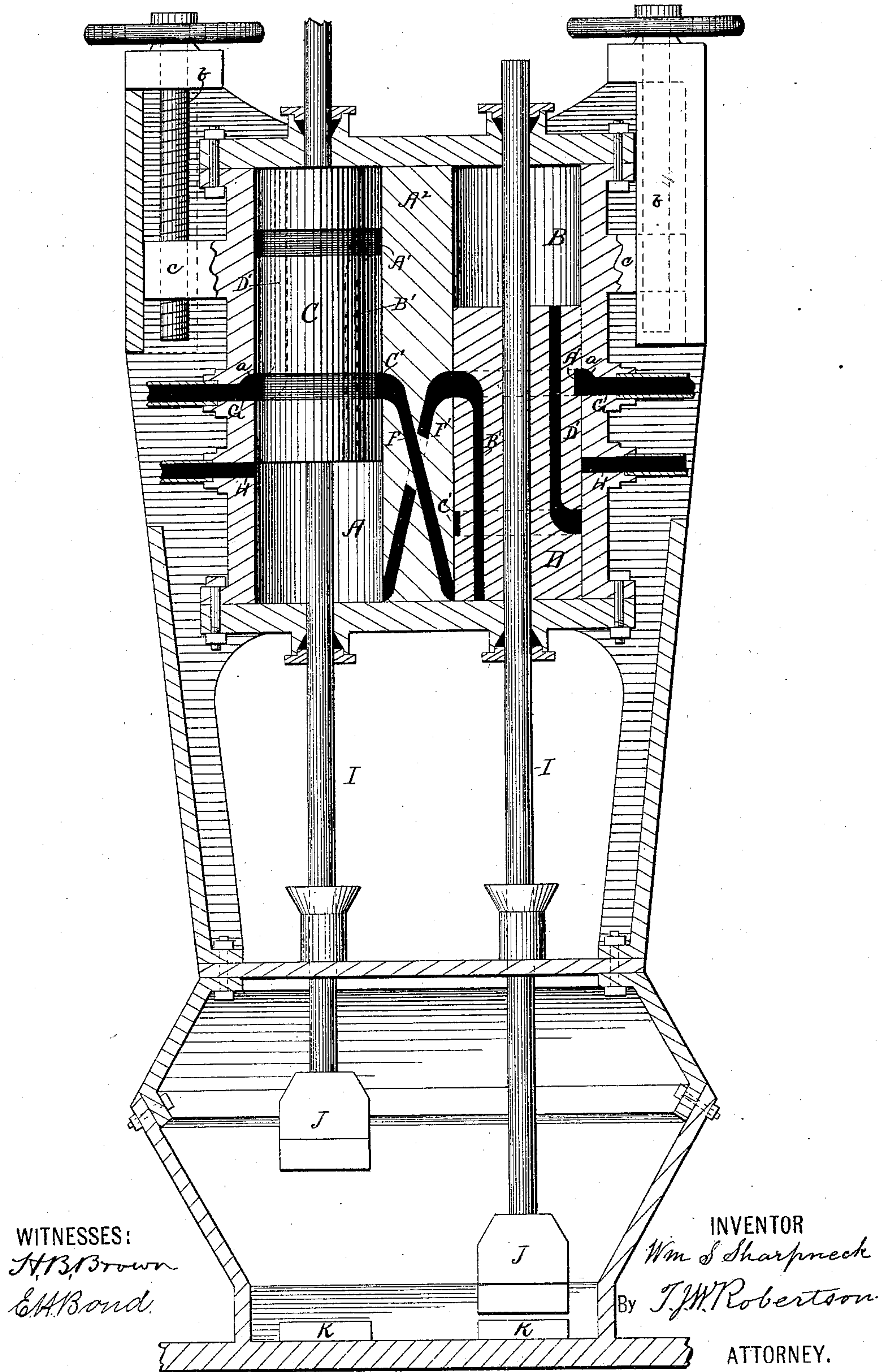


(No Model.)

W. S. SHARPNECK.
STEAM POWER STAMP.

No. 279,984.

Patented June 26, 1883.



UNITED STATES PATENT OFFICE.

WILLIAM S. SHARPNECK, OF DENVER, COLORADO, ASSIGNOR OF TWO-THIRDS TO H. N. NICHOLS, OF NORTH PLATTE, NEBRASKA.

STEAM-POWER STAMP.

SPECIFICATION forming part of Letters Patent No. 279,984, dated June 26, 1883.

Application filed January 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, WM. 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.

This invention relates to engines designed to be used for steam-power stamps, and of that class in which the piston or pistons form the valve or valves controlling the inlet and outlet of the steam or other force employed.

