

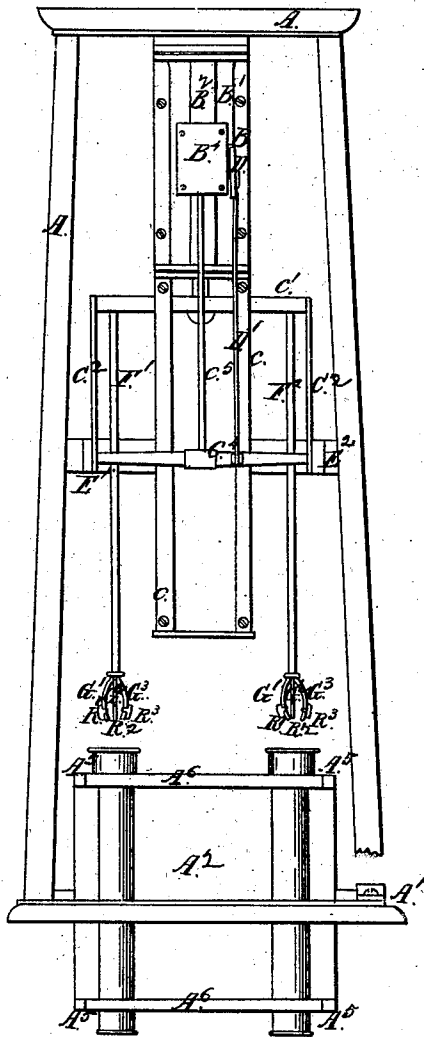
W. Smith.

Cleaning Cast Iron Pipe.

No. 104,072.

Patented June 7, 1870.

Fig. 1.



Witnesses:
Richard Beckett
Roland A. Smith

Inventor:
William Smith

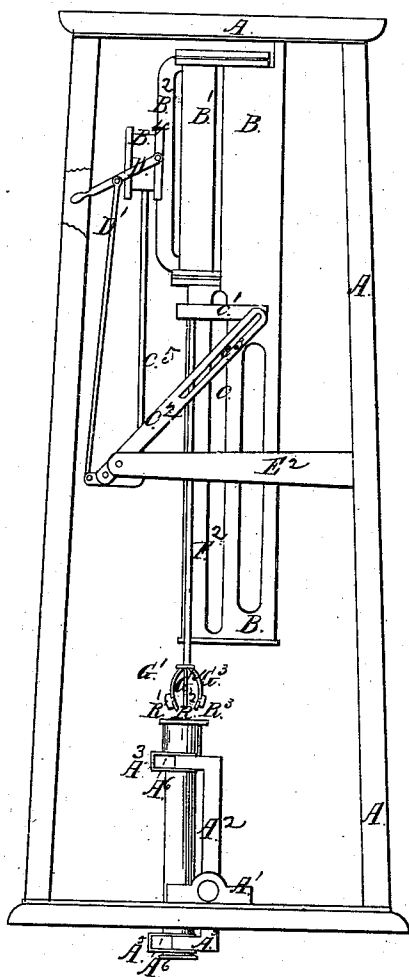
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No. 104,072.

Patented June 7, 1870.

Fig. 2.



Witnesses:
Reuben Beckett
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Inventor:
William Smith

W. Smith.

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Patented June 7, 1870.

Fig: 3.

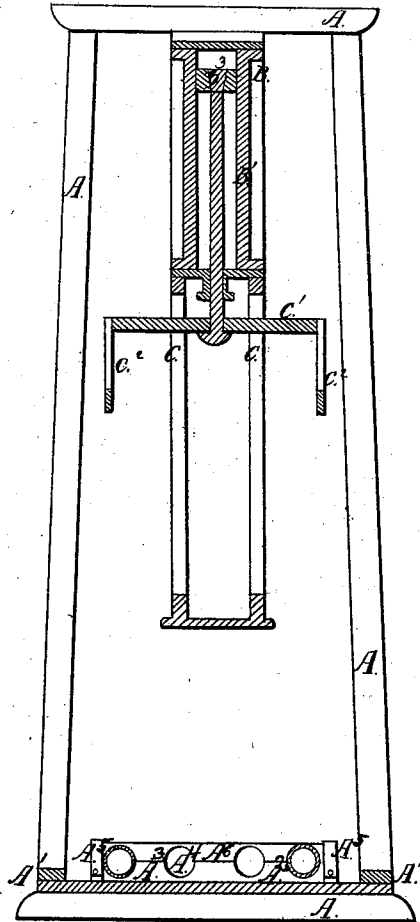


Fig: 4.

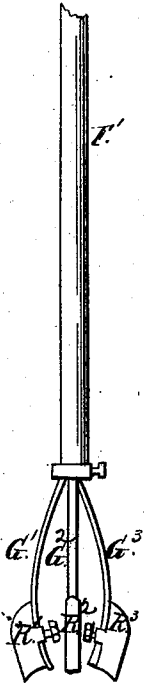
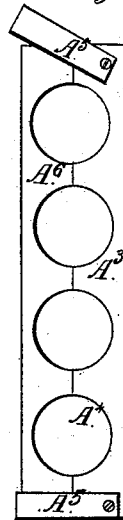


Fig: 5.



