

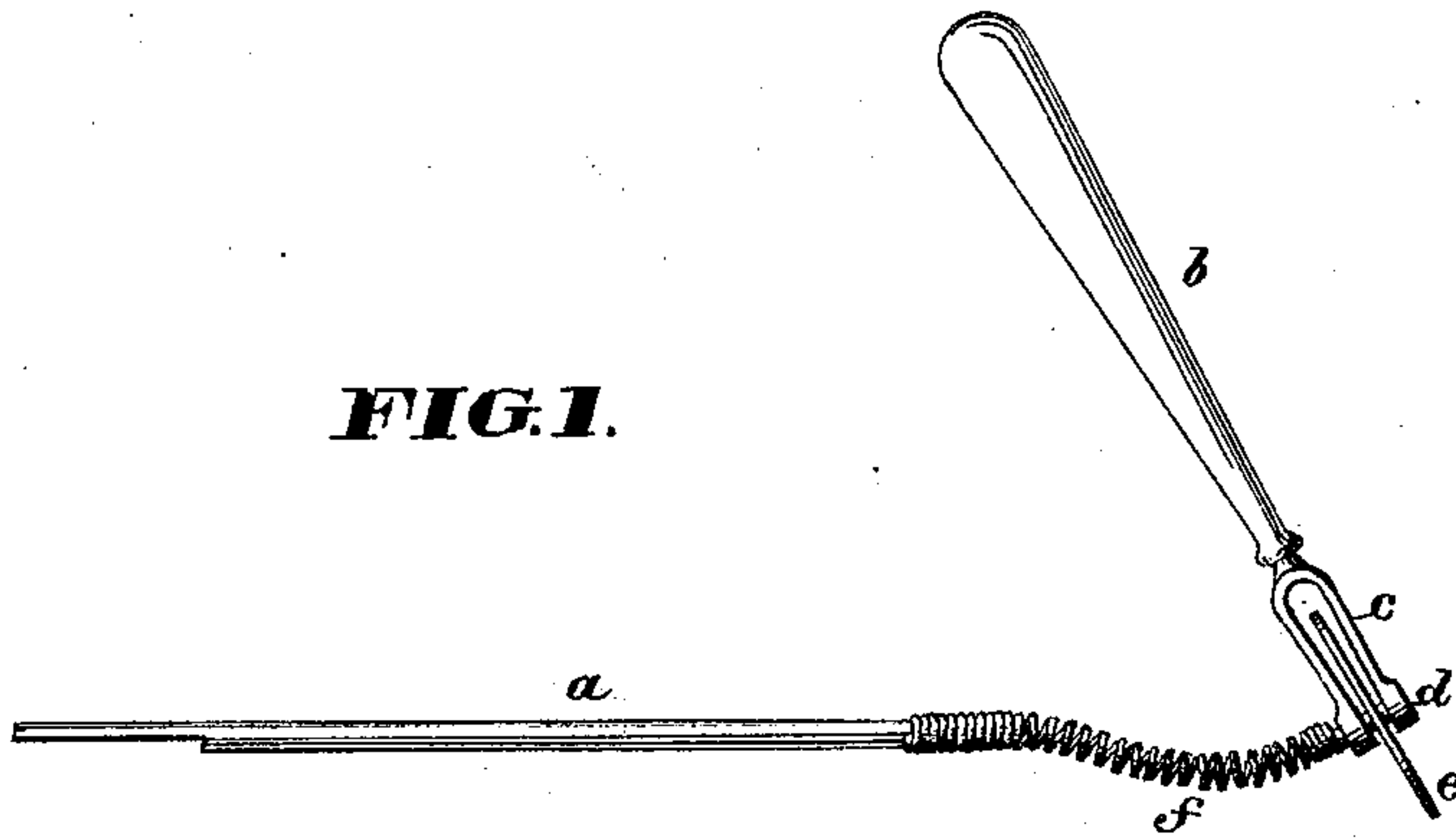
F. HICKMAN.

Rotary Tools for Dental-Engines.

