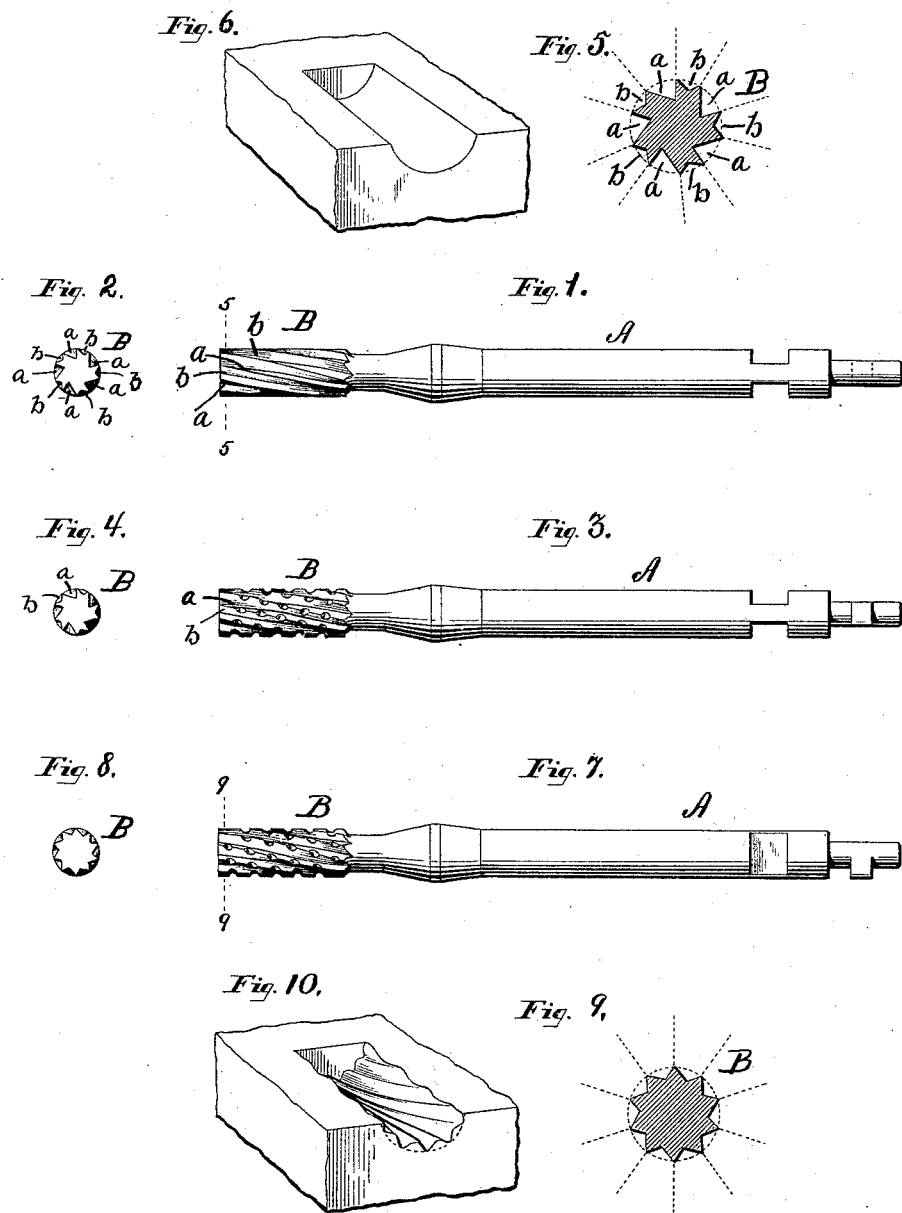


(No Model.)

A. W. BROWNE.
DENTAL FISSURE DRILL.

No. 418,108.

Patented Dec. 24, 1889.



Witnesses:
Edw. F. Simpson.
Arthur C. Clarke.

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UNITED STATES PATENT OFFICE.

ARTHUR W. BROWNE, OF PRINCE'S BAY, NEW YORK, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

DENTAL FISSURE-DRILL.

SPECIFICATION forming part of Letters Patent No. 418,108, dated December 24, 1889.

