T. BOLLIN.

PORTABLE HAND INSTRUMENT FOR ABDOMINAL MASSAGES.

APPLICATION FILED DEC. 14, 1916.

1,234,860.

Patented July 31, 1917.

2 SHEETS—SHEET 1.

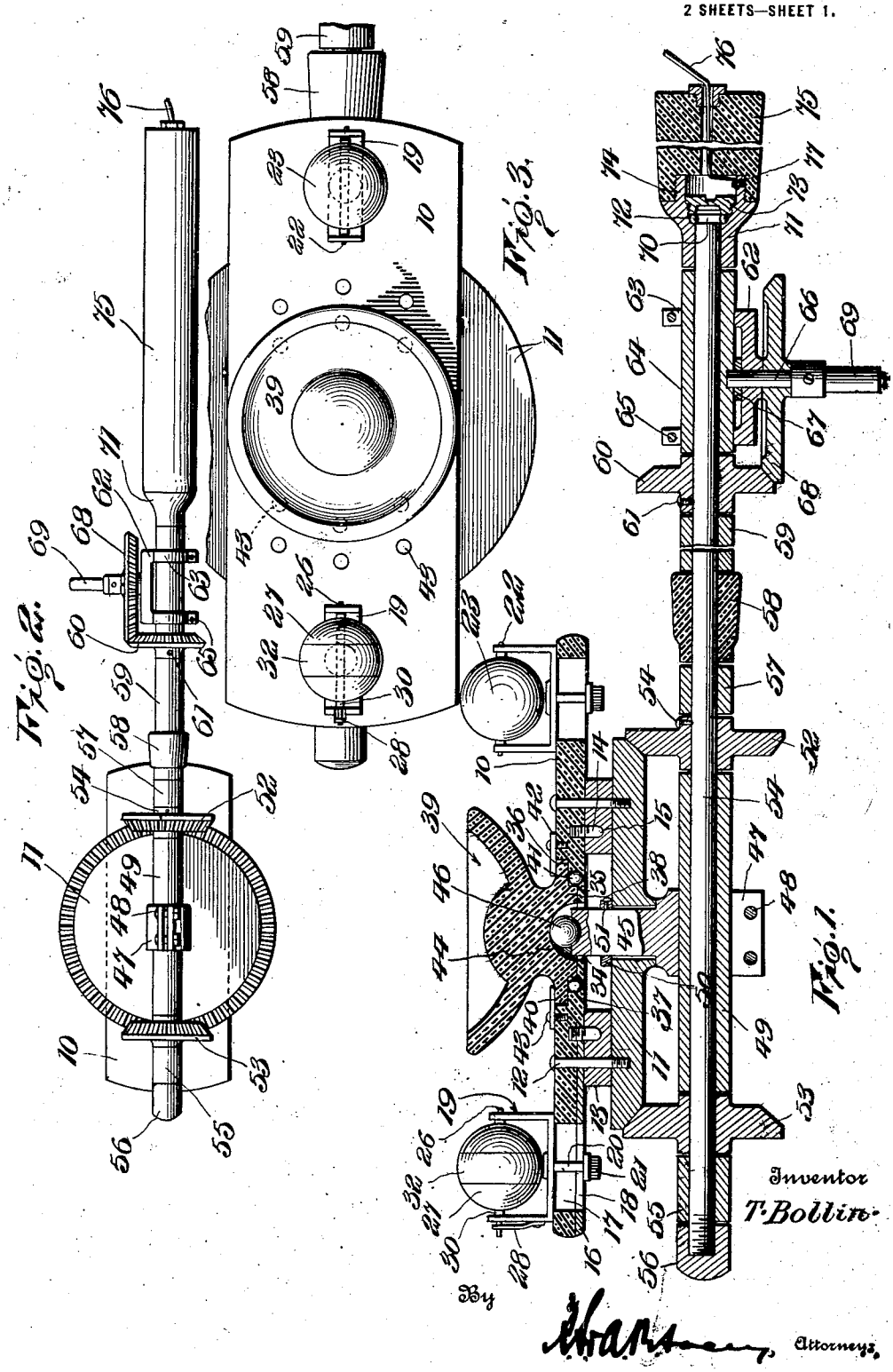


Fig. 2.

