

April 3, 1928.

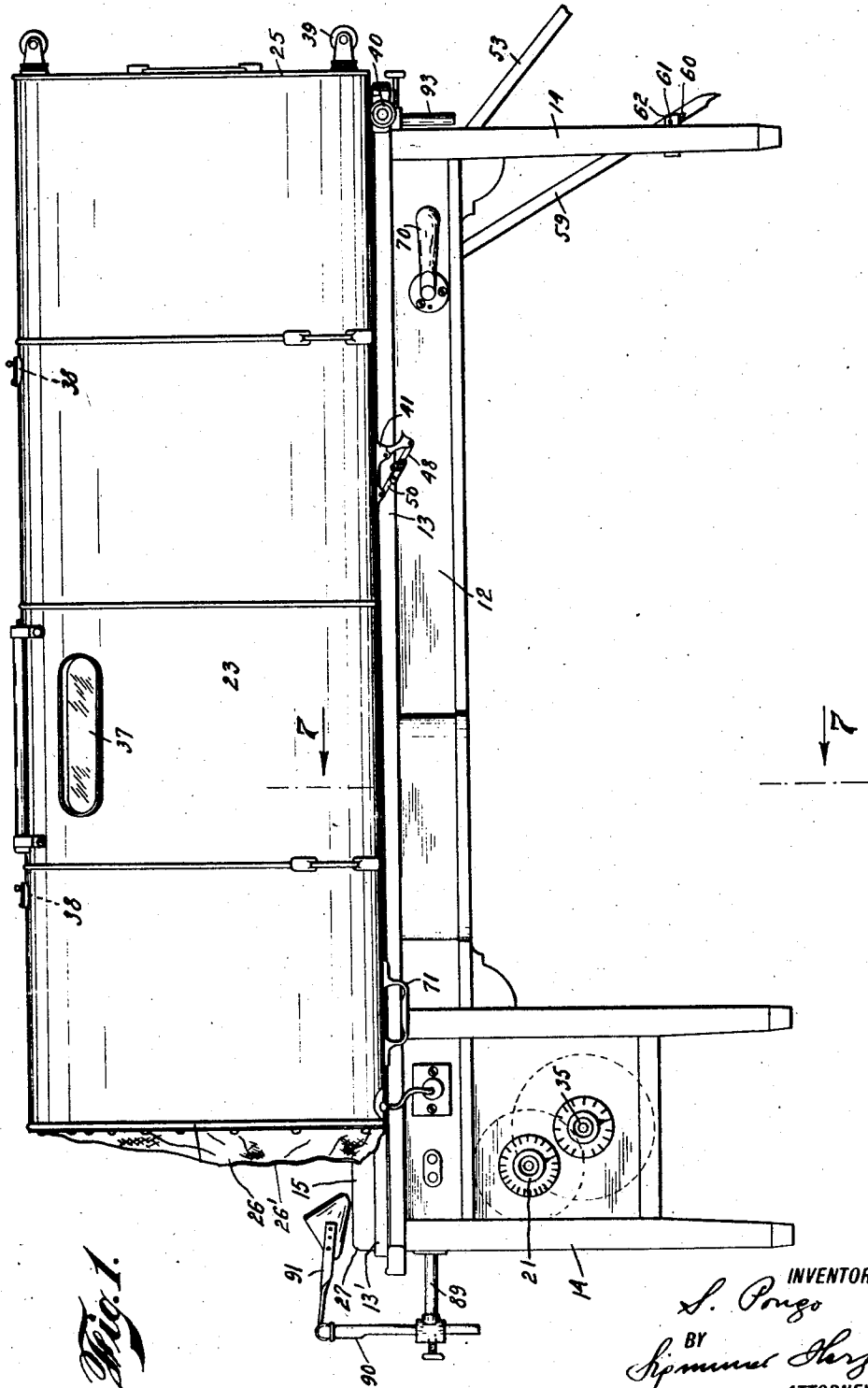
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1,664,992