Application filed October 29, 1889. Serial No. 328,515. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. BROWNE, of Prince's Bay, in the county of Richmond and State of New York, have invented a certain new and useful Improvement in Fissure-Drills, of which the following is a specification.

My invention relates to an improved toothed drill or bit especially applicable to dentists' use in drilling fissures in teeth, but which is also adapted for use by others than dentists in making cuts transversely to the length of the tool by lateral pressure thereof.

My object is to provide an improved tool of this class which will cut smoothly or without jumping or jarring, and produce a smooth-surfaced fissure or cavity, or one without irregularities, such as alternate projections and depressions.

In the accompanying drawings, which represent on an enlarged scale fissure-drills to be operated by connection with a dental engine, Figure 1 is a longitudinal view, and Fig. 2 an end view, of a drill made in accordance with my invention. Figs. 3 and 4 are views similar, respectively, to Figs. 1 and 2, of a slightly-modified construction of tool. Fig. 5 is an enlarged transverse section on the line 5 of Fig. 1; and Fig. 6 is a view in perspective showing a block with a smooth-surfaced fissure such as drilled therein by the tool. Figs. 7 and 8 are respectively a longitudinal view and an end view of a fissure-drill of old and well-known construction; Fig. 9, an enlarged sectional view on the line 9 of Fig. 7; and Fig. 10, a view in perspective of a block with a cut made therein such as would be produced by operation of this old form of drill, the irregularities or alternate projections and indentations in the surface of the fissure being exaggerated.

The drill handle or shank A, which may be of any suitable construction, is provided with the cutter or drill proper B, the teeth or cutting-ribs of which are irregularly spaced and so formed that the respectively adjacent teeth vary in width or transverse area at their bases, this variation resulting from the irregular or varying width and depth of the spaces separating

them, and the difference in width of the bases of adjacent teeth is gradually lessened from one end of the drill to a point in their length where the teeth become regular or uniformly spaced, while from this point the gradual change in the width of the bases of adjacent teeth is resumed or continued, so that at the opposite end of the drill the teeth which at first had the wider bases are formed with narrower bases, and vice versa.

As will be understood by reference to the drawings, in producing a drill of this kind the respective spaces between alternate teeth are made wider and deeper than the spaces separating the respectively adjacent remaining teeth, and starting thus at one end of the drill the wider and deeper spaces *a* are progressively made narrower and shallower, and the shallower and narrower spaces *b* correspondingly widened and deepened from one end of the drill toward the other, so that at a given point the spaces, and consequently the teeth, become alike; and from this point for the remainder of the length of the teeth the at first wider and deeper spaces becoming gradually narrower and shallower and the other spaces deeper and wider proportionately, results in inverting the starting proportions of the respective teeth at their bases.

I do not wish to be understood as confining my invention to the tool when constructed precisely as above set forth—that is to say, to the making of the tool of a length such relatively to the pitch of the teeth that the relative proportions of the teeth at opposite ends of the drill become exactly inverted, or with alternate teeth terminating with bases of precisely the width with which the respectively adjacent teeth started—for obviously the drill may be longer or shorter than shown, or the pitch of the teeth be increased or lessened, so long as the teeth are irregularly spaced, with the wider and deeper alternate spaces between the teeth gradually becoming narrower and shallower lengthwise of the drill, and the narrower and shallower spaces becoming correspondingly deeper and wider.

As shown in Fig. 3, the spiral teeth or ribs may be divided each into a number of short

teeth, while preserving the characteristic feature of my invention—namely, the irregular and gradually-changing spacing of the teeth.

Practice has demonstrated that a drill made
5 in accordance with my invention works freely and steadily and makes a smooth regular-surfaced cut, as shown by Fig. 6, and that jumping and jarring of the instrument, highly objectionable in dental practice, are prevented.

10 I claim as my invention—

A drill having the irregularly-spaced teeth,

with the spaces between the respectively adjacent teeth gradually diminishing and increasing alternately, substantially as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name. 15

ARTHUR W. BROWNE.

Witnesses:

GILBERT S. BARNES,

THOS. C. TOTTEN.