(No Model.)

2 Sheets—Sheet 1.

T. F. FALLON.

PIPE TESTING DEVICE.

No. 431,939. Patented July 8, 1890.

Fig. 1.

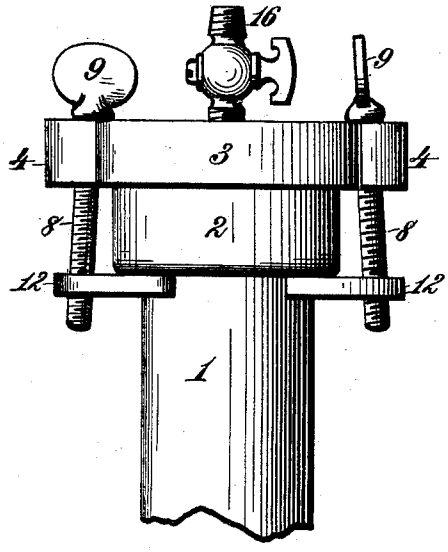


Fig. 2.

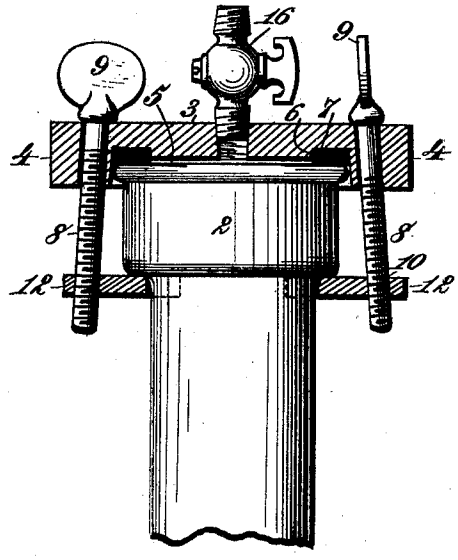
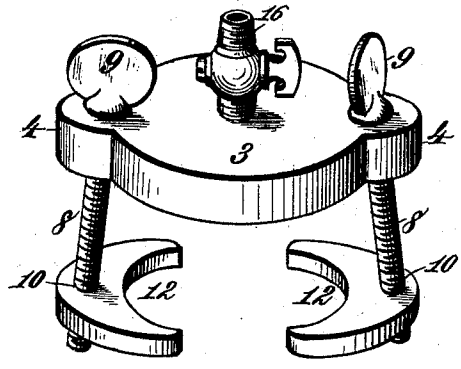


Fig. 3.



Witnesses.
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Dennis Sumby.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

T. F. FALLON.

PIPE TESTING DEVICE.

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Fig. 4.

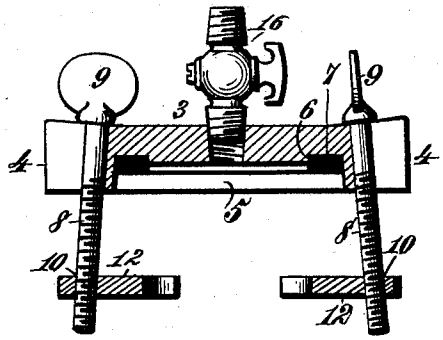


Fig. 5.

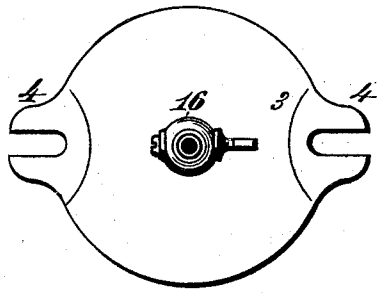


Fig. 6.

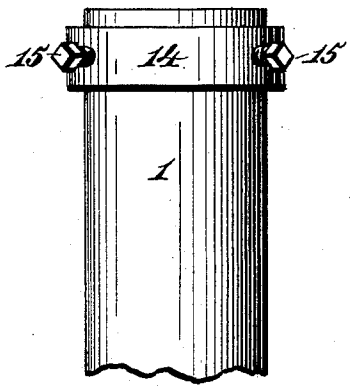
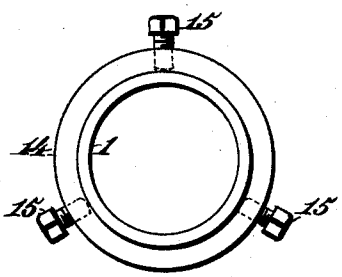


Fig. 7.



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UNITED STATES PATENT OFFICE.

THOMAS F. FALLON, OF NEW YORK, N. Y.

PIPE-TESTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 431,939, dated July 8, 1890.

Application filed March 11, 1890. Serial No. 343,537. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. FALLON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Pipe-Testing Devices, of which the following is a specification.

This invention has for its object to provide novel, simple, and efficient means for closing the ends of pipes air and water tight while being tested by internal fluid-pressure to determine if they are free from imperfections and suitable for the conditions required in a waste or other pipe.