ELECTROTHERAPEUTICAL APPARATUS

Filed July 26. 1927

6 Sheets-Sheet 1



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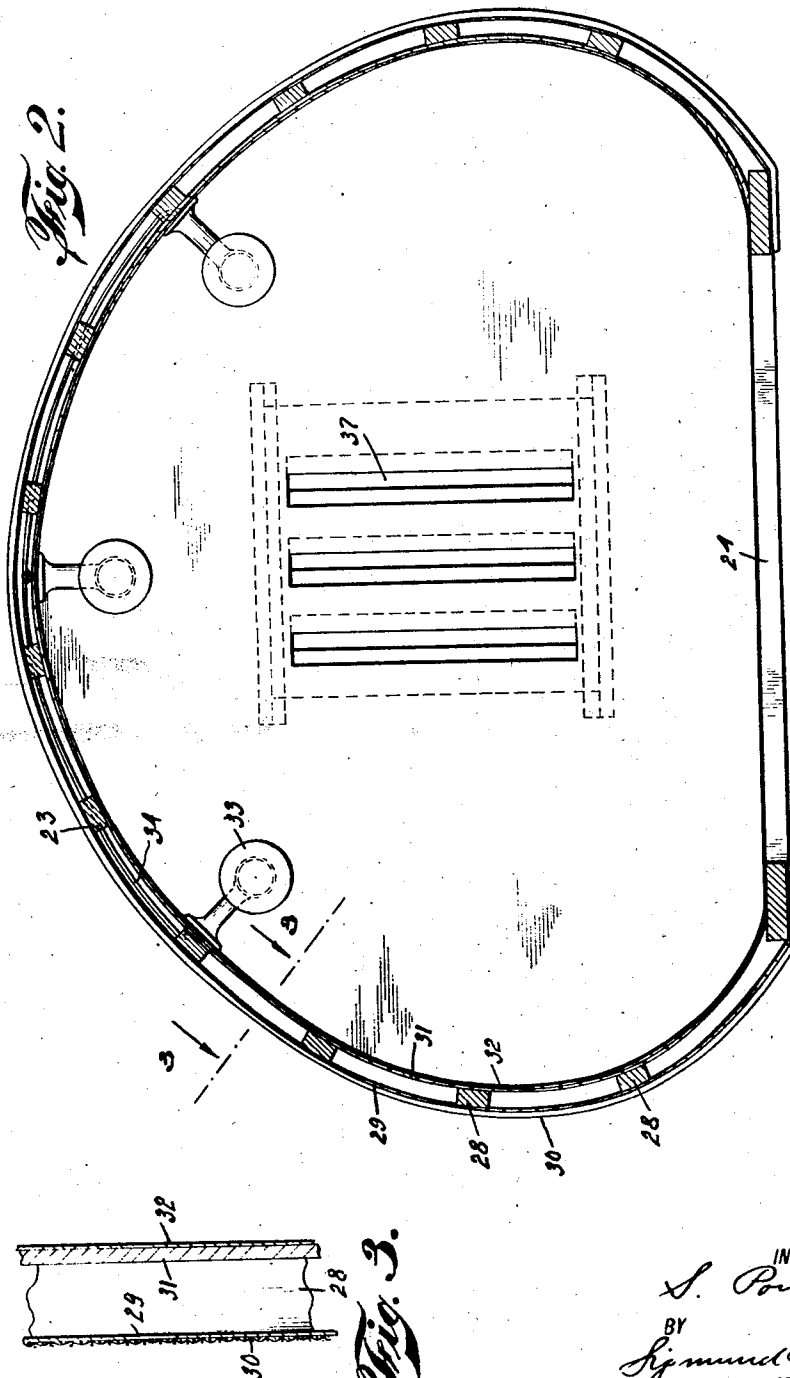
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6 Sheets-Sheet 2