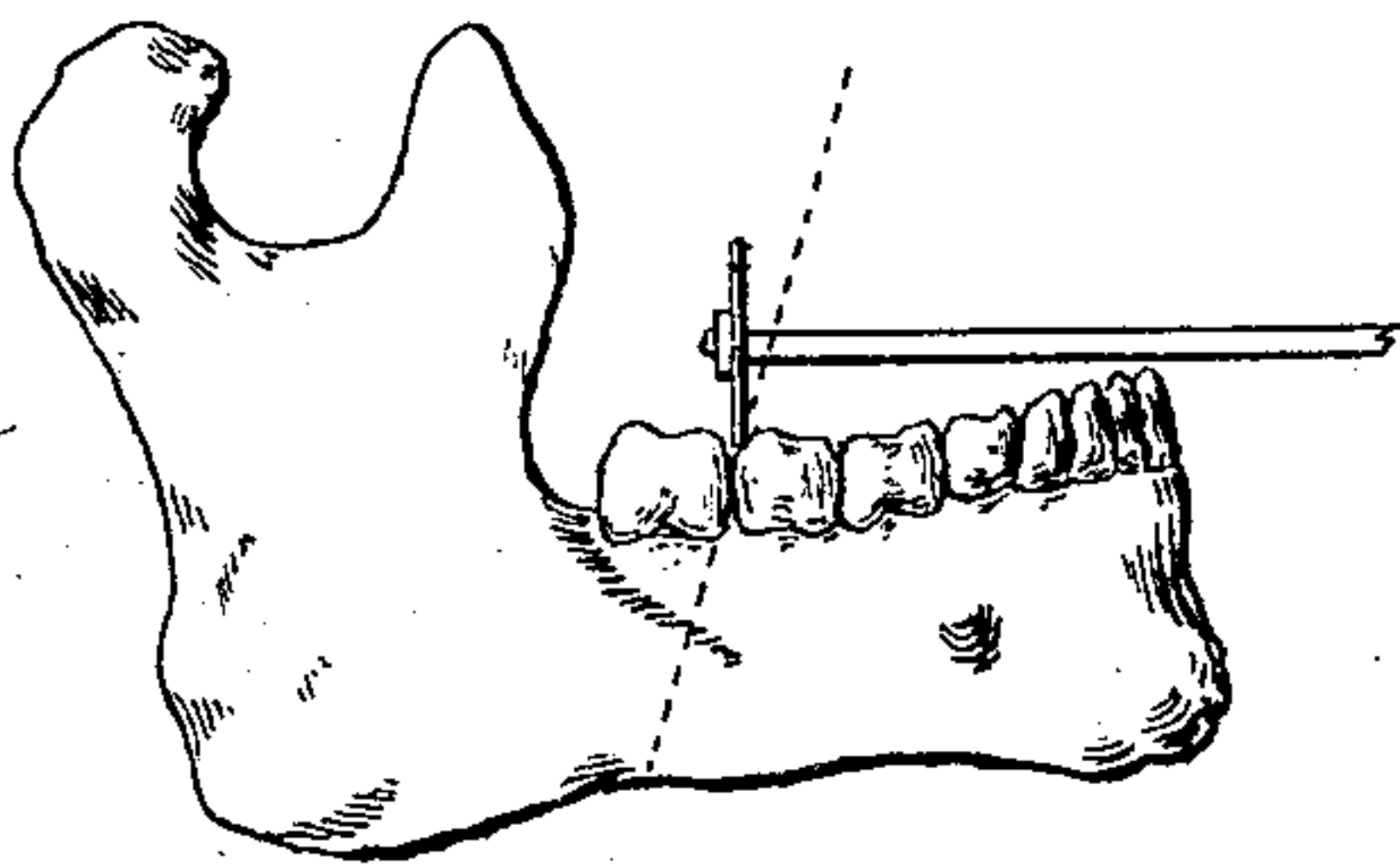
No. 149,312.

Patented April 7, 1874.

