C. B. HARDY AND K. E. GIBSON.

MECHANICAL MANIPULATING MECHANISM.

APPLICATION FILED NOV. 13, 1917.

1,303,475.

Patented May 13, 1919.

4 SHEETS—SHEET 1.

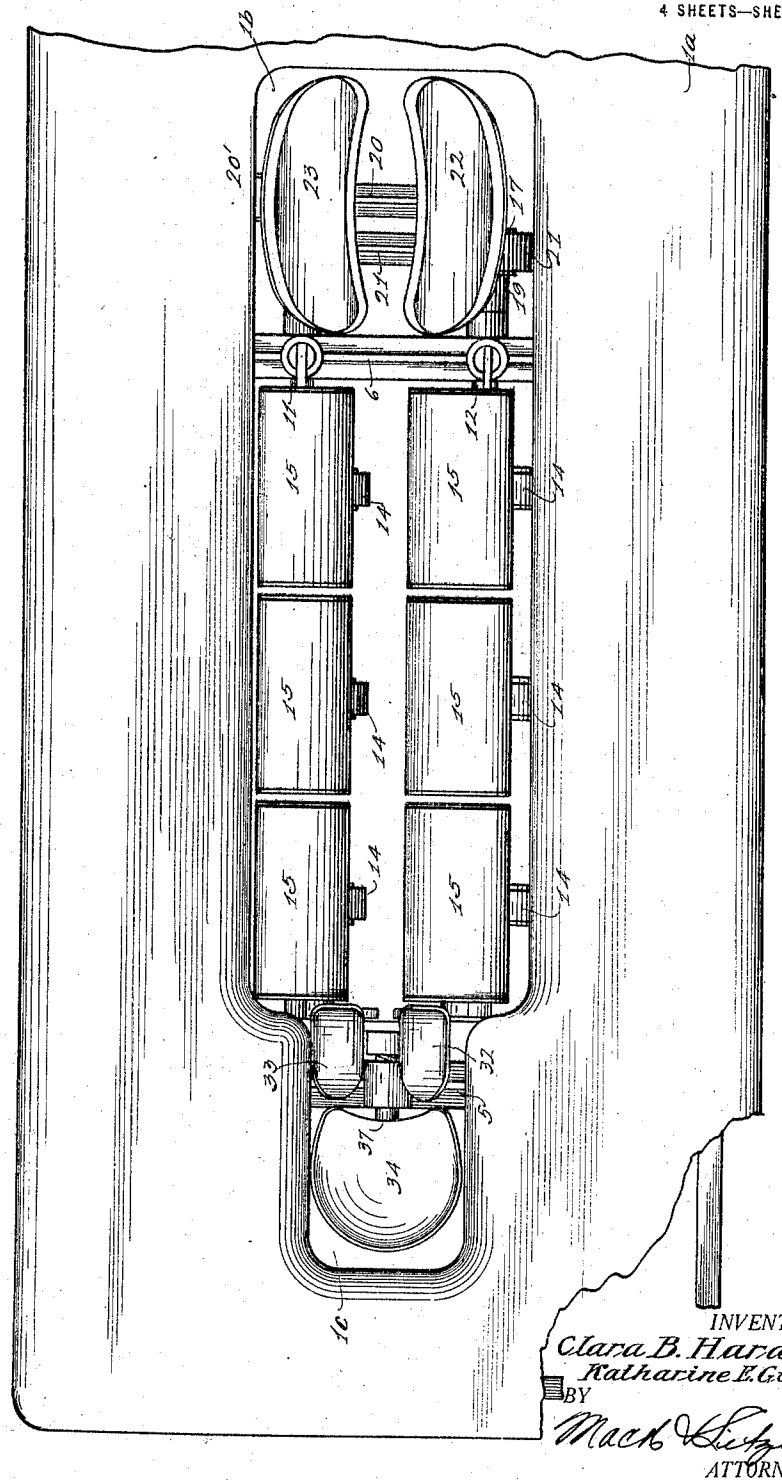


Fig. 1

INVENTORS
Clara B. Hardy and
Katharine E. Gibson
BY
Mack & Siegenburg
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. B. HARDY AND K. E. GIBSON.