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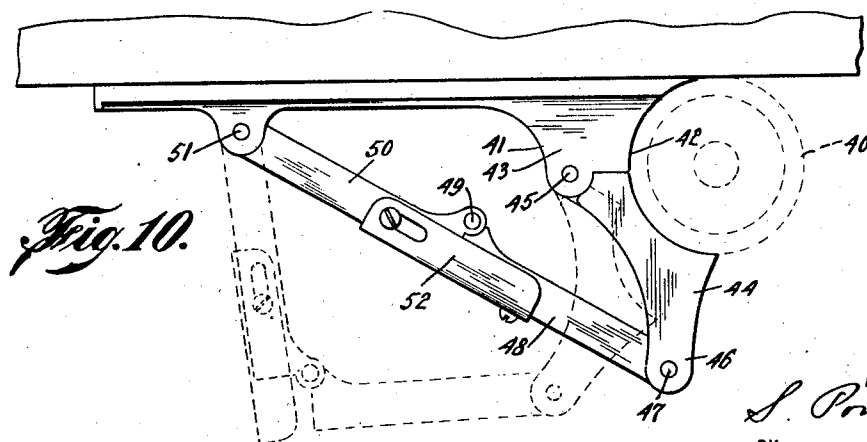
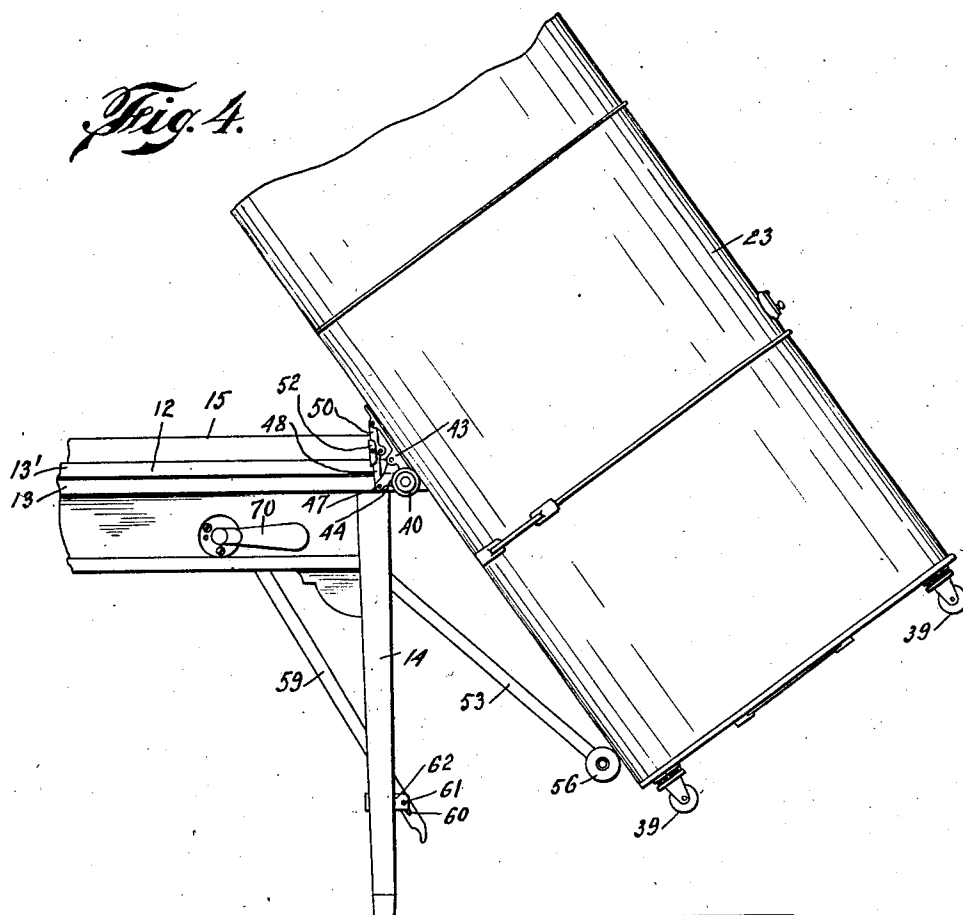
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6 Sheets-Sheet 3



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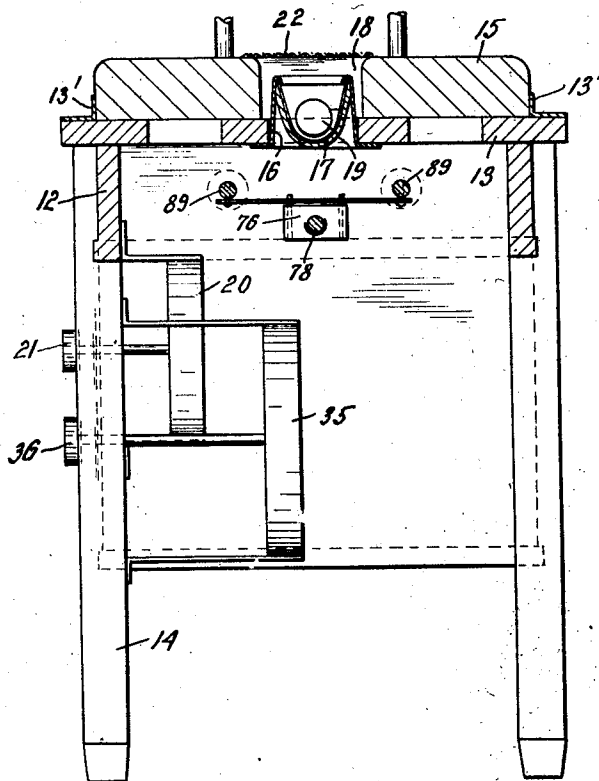
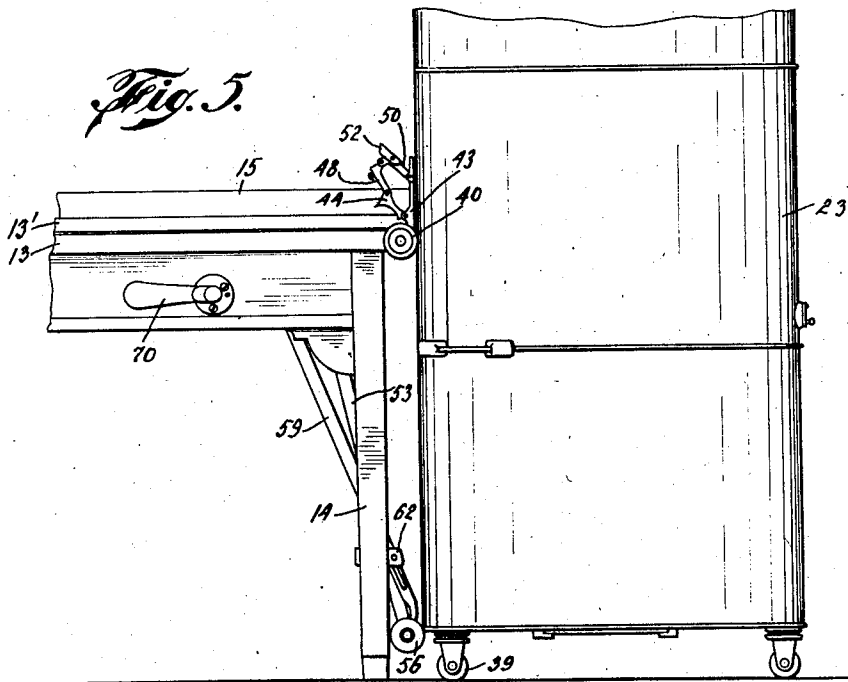


