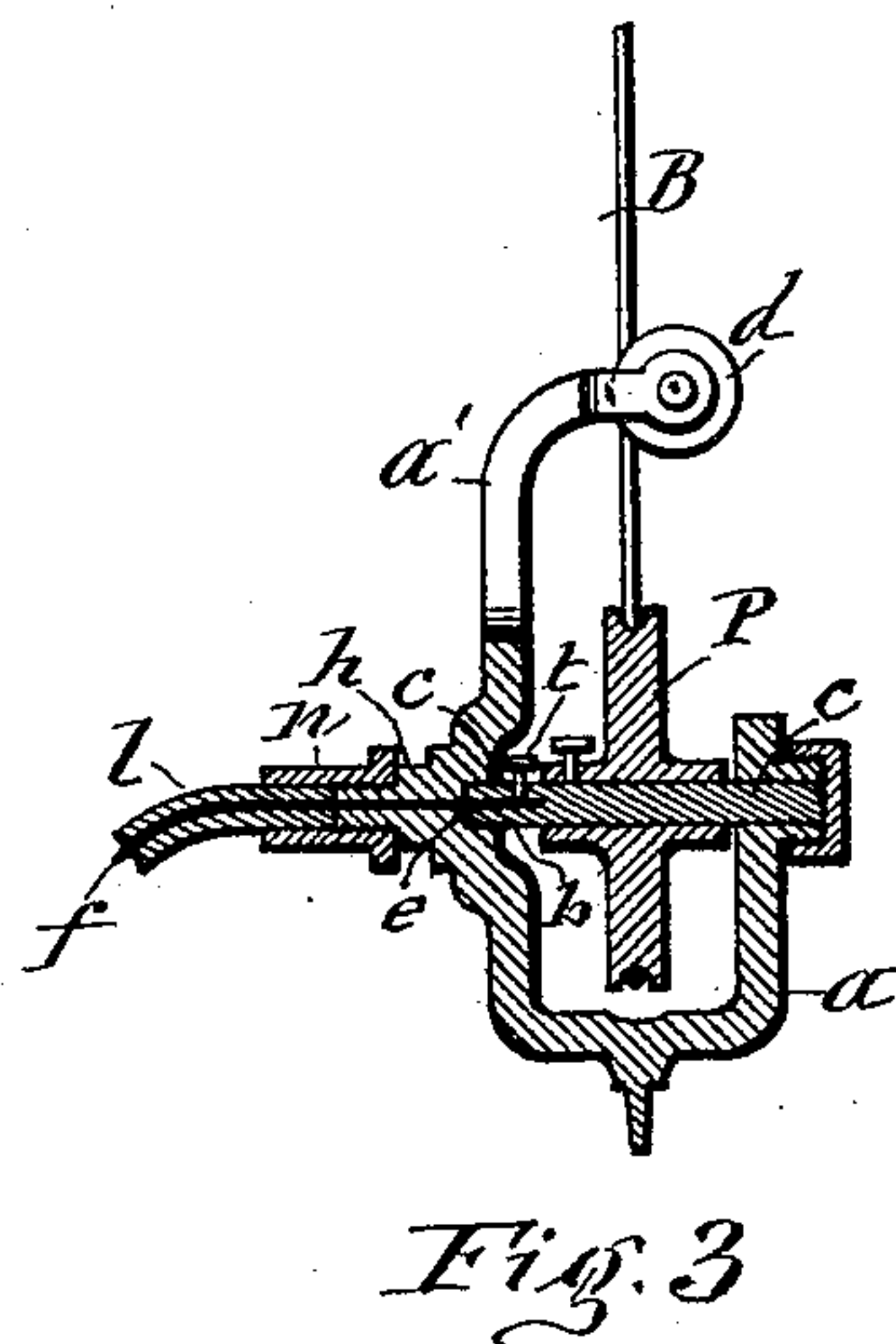
