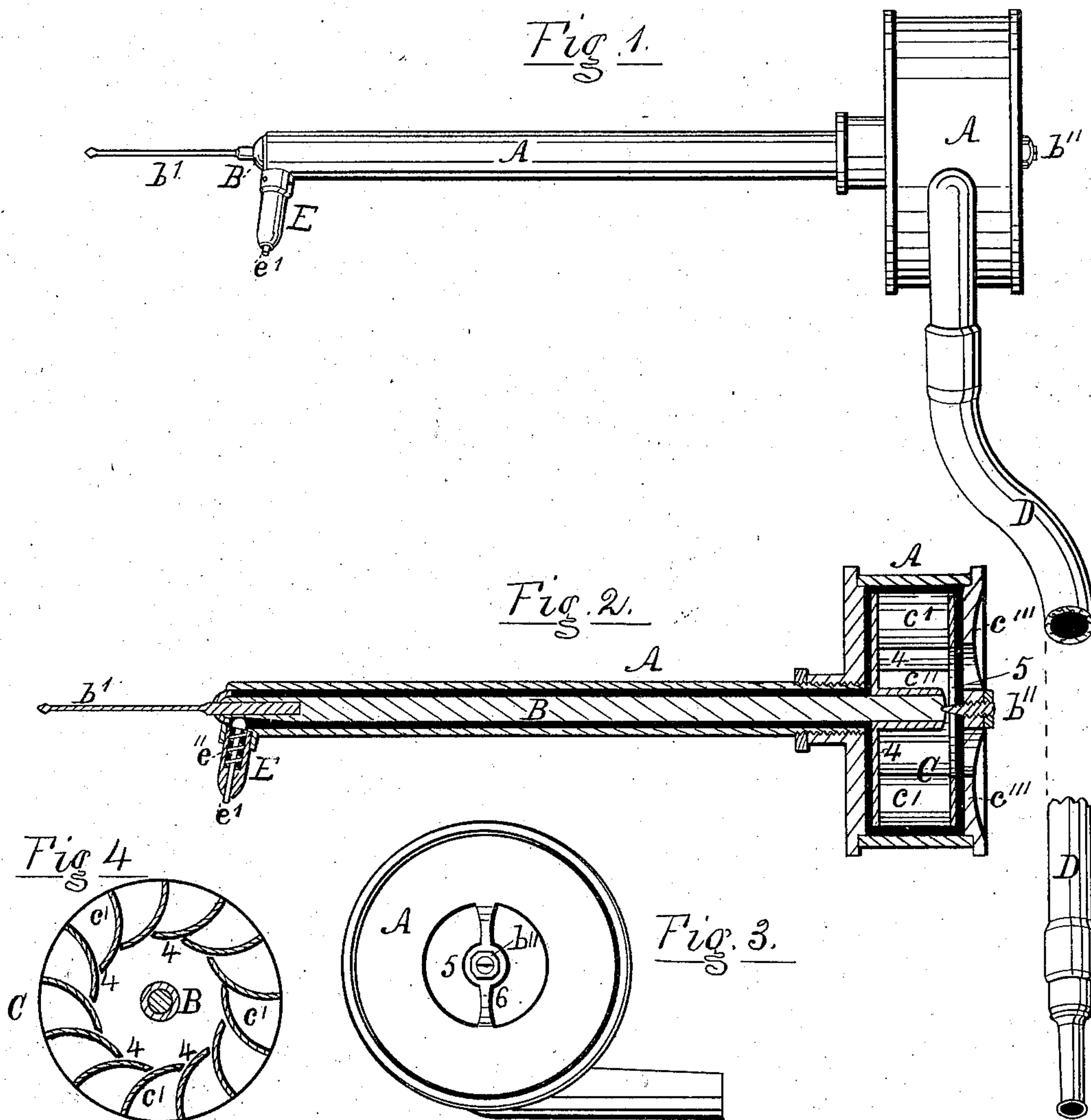


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Imnlement for Giving Motion to Tools.