Fig. 7.

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Fig. 6.

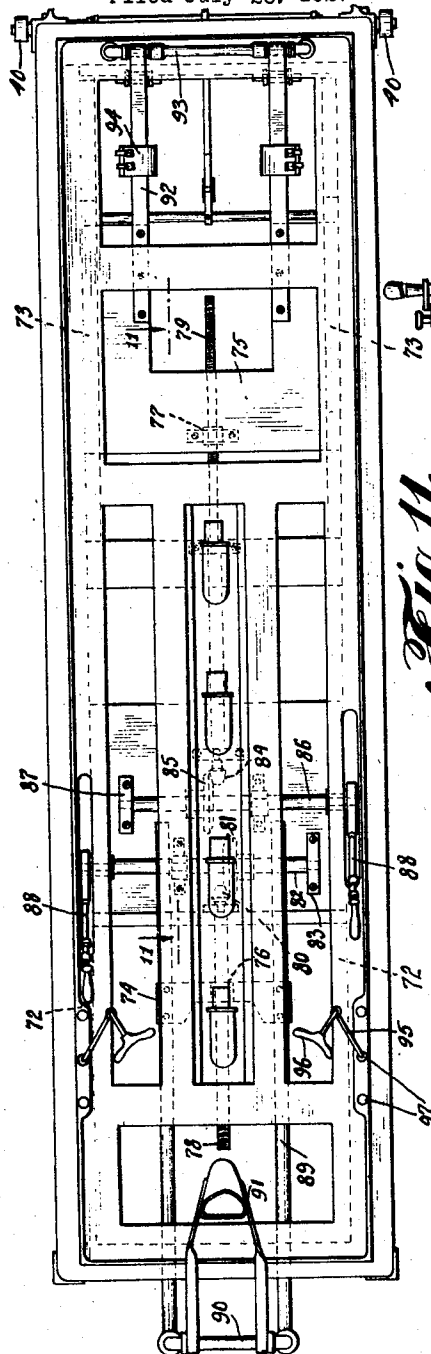
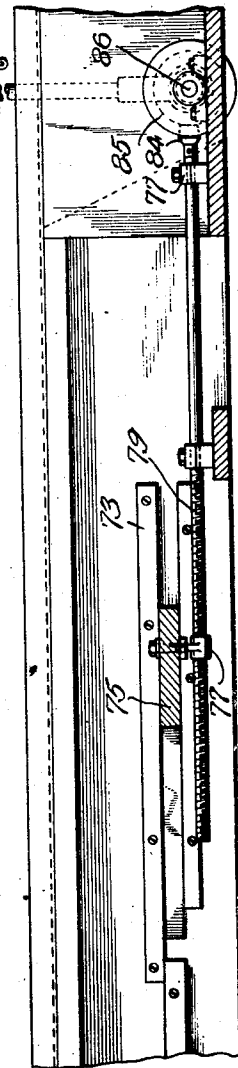


Fig. 11.