Fig. 3.

Fig. 1.

Inventor
T. Bollin.

By

Attorneys.

T. BOLLIN.

PORTABLE HAND INSTRUMENT FOR ABDOMINAL MASSAGES.

APPLICATION FILED DEC. 14, 1916.

1,234,860. Patented July 31, 1917.

2 SHEETS—SHEET 2.

Fig. 6.

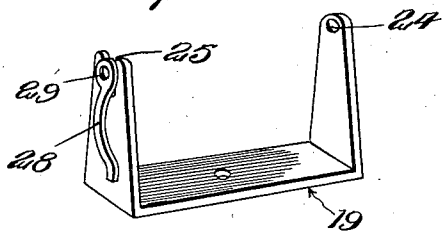


Fig. 5.

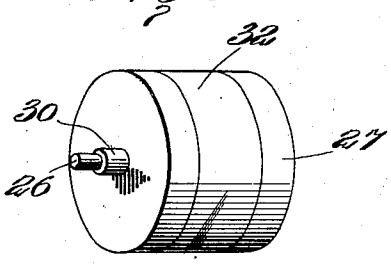


Fig. 4.

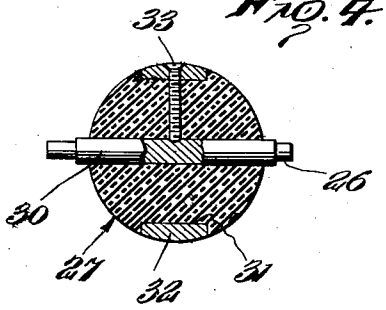
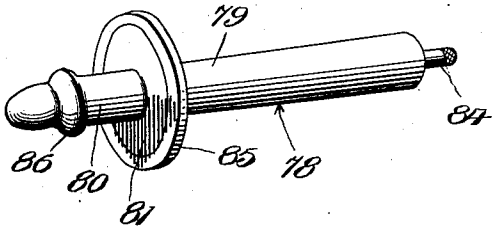


Fig. 7.



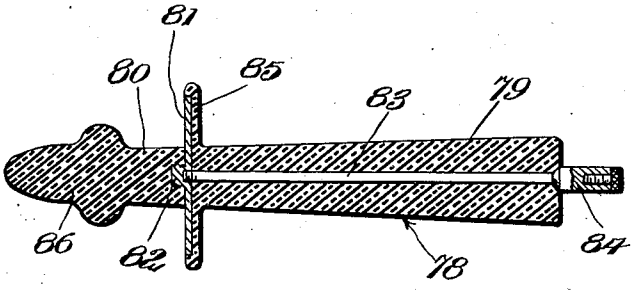


Fig. 8.

Inventor

T. Bollin.

By Hanson & Hanson, Attorneys.

UNITED STATES PATENT OFFICE.

THEODORE BOLLIN, OF OKMULGEE, OKLAHOMA.

PORTABLE HAND INSTRUMENT FOR ABDOMINAL MASSAGES.

1,234,860. Specification of Letters Patent. Patented July 31, 1917.

Original application filed April 25, 1916, Serial No. 93,424. Divided and this application filed December 14, 1916. Serial No. 137,029.

To all whom it may concern:

Be it known that I, THEODORE BOLLIN, a citizen of the United States, residing at Okmulgee, in the county of Okmulgee and State of Oklahoma, have invented certain new and useful Improvements in Portable Hand Instruments for Abdominal Massages, of which the following is a specification.

My invention relates to new and useful improvements in medical appliances, the primary object of my invention being the provision of an electrical massage device which is intended particularly for the treatment and curing of cases of chronic constipation and chronic diarrhea, the same apparatus being employed for either purpose but in a different manner. This invention is a division of a co-pending application for an electrical massage apparatus filed by me April 25, 1916, and bearing the Serial No. 93,424.