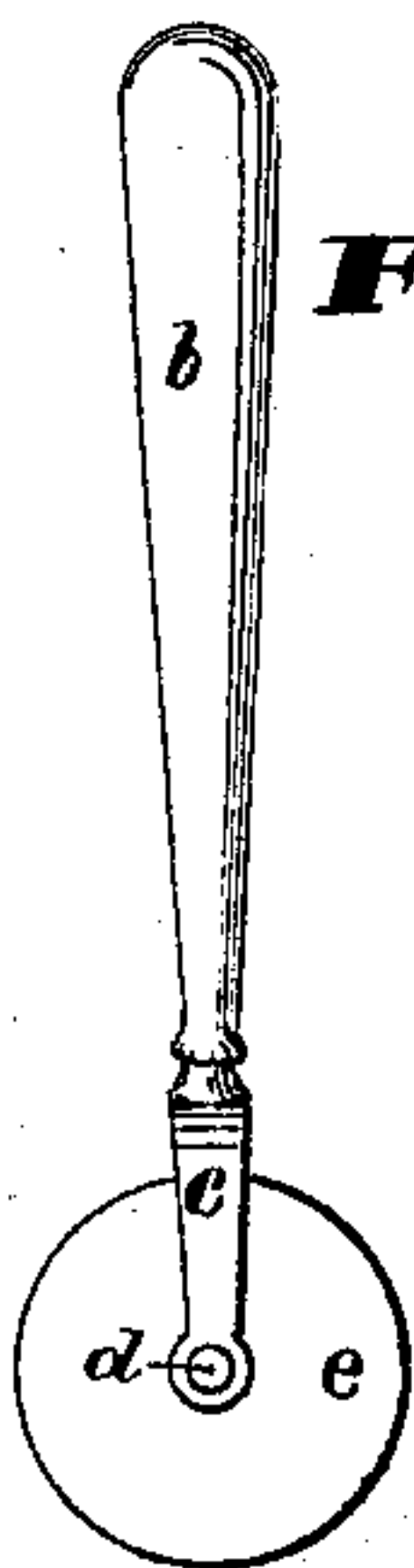
**FIG. 1.**



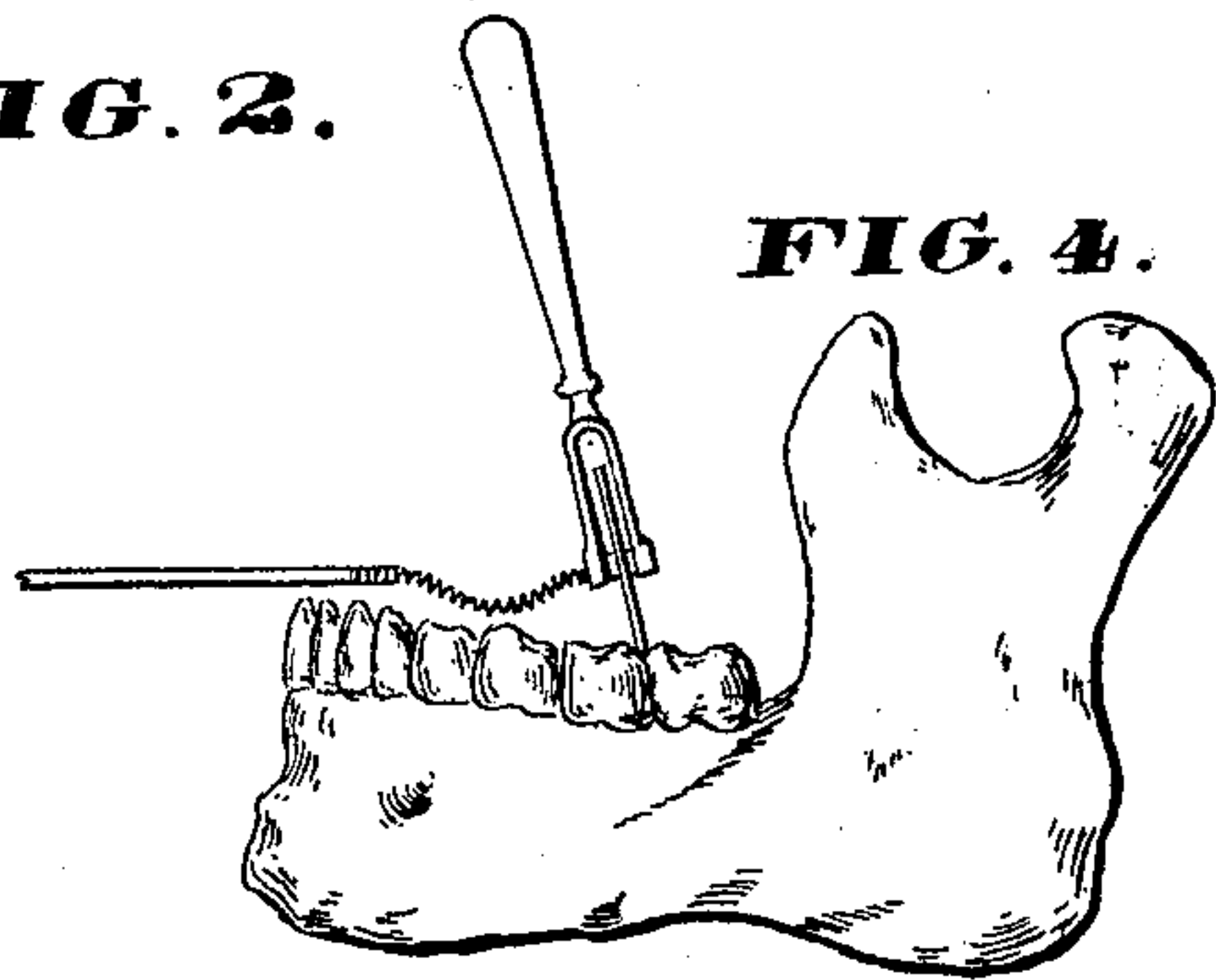
**FIG. 3.**



**FIG. 2.**



**FIG. 4.**



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FRANCIS HICKMAN, OF READING, PENNSYLVANIA.

## IMPROVEMENT IN ROTARY TOOLS FOR DENTAL ENGINES.

Specification forming part of Letters Patent No. **149,312**, dated April 7, 1874; application filed September 24, 1873.

*To all whom it may concern:*

Be it known that I, FRANCIS HICKMAN, of Reading, in the county of Berks, Pennsylvania, have invented an Improved Burring and Finishing Attachment for Dental Engines, of which the following is a specification:

This invention relates to means for finishing or dressing and separating natural teeth. The old attachment to dental engines for this purpose is a rigid bit having a thin circular disk-file or emery-wheel mounted thereon, and working at right angles to the axis of the bit. The use of this device is seriously limited, owing to the number of positions in which it will not work in the mouth. Other means have consequently had to be resorted to in working at certain angles. The present invention consists in an improved attachment for the purpose stated, comprising a rotary disk-file or emery-wheel, which may be adjusted independently of the bit to which it is attached, and readily applied in any required position by means of a convenient handle.

Figure 1 is an elevation of a burring and finishing attachment for dental engines, illustrating this invention. Fig. 2 is an end view of the same. Fig. 3 is a diagram illustrating the construction and operation of the old device, on which the present invention is based. Fig. 4 is a diagram illustrating the adaptation of the improved attachment.