MECHANICAL MANIPULATING MECHANISM.

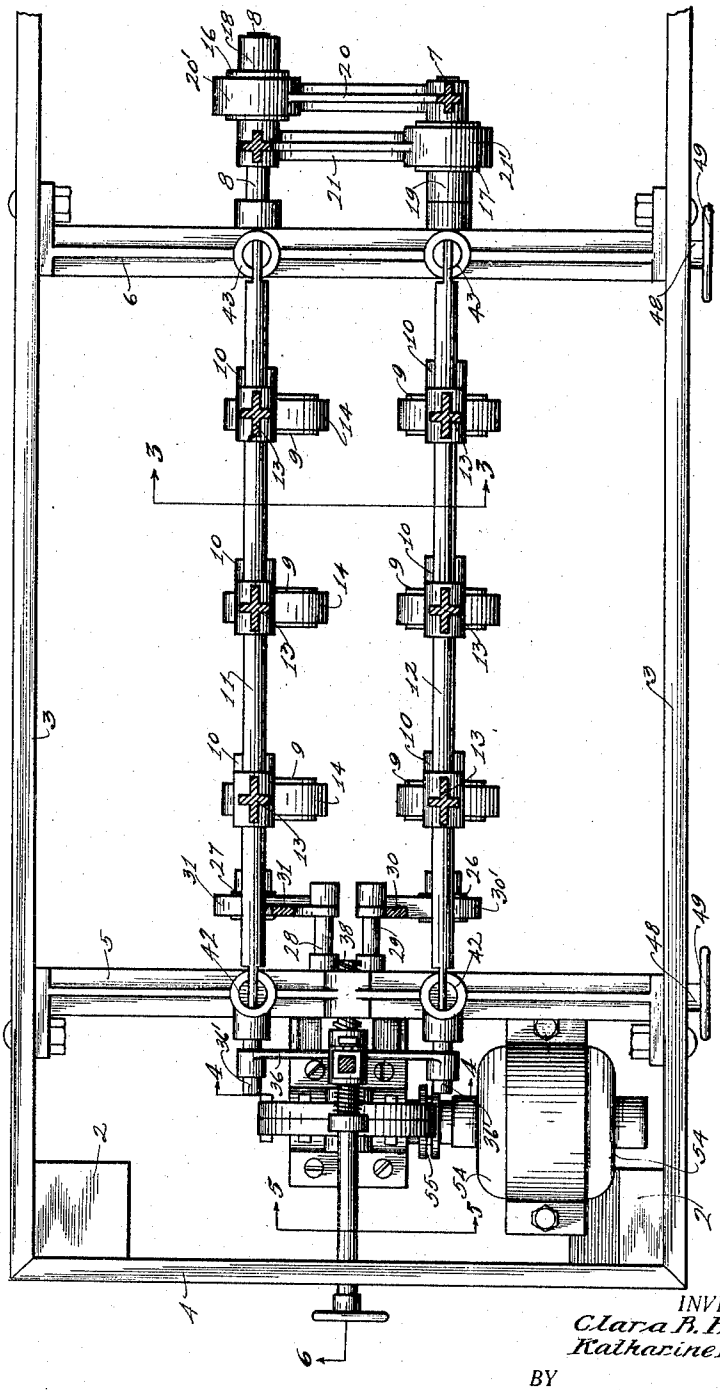
APPLICATION FILED NOV 13, 1917.

1,303,475.

Patented May 13, 1919.

4 SHEETS—SHEET 2.

Fig. 2



INVENTORS
Clara B. Hardy and
Katharine E. Gibson

BY
Mack & Leitzenberg
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

C. B. HARDY AND K. E. GIBSON.

MECHANICAL MANIPULATING MECHANISM.