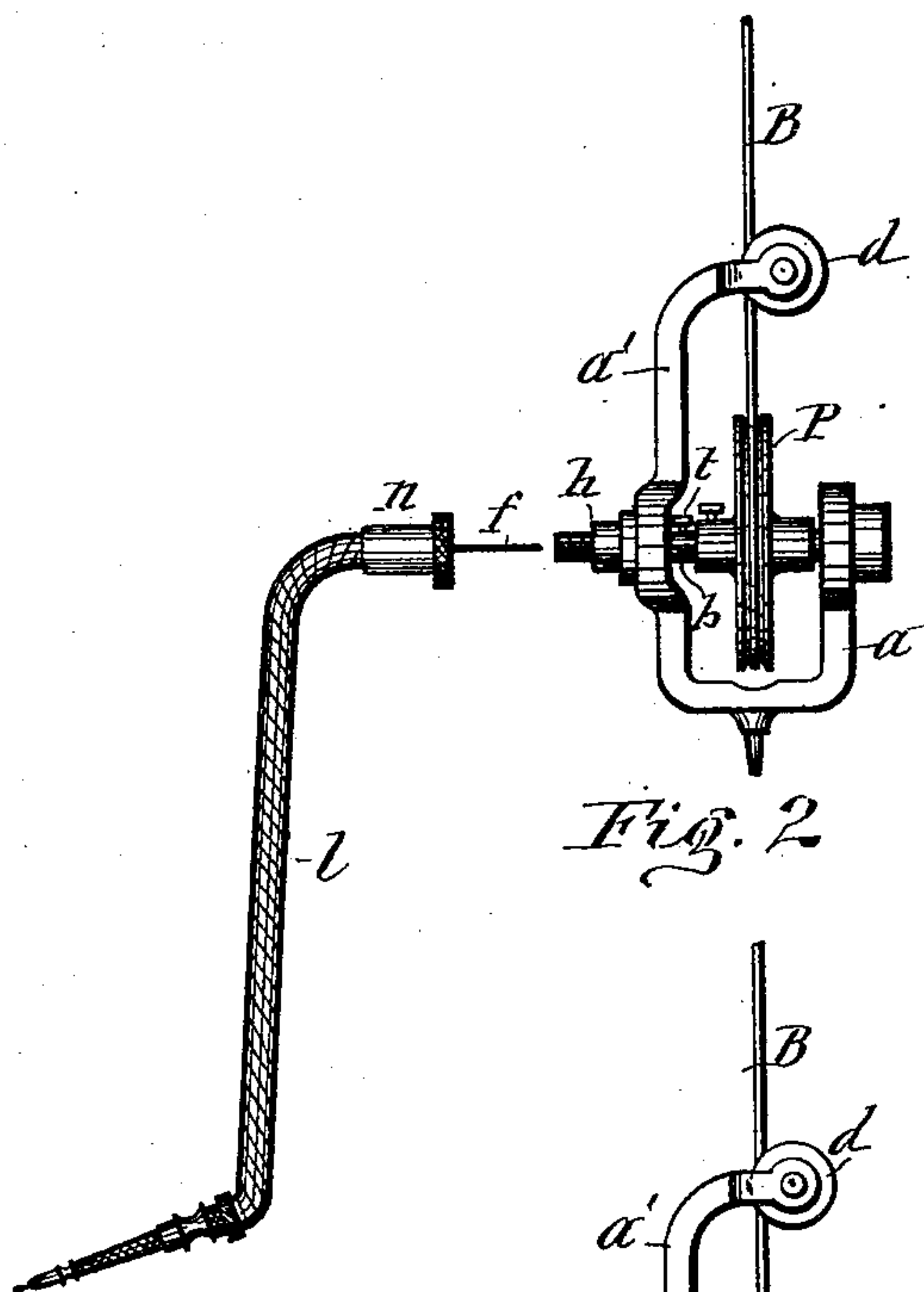
