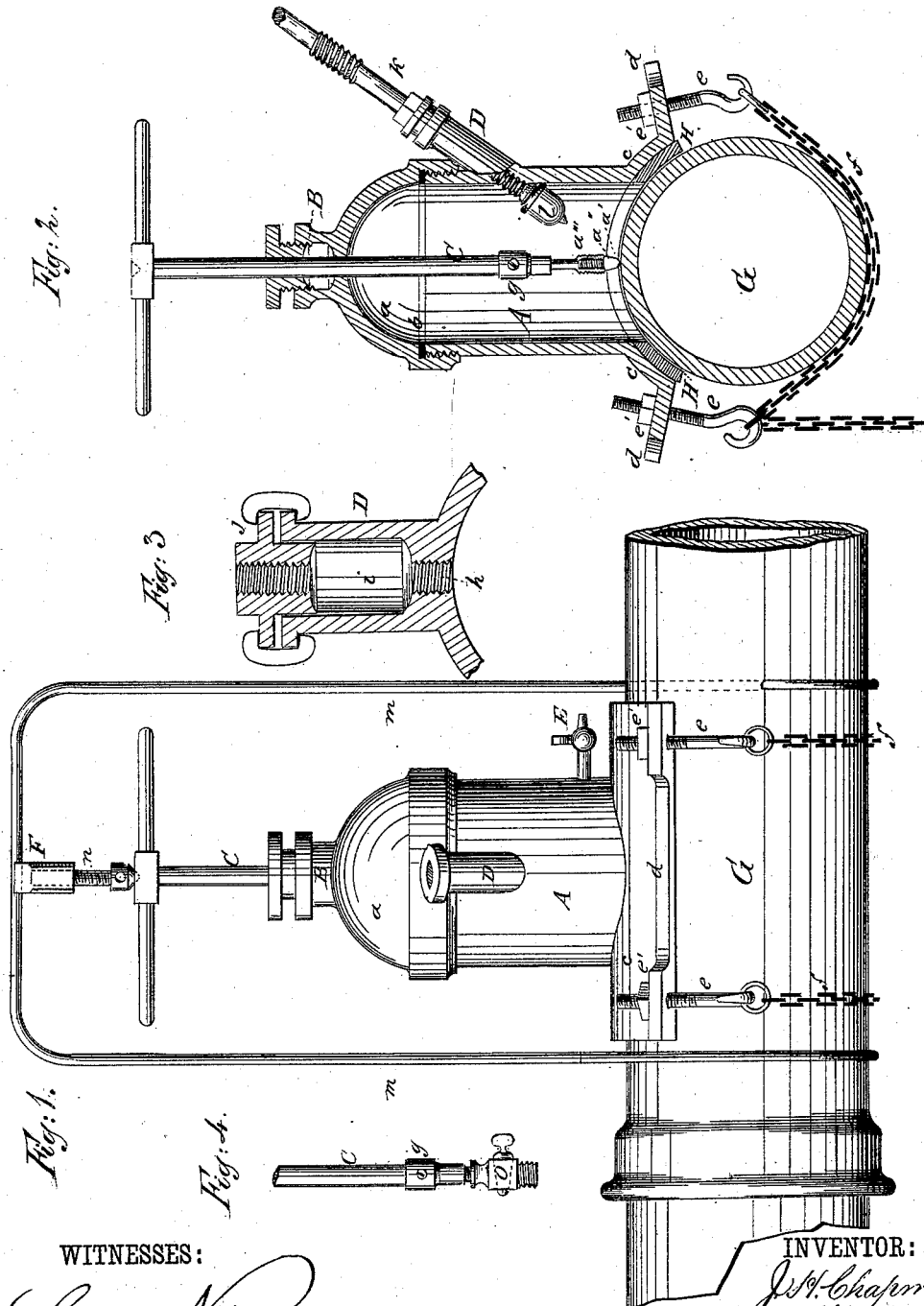


J. H. CHAPMAN & R. HAWTHORN.  
Device for Tapping Mains.

No. 216,379.

Patented June 10, 1879.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES H. CHAPMAN AND RICHARD HAWTHORN, OF PEEKSKILL, NEW YORK.

## IMPROVEMENT IN DEVICES FOR TAPPING MAINS.

Specification forming part of Letters Patent No. **216,379**, dated June 10, 1879; application filed November 7, 1878.

*To all whom it may concern:*

Be it known that we, JAMES H. CHAPMAN and RICHARD HAWTHORN, of Peekskill, in the county of Westchester and State of New York, have invented a new and Improved Device for Tapping Mains, of which the following is a specification.

