

No. 750,735.

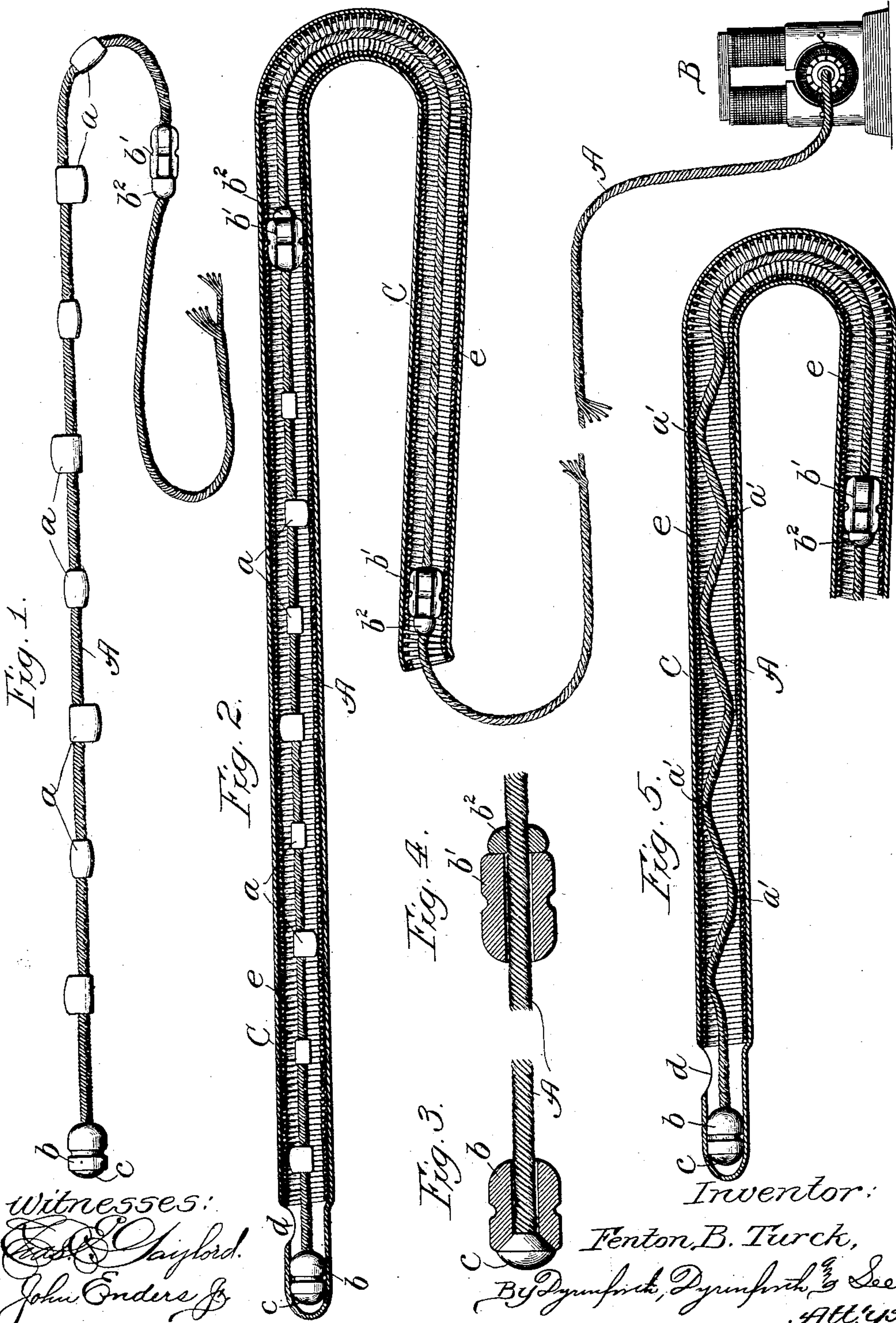
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F. B. TURCK.

