F. K. NORTH.

MASSAGING DEVICE.

APPLICATION FILED NOV. 11, 1919.

1,377,140.

Patented May 3, 1921

2 SHEETS—SHEET 1.

Fig. 1.

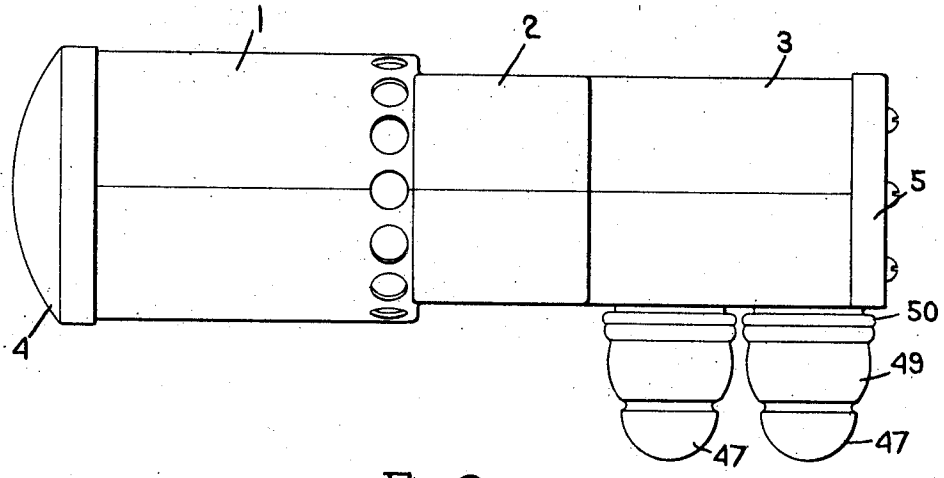
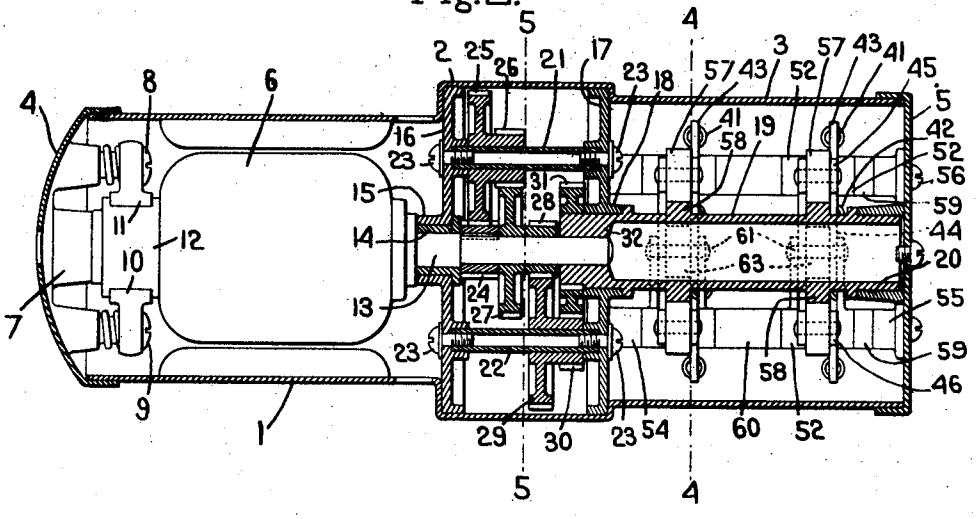


Fig. 2.



Inventor.

Frederick K. North

by Heard Smith & Tennant.

Attys.

F. K. NORTH.

MASSAGING DEVICE.

APPLICATION FILED NOV. 11, 1919.

1,377,140.

Patented May 3, 1921.

2 SHEETS—SHEET 2.

Fig.3.

