B. T. AND H. J. BECKMAN.

CHAIR.

APPLICATION FILED SEPT. 19, 1919.

1,344,255.

Patented June 22, 1920.

2 SHEETS—SHEET 1.

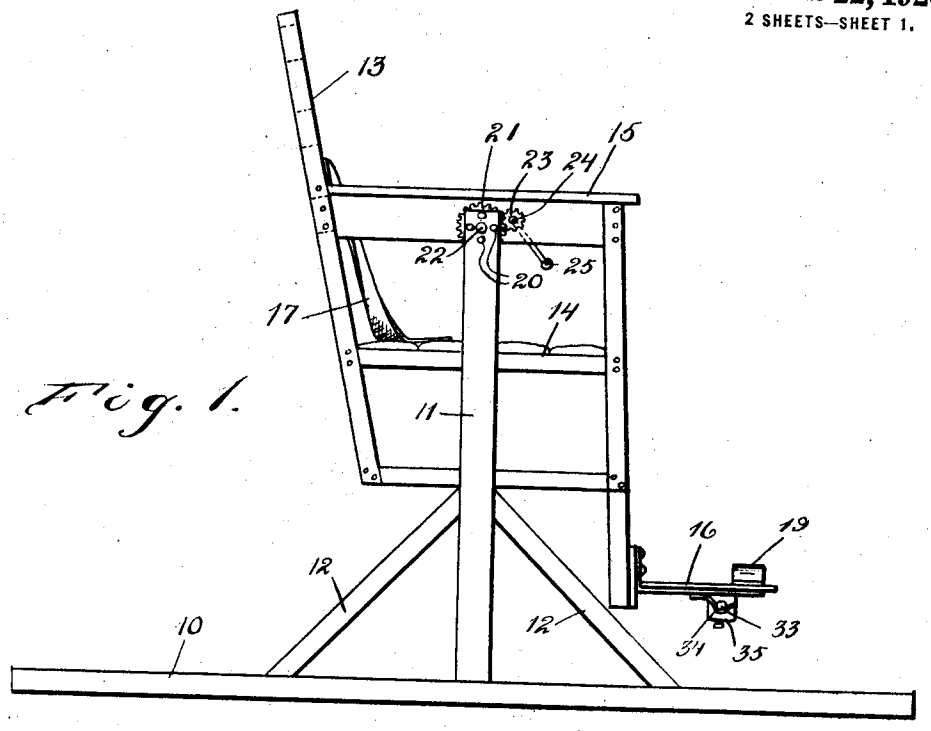

Fig. 1.

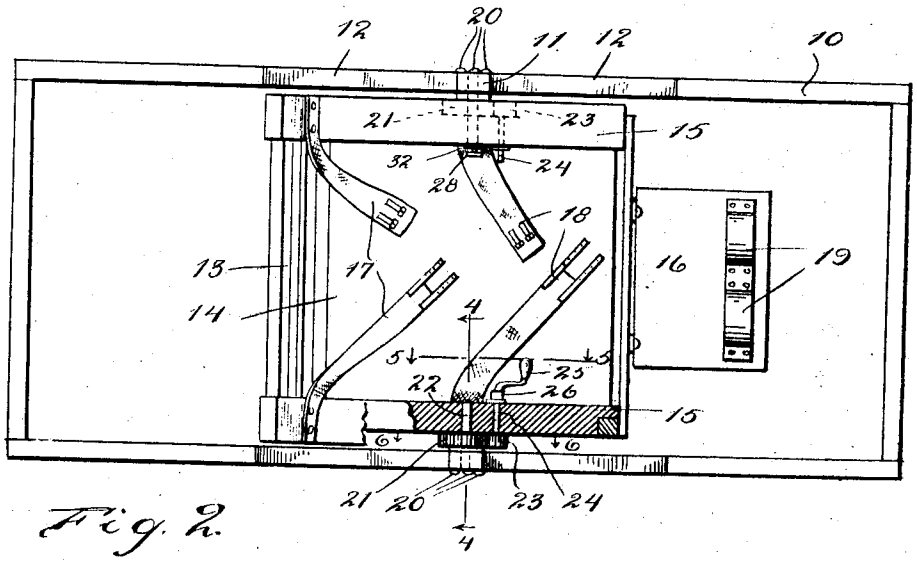

Fig. 2.