APPLICATION FILED NOV. 13, 1917.

1,303,475.

Patented May 13, 1919.

4 SHEETS—SHEET 3.

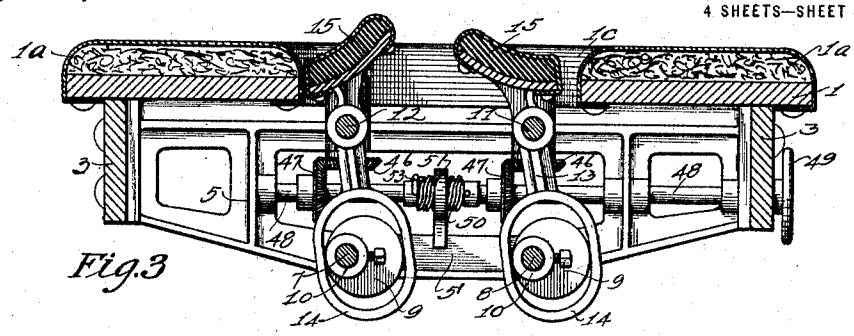


Fig.3

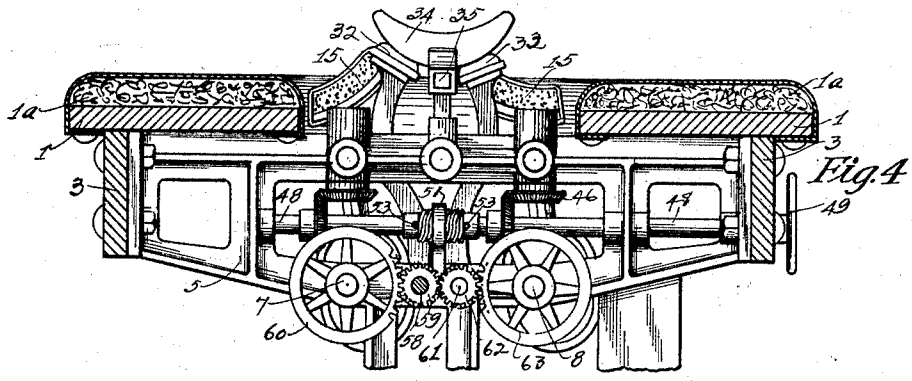


Fig.4

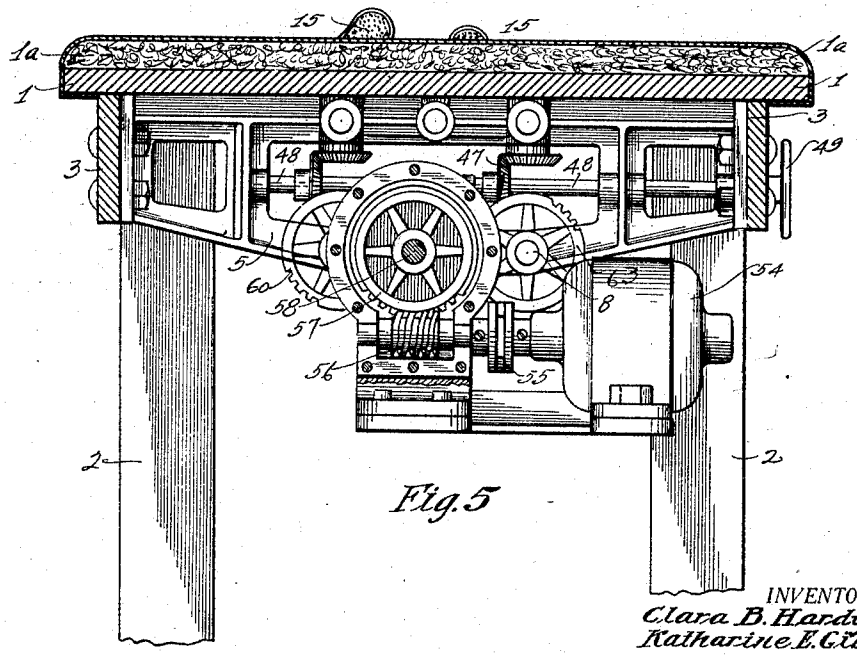


Fig.5

INVENTOR.
Clara B. Hardy and
Katharine E. Gibson
BY
Mack Fitzenberg
ATTORNEY.

NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON.

C. B. HARDY AND K. E. GIBSON.

MECHANICAL MANIPULATING MECHANISM.

APPLICATION FILED NOV. 13, 1917.

1,303,475.

Patented May 13, 1919.

4 SHEETS—SHEET 4.

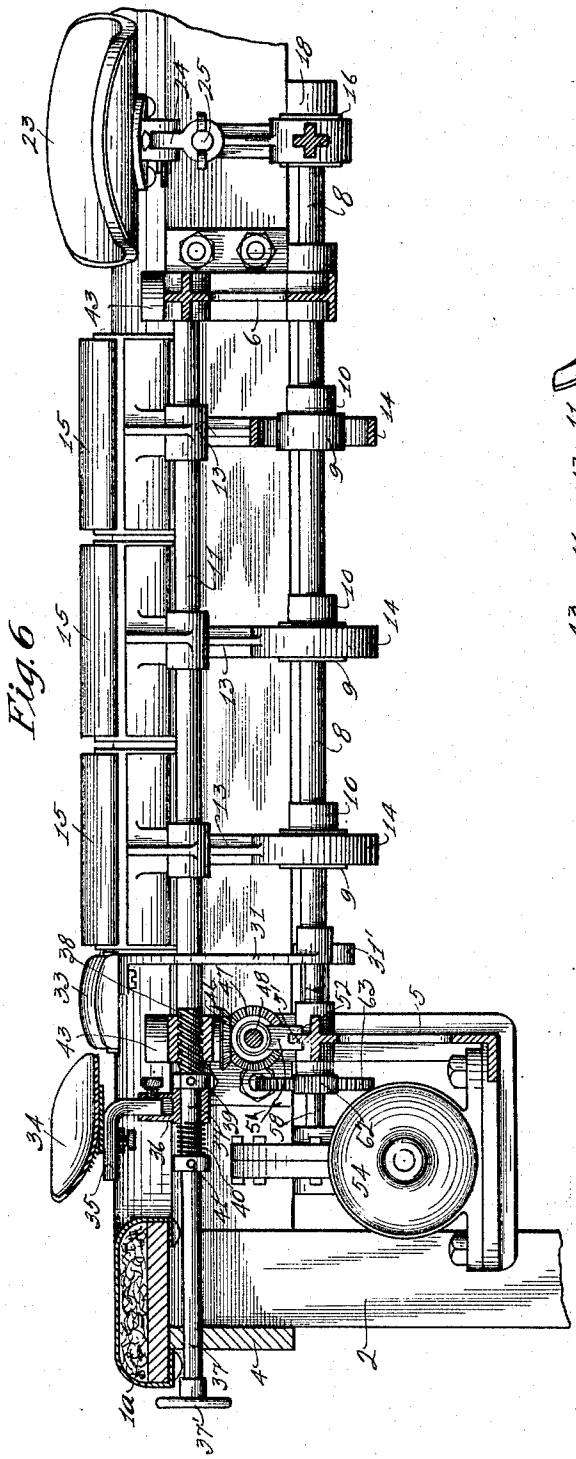


Fig. 6

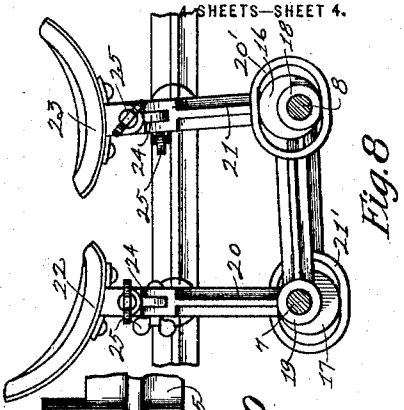


Fig. 8

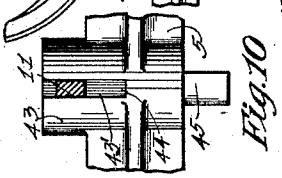


Fig. 10

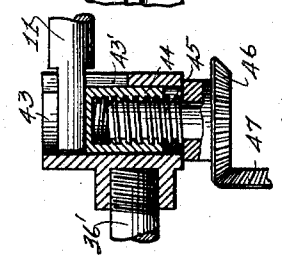


Fig. 9

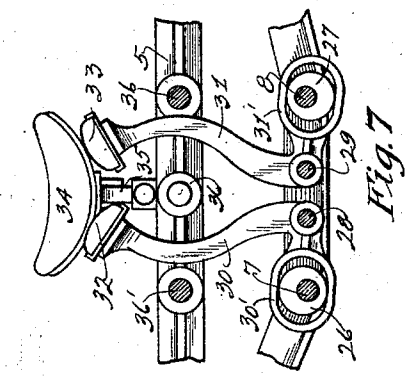


Fig. 7

INVENTOR.
Clara B. Hardy and
Katharine E. Gibson
BY
Mack & Leitzenberg
ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CLARA B. HARDY AND KATHARINE E. GIBSON, OF LOS ANGELES, CALIFORNIA.

MECHANICAL MANIPULATING MECHANISM.

1,303,475. Specification of Letters Patent. Patented May 13, 1919.

Application filed November 13, 1917. Serial No. 202,059.

To all whom it may concern:

Be it known that we, CLARA B. HARDY and KATHARINE E. GIBSON, citizens of the United States, residing in the city of Los Angeles, county of Los Angeles, and State of California, have invented certain new and useful Improvements in Mechanical Manipulating Mechanisms, of which the following is a specification.

Our invention relates to mechanical manipulating mechanisms of the character referred to in our pending application, filed October 24, 1917, Serial Number 199,373, and has among its salient objects to provide an improved machine by means of which the human body can be mechanically massaged throughout the full length of the trunk thereof, including the neck and the hips; to provide in a mechanism of the character referred to manipulating means, or applicators, which can be adjusted and regulated in their operating movements, whereby to secure the best results; and in general, to provide a simple and effective mechanical manipulating mechanism of the character referred to, and by means of which the different parts of the body can be subjected to a thorough massaging treatment.

