May 22, 1923. 1,455,922

H. H. MILLER

CHIROPRACTIC TABLE

Filed Jan. 17, 1922 4 Sheets-Sheet 1

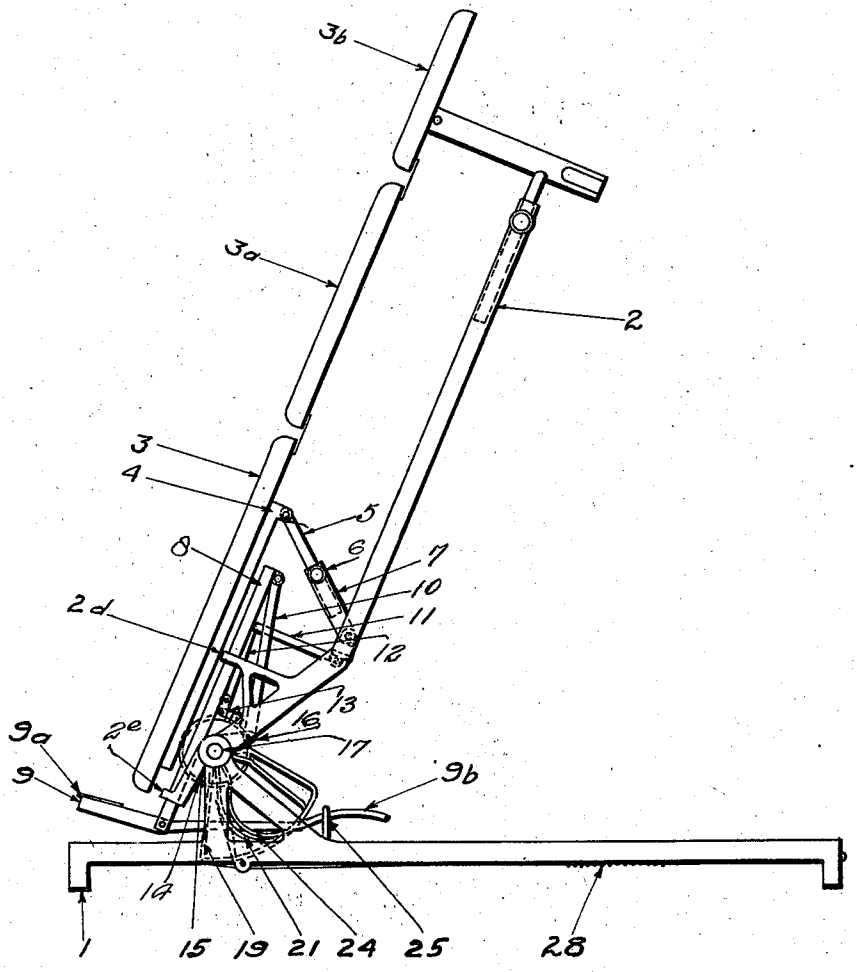


FIG. 1.

Herbert H. Miller, INVENTOR.

BY

G. F. Dusler ATTORNEY

May 22, 1923. 1,455,922

H. H. MILLER

CHIROPRACTIC TABLE

Filed Jan. 17, 1922 4 Sheets-Sheet 2

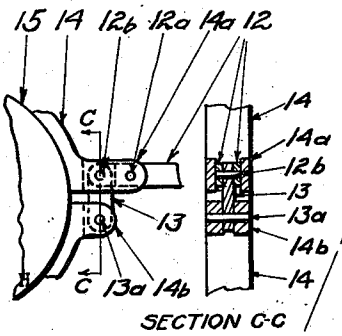


FIG. 6

FIG. 2.

Herbert H. Miller INVENTOR.