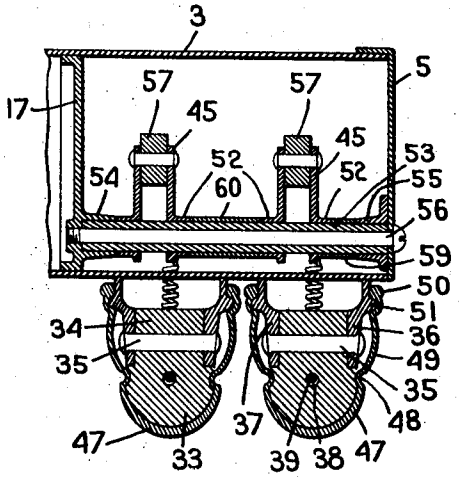


Fig.4.

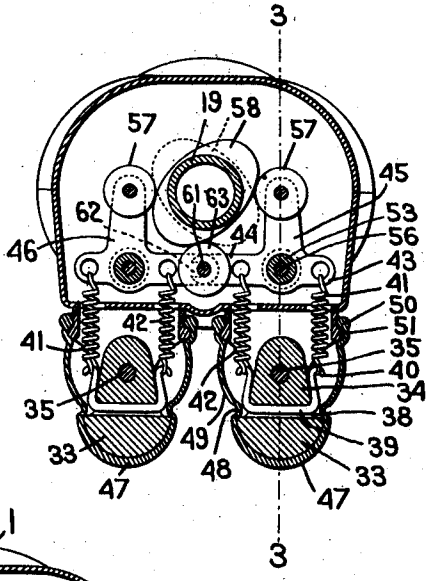
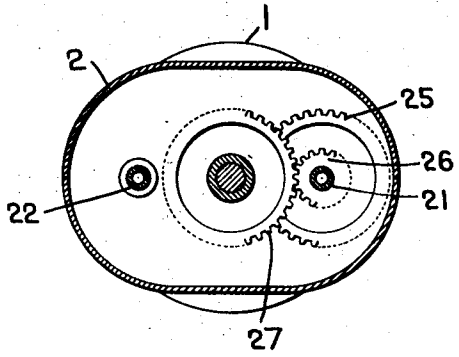


Fig.5.



Inventor.
Frederick K. North
by Heard Smith & Tennant.
Attys.

UNITED STATES PATENT OFFICE.

FREDERICK K. NORTH, OF CHICAGO, ILLINOIS.

MASSAGING DEVICE.

1,377,140. Specification of Letters Patent. Patented May 3, 1921.

Application filed November 11, 1919. Serial No. 337,355.

To all whom it may concern:

Be it known that I, FREDERICK K. NORTH, a citizen of the United States, and resident of Chicago, county of Cook, State of Illinois, whose post-office address is 1461 Foster avenue, Chicago, Illinois, have invented an Improvement in Massaging Devices, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to improvements in massaging apparatus and the object thereof is to provide a simple and effective massaging device which may be held in the hand and passed over portions of the body of a patient, the massaging instrumentalities being so actuated as to produce rubbing or kneading action which simulate the action of the fingers of a masseur.

A further object of the invention is to provide an electrically operated massaging device in which the motor is carried in the handle of the device and the massaging instrumentalities are operated directly from the motor shaft through suitable reducing gears.

A further object of the invention is to provide a novel form of massaging instrumentalities or fingers which are yieldably connected to suitable actuators thereby preventing the possibility of injury to the patient by undue force exerted upon the massaging instrumentalities.

A further object of the invention is to provide a massaging device in which the massaging instrumentalities can be readily sterilized.

Further objects and features of the invention will more fully appear from the following description and the accompanying drawings and will be pointed out in the annexed claims.

In the drawings:

Figure 1 is a side elevation of a massaging device embodying the preferred form of my invention.

Fig. 2 is a vertical longitudinal median sectional view of the device, the motor being shown in elevation.

Fig. 3 is a longitudinal vertical sectional view through the actuators and their actuating shaft,

Fig. 4 is a transverse vertical sectional view on lines 4—4 Fig. 2, and,

Fig. 5 is a transverse vertical sectional view on lines 5—5 Fig. 2.

The massaging device illustrated in the accompanying drawing comprises a casing, the body of which may be made of two substantially cylindrical sections, the abutting edges of which may be connected together by brazing or in any other suitable manner.