More specifically, my invention consists in the provision of a device having a suitable abdominal engaging portion and a plurality of massage rollers capable of being driven in a circular path about such portion in either direction, one of the massage rollers being provided with a current conducting surface. My apparatus further includes a rectal electrode which, with the conductor covered roller, form the electrodes of a faradic circuit, suitable means being provided for supplying proper current to the rectal electrode and for conducting current passing from this electrode through the body of the patient from the conductive covering of the roller electrode, the former electrode constituting the positive electrode and the latter the negative electrode of the circuit.

One of the primary objects of my present invention consists in the provision of a portable supporting and actuating apparatus for the abdominal engaging portion or body of the device and the correlated massage elements.

A still further object of my invention is to so arrange the apparatus that the abdominal engaging portion may remain stationary and in engagement with the patient being treated while the massage elements are driven about in a circular path in either direction, the driving means for such massage elements being operable manually from the handle portion of the instrument.

With these and other objects in view, my invention will be fully described, illustrated in the accompanying drawings and then specifically pointed out in the claims which are attached to and form a part of this application.

In the drawings:

Figure 1 is a central longitudinal sectional view of my improved instrument,

Fig. 2 is a bottom plan view of the instrument upon a smaller scale,

Fig. 3 is a fragmentary top plan view of the abdominal engaging portion and massage elements together with their supporting structure,

Fig. 4 is a sectional view of the massage roller having the conductive covering or sleeve,

Fig. 5 is a perspective view of a modified form of electrode forming massage roller,

Fig. 6 is a perspective view of the bracket for supporting the electrode forming roller,

Fig. 7 is a perspective view of the rectal electrode, and

Fig. 8 is a central longitudinal sectional view of the rectal electrode.

As best shown in Fig. 1 of the drawings, my present apparatus includes a substantially rectangularly shaped supporting body 10 of insulating material secured in spaced relation to the rear face of a beveled gear 11 by bolts 12 passed through the body, through spacer blocks 13 and threaded into the gear. Centering pins 14 are also threaded into the lower face of the body 10 and have their free ends seated in sockets 15 formed in the spacer blocks. This body member 10 is preferably formed of vulcanite or equivalent material and its lower face is provided with a longitudinally extending channel along one end to seat a conductor strip 16 of copper which is secured in its seat by any suitable means and which engages one of the spacer blocks 13 and one of the bolts 12 to form a conductor continuous with the gear 11, as will be later explained.

The end portions of the body member 10 are provided with alined longitudinal slots 17 one of which communicates with a corresponding slot 18 formed in the strip 16. This body 10 constitutes the massage ele-

ment carrying member of my device and U-shaped brackets 19 engage by their intermediate portions against the upper face of the body member near its ends, the intermediate portions of the brackets extending longitudinally of the body member and over the slots therein so that clamping bolts 20 passed through the intermediate portions of the brackets may pass through the slots and be secured by thumb nuts 21. Obviously, this arrangement permits adjustment of the brackets 19 toward and away from each other to space them a more or less distance from the center of the body member, as desired. The upstanding arms of one of these brackets are provided with horizontally alined openings to journal the trunnions 22 of a spherical massage element 23 which is thus rotatably supported in the bracket. The other bracket is identical in its construction except that while one upstanding arm is formed with an opening 24, its other arm is formed with a vertical slot 25 opening through its free end. Because of this, the trunnions 26 of a combined massage roller and electrode 27 are removably supported by the bracket. A leaf spring 28 is fixed at one end to the slotted arm of the bracket and is formed at its opposite end with an opening 29 to receive the adjacent trunnion of the roller 27 and lock it against outward movement from the slot 25, the intermediate portion of this spring being outwardly bowed to facilitate its application to or removal from such trunnion. This combined massage roller and electrode 27, as best shown in Fig. 4 of the drawings, has its body constructed of vulcanite, vulcanized rubber or other suitable non-conducting material. This body is in the form of a sphere and is mounted upon a diametrically extending shaft 30 upon the ends of which are formed the trunnions 26 previously mentioned. The face of the body member in a diametric plane at right angles to the shaft 30 is grooved or channeled as shown at 31 to seat a sleeve or ring 32 of copper or other suitable conducting material which is secured in place in the channel and in electrical connection with the shaft 30 by means of one or more locking screws 33. It should be noted that the outer face of this conductor ring is flush with and forms a continuation of the face of the massage roller 27. The other roller is formed entirely of non-conducting material and has no conductor ring.

