

UNITED STATES PATENT OFFICE.

MILTON D. WHIPPLE, OF CAMBRIDGE, ASSIGNOR TO THE WHIPPLE FILE MANUFACTURING COMPANY, OF BALLARD VALE, MASSACHUSETTS.

IMPROVEMENT IN FILES.

Specification forming part of Letters Patent No. 34,866, dated April 1, 1862.

To all whom it may concern:

Be it known that I, MILTON D. WHIPPLE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented an Improved File, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a view of a round or "rat-tail" file of my improved manufacture; Fig. 2, a view of portion of the same enlarged; Fig. 3, a view of a "half-round" file, the curved surface of which is cut in the same manner as the round file.

Round files and those which are partly round or have one of their faces curved around the axis of the file are usually made with the rows of teeth extending in straight lines from one end of the file to the other. Each tooth in these lines being formed by a cut in the metal of the file-blank which is deeper at the middle of the cut than at its edges, the tooth has one portion higher than the other. These higher portions of all the teeth in one row coming in the same line as the file is pushed over the surface on which it is being operated scores the surface, and a smooth and true hole or other curved surface cannot be produced with such a file. This I have remedied by my present invention, which consists in a file having a curved surface, the rows of teeth of which wind spirally on such curved surface from one end of the file toward the other.

That others skilled in the art may understand and use my invention, I will proceed to

describe the manner in which I have carried it out.

In the said drawings the teeth *a b c d*, &c., Figs. 1 and 2, wind spirally around the file from one end to the other of it. To produce this, the blank is revolved by suitable machinery around its axis while the cutting of the teeth progresses from one end of the file toward the other. The machine which I have found most convenient for this purpose is that for which Letters Patent of the United States were granted me the 7th day of October, A. D. 1856, suitable gears being attached to the spindle which carries the blank to give it the required rotation.

The file shown in Fig. 3 may have its rounded surface cut in the same machine, three files being secured to the faces of a triangular mandrel, which is then revolved slowly as the cutting proceeds. With a file so cut (either round or part round) a round hole may be filed or a curved surface be made smooth, as the rows of teeth do not lie in lines parallel with the direction of cut of the file and do not tend to score the surface being filed into grooves.

What I claim as my invention, and desire to secure by Letters Patent as a new article of manufacture, is—

A round or curved surface file the teeth of which are cut in rows winding spirally, substantially as specified.

MILTON D. WHIPPLE.

Witnesses:

THOS. R. ROACH,
EDMUND MASSON.