The casing comprises a handle portion 1 preferably cylindrical in form, a central portion 2 which may be broader than the handle portion and of less vertical height to receive the frame for supporting the motor shaft and an extension portion 3 preferably of somewhat less width than that of the portion 2 to support the massaging instrumentalities and the means for actuating the same.

The ends of the casing desirably are composed of heads 4 and 5 which are provided with flanges embracing the ends of the casing. A suitable electric motor 6 is mounted in the handle portion of the casing and desirably is supported at one end by a bracket 7 secured to the head 4 and provided with bosses for supporting brush carriers 8 and 9 upon which the brushes 10 and 11 for the motor commutator are pivoted.

At its opposite end the motor shaft 13 is supported in a journal 14 in a cylindrical boss 15 on one of a pair of frame members 16, 17 which support speed reducing mechanism by which power is transmitted directly from the motor shaft to a cam shaft which actuates the massaging instrumentalities. The frame member 17 is provided with a boss 18 forming a journal for one end of the cam shaft 19 which actuates the massaging instrumentalities, the opposite end of said cam shaft being journaled in a bracket 20 secured to, or formed integral with the head 5 of the casing. The frame members 16, 17 are spaced apart by hollow shafts 21 and 22, which are seated in suitable bosses in the members 16, 17 and are rigidly secured thereto by screws 23. The hollow shafts 21 and 22 act both to secure the frame members 16 and 17 together and also as shafts for the members of the train of reducing gears through which the motor drives the cam shaft 19.

The train of reducing gearing illustrated herein comprises a pinion 24 upon the motor shaft which engages a larger gear 25

rotatably mounted upon the shaft 21 and having a hub provided with an integral smaller gear 26 which in turn meshes with a larger gear 27 rotatably mounted upon the motor shaft.

The gear 27 is provided with an extended hub having a gear 28 which meshes with a gear 29 upon the shaft 22. The gear 29 likewise has a hub provided with a gear 30 which meshes with a gear 31 fixedly secured to the end 32 of the cam shaft 19 which desirably is made hollow throughout the major portion of its length in order to decrease the weight of the device. The end of the motor shaft 13 desirably extends into the end 32 of the shaft 19 thus forming an axial connection between the motor shaft and the cam shaft which will prevent relative lateral vibration and insure proper driving of the cam shaft by the motor.

The massaging devices desirably are in the form of fingers preferably of wood and of general triangular shape having a convexedly curved bottom portion 33, the triangular portion 34 extending upwardly therefrom being mounted upon shafts 35 journaled in extensions 36 of cylindrical brackets 37 fixedly secured to the under surface of the casing extension 3. The finger members 33 are provided with transverse apertures 38 which receive U-shaped supporting members 39 having curved or hooked ends 40 which are engaged by springs 41, 42 which are connected respectively to apertures in oppositely extending arms 43, 44 of actuators 45, 46.

The fingers 33 desirably present convex, preferably spherical, flesh engaging ends and are inclosed in a sheath 47 of rubber or other similar resilient material which fits around the convex end portions 33 and is provided with a constriction 48 which serves to retain them tightly embracing the convex ends. The sheathing preferably is provided with a somewhat enlarged body portion 49 which has at its upper end a bead 50 which engages behind a complementary bead 51 upon the bracket 36 thereby removably securing the sheathing to the casing and around the finger member. The enlarged flexible body portion 49 permits the lateral vibration of the convex end portions of the massaging instrumentalities, while excluding dust from the mechanism which actuates it.