Referring to the drawing, *a* represents a bit, adapted to be applied and used interchangeably with drill-bits, &c., in the stock of a dental engine. *b* represents a convenient small handle; *c*, a yoke attached thereto; and *d*, an arbor journaled in this yoke, and carrying a thin circular disk-file or emery-wheel, *e*, which may be of the same general character as those now in use for finishing and separating natural teeth. *f* represents a spiral-wire coupling, uniting the driving-bit *a* and the file-arbor *d*, so as to convey rotary motion from the

former to the latter, whatever their relative positions may be. The several parts of the attachment may be of any approved construction as regards the materials of which they are composed, and other details not above specified.

The operation of the improved attachment is as follows: The file *e* is brought within the mouth of the patient by means of the articulation of the engine-shaft. The operator then, with one hand, applies the file in any required position by the handle *b*, and thus the file may be manipulated with the greatest nicety and ease until the work is completed. Meanwhile the requisite rapid rotary motion is imparted to the file through the bit *a*, arbor *d*, and universal coupling *f*, the latter serving to convey the motion to the arbor at any angle with the bit which it may be made to assume in applying the file, as required.

The limited adaptation of the old burring and finishing attachment, in this respect, is illustrated in Fig. 3. The dotted line in the diagram represents an angle at which the file cannot be applied. Fig. 4 illustrates the mode of applying the improved attachment, as above described.

The following is claimed as new:

1. The rotary disk-file or emery-wheel *e*, mounted on a short arbor, *d*, in combination with the handle *b*, having a yoke, *c*, in which this arbor is journaled, so that the file may be manipulated by this handle independently of the driving-bit, substantially as described.

2. The bit *a*, furnished with the spiral-wire coupling *f*, as described, in combination with the detached file-arbor *d*, for the purpose specified.

FRANCIS HICKMAN.

Witnesses:

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