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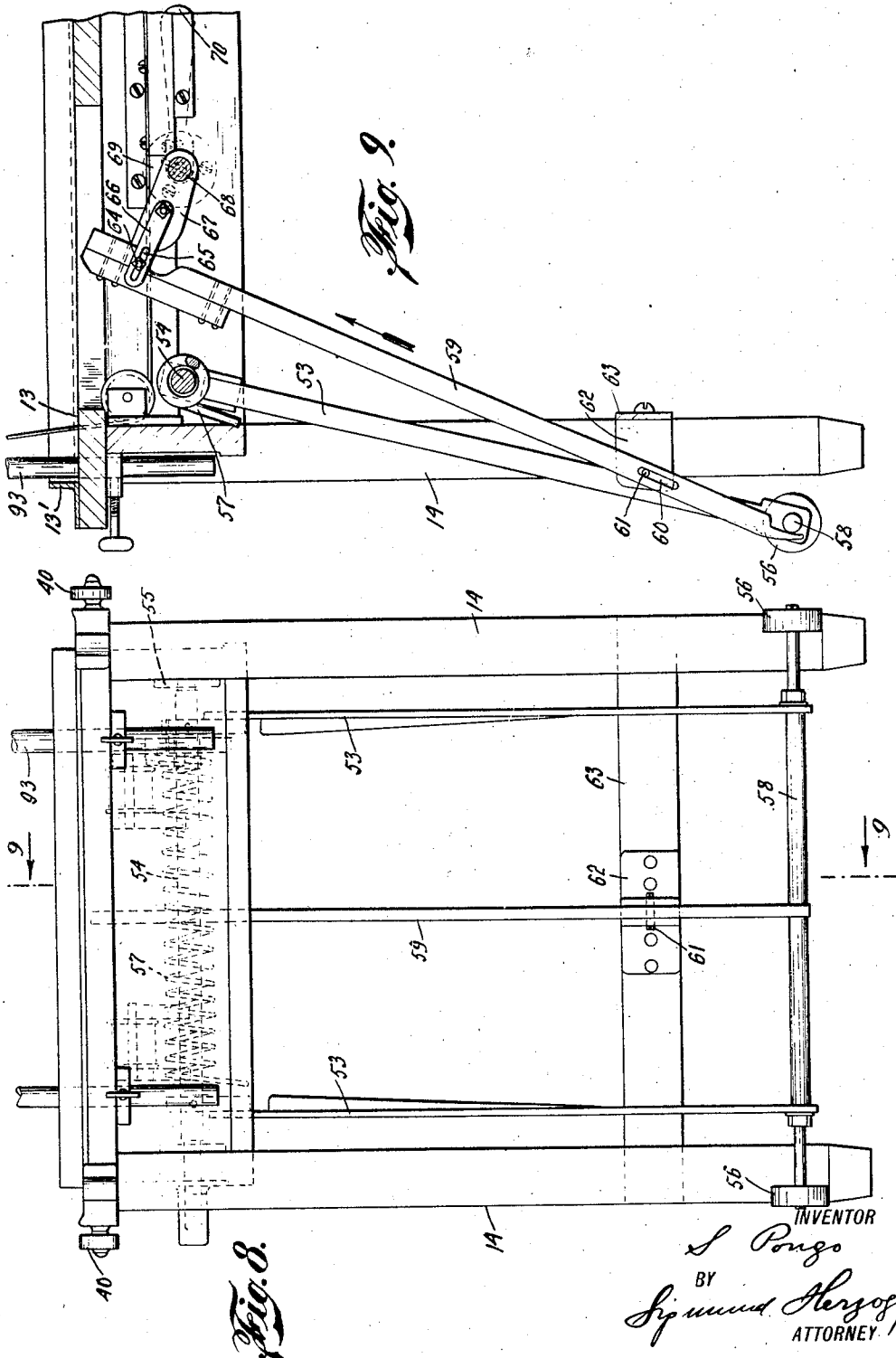
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ELECTROTHERAPEUTICAL APPARATUS

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UNITED STATES PATENT OFFICE.

SIGMUND PONGO, OF NEW YORK, N. Y.

ELECTROTHERAPEUTICAL APPARATUS.

Application filed July 26, 1927. Serial No. 208,555.

The present invention relates to improvements in electro-therapeutical apparatuses, and more particularly to devices of this type which are commonly called electric bath-cabinets.

In these devices electric light and heat are employed as agencies for the treatment of the human body for the relief of ailments to which it is subjected. In one type of these apparatuses a table or couch is used, on which is mounted a casing or shell of a length to receive the prone body of the patient. In the casing light and heat effects are produced. The casing is supported upon tracks, mounted on the table, and is adapted to be removed from the said table in order to permit the patient to be removed therefrom. Various difficulties have been experienced heretofore in the handling of the casing, the latter being rather heavy.

The main object of the present invention is to provide an electro-therapeutical apparatus, wherein a simple means is provided which balances the weight of the casing, whereby the latter may be handled with ease.

Another object of the invention is to provide a therapeutical apparatus which embodies means for stretching or elongating the body of the patient for correcting certain spinal ailments, for modifying or correcting certain defects of the joints of the human body, for imparting certain stimulating effect thereto and for relieving pathological conditions due to abnormal or natural compression of the cartilages.

A further object of the invention is to provide a simple and efficient mechanism for actuating the stretching device of the apparatus and to so arrange the said means that it is adapted to be operated by the patient.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims,

without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of an electro-therapeutical apparatus constructed in accordance with the present invention; Fig. 2 is a transverse section taken through the shell or casing of the device, on a larger scale; Fig. 3 is a section taken on line 3—3 of Fig. 2, on a still larger scale; Fig. 4 is a side elevation of the end portion of the device shown in Fig. 1, the casing being partly removed from the table portion of the device; Fig. 5 is a view similar to the one shown in Fig. 4, the casing being wholly removed from the table portion of the device; Fig. 6 is a top plan view of the apparatus, the casing and other elements being removed in order to more clearly show the interior construction; Fig. 7 is a section taken on line 7—7 of Fig. 1, the casing being removed; Fig. 8 is an end view of the table portion of the apparatus, showing the balancing means of the casing; Fig. 9 is a section taken on line 9—9 of Fig. 8; Fig. 10 is a side elevation, on a larger scale, of the connecting means between the table and the casing of the apparatus; and Fig. 11 is a section taken on line 11—11 of Fig. 6, on a larger scale.

