

(No Model.)

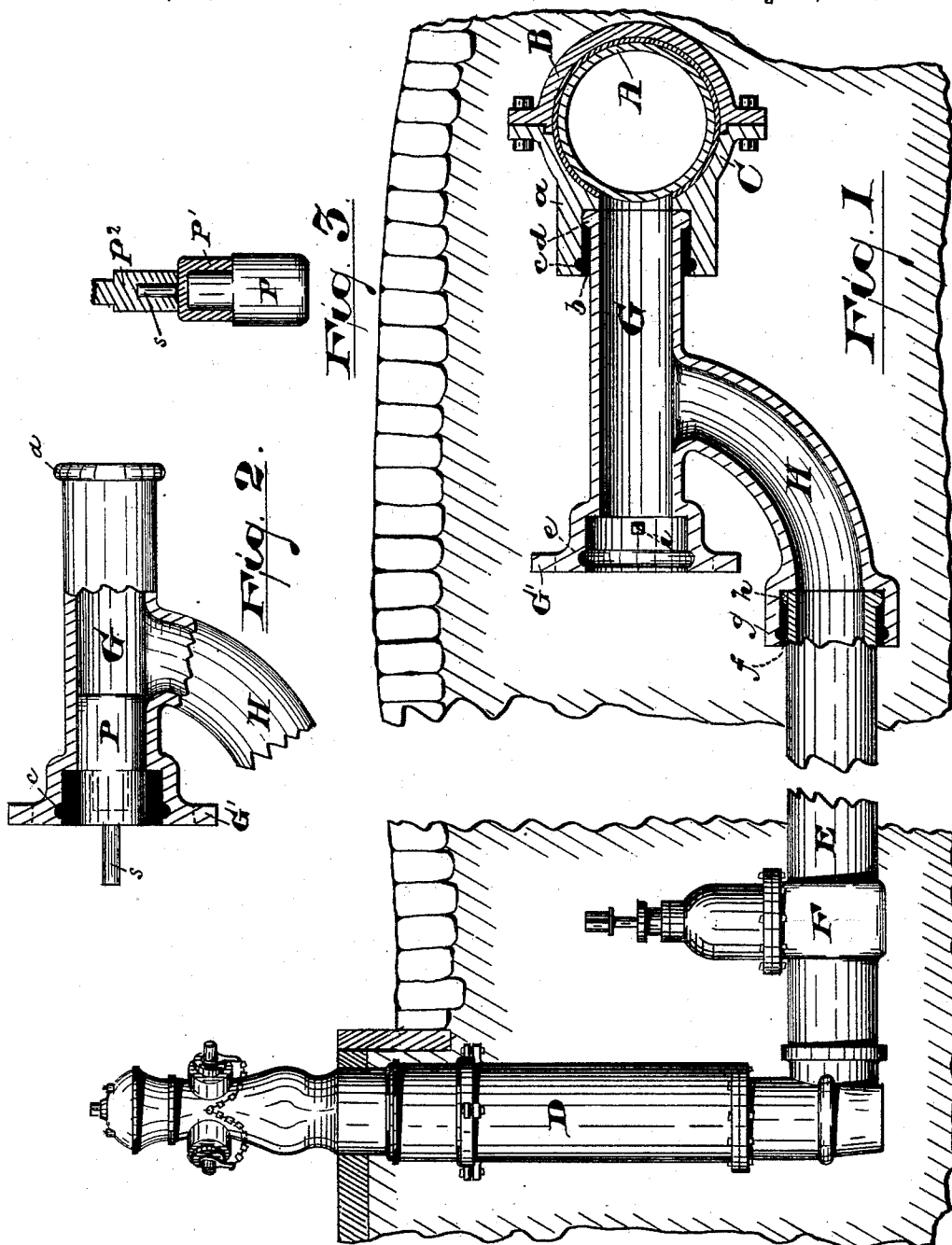
2 Sheets—Sheet 1.

H. H. BURRITT.

METHOD OF AND APPARATUS FOR TAPPING WATER MAINS.

No. 473,997.

Patented May 3, 1892.



Witnesses

Inventor =

Oscar A. Michel,
Richard C. Powell

Harvey H. Burritt,

By *Drake & Co.* Attys.