The body member 10 is formed centrally with an opening 34, for a reason which will be later explained and surrounding this opening, the upper face of the body member is formed with concentrically disposed annular seats 35 and 36, the former providing a ball race 37. The shank portion 38 of an abdominal engaging member 39 engages against the inner seat 35 and is formed with a peripheral flange 40 resting upon the ball bearings 41 and projecting over the seat 35, a sectional retaining ring 42 secured by screws or other fastening devices 43 serving to prevent disengagement of the member 39 from the body 10. The lower end of the shank 38 is formed with a semi-spherical recess or socket 44 for a reason which will be later explained. The body proper of the member 39 is cup-shaped as clearly shown in Fig. 1 of the drawings and is formed interiorly with a protuberance which forms an additional abdominal engaging portion, the protuberance being spaced slightly below the marginal edge of the body as a whole.

A shaft 45 is formed at one end with a concavity to receive a ball bearing 46 which seats in the concavity 44 of the abdominal supporting member 39 and at its opposite end with a split clamping sleeve 47 which may be secured by clamping bolts 48 about a shaft bearing or sleeve 49. A collar 50 is secured about the shaft 45 by a set screw 51 or other equivalent fastening device in order that the shaft may be held against disengagement from the previously described parts of the structure and in order that the beveled gear 11 may be free to rotate about the shaft and yet be held against displacement.

Beveled pinions 52 and 53 are mounted upon a shaft 54 extending through the sleeve 49 in which it is journaled, one of these pinions being fixed to the shaft by a set screw 54 or other suitable means and the other being idly mounted upon the shaft. A spacer sleeve 55 engages against the idly mounted beveled pinion 53 and is held against it by a cap nut 56 threaded upon one end of the shaft 54, the shaft therefore being held against longitudinal movement through the sleeve 49 by the fixed pinion 52 and cap nut 56. A second spacer sleeve 57 engages against the fixed pinion and is in turn engaged by a handle forming sleeve 58 of insulating material such as vulcanized rubber or fiber. An additional spacer sleeve 59 engages against the other end of the handle forming sleeve 58 and engaging against this latter spacing sleeve is a beveled pinion 60 which is fixed to the shaft 54 by a set screw 61. A bracket 62 is provided, at its ends, with split clamping rings 63 which may be engaged about a bearing forming sleeve 64 by clamping screws 65. This sleeve 64 engages against the pinion 60 and is formed with a socket to receive one end of a shaft 66 which is rotatably journaled in the bracket and held against longitudinal movement by a collar 67. This shaft 66 carries a beveled gear 68 which meshes with the beveled pinion 60 and at its free end, carries a hand crank 69 by means

of which it may be rotated to transmit power from the gear 68 to the pinion 60 and shaft 54 and so through the pinion 52 to the beveled gear 11 and consequently to the massage roller and body member 10.

The free end of the shaft 54 is provided with a peripheral groove or ball race 70 and a collar 71 surrounds such end of the shaft and with the groove receives ball bearings 72 which are locked in place by a cap nut 73 threaded into the end of the collar and which in turn locks the collar against disengagement from the shaft. This collar is provided with a threaded extension 74 about which is threaded one end of a handle 75 of any suitable non-conducting material such as vulcanized rubber. This handle is provided axially with a passage to receive a covered conducting wire 76 which, at its inner end, is connected by a binding post 77 to the collar 71. It will therefore be clear that a continuous passage for electric current is provided from the contact ring 32 of the massage element 27 through its anchoring screw 33 and shaft 30 to the bracket 19 and contact strip 16, through one of the bolts 12 to the beveled gear 11, through the beveled pinions to the shaft 54, from the shaft 54 to the collar 71 and from this collar to the wire 76.