In order to explain our invention, we have illustrated one practical embodiment thereof on the accompanying four sheets of drawings, which we will now describe.

Figure 1 is a top plan view of one embodiment thereof;

Fig. 2 is a horizontal sectional view thereof taken below the table top and the applicators;

Fig. 3 is a vertical cross sectional view thereof taken through the machine at the line 3—3, on Fig. 2;

Fig. 4 is a similar view thereof taken at the line 4—4, on Fig. 2;

Fig. 5 is a similar view taken on the line 5—5, on Fig. 2;

Fig. 6 is a vertical longitudinal sectional view through the machine;

Fig. 7 is a fragmentary vertical sectional view showing the neck applicators and the head rest;

Fig. 8 is an end view showing the hip applicators, as seen from the right hand end of Fig. 6;

Fig. 9 is a sectional view of a detail of certain operating mechanism; and

Fig. 10 is a side elevation from the right hand side of the parts shown in Fig. 9.

Referring now more in detail to the drawings, our invention as illustrated, comprises a table structure having the top 1, the leg members 2, 2, the side members 3, 3, and the end members 4, 4. The top 1 is detachable and is preferably upholstered, as indicated at 1^a. Said table top is also provided with a central, longitudinally extending, opening therethrough, designated at 1^b, which opening is reduced in width near the head, as at 1^c.

Mounted between the side members 3, 3, crosswise of the table are two supporting and bearing frames 5 and 6, as clearly shown.