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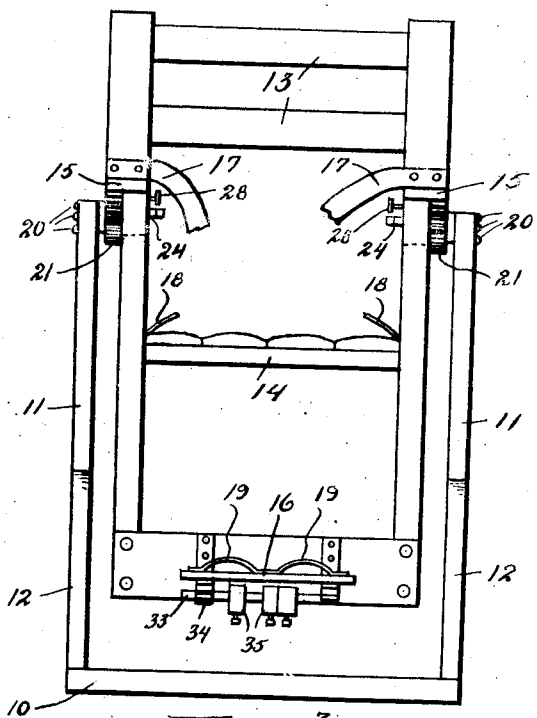

Fig. 3.

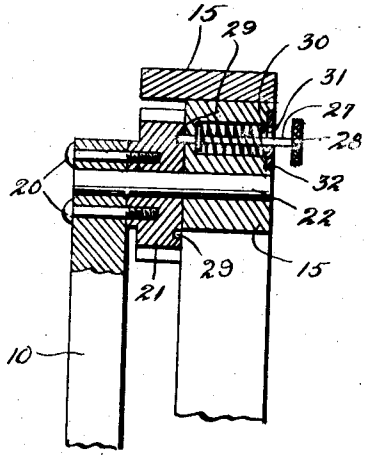

Fig. 4.

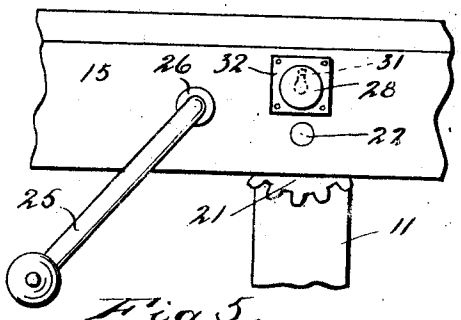

Fig. 5.

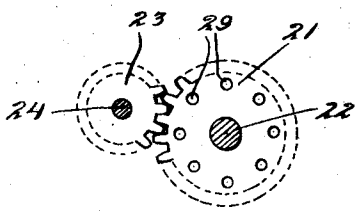

Fig. 6.

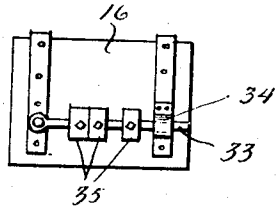

Fig. 7.

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UNITED STATES PATENT OFFICE.

BERNARD T. BECKMAN, OF LOWELL, INDIANA, AND HENRY J. BECKMAN, OF WAUKEGAN, ILLINOIS.

CHAIR.

1,344,255. Specification of Letters Patent. Patented June 22, 1920.

Application filed September 19, 1919. Serial No. 324,775.

To all whom it may concern:

Be it known that we, BERNARD T. BECKMAN and HENRY J. BECKMAN, citizens of the United States, residing at Lowell, in the county of Lake and State of Indiana, and Waukegan, in the county of Lake and State of Illinois, respectively, have invented certain new and useful Improvements in Chairs, of which the following is a specification.

This invention relates to medical apparatus and has for its object the provision of a chair within which a patient may be seated and strapped, the chair being pivotally mounted within a supporting frame and provided with gearing having an operating handle turned by the patient whereby the chair may be rotated to give the patient a somersaulting motion, the patient being greatly benefited by the movement which is advantageous in the treatment of various ailments or conditions such as nervousness, poor circulation and the like.

An important object is the provision of a device of this character in which the chair has its foot supporting portion provided with adjustable weights whereby the gravity may be regulated so that the chair will be perfectly balanced, if desired, or overbalanced so that upon cessation of the somersaulting action the chair will come to rest with the patient in upright position, the necessity for the latter feature being to prevent dangerous results in the event of fainting of the patient.

Another object is the provision of a device of this character which is provided with means whereby the chair may be locked at any desired position when desired.

An additional object is the provision of a device of this character which will be simple and inexpensive in manufacture, highly efficient in use, durable in service and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter described and claimed, and illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the device,

Fig. 2 is a plan view with one of the arms in horizontal section,

Fig. 3 is a front elevation,

Figs. 4, 5 and 6 are detail sectional views on the lines 4—4, 5—5, and 6—6 of Fig. 2, and

Fig. 7 is a detail view showing the underside of the foot rest.

