

952,201.

The diagram illustrates a mechanical assembly, possibly a pump or engine, with the following labeled components:

- 1**: The main frame or housing.
- 2**: A vertical rod or shaft on the left side.
- 3**: A horizontal rod or shaft on the right side.
- 4**: A component at the top right, possibly a valve or piston.
- 5**: A horizontal rod or shaft on the right side.
- 6**: A component at the bottom left, possibly a valve or piston.
- 7**: A component at the top right, possibly a valve or piston.
- 8**: A component at the bottom left, possibly a valve or piston.
- 9**: A component at the bottom left, possibly a valve or piston.
- 10**: A component at the bottom left, possibly a valve or piston.
- 11**: A dashed line indicating the path of a component.
- 12**: A component at the top left, possibly a valve or piston.
- 13**: A component at the top left, possibly a valve or piston.
- 14**: A dashed line indicating the path of a component.
- 15**: A component at the top left, possibly a valve or piston.
- 16**: A component at the top left, possibly a valve or piston.
- 17**: A component at the top left, possibly a valve or piston.
- 18**: A component at the top left, possibly a valve or piston.
- 19**: A component at the top left, possibly a valve or piston.
- 20**: A component at the top left, possibly a valve or piston.
- 21**: A component at the top left, possibly a valve or piston.
- 22**: A component at the top left, possibly a valve or piston.
- 23**: A component at the top left, possibly a valve or piston.
- 24**: A component at the top left, possibly a valve or piston.
- 25**: A component at the top left, possibly a valve or piston.
- 26**: A component at the top left, possibly a valve or piston.

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Charles D. Invernor
By his Attorneys
Samuel Clarke

UNITED STATES PATENT OFFICE.

CHARLES L. JOBB, OF THREE RIVERS, QUEBEC, CANADA, ASSIGNOR OF THREE-FOURTHS
TO WILLIS C. SWIFT, OF HINSDALE, ILLINOIS.

PIPE-CLEANING MACHINE.

952,201.

Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed March 22, 1909. Serial No. 484,951.

To all whom it may concern:

Be it known that I, CHARLES L. JOBB, a subject of the King of England, residing at Three Rivers, Province of Quebec, Canada, have made a certain new and useful Invention in Pipe-Cleaning Machines, of which the following is a specification.

This invention relates to pipe cleaning machines.

The object of the invention is to provide an apparatus which is simple in construction, and efficient in operation whereby cast pipes may be quickly and easily cleaned.

The invention consists substantially in the construction, combination, location and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawing, and finally pointed out in the appended claims.

The single view of the accompanying drawing shows a pipe cleaning machine embodying the principles of my invention.

In the manufacture of cast iron water, gas and other pipes, as ordinarily and commonly carried out, it is necessary to clean the pipes of particles or patches of burned sand which adhere to the pipes when removed after being cast in the sand molds. This cleaning operation is usually accomplished by hand with hammers, scrapers or other suitable manually operated tools. The cast pipes are taken out of the molds while still at a red heat but after having cooled sufficiently to retain their shape when laid on the skids to be rolled away to be cleaned. The operation of cleaning the hot pipes is not only slow, tedious and expensive but is very disagreeable, requiring a great deal of scraping, hammering and rubbing, both inside and outside, to remove the particles or patches of adhering burned sand from the pipe preparatory to dipping the same in hot tar. Usually, on account of the disagreeable character of this work the pipes are permitted to cool before the cleaning operation begins. After the cleaning is completed the pipes are again heated to about 400 degrees Fahrenheit and then dipped into hot tar. By this method the operation is expensive in addition to being laborious, tedious and disagreeable, since it necessitates a reheating of the pipes for the dipping operation, after being cleaned.

It is among the special purposes of my present invention to provide a machine of

simple construction whereby the cleaning of the pipes may be accomplished by power actuated devices, thereby avoiding the necessity of manual cleaning. I also propose to provide means whereby the pipes may be expeditiously and efficiently cleaned while still hot from the casting operation whereby, after cleaning, they may be dipped in hot tar without requiring any reheating, thereby saving labor and the extra handling of the pipes and also saving the expense of fuel for the reheating operation.