The apparatus comprises a table 12, including a top 13 mounted upon legs 14 and providing a support upon which a patient may lie. On the table top rests, between longitudinal marginal guide rails 13', a cushion 15, covering substantially the entire area of the table top. The top is provided with a central longitudinal slot 16, in which is mounted a channel shaped reflector 17, the latter extending into a longitudinal slot 18 in the cushion 15. The slots 16 and 18 are in alignment, as clearly shown in Fig. 7 of the drawings. Within the reflector are disposed electric lamps 19, inserted into an electric circuit, provided with an electric resistance 20, the latter being adapted to be varied by turning a knob 21. The resistance and knob are disposed below the top portion of the table. The slot 18 in the cushion is, prefer-

ably, covered by a coarse-meshed fabric 22, to prevent contact between the body of the patient and the reflector and lamps above referred to.

5 Onto the guide rails 13' is adapted to be placed a casing or shell 23, having an open bottom 24, fitted over the said guide rails. This casing is somewhat shorter than the table, it being constructed on a nearly elliptical plan in transverse cross-section, and provided at its outer end with a head 25, while to its inner end is fitted a curtain 26, provided with a shirred opening 26', so that it may be drawn about the neck of the patient, the patient's head resting upon a pillow 27, disposed outside the casing 23. The said casing may be constructed in any suitable manner. In the present case it comprises longitudinal frame members 28, covered by a fiber board or like material 29, to which is applied a cloth or similar covering 30. To the inner faces of the longitudinal frame members 28 is fixed an asbestos lining 31, and the latter is covered with a metallic reflector 32. The head 25 is also provided with a metallic reflecting surface, not shown.

In the interior of the casing or shell is mounted a plurality of electric lamps 33, inserted into an electric circuit 34. In the last-mentioned electric circuit is inserted a variable resistance 35, adapted to be regulated by manipulating a knob 36. The resistance 35 and knob 36 are also disposed below the table top, as clearly shown in Fig. 1 of the drawings. One or more windows 37 may be provided in the casing 23, so that the attendant may view the body of the patient as the treatment progresses. Covered openings 38, preferably in the top of the casing 23, permit of the insertion of a thermometer to ascertain the heat in the interior of the cabinet during the treatment.

On the head 25 of the casing 23 are mounted casters 39, on which the said casing is adapted to stand when the latter is removed, in a manner hereinafter to be described, from the table top. The casing may then be easily moved from place to place, when not required in the treatment of a patient. At the foot portion of the table top are mounted upon the latter two rollers 40, one adjacent each guideway. The casing moves on these rollers and may be slid longitudinally on the table top in order to remove the same from said top. With these two rollers are adapted to co-operate two bearing members 41 adjacent the bottom of the casing 23, the said rollers being in the path of said bearing members when the casing is slid longitudinally on the table toward the foot portion of the top thereof. Each of these bearing members is provided with a concaved portion 42, having a radius corresponding to that of a roller 40 and ex-

tending through an arc of not more than 180°. Each concaved portion is made of two sections 43 and 44, (Fig. 10), the section 43 being fixed to the casing and the section 44 being pivoted at 45 to the section 43. On the section 44 is provided an extension 46, pivotally connected at 47 with one end of a link 48, the other end of which is pivotally connected at 49 with one end of a link 50. The other end of the last-mentioned link is pivoted at 51 to the casing 23. A latch 52 is adapted to slide over the joint between the links 48 and 50 and prevents breaking of the joint between the said two links. In order to remove the casing 23 from the table, the former is slid toward the foot portion of the table top until the bearings 41 engage the rollers 40. The casing is then swung on the said bearings until the rollers 39 rest on the floor, that is to say into the position shown in Fig. 5 of the drawings. The joint between the links 48 and 50 of the bearings is then broken, the elements being then in the positions shown in full lines in Fig. 5 of the drawings and in dotted lines in Fig. 10 of the drawings, whereby the bearings may be disengaged from the rollers 40 in moving the casing away from the table of the apparatus.

