

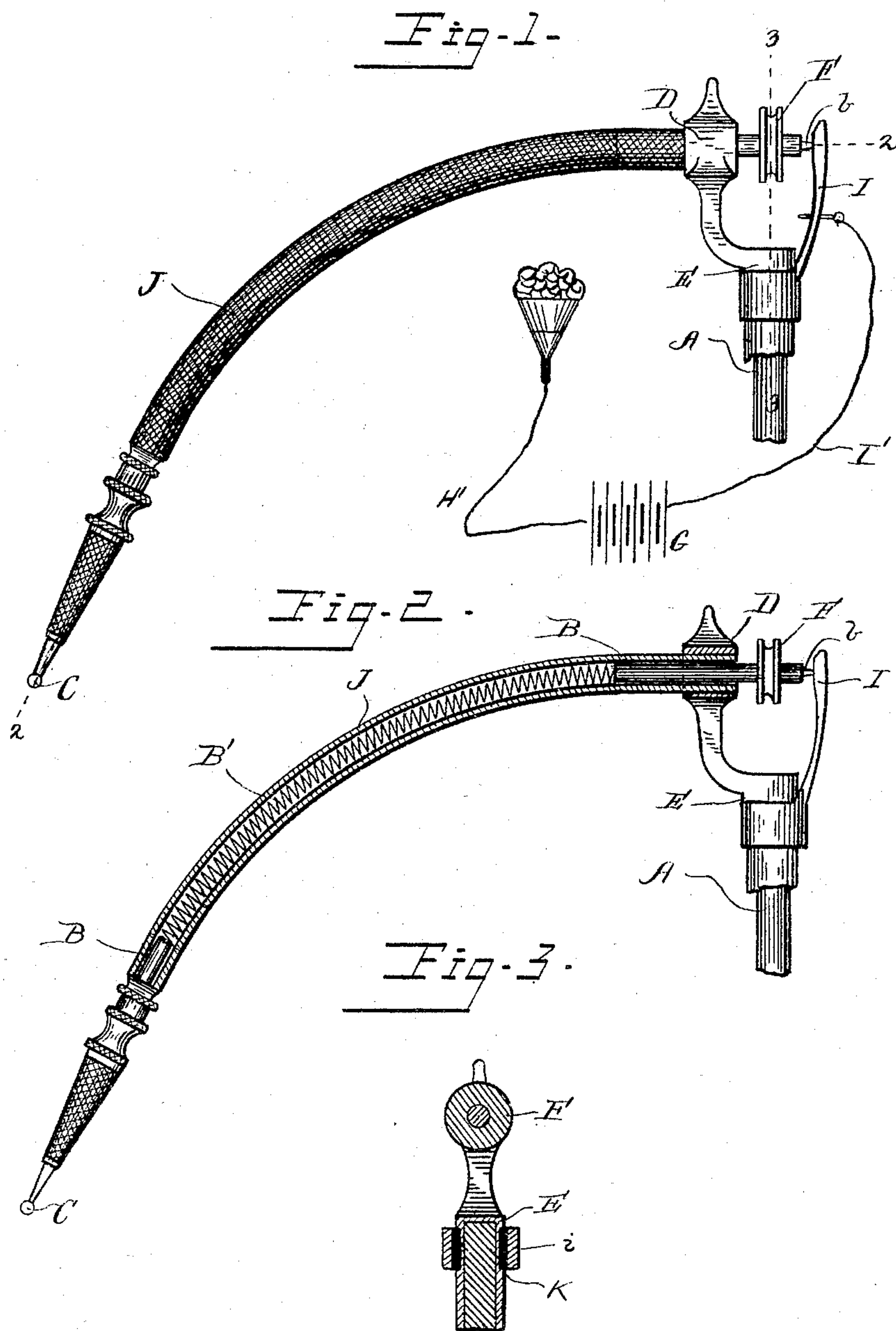
(No Model.)

W. P. HORTON, Jr.

DENTAL APPLIANCE FOR OBTUNDING NERVES.

No. 493,723.

Patented Mar. 21, 1893.



Witnesses:
Louis S. Thomason,
A. C. English.

Inventor:
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UNITED STATES PATENT OFFICE.

WILLIAM P. HORTON, JR., OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
ANSEL B. JONES, OF SAME PLACE.

DENTAL APPLIANCE FOR OBTUNDING NERVES.

SPECIFICATION forming part of Letters Patent No. 493,723, dated March 21, 1893.

Application filed August 18, 1892. Serial No. 443,458. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. HORTON, Jr., a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Dental Appliances for Obtunding Nerves Under Operation, of which the following, with the accompanying drawings, is a specification.

This invention has relation to dental engines, and its principal object is to provide a dental engine, in which the burr and burr-operating shaft revolves, with means whereby a current of electricity may be passed through said shaft and burr, thereby obtunding the nerve and counteracting the pain incident to boring into a tooth.