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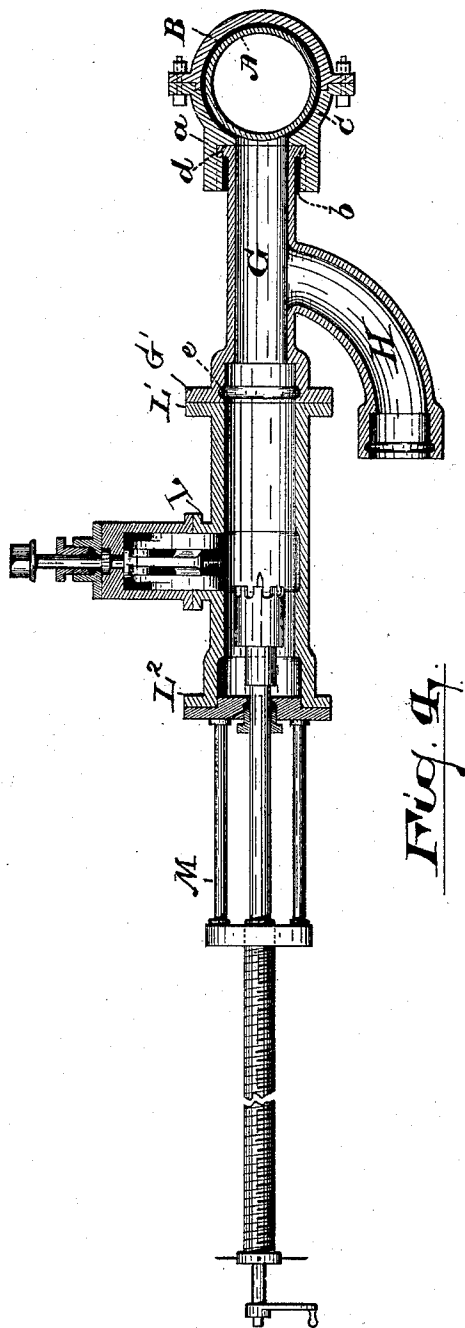


Fig. 47

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UNITED STATES PATENT OFFICE.

HARVEY H. BURRITT, OF BELLEVILLE, NEW JERSEY.

METHOD OF AND APPARATUS FOR TAPPING WATER-MAINS.

SPECIFICATION forming part of Letters Patent No. 473,997, dated May 3, 1892.

Application filed September 19, 1890. Serial No. 365,486. (No model.)

To all whom it may concern:

Be it known that I, HARVEY H. BURRITT, a citizen of the United States, residing at Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Methods of and Apparatus for Tapping Water-Mains; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In tapping water-mains under pressure it has heretofore been necessary to use a gate-valve upon the branch pipe to close the opening next to the main until the connecting-pipe is laid, this gate-valve forming a permanent part of the construction. After the connecting-pipe is laid, however, the gate-valve is of no use, as the water system is controlled by other valves, and this waste-gate valve is found to be a constant source of trouble, as it soon becomes leaky.

The object of the present invention is to provide an improved method and means for tapping water-mains for branch connections, by which the necessity of leaving a gate-valve next the main is avoided; and the invention consists in the method and constructions fully set forth in the following specification, and pointed out in the claims.

A full description of the preferred manner of carrying out my invention and of a construction embodying the same will now be given, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 shows a main with the branch pipe connected ready for tapping. Fig. 2 is a detail of the branch pipe after the tapping and plugging operation is completed. Fig. 3 is a detail of the plug, and Fig. 4 is a central longitudinal section illustrating the method of tapping.

In said drawings, A is the water-main; D, an ordinary hydrant or fire-plug; E, the pipe supplying the hydrant which is to be connected with the main; and F, an ordinary gate-valve on the pipe E. It will be understood

that the pipe E may be any pipe which is to be connected with the main and may supply the hydrant D or any other part of the water system and may or may not be provided with the gate-valve E, the latter being used only for the purpose of controlling the supply to the hydrant or other connected part of the water system and forming no part of the construction embodying the present invention.

My improved form of connection between the main A and pipe E consists of the straight pipe G, which may be connected to the main in any suitable manner, and is provided with the branch H, which is adapted to be connected to the pipe E. The pipe G is provided with a flange G' thereon, to which may be secured a gate-valve L of any suitable construction, this gate-valve being provided, preferably, with flanges L' and L² at opposite ends for securing thereto the flange G' of pipe G and a tapping and plugging machine M for tapping the main and plugging the pipe G, as will presently be described. The branch H is shown as curved outward, so as to extend in a direction parallel with the straight pipe G; but it will be understood that this branch may extend in any direction required.