Coöperating with the above described portion of my medical apparatus is a positive rectal electrode as shown in Figs. 7 and 8 and indicated as a whole by the numeral 78. This electrode is made up of two substantially cylindrical body members 79 and 80 formed of vulcanized rubber or other suitable non-conducting material, the body members being so shaped and proportioned that when the electrode is assembled, it tapers somewhat from end to end. A contact disk 81 of copper or other suitable current conducting material is provided centrally with a threaded stud 82 which engages in a threaded socket formed in the larger end of the body member 80 and the members 79 and 80 are connected by means of a rod 83 of any suitable current conducting material which is passed axially through the body member 79 and is threaded into the socket formed in the disk 81 and its stud 82, the rod, at its outer end, being enlarged to provide a binding post 84 by means of which a covered conducting wire may be attached. The body member 79 is provided with a peripheral flange 85 which covers the rear face of the conductor disk 81 and which is extended to engage about the peripheral edge of said disk. The body portion 80 of the rectal electrode 78 is so shaped and proportioned that it may be inserted in the rectum of the patient and for this reason is provided with an annular enlargement or bulge 86 intermediate its length in order that it may be readily held in place within the rectum with the contact plate 81 in snug engagement with the sphincter muscle of the rectum.

If desired, a form of electrical massage element such as that shown in Fig. 5 may be employed instead of that shown in Fig. 4. The sole difference in construction consists in the shaping of the element as a whole, the one shown in Fig. 4 being spherical while the one shown in Fig. 5 is cylindrical and mounted to rotate about its axis. For this reason, the corresponding parts of the massage element shown in Fig. 5 have been given the same reference numerals as the parts shown in Fig. 4.

The method of employing my above described medical appliance is, as follows: The patient's colon may first be emptied by any suitable enema if deemed advisable. The positive electrode is then inserted in the patient's rectum and the abdominal engaging member 39 and massage elements held in engagement with the patient's abdomen by grasping the instrument by its handle 75. The hand crank 69 is then continuously and steadily revolved while currents of suitable strength preferably regulated by means of a rheostat is passed to the rectal electrode, through the patient to the massage element having the conductor ring and so through the circuit previously traced out back to the source of current. Preferably, the conductor ring 32 of the negative electrode and the exposed surface of the disk 81 of the positive electrode are covered with cloths moistened in a salt solution in order to insure good contact and at the same time not have the current too sharp. When treating a patient for constipation, care should be taken that the massage elements are turned from right to left in order that the negative electrode or roller may pass in a circular path over the patient's abdomen along the normal course of peristaltic motion of the intestines creating such a motion of the intestines or intensifying this motion to accomplish the desired result. It will, therefore, be seen that the massaging accomplished by my appliance tends to intensify proper muscular movement of the intestines or to cause such movement in case it is lacking and therefore operates to produce the desired result in the natural manner. Obviously, the same apparatus may be employed for treatment of chronic cases of diarrhea by reversing the direction of rotation of the massage element carrying body 10 in order that the massage elements may be rotated in a contra-peristaltic direction.

Obviously, the appliance may be employed for general massage purposes either with or without the discharge of current as preferred. Except in very severe cases of constipation, no enema should be employed and

in any event its use should be discontinued as soon as possible generally after the first or second treatments. Furthermore, in severe cases a combined galvanic and faradic current may be employed. In any event, it should be borne in mind that for treatment of constipation, the massage rollers must move in a circular path from the right to the left in order that the current supplied to the body may follow this path to escape.

Having thus described the invention, what is claimed as new is:

1. An electrical massage apparatus including a handle, a shaft supported by and in axial alinement with the handle and free to rotate with respect to the handle, means for rotating the shaft, a beveled pinion fixed to the shaft, a beveled gear supported in operative engagement with the pinion, a body member fixed to the beveled gear to rotate therewith, and massage elements supported by the body member.