This invention relates specifically to a device for tapping steam and water pipes; and the object thereof is to tap the pipe when under a full head of steam or water, and prevent the escape or leakage of the same while the faucet or plug is being inserted in the hole tapped.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of our improvements applied to a pipe. Fig. 2 is a vertical transverse section of the same. Fig. 3 is a section of the stuffing-box for the rod of the plug; and Fig. 4 shows the drill-staff with the faucet attached.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the cylindrical box, having a dome, *a*, connected therewith by screw-connection, and the joint packed with a suitable packing-ring, *b*. On top of this dome is a stuffing-box, B. The bottom of box A is provided with a segmental flange, *c*, from which project the straight side flanges *d*, provided with bolt-holes, through which the hooks *e* are passed, and secured by burrs *e'*. The chains *f*, passed around the pipe, are attached to these hooks. C represents the drill rod or staff. It is passed through the stuffing-box B, and on its inner end is a threaded socket, *g*, into which is screwed the tool or faucet.

As shown in the drawings, a combined tool is screwed to the stock, composed of drill *a'*, reamer *a''*, and tap *a'''*, so that the hole can be drilled, reamed out, and tapped without withdrawing the drill-rod from the box, and thus considerable time and trouble be saved; but separate tools of each kind can be used, if desired.

In the side of the box, at an acute angle thereto, is a cylinder, D. From the bottom of this cylinder a threaded hole, *h*, leads into

the box, while the cylinder itself forms a stuffing-box, *i*, provided with a threaded rod, *k*, and gland *j*, the latter secured in the usual or any approved way upon the cylinder D. Through this cylinder is passed the rod *k*, having on its inner end a rubber plug, *l*, and provided with two screw-threaded portions, which engage, respectively, the thread in the hole leading from the bottom of the shifting box into the cylindrical box and the threaded stuffing-box, so that an intervening unthreaded space is left on the rod, which is packed in the stuffing-box *i*. The angle at which this plug *l* enters the chamber must be such that when screwed in its point comes in contact with the point of the drill just at the periphery of the pipe, so that when the drill is withdrawn the plug can be entered into the hole for the purpose of closing it against leakage.

E represents a small faucet entered into the walls of the box, which is tested after the joint is made to ascertain if there is any leakage.

F represents a brace for feeding and centering the drill. It is composed of the arms *m*, having tops turned over in opposite directions, which are clasped over the pipe on either side of the flange *c*, and in the top piece are the centering-tool and follower *n*, the point of which bears against the end of the drill, and as the drilling proceeds it is gradually screwed up, and thus feeds the drill to its work.

The operation of my device is as follows: The box A is applied to the outside of the pipe G by placing the flange *c* thereon with a packing disk or piece, H, interposed between the flange and the surface of the pipe, but leaving the space immediately under the box-chamber uncovered by the packing; and then passing the chain around the pipe, and connecting the ends with the hooks *e*, and screwing these up until a perfectly tight and strong joint is obtained between the flange and the pipe.

The drill having been entered into the box, and the rod well packed in the stuffing-box B, the operation of drilling is proceeded with, and, if the tool shown in the drawings is used, the reaming and tapping are done without removing the rod. After the tapping is completed, the tool is drawn up out of the way,

and the plug *l* screwed down into the hole tightly, so as to close the same against any leakage, and when this has been ascertained by testing the small faucet *E* the dome *a* is unscrewed and taken off, the drill removed from the stock, and a faucet, *o*, Fig. 4 screwed onto the end of the rod *C*, and the dome *a*, with the rod, replaced in the box *A*. The plug *l* is then withdrawn from the hole, and the faucet *o* screwed in the same by means of the rod *C*.

By means of the faucet *E* it can be ascertained accurately if a good joint is made, and if there has been the tapping device is removed.

In this way it will be seen that the pipe can be tapped while there is a full head of steam or water on the same, and none can possibly escape, as the joints of the device with the pipe, and also those with the rods *C* and *k*, must be packed steam and water tight.

The packing *H* between the flange *c* and the pipe must be used to adjust the said flange to the pipe, so that the same tapping device can be used for pipe of various sizes, the under curvature of the packing being made of varying radius in different packing for this purpose.

Any kind of a drill can be used with this device, either the combined drill, reamer, and tap or separate tools. In this case, however, after each tool does its work it has to be withdrawn, and the plug used to stop the hole until the succeeding tool is inserted.

The device for tapping mains or water-pipes is equally useful in removing old taps or stop-cocks, and also to enlarge the holes in the steam-pipe for the insertion of larger cocks, and also to remove the same and close the holes.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the box *A*, of the plug *l*, the threaded rod *k*, the box *D*, having chamber *i* and thread *h*, and the threaded gland *j*, as and for the purpose described.

2. As an improvement in devices for tapping steam and water pipes, the box *A*, in combination with cylinder *D*, forming a stuffing-box, *i*, and the plug *l* on rod *k*, running through said stuffing-box and adapted to be entered into the hole drilled in the pipe when the drill is withdrawn, substantially as described.

3. As an improvement in taps for steam and water pipes, the combination, with follower *n*, of the brace *F*, having arms *m*, with loop or hook on the end to attach it to pipe, as shown and described, so that when the drill is operated the strain on the brace will not affect the joint between flange and pipe.

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Witnesses:

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