The invention consists in the combination, construction, and arrangement of parts, hereinafter described and claimed.

In the accompanying drawing, which is a central vertical section through the cylinders and one of the pistons, (the other piston being in side elevation,) A B represent two steam-cylinders cast in one piece. Within these respective cylinders is arranged an elongated piston, C D, each formed with a peripheral groove, A', near its upper end, and a like groove, C', near its lower end. From the groove A' a port or passage, B', extends down to the lower end of the piston, on one side thereof, and a like shaped port or passage, D', extends from the groove C' up to the upper end on the other side of the piston. In the wall or partition A² dividing the two cylinders passages F F' are formed. The upper end of the passage F opens into the cylinder A, about midway thereof, and extends down to and opens into the cylinder B at its lower end. The passage F' is a counterpart of the passage F, differing only in its extending from about midway of the cylinder B down to the lower end of the cylinder A, as shown in the drawing. The cylinders A and B are each provided with ports G and H, the ports G passing steam into the cylinders, and the port H for exhausting steam from the cylinders. The ports G extend upward a suitable distance, forming a recess or extension, a. Otherwise the two ports may be formed alike. The piston-rod I is extended through the upper end of the cylinders, and its lower end is provided with any desired stamp, J, for crushing the ore.

The dies K may be arranged in any suitable

mortar for holding the ore or rock while being crushed.

The cylinders are cast solid in one piece, as aforesaid, and are so arranged that they can be raised or lowered by means of screws b passing through lugs c cast on each side of the cylinder, the object of which is by raising or lowering the cylinders to change the drop of the stamp, or, in other words, it can be set so a blow can be struck within a small fraction of an inch of the die K without hitting it.

When either of the pistons is elevated, and the groove C' opposite the port G, steam is admitted up through the passage D' into the cylinder above the piston and starts it downward, and at the same time steam passes through groove C' and passage F' into the lower end of the cylinder A and starts its piston upward, no matter where the stamp has been stopped by ore or rocks in the mortar. In case there is no rock or ore under the stamp the piston will go down until the grooves A' open into the extension a of the ports G, when steam will be admitted down through the passage B', thereby forming a cushion under the piston. When the grooves C' on the upward movement of the piston come opposite the ports G, the steam in the cylinder that has raised the piston will exhaust at H. At the same time the cylinder will receive steam up through the passage D and start the piston down. When the grooves C come opposite the port H on the downward stroke of the piston the steam in the cylinder above the piston will exhaust through the passage D.

Although I have shown peripheral grooves at A' C', yet it is evident that horizontal steam-passages through the cylinder may be substituted for them if said passages are so constructed as to avoid cutting into the vertical passages B D'. In the same manner longitudinal grooves having one end curved may be substituted for the longitudinal passages.

What I claim as new is—

1. The combination, with a piston provided with transverse passages A' C', and longitudinal passages B' D' passing through said piston and terminating in opposite ends thereof, of a cylinder provided with a central port for the admission of steam and a suitable exhaust port, substantially as described.

2. The combination, with a piston having a

longitudinal exhaust-passage, of a steam-cylinder provided with a suitable inlet-port, and an exhaust-port cut through the wall of the cylinder to communicate directly with one end of said cylinder and with the other end through a longitudinal passage in the piston, substantially as described.

3. The combination, with a steam-cylinder having a suitable exhaust-port, a port admitting steam at the center of its length, and a port communicating with a second cylinder, of a piston provided with a longitudinal passage commencing in the periphery of the piston and terminating in the acting face thereof, and a transverse passage connecting with said longitudinal passage, thus admitting steam from said central port to both cylinders, substantially as described.

4. The combination, with a steam-cylinder, having suitable exhaust-ports, and a steam-port opening through the wall of the cylinder substantially in the center of its length, of a piston provided with two longitudinal passages, each of which has one end terminating

in the periphery of the piston and communicating with the central steam-port, and the two terminating at the opposite ends of the piston, substantially as described.

5. A piston provided with peripheral grooves A' C' and passages B' D', in combination with a cylinder having the ports G H, the former being arranged in the center of the cylinder, and the latter to one side of the center, as and for the purpose set forth.

6. The combination of the cylinders A B connected by passages F F' and provided with ports G H, with the pistons C D formed with grooves A' C' and passages B' D', all constructed and arranged substantially as shown and described.

In testimony whereof I affix my signature, in presence of two witnesses, this 22d day of January, 1883.

WILLIAM S. SHARPNECK.

Witnesses:

W. H. KINGSBURY,
T. C. EARLY.