

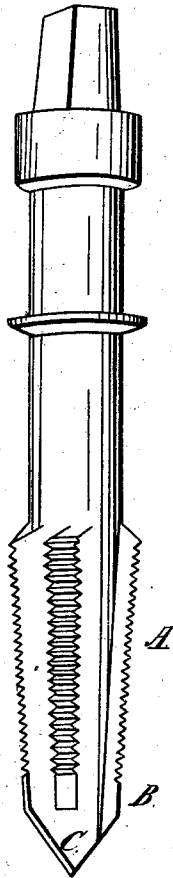
*W. Humphreys.*

*Pipe Drill.*

*N<sup>o</sup> 93,824.*

*Patented Aug. 17, 1869.*

*Fig. 1.*



*Witnesses.*

*W. Samms  
H. M. Procter.*

*Inventor*

*William Humphreys*

# United States Patent Office.

WILLIAM HUMPHREYS, OF WATERFORD, NEW YORK.

*Letters Patent No. 93,824, dated August 17, 1869.*

## IMPROVED COMPOUND TOOL FOR WATER AND GAS-PIPES.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, WILLIAM HUMPHREYS, of Waterford, Saratoga county, State of New York, have invented a new and useful machine, denominated a Combined Drill, Reamer, and Tap; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view, A being the tap, with the combined reamer, shown at B, and the drill at C.

The nature of my invention consists in providing the lower end of any ordinary tap with an extension gradually tapered, and formed into a reamer, with the extremity fashioned with the cutting-edges of an ordinary drill.

By reference to the drawing, it is plain to be seen that the instrument is a combination of drill, reamer, and tap, and is more especially adapted to tapping gas, water, and steam-pipes, which has the advantage of doing away with numbers of tools used for the purposes aforesaid. It lessens the number at least one, and oftentimes two or more.

The other advantages of this invention are, that the tap goes straight to its work, being held and balanced

in proper position by the reamer part, without any "wabbling," to which ordinary taps are subject. It also keeps the drill firm while cutting through the inner or receding side of the pipe, and prevents the drill slipping through and leaving an irregular or ragged inner edge to the hole, which ordinary drills are liable to.

Another advantage claimed, is the prevention of the escape of gas to any extent, when perforating the gas-pipes and mains, as is the case ordinarily, where two or three separate tools are used.

This instrument may be used with the ordinary ratchet-brace, lathe, or otherwise.

The tool may be made so as to embody only the drill and reamer, or the drill and tap, or the reamer and tap.

Having thus described my invention, I claim a combined drill, reamer, and tap, of the form and construction herein set forth.

WILLIAM HUMPHREYS.

Witnesses:

N. SEYMOUR,  
H. TEN BROECK.