No. 154,569.

Patented Sept. 1, 1874.



Witnesses:

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# UNITED STATES PATENT OFFICE.

AMBROSE W. STRAUB, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN IMPLEMENTS FOR GIVING MOTION TO TOOLS.

Specification forming part of Letters Patent No. 154,569, dated September 1, 1874; application filed December 11, 1873.

*To all whom it may concern:*

Be it known that I, AMBROSE W. STRAUB, of the city of Philadelphia, in the State of Pennsylvania, have invented a hand implement for giving rapid motions to changeable tools, adjustably applied thereto, by the pressure of elastic fluids in motion, of which the following is a specification:

The object of my invention is the production of a hand implement for drilling, burring, and routing, in dental and other operations requiring great delicacy, accuracy, and facility of manipulation.

My invention consists in the combination in a suitable case, A, of a rotary shaft, B, and wheel C, driven by compressed air, steam, or other elastic fluid in motion, applied through an articulated or elastic tube, D, in communication with the motive power which may be used, in such a manner that the whole implement may be readily and easily guided, supported, and applied by hand, at any angle of inclination or other position that the operator may desire in using the implement.

Figure 1 is a side view of my said implement, having a flexible mouth-tube attached, and fitted with a drill and a plugger for dentist's use. Fig. 2 is a vertical central longitudinal section of Fig. 1. Fig. 3 is a representation of the wheel-end of the case. Fig. 4 is a vertical transverse section of the wheel and shaft, detached.

The wheel C consists of a series of curved plates, *c' c'*, secured by their ends in an air or steam-tight manner to two disks, an inner one, *c''*, and an annular outer one, *c'''*, and so that the bottom edges of the said curved plates *c'* shall leave a narrow space, 4, between each, for the escape of the driving-fluid which may be used, and a wide space between each at the perimeters of the disks *c'' c'''*, for the entrance of the said fluid from the tube D, as the said wheel and shaft are put in motion thereby; the passing fluid escaping through the central opening 5 in the plate *c'''* and a corresponding opening in that end of the case A. The shaft B, of the wheel C, extends along through the tubular part of the case A, and has a suitable hole in its outer end for the insertion of a drill, B<sup>1</sup>, or other rotary

tool. At one side of the tubular part of the case A, near its free end, a short tapering tube, E, is attached, which contains a bar, *e'*, the outer end of which projects a little beyond the end of tube E, while its inner end rests against a flattened recess or cam on the side of the shaft B, and is kept in contact with the cam-portion of the shaft by a slender spiral spring, *e''*, the inner end of which spring bears upon a shoulder, around the inner end of *e'*, and a shoulder or offset around in the outer end of the tube E, and thus keeps the bar—which, for dentist's use, would be a plugger—in contact with the cam, and as the shaft rotates gives rapid longitudinal motions to the bar. The said tapering tube E, with its bar and spring, can be readily detached if not required to be always in frequent use. The wheel-end of the shaft B has its bearing upon the pointed end of an adjustable screw, *b''*, which is held firmly in position by a bar, *b'*, which is fixed across the central opening of the wheel-end of the case A.

The implement is to be held and guided by hand during the rotary motion of the shaft B, the said motion being given by the motive power which may be used. For dentist's use the rotary motion may be readily produced by air blown from his mouth through the flexible or gum-elastic tube and mouth-piece, or from a bellows operated by a treadle. If steam be used, which may be suitable for driving a drill, router, or other cutting tool, or for brushing or cleaning, or polishing about steam-engines or locomotives, it may be readily conveyed by a flexible or articulated pipe, so as to allow the implement to be guided and applied in any direction the work may require. But, for drilling, burring, routing, and plugging, in dental operations, the implement is especially appropriate.

I claim as my invention—

The combination of the hand-case A, tube D, wheel C, and shaft B, substantially as set forth and described.

AMBROSE W. STRAUB.

Witnesses:

BENJ. MORISON,  
WM. H. MORISON.