Witnesses:
Richard Beckett
Roland H. Smith

Inventor:
William Smith

UNITED STATES PATENT OFFICE.

WILLIAM SMITH, OF ALLEGHENY CITY, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR CLEANING CAST-IRON PIPE.

Specification forming part of Letters Patent No. 104,072, dated June 7, 1870.

To all whom it may concern:

Be it known that I, WILLIAM SMITH, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Cleaning Cast-Iron Pipe; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In the accompanying drawings, Figure 1, Sheet 1, is a front elevation of my improvements in cleaning cast-iron pipe; Fig. 2, Sheet 2, a side elevation thereof; Fig. 3, Sheet 3, a vertical section of the same. Figs. 4 and 5 show separate views of some of the devices used.

Like letters of reference on the different figures denote corresponding parts.

As heretofore, the core-sand has been cleaned from cast-iron pipe after the process of casting. Manual labor has been employed, and hand-tools, consisting of long scrapers, have been used, making the operation tedious and expensive.

The nature of my invention consists in the construction and arrangement of devices hereinafter more fully described.

To enable others skilled in the art to make and use my devices, I will describe their construction and operation.

A frame-work, A, of suitable construction, supports and carries the devices used, at the base of which, and affixed in suitable bearings, A', is a clamping-plate, A², of suitable construction, having flanges A³ at two of its ends, which are cut out with perforations A⁴, of the diameter, or thereabout, of the pipes to be cleaned. Clamps A⁵ are attached to the aforementioned flanges in such a manner that they will embrace and hold in position a plate, A⁶, having perforations opposite to and equal the perforations A⁴ of the flanges A³, the whole being so arranged that pipes of ordinary construction can be placed in the before-named clamping-plate, and, being held tight by means of the clamps A⁵ in a horizontal position, may be moved around and upward into vertical position, and be ready for the manipulation of the devices hereinafter described. Affixed to a suitable bed-plate, B, which is attached in any suitable way to the before-named

frame A, is an ordinary steam-cylinder, B', having steam-passages B², piston B³, and steam-chest B⁴, attached in any suitable manner to the said piston B³, and sliding in suitable guides, C, running in line, and below the said cylinder B' is a cross-head, C', of any suitable construction, at the extremities of which—one to each—are affixed radius-arms C², a slot, C³, in each of them encircling a pin of suitable shape affixed to the before-named cross-head C'. The lower extremities of before-named radius-arms C² are attached to and vibrate from a cross-beam, C⁴, of suitable construction, about midway of which is affixed, by means of an eccentric or such like device, an ordinary valve-rod, C⁵, attached to a valve of ordinary construction in the steam-chest B⁴, on the side of which is pivoted a hand-lever, D, on and about midway of which is attached a rod, D', passing downward and attached in a suitable manner to the before-named cross-beam C⁴, and so arranged that by moving the hand-lever D the rod D' will operate the cross-beam C⁴, and also inversely. The radius-arms C² are, furthermore, attached to and vibrate from braces E' and E², attached to the frame A. The cross-head C' is, furthermore, provided at or near its extremities, in any suitable manner, with two or more shafts, F' and F², running downward, the line of their axis being parallel with the axis of the cylinder B'. The extremities of these rods F' and F² are provided with three or more springs, G' G² G³, of a curvilinear outline, attached to said shafts by means of set-screws, or collars, or such like devices. The said springs G' G² G³ are provided, in the broadest part of their outline, with tools R' R² R³—one to each—being of any suitable construction, but having a cutting-edge at their lower end, and affixed by clamps, wedges, or screws, or any suitable devices.

The mode of operating with my devices is as follows, viz: Pipe being placed in the clamping-plate A², and being held in a horizontal position and kept tight by reason of the clamps A⁵, the clamping-plate A² is turned up in such a manner that the pipes are kept in a vertical position, and are underneath and central with the shafts F' F². Steam being admitted into the cylinder B' and at the upper portion of the piston B³ in the ordinary manner, it presses down the piston, and at the same time and by the same operation the cross-head C' is forced

down, carrying with it the rods or shafts F' F², springs G' G² G³, and tools R' R² R³, which, meeting the core-sand contained in the before-mentioned pipes, cut grooves down the same, causing the sand to fall downward through the pipe. If there be any excrescence of iron contained in the pipe, the springs G' G² G³ press inward and pass the same, allowing the tools R' R² R³ only to force through the sand. The operation being completed, steam is admitted to the under side of the piston B³, and forces upward the cross-head C', carrying with it the rods F' F² and their attachments. The pipes are unclamped and others put in their place.

Steam, water, or atmospheric pressure can be used as a motor to my devices.

My devices are applicable whether they be placed in a vertical, a horizontal, or in an inclined position.

I propose, if the tools R' R² R³ be of cast-iron, casting them in what is termed a "chill."

Having thus described the nature, construction, and operation of my improvement in cleaning cast-iron pipe, what I claim as new, and desire to secure by Letters Patent, is—

The herein-described machine, composed of the frame A, clamping-plate A², tools R' R² R³, springs G' G² G³, and shaft F' F², in combination with its operative mechanism, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM SMITH.

Witnesses:

PERCEVAL BECKETT,
ROLAND-H. SMITH.