2. An electrical massage apparatus including a handle, a shaft supported in axial alinement by the handle and free to rotate with respect to the handle, means for rotating the shaft, a beveled pinion fixed to the shaft, a beveled gear supported in operative engagement with the pinion, a body member fixed to the beveled gear to rotate therewith, massage elements supported by the body member, and means for supplying current to one of the massage elements.

3. An electrical massage apparatus including a handle, a shaft supported in axial alinement by the handle and free to rotate with respect to the handle, means for rotating the shaft, a beveled pinion fixed to the shaft, a beveled gear supported in operative engagement with the pinion, a body member fixed to the beveled gear to rotate therewith, massage elements supported by the body member, means for supplying current to one of the massage elements, and means for conducting current from the patient being massaged.

4. An electrical massage apparatus including a handle, a shaft supported in axial alinement by the handle and free to rotate with respect to the handle, means for rotating the shaft, a beveled pinion fixed to the shaft, a beveled gear supported in operative engagement with the pinion, a body member fixed to the beveled gear to rotate therewith, massage elements supported by the body member, means for conducting current from one of the massage elements, and means for conducting current to the patient being massaged, said means including an electrode adapted to be inserted in the rectum of the patient.

5. An electrical massage apparatus including a handle, a shaft rotatably carried by the handle, means located adjacent the handle for driving the shaft, a body member supported by the shaft and adapted to be rotated by driving of the shaft, and massage elements supported by the body, said massage elements being adjustable toward or away from the center of rotation of the body.

6. An electrical massage apparatus including a handle, a shaft rotatably carried by the handle, means located adjacent the handle for driving the shaft, a body member supported by the shaft and adapted to be rotated by driving of the shaft, massage elements supported by the body, said massage elements being adjustable toward or away from the center of rotation of the body, and an abdomen engaging member carried by the body at its center of rotation.

7. An electrical massage apparatus including a handle, a shaft rotatably carried by the handle, means located adjacent the handle for driving the shaft, a body member supported by the shaft and adapted to be rotated by driving of the shaft, massage elements supported by the body, said massage elements being adjustable toward or away from the center of rotation of the body, and an abdomen engaging member carried by the body at its center of rotation, said member having swiveled connection with the body whereby it may remain stationary while the body rotates.

8. An electrical massage apparatus including a handle, a shaft supported at one end by the handle and free for turning movement with respect thereto, manually operable means located adjacent the handle for turning the shaft in either direction, a body member supported adjacent the opposite end of the shaft and adapted to be rotated through driving of the shaft, massage elements supported by the body member adjacent the free end thereof, means for conducting current from one of the massage elements, and means for supplying current to a patient for massage including an electrode adapted to be inserted in the rectum of the patient.

9. An electrical massage apparatus including a handle, a shaft rotatably mounted with respect to the handle and supported thereby and in axial alinement therewith, means for rotating the shaft, spaced opposed beveled pinions on the shaft, one being fixed to the shaft and the other idly mounted thereon, a spacer sleeve holding the pinions in spaced relation, a stub shaft having one end secured to the sleeve and extending radially therefrom, a beveled gear journaled on the stub shaft and meshing with the pinions, means preventing movement of the beveled gear out of mesh with the pinions, a body member secured to the beveled gear, and massage elements carried by the body member.

10. An electrical massage apparatus in-

cluding a handle, a shaft supported by and in axial alinement with the handle and free for rotation with respect thereto, a beveled pinion fixed to the shaft, a bearing sleeve between the pinion and handle, a bracket secured about the sleeve, a stub shaft journaled in the bracket, a beveled gear carried by the stub shaft and meshing with the pinion, a hand crank carried by the stub shaft whereby the first shaft may be manually rotated, a body member supported adjacent the opposite end of the first shaft, means for transmitting motion from the first shaft to the body member to rotate it, massage elements supported by the body member, an electrode adapted to be inserted in the rectum of the patient to supply current to the patient's body, and means for conducting current from the patient's body and including a conductive member forming a portion of the surface of one of the massage elements, and an electrical connection with the first mentioned shaft.

In testimony whereof I affix my signature.

THEODORE BOLLIN. [L. S.]