IMPLEMENT FOR MECHANICAL VIBRATORY TREATMENT.

APPLICATION FILED MAR. 30, 1903. RENEWED DEC. 14, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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IMPLEMENT FOR MECHANICAL VIBRATORY TREATMENT.

SPECIFICATION forming part of Letters Patent No. 750,735, dated January 26, 1904.

Application filed March 30, 1903. Renewed December 14, 1903. Serial No. 185,171. (No model.)

To all whom it may concern:

Be it known that I, FENTON B. TURCK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Implements for Mechanical Vibratory Treatment, of which the following is a specification.

My invention relates to an improved implement for applying to portions of the body for therapeutic and diagnostic purposes mechanical vibratory treatment; and it consists in the general as also in the more specific construction of the implement which I have devised.

Referring to the accompanying drawings, Figure 1 shows my improved implement by a view in side elevation, partly sectional, in one of the several forms in which I provide it. Fig. 2 shows the same implement by a broken view as connected with an electric motor and inclosed in an internally-armored sheathing of soft rubber. Fig. 3 is an enlarged section of the distal end of the flexible shaft in its journal-bearing; Fig. 4, a similar view of an intermediate portion of the flexible shaft in its journal-bearing; and Fig. 5, a broken sectional view of the implement like the view thereof illustrated in Fig. 2, but showing the flexible shaft in another form.

A is a "flexible" shaft, so called for want of a better term by which to designate it. For my purpose it may comprise a cord, cable, or the like, or even a suitable length of flexible wire, deflected laterally at intervals along its length, as by means of projections, shown in Figs. 1 and 2 in the form of lugs *a*, forming strikers, extending in spiral relation to each other from the body of the shaft, or by otherwise producing irregularities in the shaft, as shown by way of example in Fig. 5, wherein the shaft is represented as bent longitudinally into zigzag form to produce the eccentric sections *a'*, forming the strikers. The shaft shown is intended to represent the flexible shaft of the variety commonly employed in dental engines, which is the preferred form of flexible shaft for my purpose. At its distal end the shaft A is usually and by preference journaled in a bearing *b* and is shown to be

provided with a head *c* to retain the bearing in place.

While it is preferred to incase the flexible shaft in a flexible sheath, as hereinafter described, it is adapted for use without sheathing it and is operated as follows: The shaft A is coupled at its proximal end concentrically with the shaft of any suitable motor, that represented in Fig. 2 being shown conventionally as an electric motor B, though it may be a motor of any other variety, including one adapted to be actuated by hand-power. The flexible shaft is held at its journal-bearing *b*, as in the hand of the patient or of the operator, and the intermediate portion is applied to the part of the body to be treated either in a straight or deflected condition, a usual manner of the application being to coil it about the part to be treated, as the arm, neck, head, leg, or other member. By then actuating the motor the flexible shaft is rapidly rotated axially, and the irregularities upon it vibrate against the body and subject it to the desired treatment. As hereinbefore stated, however, it is preferred to inclose the flexible shaft in a sheathing C of flexible material, and one form thereof represented in the drawings is a tube of soft rubber closed at its tapered end and open at its opposite end, with an opening *d* in one side near the closed end through which to introduce the shaft A, the tube containing an internal armor *e*, formed of a spiral spring stretched longitudinally and confined against the inner surface of the tube to reinforce it against wear under the beating action of the projections on the flexible shaft. The journal-bearing *b* at the distal end of the shaft is confined against rotation in the tapered end of the tube, and one or more other journal-bearings *b'*, like the bearing *b*, are provided along the shaft to sustain it for rotation in the tube, each being held against longitudinal displacement by a button *b''* on the shaft abutting against the bearing.

To operate the sheathed implement, the flexible shaft is connected in the manner described with a motor and the tube is applied, as stated, to the part of the body to be treated, when by actuating the motor the flexible

shaft is rapidly rotated axially in the sheathing, causing the projections to vibrate against the wall of the flexible tube and transmit the vibrations to the part of the body to which the implement is applied.