To this end the invention consists in certain peculiarities in the construction, arrangement and combination of the several parts substantially as hereinafter described and particularly pointed out in the subjoined claims.

In the accompanying drawings illustrating my invention Figure 1 is a side view of part of a dental engine showing the same adapted to my improvement. Fig. 2 is a section on the line 2—2 of Fig. 1, and Fig. 3, is a section on the line 3—3 of Fig. 1.

A represents the upper part of the standard of a dental engine, B, the burr actuating shaft and C the burr on the end of said shaft. The shaft B is shown as divided transversely and its sections connected by a flexible shaft B' whereby the burr C may have its necessary freedom of movement in every direction, but it is obvious that the shaft may be otherwise constructed for this purpose.

The rear end of the shaft B has its bearing in an arm D which has a sleeve E at its lower end fitted upon and rigidly secured to the upper end of said standard A. A pulley F mounted upon the rear end of shaft B adapts said shaft for connection with a suitable means for operating it.

G designates a source of electricity, one pole of which by the wire I' communicates with the dental engine in the manner hereinafter described, and the other pole by the wire H' with a suitable electrode H, the latter being intended for application to the external part of

the jaw, or with the head or body of the patient. As will be seen, the electricity producing apparatus shown in the drawings consists of an electric battery of the ordinary type, but I contemplate using, in practice, one in which the strength of current applied to the engine can be regulated to suit the demands and exigencies of special cases. In practice I preferably connect the positive pole of the electricity producing apparatus with the dental engine and the negative pole with the electrode; the latter should preferably be placed in juxtaposition to the nerve or tooth to be operated upon.

It is not broadly new with me to pass a current of electricity through a dental tool so as to deaden the nerve of the patient in advance of the operation of the tool, but heretofore this principle has been employed only in connection with tools which do not rotate, and the wire extending from a pole of the battery has been secured directly to the excavator. This would obviously, be impractical in dental engines, in which the tool rotates and I have therefore devised the construction now to be fully set forth which makes the principle above mentioned applicable for use with any of the modern dental engines with but slight change in the construction thereof.

As above stated, the shaft B is supported at its rear end by an arm D which in turn is supported by the standard A, said arm having a horizontal opening through which said shaft extends and within which it is journaled. Secured to the standard A, or to the sleeve E, by any suitable means (as for example, a closely fitting sleeve) and projecting upward opposite the arm D is another arm I, which is in contact with the rear extremity of said shaft B. This arm is connected by the wire I' with the positive pole of the battery, forms a contact with the rear end of said shaft, so that when the current is completed by the placing of the electrode into contact with the face or other part of the person of the patient, the burr against the tooth to be operated upon, the current will pass from the positive pole of the battery through said arm I, thence into and through the shaft and burr from whence it issues to the nerve and ob-

tunds the latter. The rear end of the shaft B, forming the contact with said arm I, is preferably reduced, as shown at *b*, and said arm where it is engaged by said reduced end of the shaft is preferably thickened so as to prevent its rapid wearing away by the friction incident to the rotation of the shaft. It will of course be understood that said arm I does not rotate with the shaft.

10 The shaft B is inclosed within a tube or sleeve J, which is suitably constructed so as to not interfere with the flexibility of the lower end of the shaft, and should be made of a suitable insulating material to prevent the current escaping from the shaft other than through the burr C. In the drawings I have shown it as made of flexible non-conducting material but do not limit myself to this specific construction. At its lower end it is provided with a hand piece which should be made of non-conducting material. The arm I also should be insulated, as shown at K, to prevent passage of the current from it into the standard A or sleeve E.

25 What I claim as my invention is—

1. The combination with the standard or support, rotatable shaft and burr of a dental engine, of an arm within which said shaft is journaled, a rotatable contact point on the end of said shaft, a non-rotatable arm serving as the other contact point, an electricity producing apparatus, one pole of which is con-

nected with said non-rotatable arm, and an electrode connected with the other pole of said battery all substantially as shown and described. 35

2. The combination with the standard of a dental engine an arm D secured thereto and projecting upward therefrom, said arm having an opening through its upper end, an insulating tube or sleeve passing at one end into said opening in the arm and having a hand piece at its opposite end, a rotatable shaft passing through said tube or sleeve, and having a burr at one end and a pulley at its opposite end, said shaft being divided transversely and having its sections flexibly connected together, of a rotatable contact point on the rear end of said shaft, a non-rotatable arm I extending upward from said standard opposite said arm D and having its upper end in contact with said rotatable contact point, an electricity producing apparatus, one pole of which is connected to said non-rotatable arm, and an electrode connected with the other pole of said battery, substantially as shown and described. 40 45 50 55

In testimony whereof I affix my signature, in presence of two witnesses, this 2d day of May, 1892.

WILLIAM P. HORTON, JR.

Witnesses:

H. S. SPRAGUE,
J. S. MORGAN.