust ports, of the piston H, provided with the passages M, communicating alternately with said inlet and exhaust ports, said passages being inclined near their upper end, substantially as and for the purpose described.

4. The combination, with the cylinder A, having the annular inlet-port E, passages D, and main inlet B, of the piston H, having heads of different areas, and provided with the passages M, inclined at their upper ends, all constructed and arranged substantially as described.

5. The combination, with the cylinder A, of the piston H, provided with inclined steam-passages, through which the steam passes on its way to the large end of the cylinder, substantially as and for the purpose specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 24th day of November, 1883.

WILLIAM S. SHARPNECK.

Witnesses:

H. A. KENNEDY,
W. J. SWIFT.