The flexible soft-rubber-tube form of the sheathing C adapts the implement to be applied externally to any part of the body to be treated or to be introduced into the interior of the body, as into the stomach; but other forms of flexible sheathing are included in my invention for adapting the implement to be applied to different parts of the body—as to the foot, the trunk, or other member—to incase it in the sheathed rotatable shaft.

My invention in its broadest sense consists in the flexible shaft having lateral projections at intervals along its length and inclosed or not in any suitable flexible sheathing, with the distal end (relative to the motor) of the shaft provided or not with a journal-bearing and the proximal end (relative to the motor) adapted to be connected for rapidly rotating it axially with a suitable motor. Only two forms of the flexible shaft and one form of the flexible sheathing for it are represented in the accompanying drawings; but various other forms of each are practicable, and I wish to be understood as intending to include them all within my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided with one or more lateral projections between its ends, and adapted to be connected at one end, for its rapid rotation, with a motor, and means on said shaft for holding it at its distal end and permitting it to be rotated, substantially as and for the purpose set forth.

2. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided with one or more lateral projections between its ends, and adapted to be connected at one end, for its rapid rotation, with a motor, and a journal-bearing on the opposite end of said shaft, substantially as and for the purpose set forth.

3. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, and a journal-bearing on the opposite end of said shaft, substantially as and for the purpose set forth.

4. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising a flexible shaft provided at intervals between its ends with laterally-projecting strikers extending in spiral re-

lation to each other along the length of the shaft, said shaft being adapted to be connected at one end, for its rapid rotation, with a motor, and a journal-bearing on the opposite end of the shaft, substantially as and for the purpose set forth.

5. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft adapted to be connected at one end, for its rapid rotation, with a motor, and a flexible sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

6. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided with one or more lateral projections between its ends and adapted to be connected at one end, for its rapid rotation, with a motor, and a flexible sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

7. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided with one or more lateral projections between its ends and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

8. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible internally-armored sheath within which said shaft is rotatably confined, substantially as and for the purpose set forth.

9. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, a flexible sheath within which said shaft is rotatably confined, and one or more journal-bearings for said shaft between its ends within said sheath, substantially as and for the purpose set forth.

10. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals, between its ends with laterally-projecting strikers extending in spiral relation to each other along the length of the shaft, said shaft being adapt-

ed to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of the shaft, a flexible sheath within which said shaft is rotatably confined, and one or more bearings for said shaft between its end within said sheath, substantially as and for the purpose set forth.

11. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, and a flexible tube within which said shaft is rotatably confined, substantially as and for the purpose set forth.

12. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible tube within which said shaft is rotatably confined, substantially as and for the purpose set forth.

13. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft, and a flexible internally-armored tube within which said shaft is rotatably confined, substantially as and for the purpose set forth.

14. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between

its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft and one or more bearings thereon between its ends, and a flexible tube closed at one end and within which said shaft is rotatably confined in said bearings, substantially as and for the purpose set forth.

15. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals between its ends with laterally-projecting strikers and adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft and one or more bearings thereon between its ends, and a flexible internally-armored tube closed at one end and provided with an opening adjacent thereto, within which tube said shaft is rotatably confined in said bearings, substantially as and for the purpose set forth.

16. As a new article of manufacture, an implement for mechanical vibratory treatment of the body, comprising, in combination, a flexible shaft provided at intervals with laterally-projecting strikers extending in spiral relation to each other along the length of the shaft, said shaft being adapted to be connected at one end, for its rapid rotation, with a motor, a journal-bearing on the opposite end of said shaft and one or more bearings thereon between its ends, and a flexible internally-armored tube closed and tapering at one end with an opening adjacent thereto and within which tube said shaft is rotatably confined in said bearings, substantially as and for the purpose set forth.

FENTON B. TURCK.

In presence of—

W. B. DAVIES,

WALTER N. WINBERG.