To accomplish this object my invention involves the features of construction and the combination and arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation showing my invention applied to the socket or flanged end of a pipe. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a detail perspective view of the pipe-closing device. Fig. 4 is a sectional view showing a modified construction of the stopper-cap. Fig. 5 is a detail top plan view of the cap shown in Fig. 4. Figs. 6 and 7 are respectively a side elevation and an end view showing a collar to be used with flangeless pipes.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates an ordinary waste or soil pipe having an end socket or collar 2, and 3 indicates the stopper-cap for closing the end of the pipe air and water tight. The cap is provided with two or more laterally-projecting ears or lugs 4, and with an annular chamber or cavity 5 to receive and fit the end of the pipe, this chamber or cavity having its bottom wall countersunk, as at 6, to form a groove for containing and holding an annular packing-ring 7, of elastic or other material, suitable to make an air and water tight joint when the cap is clamped upon the end of the pipe. The chamber or cavity 5 is in practice about three-quarters of an inch in depth, so that an annular rim is formed which overlies the exterior of the pipe end to that extent, and thus facilitates the application of the cap and the formation of a nice joint. A screw-rod 8, having a finger-piece or other suitable head 9, passes through an orifice in each of the ears or lugs 4, and below the same extends through and engages a screw-threaded socket 10, formed centrally between the ends of a segmental plate 12, which I will term a "grip." I have exhibited but two screw-rods and two segmental grips; but obviously the number may be increased, if desired, and therefore I do not confine myself to two of each. The grips on their inner faces conform to the circular shape of the pipe, and are designed to engage with the annular inner end of the enlargement formed by the pipe socket or collar 2.

In practice the stopper-cap is placed over the end of the pipe and the grips placed to embrace the pipe and then engaged by their screw-threaded sockets with the screw-rods, after which the latter are rotated as the grips hug the pipe, and are thereby prevented from turning with the screw-rods. Such grips are caused to advance along the pipe until they abut the inner end of the pipe socket or collar. The tightening up of the screw-rods causes the stopper-cap to be firmly clamped upon the end of the pipe, thereby closing such end air and water tight, after which the pipe may be tested by internal fluid-pressure in the usual manner.

The orifices in the stopper-cap and the screw-sockets in the segmental grips are arranged at an inclination or angle to the longitudinal axis of the pipe — that is, the two orifices in the cap diverge and likewise the two sockets in the grip diverge—so that when the screw-rods engage the parts they diverge from the finger-pieces toward their screw-threaded extremities. By this peculiar arrangement when the screws are tightened up, the grip-pieces are caused to move toward each other and grip the pipe, thereby obtaining a very secure and steady attachment of the pipe-closing devices with the pipe.

In the construction shown by Figs. 1, 2, and 3 of the drawings, the pipe-closing devices can only be removed from the pipe by unscrewing the screw-rods from engagement with the grips; but in the construction shown in Figs. 4 and 5 the orifices in the stopper-cap 3 are

formed as slots 13 with open outer ends, whereby the screw-rods carrying the segmental grips 12 can be engaged with and disengaged from the stopper-cap by laterally moving the screw-rods into and from the slots.

If pipes having no end sockets or collars are to be tested, an attachable and detachable collar 14, Figs. 6 and 7, is provided, which can be applied over the end of the pipe and rigidly clamped thereto by any desired number of set-screws 15, as will be obvious, thereby forming the abutment required on the pipe for the segmental grips to bear against.

The stopper-cap is imperforate as regards that part inside the ears or lugs, and hence it serves as a closing device, which is clamped on the open end of the pipe by the action of the screw-rods and the separate or independent segmental grips, and the construction and combination provide very simple and efficient means whereby soil, waste, and other pipes used by plumbers in buildings, can be tested by internal fluid-pressure.

To introduce the water, air, or other testing-fluid the stopper-cap may be provided with a central orifice having a female thread, into which is screwed one screw-threaded nipple of a stop cock or valve 16, the other nipple being adapted to connect with the source of fluid-supply. If water is used as the testing-fluid, the cock or valve may, after the test, be connected with a hose to run the water from the pipe into a sewer or other place.

As I do not confine myself to any special means for applying the fluid-pressure, further explanation is deemed unnecessary.

Any contrivances suitable for the conditions required may be adapted for introducing the fluid into the pipe and for removing the fluid therefrom when desired.

Having thus described my invention, what I claim is—

1. In a pipe-testing device, the combination of a stopper-cap to bear upon and close the end of a pipe, a series of independent segmental grips to embrace the pipe, each formed with a screw-threaded socket, and an independent screw-rod for each grip engaged with the stopper-cap and having a direct screw engagement with the socket of the grip, substantially as described.

2. In a pipe-testing device, the combination, with the stopper-cap to bear upon and close the end of a pipe, a series of grips to embrace the pipe, and a series of diverging screw-rods engaging the stopper-cap and grips and serving to move the latter along a pipe and also inwardly toward each other, substantially as described.

3. In a pipe-testing device, the combination of a stopper-cap having a chamber forming an annular rim to overlie the exterior of a pipe end, a series of grips to embrace the pipe, and an independent screw-rod for each grip engaged with the stopper-cap outside its chamber and having a screw-threaded connection with the grip, substantially as described.

4. In a pipe-testing machine, the combination of a stopper-cap adapted to close the end of a pipe and provided with slots having open ends, a series of segmental grips to embrace the pipe and move along the length thereof, and screw-rods laterally removable from the open end slots and having a screw-threaded engagement with the grips, substantially as described.

5. In a pipe-testing machine, the combination of a stopper-cap adapted to bear upon and close the open end of a pipe and having orifices, a series of segmental grips adapted to embrace and move along the length of the pipe to abut a collar thereon, and a series of independent screw-rods which engage the stopper-cap and grip and operate to move the grips along the pipe against the pipe-collar to clamp the stopper-cap in place, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS F. FALLON.

Witnesses:
W. S. BARNUM,
S. G. HYATT.