The actuators desirably are in the form of inverted T-shaped members which for convenience in construction may each be made in two parts having respectively bosses 52 which form bearings for mounting said actuators upon the shaft 53. This shaft may be in the form of a sleeve carried by bosses 54, 55 projecting respectively from the frame member 16 and from the head 5 of the casing, a screw threaded rod 56 extending through said sleeve shaft 53 and anchored in the member 17 of the frame serves to fasten the head 5 firmly upon the end of the casing extension 3. By removing the rod 56 oil can be introduced through the sleeve shaft 53 to lubricate the reducing gears. The head 5 may also be provided with a central oil duct through which oil may be supplied to the hollow cam shaft to lubricate the driving shaft, a screw being used to close said duct. The vertical arms of the T-shaped members are connected together by studs upon which suitable antifriction rollers 57 are mounted which engage cams 58 upon the cam shaft 19. The actuators for the various massaging instrumentalities may be spaced apart by sleeves 59 and 60 upon the sleeve shaft 53, the spacing sleeves being of sufficient length to position the actuators in proper relation to the massaging instrumentalities. The adjacent ends of the inwardly extending arms 44 of the actuators overlap and are movably connected together by a stud 61 fixedly secured to one set of inwardly extending arms, said stud 61 engaging the slot 62 in the end of the other horizontally extending arm. An antifriction roller 63 journaled upon the stud 61 also engages the cam 58 and serves to oscillate the actuator in the opposite direction from that in which it is moved by the antifriction roller 57.

In the operation of the device the rotation by the motor 6 of its shaft 13 transmits a reduced rotary movement to the cam shaft 19. As the cam shaft rotates the cams 58 engage the antifriction rollers 57 on the vertical arms of the actuators 45 and 46, thereby oscillating said actuators about their pivotal supports 53 and simultaneously depressing the arms 43 and raising the arms 44. The cams 58 however, are so constructed as to engage the roller 63, thereby pressing upon the ends of the arms 44 and oscillating the actuators 45 and 46 in the opposite direction to that in which it is oscillated through the antifriction rollers 57.

Inasmuch as the arms 43 and 44 of the actuators are connected through the springs 41 and 42 with the U-shaped member 39 of the massaging instrumentality, the latter will be vibrated laterally of the axis of the device. The massaging instrumentalities are arranged in pairs so that they will be caused alternately to approach toward and recede from each other, thereby exerting a rubbing or kneading action as they are applied to the flesh of the patient being treated. The massaging device desirably is provided with a plurality of pairs of massaging apparatus and actuators for operating the same, the cams 58 for the successive pairs of actuators being disposed in angular relation to each other and operating in such a manner as to cause the pairs of massaging instrumentali-

ties to approach toward and recede from each other in progressive relation, thereby further simulating the action of the fingers of a masseur, for in massaging operations it is desirable that the rubbing or kneading treatment shall be so applied as to force the blood from the muscles in one direction, preferably toward the heart. By reason of the progressive rubbing or kneading movements of the massaging instrumentalities of the present device the same general action may be obtained, as the instrument is moved along the part of the body being treated, as that produced by the masseur.

The flexible and resilient sheathing for the massaging members prevents injury to the skin and the yieldability of the massaging instrumentalities provided by the springs 41 and 42 prevent the possibility of the flesh being pinched so tightly between the massaging members as to produce injury either to the skin or muscles.

It will thus be seen that the present massaging device is adapted to perform the usual massaging operation in a manner which very closely simulates manual massaging. The device can be readily applied by the patient himself to the greater part of his body and the massaging operation may be accomplished much more rapidly than manually.

The rubber sheathing for the massaging instrumentalities permits the use of salves or ointments which will prevent irritation of the skin and also enables the device to be used to facilitate the introduction of ingredients into the system of the patient. After each use the device can be thoroughly sterilized without injury to any of its parts.

It will be understood that the embodiment of the invention disclosed herein is of an illustrative character and is not restrictive and that various modifications may be made within the spirit and scope of the following claims.

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

1. A massaging device comprising a pair of massaging instrumentalities and actuating means having resiliently yieldable connection with said instrumentalities operating through said resiliently yieldable connection to cause said instrumentalities alternately to approach toward and recede from each other.

2. A massaging device comprising a pair of pivotally mounted massaging instrumentalities, a pivotally mounted actuator yieldably connected to each of said instrumentalities and means for moving said actuators in opposite directions whereby said instrumentalities will be alternately caused to approach toward and recede from each other.

3. A massaging device comprising a pair of pivotally mounted massaging instrumentalities, a pivotally mounted actuator for each massaging instrumentality having arms yieldably connected respectively to opposite sides of said massaging instrumentality and means for simultaneously oscillating said actuators in opposite directions to cause said massaging instrumentalities alternately to approach toward and recede from each other.