In the embodiment of my invention as shown in the drawing I employ a suitable framework including upright standards 1, 2, between which the pipes are designed to pass immediately after being removed from the molds and while still in a highly heated condition. Positioned between the standards are rollers 3, 4, on which the heated pipes are received, these supporting rollers being so disposed that when a pipe rests thereon it is supported in horizontal position. These rollers are preferably rotated so as to impart an axial rotation to the pipe. The rollers may be rotated or driven in any suitable manner, as, for instance, by being mounted on a shaft 5, which receives rotation from any convenient source. I have shown a shaft 6, journaled in bearings formed on or carried by the standard 1, and adapted to be driven by means of a pulley, indicated in dotted lines at 7, said shaft being suitably geared to the shaft 5, as, for instance through the gearing 8, 9. Shaft 6, carries also a grooved pulley 10. A similar and cooperating pulley 11, is also carried by a shaft 12, journaled in a swinging beam 13, suspended from the frame work, on the other side of the skid or way along which the pipe is designed to be rolled. A cleaning chain 14, operates around the pulleys 10, 11. The swinging beam 13, may be rocked or swung to any desired extent and held in position to afford any desired degree of slack in the cleaning chain. This may be accomplished in many different ways. I have shown a pawl and ratchet device 15, carried by the standard 2, for accomplishing the desired object, said pawl and ratchet device being actuated by a crank handle 16, and operating to take up or pay out a cord or other connection 17 attached to the beam 13.

In practice one leg or run of the cleaning chain operates longitudinally through

the pipe, while the pulleys 10, 11, are held in such relative degrees of separation as to cause the other leg or run of the chain to rest upon the exterior surface of the pipe throughout the length of the latter, with more or less looseness as may be desired. Thus the lower leg or run of the cleaning chain which passes longitudinally through the pipe is maintained more or less taut, as shown, while the upper leg or run is maintained more or less slack. The chain being driven by the rotation of pulley 10, efficiently cleans the pipe, both inside and out, during the axial rotations of the latter, and while the pipe is still in a highly heated condition as it comes from the mold, and without requiring any manual cleaning operation or extra handling. After being cleaned, and while still sufficiently hot from the casting operation the pipe may be dipped in the hot tar preparation thereby not only saving extra handling but also the expense of reheating.

Any suitable means may be employed for passing one leg or run of the chain through the pipe. I have shown a simple arrangement wherein the chain at some convenient point in its length is provided with a detachable link 20. A plunger bar 21, is mounted in a long cylinder 22 suitably supported in line with the length of the pipe as it is brought from the mold into position to be cleaned. This plunger bar has a hook 23, at its end, and, when actuated, this hooked end of the plunger bar is thrust longitudinally through the pipe and engages the detached end of the cleaning chain and on its return stroke draws the chain through the pipe where it is again hooked onto the other detached end to form an endless chain again. The plunger bar may be actuated in any suitable manner as, for instance by compressed air, water, steam or the like supplied through pipes 25, and controlled by a valve 26.

The operation of the apparatus will be readily understood from the foregoing description taken in connection with the accompanying drawing.

While I have shown and described one form of construction and arrangement for accomplishing my objects and purposes, and the best form in which I at present contemplate carrying my invention into practical operation, I desire it to be understood that my invention as defined in the claims is not to be limited or restricted to the exact details shown and described.

What I claim as new and useful and of my own invention and desire to secure by Letters Patent is:

1. In a pipe cleaning machine, a cleaning chain arranged to pass loosely longitudinally through the pipe to be cleaned to

enable the links of the chain to exert a pounding action on the surface of the pipe, in combination with means for actuating said chain, and means for axially rotating the pipe.

2. The combination with an endless chain having one leg or run thereof arranged to pass longitudinally through the pipe to be cleaned, means for actuating said chain, and means for simultaneously rotating the pipe.

3. The combination with an endless chain, pulleys over which the chain operates, one leg or run of said chain arranged to pass longitudinally through the pipe and the other leg or run resting loosely on the exterior surface of the pipe, means for driving one of said pulleys and means for axially rotating said pipe.

4. The combination with supporting rollers upon which a pipe may rest, and means for rotating said rollers to impart axial rotation to the pipe, of a cleaning chain passing longitudinally through the pipe and means for actuating said chain.

5. A support for a pipe in combination with pulleys supported adjacent the ends of the pipe, a cleaning chain operating loosely over said pulleys and having one leg or run thereof arranged to pass longitudinally through the pipe, whereby the links of the chain are permitted to pound against the surface of the pipe, means for varying the degree of separation of said pulleys to vary the degree of slack in the chain, and means for operating said chain.

6. A frame work including a standard, a beam suspended from the framework, pulleys respectively mounted on said standard and beam, a pipe support arranged between said standard and beam, a cleaning chain having a leg arranged to extend longitudinally through a pipe carried by said support, means swinging said beam, and means for actuating said chain.

7. The combination of a pipe-support, pulleys arranged on opposite sides of said pipe support, a chain operating loosely over said pulleys, said chain having a detachable link, a plunger bar arranged adjacent one side of said pipe support, means for actuating the plunger bar to project the same longitudinally through a pipe carried by said support, and means for operating the chain.

In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses, on this eleventh day of March A. D., 1909.

CHAS. L. JOBB.

Witnesses:

H. G. FRENCH,
J. E. DAVIES.