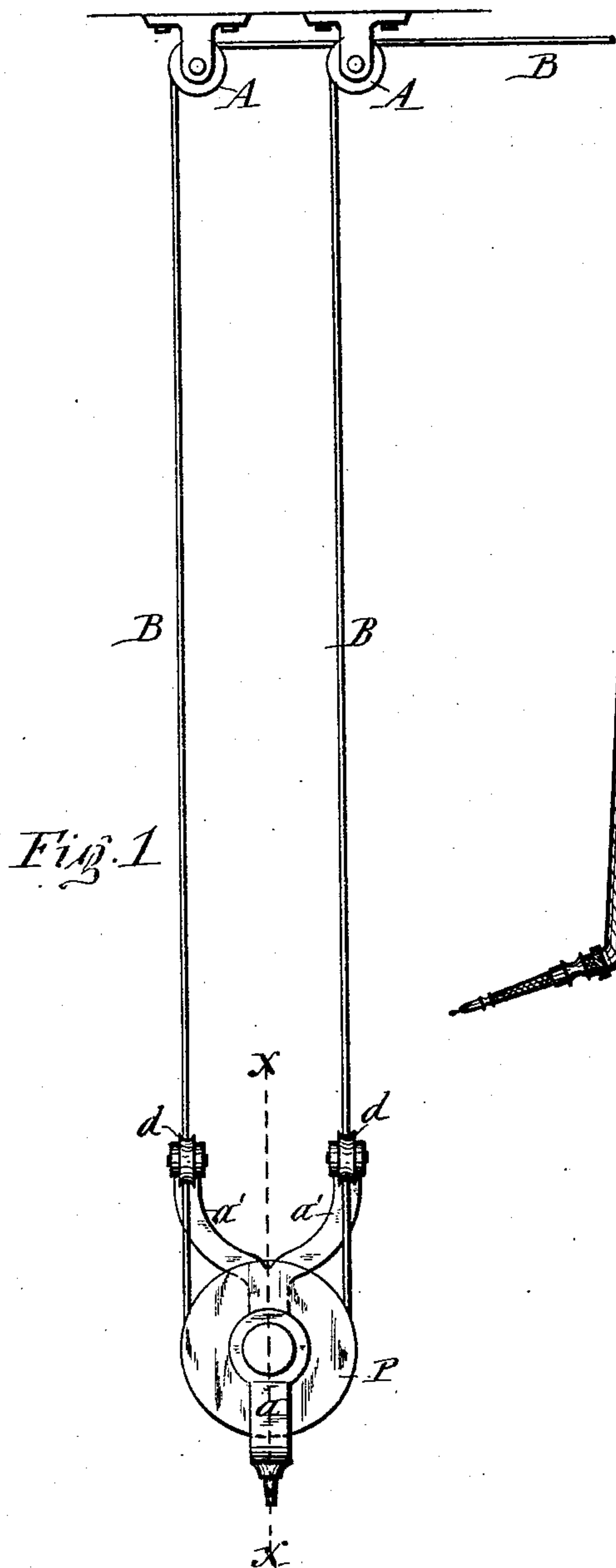