Mounted in suitable bearings in said supporting frames 5 and 6, and extending longitudinally of said table are two operating shafts 7 and 8, each provided with a plurality of eccentric members, designated 9, 9, and each having a hub portion 10, by means of which it is secured to its shaft, as clearly shown in Figs. 3 and 6. Also mounted in said supporting frames 5 and 6, longitudinally of said table and above the shafts 7 and 8, are two supporting shafts, 11 and 12, upon which are pivotally mounted applicator members 13, 13, the lower ends of which are formed into loops as 14, 14, around the eccentric members 9, 9, as clearly indicated in Figs. 3 and 6. Mounted upon the upper ends of said applicator members 13, 13 are manipulating elements 15, 15, which are made of soft material, such as sponge rubber, or other suitable material. Thus it will be observed that as said operating shafts 7 and 8, and their eccentrics 9, 9, are turned, said manipulating element will be alternately oscillated or rocked in such manner as to impart a massaging stroke to the spinal column, from the center outwardly, those on one side operating alternately with those on the other side.

As indicated on the drawings, the eccentrics on the shafts 7 and 8 are so mounted that the manipulators operated by one of said shafts are operated together, although it will be evident that the eccentrics 9, 9, can be turned on their shafts to any position, so

as to get any desired manipulating movements of said manipulators; that is, they can be adjusted so that said manipulators will be operated together in unison, or alternately, as desired.

Secured to the lower ends of said operating shafts 7 and 8, are similar eccentrics 16 and 17, having hub portions 18 and 19, as shown in Figs. 6 and 8. Mounted on said shafts 7 and 8, respectively, are bell crank members 20 and 21. The bell crank lever 20 is provided at the end of its lower arm with a loop 20′, which is positioned around the eccentric 16, on the shaft 8, while the bell crank 21 is provided at the end of its lower arm with a loop 21′, around the eccentric 17, on the shaft 7, as will be clear from Fig. 8. Mounted on the upper ends of said bell cranks 20 and 21, respectively, are hip manipulators 22 and 23, said manipulators being secured to the upper ends of their respective bell cranks by means of universal joints, as at 24, 24, whereby said hip manipulators 22 and 23 can be tilted to different positions and there locked, as by means of thumb nuts 25, 25.

Mounted on the opposite ends of said shafts 7 and 8, near the supporting frame 5, as shown in Figs. 2, 6 and 7, are eccentrics 26 and 27. Projecting from said supporting frame 5, are two supporting studs 28 and 29, Fig. 2, upon the outer ends of which are mounted bell crank members 30 and 31, Fig. 7, the bell crank 30, being provided with a loop 30′ around the eccentric 26, and the bell crank 31, being provided with a loop 31′ around the eccentric 27. The upper end of said bell cranks 30 and 31, constitute neck manipulators, and are provided with manipulating elements, 32 and 33, made of suitable soft materials, and positioned so as to engage the neck of the patient, as will be clear from Figs. 1 and 6. Mounted near said neck manipulators, 32 and 33, is a head support 34, adjustably mounted upon a supporting neck 35. Said neck 35 is preferably squared to prevent its turning, and is also adjustably supported in a cross yoke 36, as shown in Figs. 2 and 6, the opposite ends of which are slidably supported on short studs 36′, secured in the side of the supporting frame 5. Said cross yoke 36 is slidably mounted in its middle on a rod 37, the inner end of which is provided with a screw 38, Fig. 2, which operates through the supporting frame 5. A collar 39 is mounted on said rod 37, in front of the yoke 36, while a coiled spring 40 is mounted on said rod in the rear thereof, and bears against a collar 41, whereby said yoke 36 with the head support 34, is not only adjustable longitudinally of the table, but is yieldingly mounted on said rod 37. Said rod 37 is provided at its outer end with an operating button 37′, whereby the head rest 34 can be adjusted relative to the neck manipulating members, as desired.

