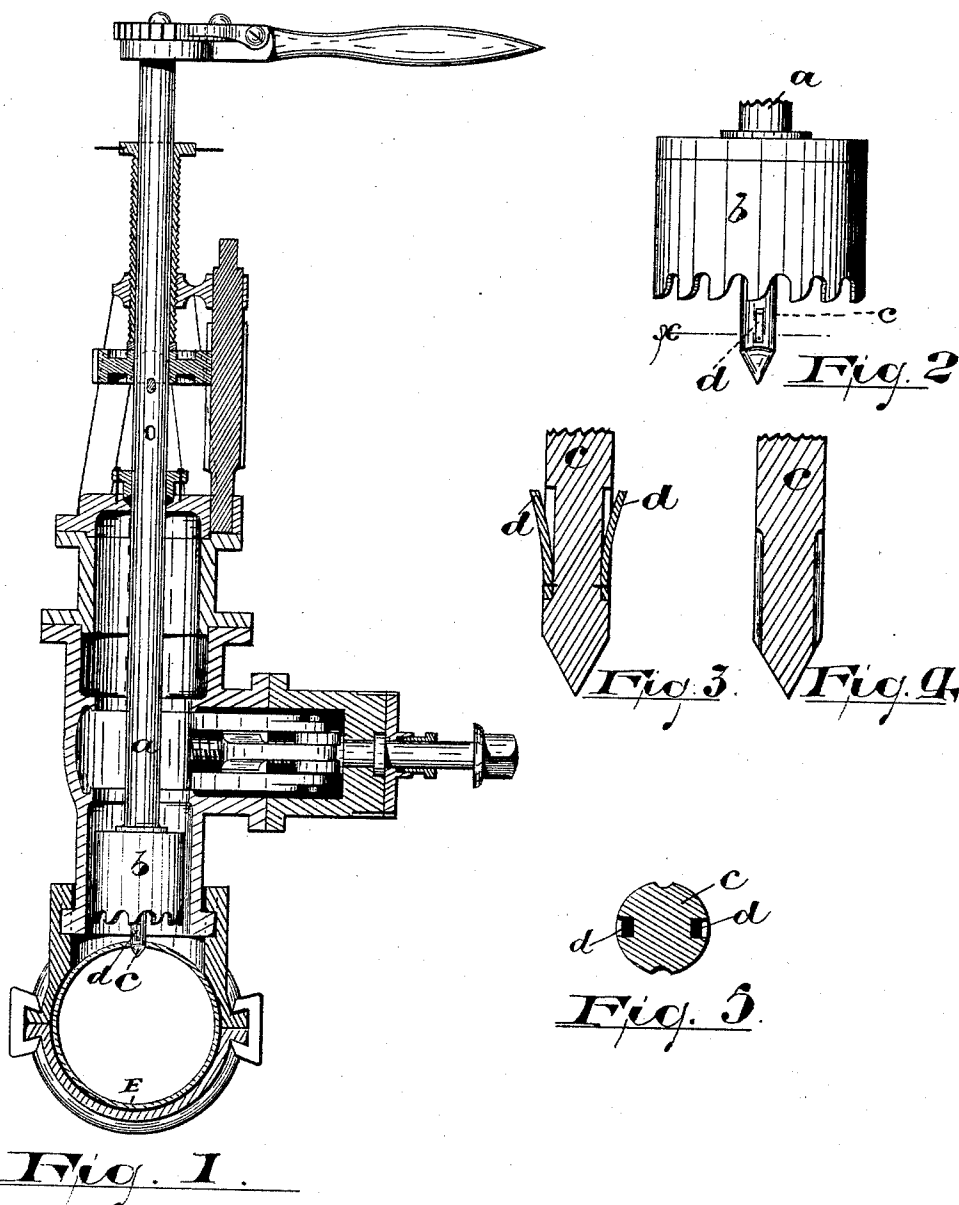


(No Model.)

A. P. SMITH.
APPARATUS FOR TAPPING WATER MAINS.

No. 485,715.

Patented Nov. 8, 1892.



Witnesses

Inventor

Oscar A. Frickel,
R. C. Powell.

Anthony P. Smith,
By *Drake & Co.* Attys.

UNITED STATES PATENT OFFICE.

ANTHONY P. SMITH, OF NEWARK, NEW JERSEY.

APPARATUS FOR TAPPING WATER-MAINS.

SPECIFICATION forming part of Letters Patent No. 485,715, dated November 8, 1892.

Application filed December 13, 1890. Serial No. 374,634. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY P. SMITH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Tapping Water and other 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.

The object of this invention is chiefly to provide for removing with safety and certainty a severed section of a main or other pipe which has been cut therefrom by a milling-tool or cutter used in connection with an apparatus for tapping water-mains or other pipes.

The invention consists in the improved drill and in the arrangement of the several parts thereof and in its connection with a milling-tool or cutter, as herein set forth, and finally pointed out in the claims.

Referring to the accompanying drawings, in which similar letters of reference indicate corresponding parts in each of the several figures where they occur, Figure 1 represents in part an elevation and in part a central vertical section of a tapping apparatus embodying my improvement, in connection with a water-main in position for operation. Fig. 2 is a detail, enlarged, of the milling-tool and drill in elevation. Figs. 3 and 4 are central vertical transverse sections, taken at right angles from each other, of the lower portion of the drill, showing more clearly my improvement, which is more directly connected with said drill; and Fig. 5 is a transverse section taken through line *x* of Fig. 2.

In said drawings, *a* indicates the shaft, at the lower end of which a milling-tool *b* and my improved drill *c* are adjusted in the usual manner, as will be understood upon reference to Figs. 1 and 2. Said drill is provided with one or more (in the present case two) spring-catches *d*, which are properly secured thereto in suitable recesses prepared to receive them. The upper portion or ends of said springs normally project a little beyond the surface of said drill, as indicated in Fig. 3, so that as the milling-tool is being operated to cut a sec-

tion from the main or pipe *E* the upper ends or portions of the spring-catches will be gradually pressed inward until they pass entirely through the shell or wall of the pipe, when they will immediately expand and resume their normal position again, so that when the milling-tool has completed its work of cutting through the pipe and severing a section thereof and is being withdrawn, together with the shaft and drill, the spring-catching device will engage with the inner surface of the severed section, and thereby not only prevent it from dropping into the main, but effect its certain removal therefrom, as will be obvious.

I do not limit myself to the precise construction or arrangement or to any particular number of springs, as changes may be made in these respects without departing from the spirit and intent of the invention.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus for connecting branches to water and other mains, the combination of a shaft *a*, a milling-tool, a drill, and a spring-catching device connected with said drill, for the purposes set forth.

2. In a tapping apparatus, the combination, with the drill-shaft thereof, of a drill provided with a spring-catching device adapted to pass through and engage with the inner surface of a severed section of a pipe and effect its removal therefrom by the withdrawal of said drill, as set forth.

3. The combination, with the drill-shaft of a tapping apparatus, of a drill having a recess in its side and a spring-catch secured in said recess and having its upper end or portion projecting normally beyond the surface of the drill, for the purpose set forth.

4. A drill provided with a spring-catching device adapted to pass through and to engage with the inner surface of a section of a pipe or other article, whereby the removal of said section when severed from the main body is effected by the withdrawal of said drill, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of December, 1890.

ANTHONY P. SMITH.

Witnesses:

OLIVER DRAKE,
OSCAR A. MICHEL.