4. A massaging device comprising a plurality of pairs of massaging instrumentalities, a pivotally mounted actuator yieldably connected to each of said massaging instrumentalities, means for oscillating the actuators to cause the members of each pair of instrumentalities to approach toward and recede from each other and for causing the members of adjacent pairs to move in progressively timed relation whereby a progressive massaging movement may be effected as the device is moved along the part of the body being treated.

5. A massaging device comprising a plurality of pairs of pivotally mounted massaging instrumentalities, pairs of pivotally mounted actuators yieldably connected respectively to corresponding members of the pairs of instrumentalities, means for oscillating the pairs of actuators in timed relation to cause the members of said pairs of massaging instrumentalities to approach toward and recede from each other in progressively timed relation.

6. A massaging device comprising a casing having a handle portion and an extension, a frame intermediate of said handle and extension providing a journal for the shaft of said motor, a driving shaft in said extension, a plurality of massaging devices pivotally mounted upon the casing, actuators yieldably connected to said massaging instrumentalities, and cams on said driving shaft for progressively oscillating said actuators.

7. A massaging device comprising a handle portion and an extension, an electric motor mounted in said handle portion, massaging instrumentalities pivotally mounted on said extension, a pivotally mounted actuator for each of said instrumentalities having horizontal arms yieldably connected respectively to opposite sides of said massaging instrumentalities and having an upwardly extending arm, a driving shaft having eccentrics engaging said upwardly extending arm and means for rotating said shaft from said driving shaft.

8. A massaging device comprising a casing having a handle portion and an extension, a frame intermediate of said handle and extension providing a journal for the shaft of said motor, a driving shaft journaled in said frame, an extension arranged in axial alinement with the motor shaft, reducing gears for transmitting motion from said motor shaft to said driving shaft, a

plurality of pairs of massaging instrumentalities carried by said extension and means for actuating said massaging instrumentalities from said driving shaft.

9. A massaging device comprising a casing having a handle portion and an extension, a frame intermediate of said handle and extension providing a journal for the shaft of said motor, a driving shaft journaled in said frame, an extension arranged in axial alinement with the motor shaft, reducing gears for transmitting motion from said motor shaft to said driving shaft, a plurality of pairs of massaging instrumentalities carried by said extension and means for actuating said massaging instrumentalities from said driving shaft including a series of pairs of oppositely disposed cams operable to cause the members of the pairs of massaging instrumentalities alternately to approach toward and recede from each other.

10. A massaging device comprising a casing having a handle portion and an extension, a frame intermediate of said handle and extension providing a journal for the shaft of said motor, a driving shaft journaled in said frame, an extension arranged in axial alinement with the motor shaft, reducing gears for transmitting motion from said motor shaft to said driving shaft, a plurality of pairs of massaging instrumentalities carried by said extension and means for actuating said massaging instrumentalities from said driving shaft including a series of pairs of oppositely disposed cams operable to cause the members of the pairs of massaging instrumentalities alternately to approach toward and recede from each other, the cams for actuating successive pairs being so disposed as to move the massaging instrumentalities of one pair of members in the opposite direction to the movement of corresponding members of the next adjacent pair of massaging members.

11. A massaging device comprising a plurality of opposed pivotally mounted massaging instrumentalities presenting spherical flesh engaging ends, actuators yieldably connected to said massaging instrumentalities and means for operating said actuators to cause said massaging instrumentalities alternately to approach toward and recede from each other.

12. A massaging device comprising a casing having brackets extending downwardly therefrom, massaging instrumentalities pivotally mounted in said brackets, a flexible sheathing inclosing said massaging instrumentalities and said brackets and means for acuating said massaging instrumentalities to cause the same to approach toward and recede from each other.

13. A massaging device comprising a casing having brackets extending downwardly therefrom provided with beaded cylindrical portions, massaging instrumentalities pivotally mounted upon said brackets, a flexible sheathing inclosing said massaging instrumentalities and having means engaging the body portions of said brackets and means for actuating said massaging instrumentalities to cause the same to approach toward and recede from each other.

In testimony whereof I have signed my name to this specification.

FREDERICK K. NORTH.