(No Model.)

W. W. WILLIAMSON.
DENTAL ENGINE.

No. 454,242.

Patented June 16, 1891.



WITNESSES:

C. L. Bendixon
J. J. Laasg

INVENTOR:

Wallace W. Williamson
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UNITED STATES PATENT OFFICE.

WALLACE W. WILLIAMSON, OF SYRACUSE, NEW YORK.

DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 454,242, dated June 16, 1891.

Application filed September 9, 1890. Serial No. 364,493. (No model.)

To all whom it may concern:

Be it known that I, WALLACE W. WILLIAMSON, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Dental Engines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention is designed chiefly for operating dental instruments, but is also available for various other purposes, and its adaptation will be readily comprehended.

The chief object of the invention is to provide means for transmitting motion from the motor to the instrument, which is guided by the hand of the operator, which transmitter shall have its carrier or support capable of universal movement in its position, and thus afford easy and perfect control of the instrument in manipulating the same; and to that end the invention consists, essentially, in the combination, with the motor, of the driving-belt suspended from above the operator, a yoke having pivoted to it a pulley and carried in a suspended position by said pulley riding on the suspended portion of the belt, and a rotary instrument receiving motion from said pulley, all as hereinafter more fully described, and specifically set forth in the claims.

In the annexed drawings, Figures 1 and 2 are elevations of the transmitter, taken in planes respectively at right angles to the axis of the transmitting-pulley and parallel with said axis; and Fig. 3 is a vertical section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

A A represent two sheaves secured to the ceiling or othersuitable supports directly over the instrument to be operated.

B represents the driving-belt, which runs from the motor (not shown) over the aforesaid sheaves and carries a loop portion in a suspended position. On this suspended belt I carry the device for transmitting motion to the instrument, which is guided by the hand of the operator. Said device consists of a yoke *a*, which is provided with journal-bearings *c c*, and with a hub *h*, extending outwardly therefrom and axially in line with the journal-bearings and perforated longitudinally, as shown in Fig. 3 of the drawings, for

the purpose hereinafter explained. In said journal-bearings is pivoted a shaft *b*, which is provided with an axial socket *e* in the end adjacent to the aforesaid hub *h*, and to said shaft I rigidly secure a power-transmitting pulley P, which has a circumferential groove in its periphery, by which it rides on the lower end of the suspended belt B.

To sustain the yoke *a* in an upright position and properly guide the belt B to and from the pulley P, I form the said yoke with suitable upwardly-extending braces or guides bearing on the belt, and preferably of the form of arms *a' a'*, the upper ends of which reach some distance above the pulley and across the same, and each terminates with a bifurcation, between which a circumferentially-grooved sheave *d* is placed and pivoted by a pin passing through the bifurcation of the arm and through the sheave. The belt passes through the bifurcations of the two arms *a' a'* at the sides of the sheaves adjacent to said arms, and thus said sheaves are caused to bear on the belt and sustain the arms in an upright position.

f represents a flexible shaft, which usually consists of a closely-coiled wire inclosed in a flexible tubular holder *l*, to one end of which the rotary shaft of the dental instrument to be operated is attached in the usual and well-known manner. The opposite end of the holder has swiveled to it a nut *n*, which screws onto the screw-threaded end of the hub *h*. In attaching the holder *l* to the yoke, as aforesaid, the end of the flexible shaft *f*, which projects from the end of the holder, is passed through the perforation of the hub *h* and inserted into the socket *e* and secured therein by means of a set-screw *t*. The yoke *a*, being carried on the suspended belt B, allows said yoke to be freely moved laterally in all directions, and thus no perceptible impediment is presented to the operator in manipulating the dental instrument.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the motor, the driving-belt suspended from an elevation above the instrument to be operated, the yoke *a*, provided with the upwardly-extending arms *a' a'*, sheaves *d d*, pivoted to the upper ends

of said arms, the shaft *b*, mounted in the yoke, the pulley *P*, secured to said shaft and riding on the suspended belt, and a flexible shaft connected to the shaft *b*, substantially as described and shown.

2. In combination with the motor and suspended driving-belt, the yoke *a*, provided with the bifurcated arms *a' a'*, journal-bearings *c c*, and the hub *h*, perforated longitudinally, the shaft *b*, mounted in said bearings and provided with the axial socket *e*, the flexible shaft

f, passing freely through the aforesaid hub and rigidly secured in the socket *e*, the pulley *P*, fastened to shaft *b*, and the sheaves *d d*, mounted in the bifurcated ends of the arms *a' a'*, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 5th day of September, 1890.

WALLACE W. WILLIAMSON. [L. s.]

Witnesses:

MARK W. DEWEY,

H. M. SEAMANS.