In order to adjust the manipulating members 15, 15, vertically, the opposite ends of the supporting shafts 11 and 12 are adjustably mounted in vertical bearing boxes 42, 42, and 43, 43, each of which is provided in its side with a vertical slot, as at 43′, Figs. 9 and 10, through which project the ends of the shafts 11 and 12, which are shaped for that purpose. Mounted in each of said bearing boxes 42, 42, and 43, 43, is a supporting member, as 44, adapted to be raised and lowered by means of a screw 45, provided at its lower end with a beveled gear 46, which meshes with a beveled gear 47, on an operating rod 48, provided at its outer end with an operating button 49, whereby the ends of the shafts 11 and 12, supported in the boxes 42, 42, can be manually raised and lowered together at will. It will be understood that the same mechanism is applied to bearing boxes 43, 43, so that the opposite ends of said shafts 11 and 12 can be raised and lowered as desired. In order to limit the raising and lowering movements of these shafts in the manner described, the operating rods 48 are provided intermediate their ends as shown in Figs. 3, 4, and 6, with a worm sleeve 50 on which is mounted a traveling yoke 51, bifurcated at its lower end, as at 52, whereby it slides on a web portion 5′, of the supporting frame 5. Said worm sleeve 50 is provided with stop pins 53, 53, Fig. 4, whereby to limit the travel movement of said yoke 51, and thereby lock the operating rod 48 against further rotation, limiting the vertical adjustment of the manipulators 15, 15.

We will next describe the operating mechanism by means of which the operating shafts 7 and 8 are driven.

A motor 54 is supported beneath the table top and is connected by means of a coupling 55 with a worm 56, operating a worm gear 57, mounted upon a short shaft 58, supported in the supporting frame 5, and which might be made as an extension of the shaft 28, projecting from the opposite side of said supporting member 5, as shown in Fig. 2. Mounted on said shaft 58 behind the worm gear 57, is a pinion 59, which meshes with and drives a gear 60, mounted on the shaft 7. Mounted on a short stud 61, is a pinion 62, which meshes with the pinion 59, and with the gear 63, mounted on shaft 8. Thus by these connections from the motor 54, said operating shafts 7 and 8 are driven by their gears 60 and 63, as clearly shown in Fig. 4.

We claim:

1. In a device of the character referred to, a structure for supporting the human body in a reclining position, operating and supporting shafts mounted in said structure, one

above the other, laterally oscillatable applicator elements mounted on said supporting shafts, eccentrics mounted on said operating shafts and operatively connected with said applicator elements, manipulating elements carried by said applicator elements, and means for rotating said operating shafts.

2. In a device of the character referred to, a supporting structure, manipulating elements movably mounted in positions to engage the back of a human body supported thereon, manipulating elements movably mounted in positions to engage the hips, operating elements mounted in said structure, and operating connections therefrom to said back and hip manipulating elements, said operating connections being adapted to operate the hip manipulating elements in one way and the back manipulating elements in another way, substantially as described.

3. In a device of the character referred to, a supporting structure, manipulating elements movably mounted in positions to engage the back of the human body supported thereon, manipulating elements movably mounted in positions to engage the neck at opposite sides thereof, and means for operating said manipulating elements with an alternating massaging action, substantially as described.

4. In a device of the character referred to, a supporting structure, laterally oscillatable body manipulating elements having their axes disposed in planes along the opposite sides of the median line thereof, means for operating the same, and vertically and longitudinally adjustable means for supporting the head during the operation of said elements.

5. In a mechanical manipulating mechanism, a supporting structure for supporting a human body in a reclining position thereupon, a supporting shaft mounted therein, an operating shaft mounted therein, means for driving the same, applicator members pivotally mounted on said supporting shaft, said supporting shaft being adjustable relative to the supporting structure, and operating connections from the operating shaft to said applicator members, whereby to operate the same for the purpose of massaging the human body resting thereupon.