The straight pipe G may be connected to the main in any suitable manner, as above stated; but I have shown a common construction in which sectional sleeves B C, clamped about the main, are employed. The sleeve C is provided with a hub *a*, which is provided with an annular groove or recess *c*, and the pipe G is provided with the bead *d* and held within the hub *a* by lead or other suitable packing material, filling the groove *c* and the space between the pipe and hub and locking the pipe G in place by the bead *d*. The pipe E likewise may be connected to the branch H in any suitable manner; but I have shown a construction similar to that just described, the branch H being provided with the groove *g* and the pipe E with the bead *h*, the pipe and branch being held together by a lead packing *f*.

The outer end of the pipe G is adapted to receive a plug, and is preferably formed with a groove *e*, similar to the grooves *c g*, and with an opening *i*, by which the plug may be keyed to the pipe. The plug preferably consists, as

shown in Fig. 3, of a wooden head P, which fits the bore of the pipe G closely, and a reduced portion P' of iron, which is packed into the enlarged outer end of the pipe G and is provided with the stem s, by which connection is made with the tapping-spindle P² of the machine.

The method of forming the branch connection with the main will now be described. The pipe E being laid and the branch G H connected to the main and to the pipe E and all the parts being as shown in Fig. 1, the gate-valve L is connected to the flange G' of the pipe G and the tapping-machine M to the flange on the gate-valve. The gate-valve L being opened, the drill and cutter are run in through the pipe G to the main A and operated in the usual manner until the piece is cut out and removed from the main with the cutter. The gate-valve is then closed, the tapping-machine and the cutter-head disconnected from the spindle P² of the tapping-machine, and the plug P' connected to the spindle P² by the stem s, as shown in Fig. 3. The tapping-machine, with the plug held in place of the cutter, is then again secured to the flange or the gate-valve and the latter again opened. The plug is then forced to its seat in the end of the pipe G by the feeding mechanism of the tapping-machine, the wooden head P fitting closely, so that the plug will withstand the pressure in the pipe until it is packed. The tapping-machine, together with the gate-valve L, is then finally removed, and the plug P is permanently packed, preferably, by pouring lead around the plug to fill the groove e, and the plug may be keyed to the pipe G, if found necessary, through the opening i.

It will be seen that my invention provides a very simple and convenient construction and method of tapping a main, by which the objectionable feature of a permanent gate-valve next to the main is avoided.

What I claim is—

1. The improvement in the art of tapping a main under pressure, which consists in connecting to the main a pipe having a branch forming a connection with other pipes and attaching a gate-valve to said pipe, tapping the main through said gate-valve and pipe, closing the pipe between the gate-valve and main by a plug, making a tight joint against the main-pressure when forced into the pipe, and constructed to be packed within the pipe, removing the gate-valve, and packing the

plug within the pipe, substantially as described.

2. The improvement in the art of tapping a main under pressure, which consists in connecting to the main a pipe having a branch forming a connection with other pipes and attaching a gate-valve to said pipe, tapping the main through said gate-valve and pipe, closing the pipe between the gate-valve and main by forcing in a plug having a head of wood or similar elastic material, fitting the pipe closely to form a tight joint and hold the plug against the main-pressure when the gate-valve is removed, removing the gate-valve, and packing the plug, substantially as described.

3. The combination, with main A, of straight valveless pipe G, connected therewith and permanently closed at its outer end by a plug constructed to form a tight joint and be held within the pipe against the main-pressure by its own construction and packed within the pipe, and a branch H on said pipe, forming a connection with other pipes, substantially as described.

4. The combination, with main A, of straight valveless pipe G, connected therewith and permanently closed at its outer end by a plug having a head P, of wood or similar elastic material, fitting the pipe closely, and a metallic portion P', packed within the pipe, and a branch H on said pipe, forming a connection with other pipes, substantially as described.

5. The combination, with main A, of sectional sleeves B C, one of which is provided with a hub, straight valveless pipe G, packed within said hub and permanently closed at its outer end by a plug having a head P, of wood or similar elastic material, fitting the pipe closely, and a metallic portion P', packed within the pipe, and a branch H on said pipe, forming a connection with other pipes, substantially as described.

6. A plug consisting of a head P, of wood or similar elastic material, constructed to fit closely the pipe to be plugged, and a reduced metallic portion P', having the stem s for attachment to a forcing-tool, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of September, 1890.

H. H. BURRITT.

Witnesses:

OLIVER DRAKE,
OSCAR A. MICHEL.