The balancing means above referred to comprises two bars 53 (Figs. 8 and 9), connected at their upper ends by a cross bar 54, the latter being rotatably mounted in bearings 55, which are disposed a little distance below the table top and adjacent the foot portion of the latter. The bars 53 project beyond those legs which are disposed adjacent the foot portion of the table top and are provided at their lower free ends each with a roller 56. Around the bar 54 is wound a heavy spring coil 57, so constructed and arranged that it has a tendency to swing the free ends of the bars 53 upwards from the positions shown in Figs. 5 and 9 of the drawings into the position shown in Fig. 4 of the drawings. Adjacent their free ends, the bars 53 are connected by a cross bar 58, on which the rollers 56 are mounted, as clearly shown in Fig. 8 of the drawings. For the purpose of locking the bars 53 against the action of the spring 57 in their positions shown in Fig. 9 of the drawings, there is provided a latch bar 59. This bar is provided adjacent its lower end with a longitudinal slot 60, through which extends a pin 61, the latter being mounted upon brackets 62, which are attached to a transverse bar 63. This last-mentioned bar is secured to two of the table legs, adjacent which the bars 53 are disposed. The lower end of the latch bar 59 engages the cross-bar 58 and projects up to the table top. The bar 59 carries below the table top a bolt 64, extending through a slot 65 in an arm 66, which is rigidly secured to a cam 67. This cam is fixed to a spindle

68, oscillatably mounted in bearings 69 on the table and having fixed to it, outside of the table, a handle 70.

When the casing is to be mounted upon the table portion of the device, the bars 53 are first brought into the positions shown in Figs. 5 and 9 of the drawings. The casing is then moved into the position shown in Fig. 5 of the drawings, in which the fixed sections 43 of the bearing members engage the rollers 40 and the head portion 25 of the casing abuts against the rollers 56 on the bars 53. The pivoted sections 44 of the bearing members are then swung into engagement with the rollers 40 and the latches 52 brought into locking positions to prevent breaking of the joints between the links associated with the bearings. The handle 70 is then given one-half of a turn, from the position shown in Fig. 5 of the drawings into the position shown in Fig. 4 of the drawings, whereby the latch bars 59 are disengaged from the cross bar 58. The spring 57 is thus free to act, lifting the casing 23 into the position shown in Fig. 4 of the drawings, the spring being strong enough to balance the weight of the casing. The operator then takes hold of the casing by grasping the handles 71 thereon (Fig. 1), and shifts the casing on the rollers 40 until the bottom of the said casing rests on the guide rails 14, moving then the casing longitudinally on the table into the position shown in Fig. 1 of the drawings. It is obvious that before the casing is swung from the position shown in Fig. 4 of the drawings onto the guide rails, the patient is placed onto the table top, so that the patient will be disposed within the casing when the latter is shifted into the position shown in Fig. 1 of the drawings.

On the table of the apparatus is furthermore mounted a device for stretching or elongating the body of the patient. This device includes horizontally disposed guide rails 72 and 73, which are disposed longitudinally below the table top. On the guide rails 72 is slidably mounted a head carriage 74, and on the guide rails 73 is slidably mounted a foot carriage 75. To the carriage 74 is fixed a nut 76, and to the carriage 75 a nut 77. With the threads of the nut 76 meshes a screw-threaded spindle 78, and with those of the nut 77 a similar spindle 79. One of the spindles is in the form of a right-screw and the other one in the form of a left-screw. To the inner end of the screw spindle 78 is keyed a bevel pinion 80, in mesh with a bevel gear 81, the latter being keyed to a transverse shaft 82, which is rotatably mounted in bearings 83. Similarly is keyed to the inner end of the spindle 79 a bevel pinion 84, in mesh with a bevel gear 85, the latter being keyed to a transverse shaft 86, which is rotatably

mounted in bearings 87. With each of the shafts 82 and 86 is associated a ratchet mechanism 88. These mechanisms are within the reach of the patient, so that by actuating the same the head and foot carriages are caused to slide on the table in directions depending upon the movement of the ratchet mechanisms. These ratchet mechanisms are, of course, reversible so that the movements of the carriages may be reversed according to the requirements. Inasmuch as these ratchet mechanisms do not form part of the present invention, it is not deemed necessary to describe the same in detail.

To the head carriage 74 are fixed two longitudinally extending rods 89, which extend beyond the head portion of the table top and are there connected by a bail-shaped member 90. To this bail-shaped member are fixed straps 91, for engagement with the head of the patient. To the foot carriage 75 are fixed straps 92, running over a bracket 93 and having secured to their free ends loops 94, through which the ankles of the patient are adapted to be extended. Braces 95, provided with hooks 96, are adapted to be anchored in a row of sockets 97 on each side of the table top, said hooks being adapted to engage under the arm pits of the patient.