Referring more particularly to the drawings, the numeral 10 designates the base of the stationary portion of the device, this base being formed preferably as an open rectangular frame. Rising from the sides of the base are vertical standards 11 braced as shown at 12.

The movable portion of the device comprises a chair including a back portion 13, a seat 14, arms 15, and a foot rest 16. The seat is preferably padded or otherwise upholstered to contribute to the comfort of the patient. Secured upon the back portion 13 are straps 17 having their ends adjustably connectible about the body of the patient, and secured at the sides of the seat 14 are similar straps 18 adapted to be secured over the upper portions of the legs. The foot rest 16 carries stirrup like strap loops 19 adapted for the reception of the patient's toes. By means of these various straps it will be seen that a person may be secured firmly in the chair so that possibility of falling will be eliminated.

Secured rigidly upon the upper ends of the standards 11, as by suitable bolts 20, are gears 21 disposed outwardly of the chair arms 15 and extending through these gears and through the arms are shafts or trunnions 22 which pivotally support the chair structure. Meshing with these gears are pinions 23 carried on the ends of shafts 24 journaled through the arms 15 and these shafts have squared inner extremities engageable by a crank handle 25 having socket portions 26. The structure being the same at both sides of the device it will be seen that the crank is changeable from one shaft 24 to the other, depending upon whether the user is right or left handed.

It is preferable that means be provided for locking the chair stationary, and to this end is provided a spring pressed plunger pin 27 extending through each arm 15 and having one end provided with a finger engaging head 28 and having its other end engageable within one of a series of recesses 29 formed in the inner faces of the gears 21. Each plunger pin carries a lug 30 adapted either to pass through or engage against the edge

of a keyhole opening 31 formed in an escutcheon plate 32 recessed into each arm 15.

In order to balance the chair properly for patients of different sizes or weights, or to overbalance it so that it will return to upright position, there is provided upon the underside of the foot rest 16 a rod 33 pivoted at one end and having its other end engaged by a catch 34. Suitable weights 35 are disposed upon this rod and held in place by set screws or other means.

In the use of the device, the patient seats himself in the chair, places his toes within the stirrup loops 19, secures the straps 17 and 18, engages the crank 25 upon either shaft 24, and after withdrawing the plunger pins 27 from the locking recesses, turns the crank. The associated pinion 23 will then be rotated, causing the chair to swing in a somersaulting fashion upon the trunnions 22. This action will result in a marked effect upon the blood circulation of the patient and in a species of internal massage of the organs, thereby producing a highly beneficial effect. It is not believed that a detailed analysis of the therapeutic action is necessary to a complete understanding of the mechanical device. By properly weighting the foot rest 16 by the means described, it will be seen that if for any reason a patient should lose consciousness no harm need result, as the chair will automatically return to upright position.

While there is shown and described the preferred embodiment of the invention, it will be readily understood that the right is reserved to make such changes in the form, details of construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

We claim:

1. A device of the character described comprising a stationary supporting frame, a chair pivoted at its sides within said frame, adjustable means for weighting the chair to overbalance it so that it will normally remain in upright position though occupied, and gear actuated means operated by the occupant whereby to rotate the chair with a somersaulting motion.

2. A device of the character described comprising a stationary frame, a chair pivoted at its sides within said frame for rotation in a vertical plane, a foot rest, rods carried by the foot rest and carrying weights whereby the chair may be overbalanced to cause it to remain normally in upright position though occupied and to return to upright position when its rotary movement ceases, and means whereby the occupant may manually rotate the chair.

3. A device of the character described comprising a stationary supporting frame, a chair pivoted at its sides within said frame for rotary movement within a vertical plane, means for locking the chair stationary, gearing at each side of the chair, and a crank detachably connectible with an element of the gearing at either side of the chair whereby the occupant may effect rotary movement of the chair.

4. A device of the character described comprising a supporting frame, a chair pivotally mounted within said frame for movement in a vertical plane, a gear rigidly carried by the side of the frame concentric with the pivot point of the chair, a pinion carried by the chair and meshing with said gear, and a crank for turning said pinion.

5. A device of the character described comprising a supporting frame, gears mounted rigidly on opposite sides of said frame, a chair pivotally mounted within said frame for movement in a vertical plane, the pivots being concentric with said gears, shafts carried by the sides of the chair, pinions carried by shafts and meshing with said gears, and a crank detachably engageable with either of said shafts and actuated by the occupant of the chair whereby to rotate the same with a somersaulting motion.

In testimony whereof we hereto affix our signatures.

BERNARD T. BECKMAN.
HENRY J. BECKMAN.