6. In a mechanical manipulating mechanism, a supporting structure for supporting a human body in a reclining position thereupon, parallel supporting shafts mounted therein, means for adjusting said supporting shafts vertically, parallel operating shafts, mounted in said structure below said supporting shafts, means for driving the same together, applicator members movably supported on the supporting shafts and operatively connected with the operating shafts, whereby they are given a manipulating movement with the operating of said operating shafts, substantially as described.

7. In a mechanical manipulating mechanism, a supporting structure for supporting the body in a reclining position thereupon, parallel supporting shafts adjustably mounted in said structure, parallel operating shafts supported in said structure, means for operating the same, applicator elements carried by said supporting shafts, operating connections thereto from said operating shafts, and manipulating elements carried by said applicator elements, said operating means being adjustable for regulating the application of said elements to the body, substantially as described.

8. In a machine of the character described, applicator elements supported in parallel positions, spaced supporting frames therefor, parallel rods carried on said frames for pivotally supporting said elements, and means for independently adjusting the elevation of said applicator elements on each of said frames.

9. In a machine of the character described, applicator elements disposed in parallel positions and spaced apart, spaced supporting frames therefor, parallel rods for oscillatably supporting said elements on said frames, parallel operating shafts journaled in said frames, means on said shafts for operating said elements, and means for rotating said operating shafts, as set forth.

10. In a machine of the character described, parallel sets of applicator elements adapted for oscillation and spaced apart, parallel fulcrum rods for supporting said sets of elements, spaced frames for carrying said rods, means for oscillating said elements, and means for independently adjusting the elevation of the opposite ends of said rods, for the purpose set forth.

11. In a machine of the character described, a table for supporting the human body, supporting frames supported in spaced relation thereon, parallel sets of applicator elements oscillatably supported on said frames and substantially spaced apart laterally of the table, means for independently adjusting the elevation of said elements on said frames, and means for oscillating said elements, for the purpose set forth.

12. In a machine of the character described, a plurality of oscillatable applicator elements, spaced frame members for operably supporting the same, supporting shafts therefor, said shafts having adjustable bearings mounted on said frames, transverse shafts journaled in said frames, and gearing for operably connecting said transverse shafts with said bearings, whereby the operation of said shafts will adjust said applicator elements, and means for oscillating said elements, as set forth.

13. In a machine of the character described, a supporting structure, parallel spaced operating shafts mounted thereon, parallel supporting shafts also mounted thereon and spaced apart, means for operating said operating shafts, means for vertically adjusting the positions of said supporting shafts, and a plurality of sets of applicator elements of different character, operably connected with said operating shafts and including means for simultaneously massaging the vertebral, neck and thigh portions of a human body when positioned in contact with said elements.

14. In a machine of the character described, a supporting structure including a table for holding the human body in a reclining position and frame members depending therefrom, spaced operating shafts carried by said frames, spaced sets of applicator elements pivotally supported on said frames above said shafts and including separate elements for massaging the neck, vertebral and thigh portions of the body, means for operating said elements, a head rest adjustably supported on one of said frame members, and means for vertically adjusting said applicator elements relative to said frame members.

15. In a machine of the character described, spaced supporting frames, parallel supporting members connecting said frames, bearings being formed in said frames, vertically adjustable means carried in said bearings for supporting said supporting members, transverse shafts on said frames, gearing connecting said adjustable means with said transverse shafts, for adjusting the elevation of said supporting members, and applicator elements carried on said supporting members, as set forth.

16. In a machine of the character described, a supporting structure, vertically adjustable supporting members carried thereby, applicator elements carried by said supporting members, spaced shafts rotatably carried by said structure, means for rotating said shafts, eccentrics carried by said shafts, and applicator supports engaging said eccentrics for oscillating said applicator elements, as set forth.

Signed at Los Angeles, Los Angeles county, California, this 8th day of November, 1917.

CLARA B. HARDY.
KATHARINE E. GIBSON.

In presence of—
W. R. LITZENBERG,
D. P. KENDRICK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."