The operation of the device is as follows: If the patient is to be subjected to heat and light treatment only, the casing or shell 23 is first brought into the position shown in Fig. 4 of the drawings, and the patient placed upon his back upon the table with his spine directly over the slot 18 in the cushion 15. The casing 23 is then shifted in the manner above described into the position shown in Fig. 1 of the drawings, and the patient's head extended through the curtain 26. The electric current is then turned on, its intensity being adjusted, as required, by means of the variable resistances 20 and 35. After sufficient exposure to the heat and light within the cabinet, the lamps are extinguished, and the casing 23 shifted back into the position shown in Fig. 4 of the drawings, to prepare the patient for further treatment. If the stretching means of the apparatus is to be made use of, the casing 23 is left in the position shown in Fig. 4 or it may be removed from the apparatus, for instance, into the position shown in Fig. 5 of the drawings. The patient's head and feet are then secured to the respective carriages and the braces applied to the arm pits of the patient. The electric current is then turned on and may be regulated by means of the variable resistances so that the spine of the patient will receive light and heat from the lamps 19 and the body of the patient generally will receive light and heat from the lamps 33, the reflecting surfaces 32 and on the head of the casing directing the

light and heat from the last-mentioned lamps onto the patient. The patient thereupon operates the ratchets 88, whereby a pulling stress is applied to the patient, stretching or
 5 elongating the body for correcting certain ailments. If the legs only are to be stretched the head straps are not applied. In such case the arm braces 95 form anchoring means for the patient's body.

10 It is to be noted that the casing may be placed upon a bed or couch, on which the patient rests, and light and heat treatment given to the patient. This is desirable in case the patient cannot be removed from the
 15 bed.

What I claim is:—

1. An electro-therapeutical apparatus, comprising a table adapted to receive a prone body, guide rails adjacent the longitudinal edges of the top of said table, a casing slidable on said guide rails having an open bottom, said casing being approximately of a length corresponding to that of the table top and the latter closing the bottom
 25 portion of said casing when said casing is mounted upon said table, electric lights within said casing, two rollers on the table top adjacent the foot portion of the latter, bearing members on said casing intermediate its ends, said bearing members being adapted to be brought into engagement with said rollers, whereby said table top is supported when it is swung on said bearing members around said rollers, and means adapted to support it in tilted position on said rollers.

2. An electro-therapeutical apparatus according to claim 1, comprising casters on said casing, said casing being adapted to rest on said casters with said bearings in engagement with said rollers, and means adapted for engagement with said balancing means for rendering the latter inoperative, said casing when resting on said casters with its bearings in engagement with said rollers abutting against said balancing means in inoperative position, said casing being swung around said rollers by said balancing means when the latter is rendered operative.

3. An electro-therapeutical apparatus comprising a table adapted to receive a prone body, guide rails adjacent the top of said table, a casing slidable on said guide rails having an open bottom, said casing being approximately of a length corresponding to that of the table top and the latter closing the bottom portion of said casing when said casing is mounted upon said table, electric lights within said casing, two rollers on the table top adjacent the foot portion of the latter, bearing members on said casing intermediate its ends, said bearing members being adapted to be brought into engagement with said rollers, casters on said casing, said casing being adapted to be swung on said

bearing members around said rollers and to rest on said casters with said bearings in engagement with said rollers, each of said bearing members comprising a stationary member and a movable member, said movable member being adapted to be disengaged from the respective roller, whereby said casing is adapted to be removed from said table.

4. An electro-therapeutical apparatus according to claim 3, said table top being provided with a longitudinal slot, a trough shaped reflector in said slot, and electric lights within said reflector, the lights within said reflector and within said casing being adapted to be rendered operative when said casing rests upon said table top and also when said casing rests upon its casters with its bearings in engagement with said rollers.

5. An electro-therapeutical apparatus according to claim 3, comprising a sliding head carriage and a sliding foot carriage upon said table, to which parts of the body of the patient resting upon said table are adapted to be secured, means for independently moving said head and foot carriages toward and away from one another, and reflecting means in said casing for directing the heat and light emanating from the lamps therein onto the patient when said casing is swung around its bearings on said rollers and is supported by the latter.

6. An electro-therapeutical apparatus comprising a table adapted to receive a prone body, guide rails adjacent the top of said table, a casing slidable on said guide rails having an open bottom, said casing being approximately of a length corresponding to that of the table top and the latter closing the bottom portion of said casing when said casing is mounted upon said table, electric lights within said casing, two rollers on the table top adjacent the foot portion of the latter, bearing members on said casing intermediate its ends, said bearing members being adapted to be brought into engagement with said rollers, casters on said casing, said casing being adapted to be swung on said bearing members around said rollers and to rest on said casters with said bearing members in engagement with said rollers, each of said bearing members comprising a stationary member and a movable member, said movable member being adapted to be disengaged from the respective roller, whereby said casing is adapted to be removed from said table, a sliding head carriage and a sliding foot carriage upon said table, to which parts of the body of the patient resting upon said table are adapted to be secured, means for independently moving said head and foot carriages toward and away from one another, reflecting means in said casing for directing the heat and light emanating from the lamps therein onto the patient when

said casing is swung around its bearings on said rollers and is supported by the latter, said table top being provided with a longitudinal slot, a trough shaped reflector in said slot, and electric lights within said reflector, the lights within said reflector and within said casing being adapted to be rendered operative when said casing rests upon said table top and also when said casing rests upon its casters with its bearings in engagement with said rollers. 10

Signed at New York in the county of New York, and State of New York, this 27th day of May, A. D. 1927.

SIGMUND PONGO.