BY

G. G. Quisle ATTORNEY.

May 22, 1923. **1,455,922**

H. H. MILLER

CHIROPRACTIC TABLE

Filed Jan. 17, 1922 4 Sheets-Sheet 3

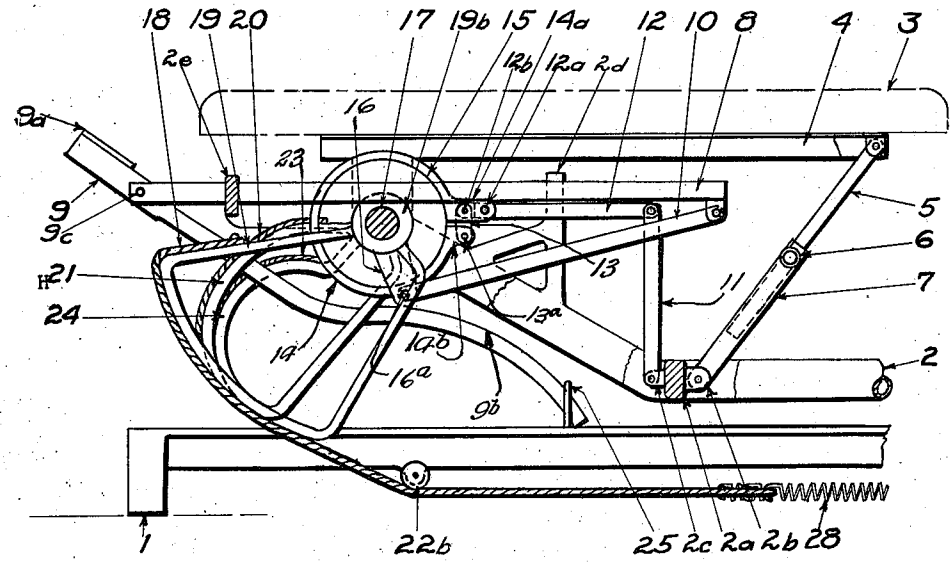


FIG. 3 SECTION A-A

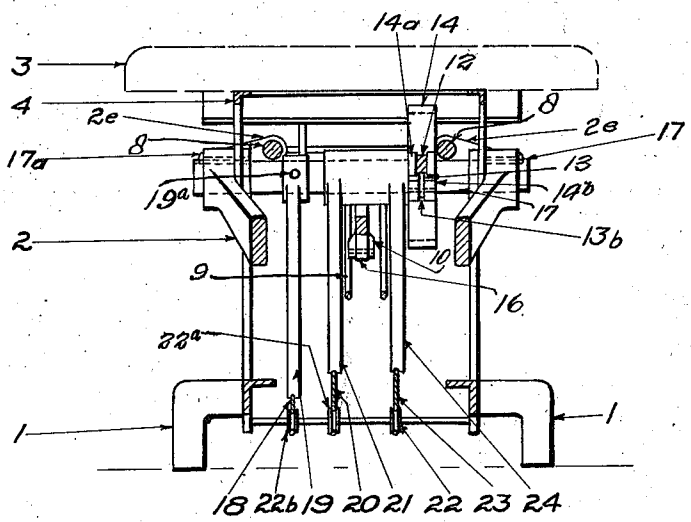


FIG. 4. SECTION B-B.

Herbert H. Miller INVENTOR.

BY

G. G. Bush ATTORNEY.

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H. H. MILLER

CHIROPRACTIC TABLE

Filed Jan. 17, 1922 4 Sheets-Sheet 4

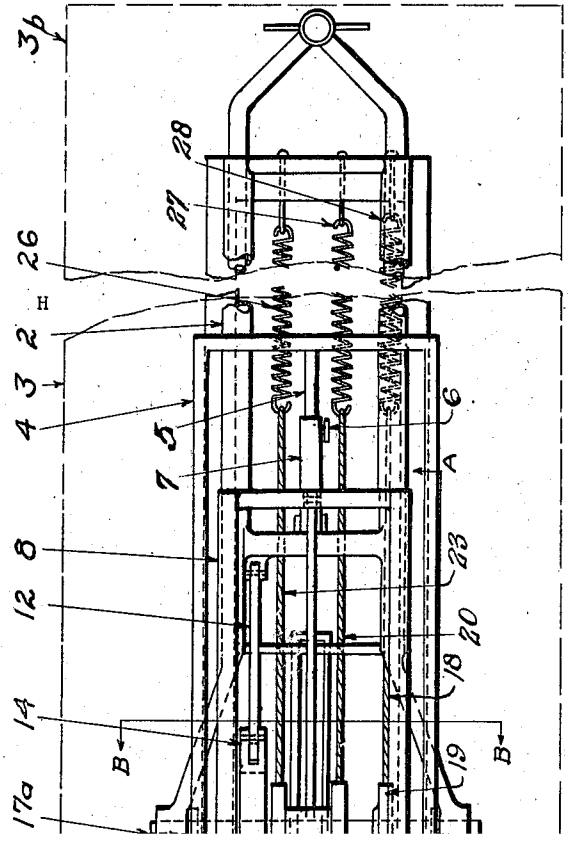


FIG. 5.

Patented May 22, 1923. 1,455,922

UNITED STATES PATENT OFFICE.

HERBERT H. MILLER, OF DAVENPORT, IOWA.

CHIROPRACTIC TABLE.

Application filed January 17, 1922. Serial No. 529,894.

To all whom it may concern:

Be it known that HERBERT H. MILLER, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, has invented certain new and useful Improvements in Chiropractic Tables, of which the following is a specification.

My invention relates to improvements in chiropractic tables, in which a stationary frame or base is combined with a movable bed hinged or pivoted thereto at one end, and in which heavy springs are used to counterbalance the weight of the bed and the patient to assist in raising the bed from a horizontal to a vertical position.

The objects of my invention are, to provide means for automatically increasing the tension upon the springs of a so-called chiropractic "lift table" in proportion to the weight of the patient; to reduce the power necessary to raise the movable bed from a horizontal to a vertical position by causing the weight of the patient to throw an increased tension upon the balancing springs; to provide means for locking the tension cams in the position in which they are placed by the weight of the patient; to provide a tilting foot rest or tread.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my table showing the frame 1, in a horizontal position and the bed in its upraised or approximately vertical position, but showing certain parts in dotted lines; Fig. 2 is an enlarged detail in cross section on the line AA of Figure 5 and shows in dotted lines the position of the movable cams, foot rest, etc., after the weight of the patient has carried the foot rest downward from its unweighted position; Fig. 3 is an enlarged detail showing the arrangement of the cams, brake drum and brake band; Fig. 4 is a vertical cross section on the line BB of Figure 5; Fig. 5 is a plan view shortened by breaking away a portion of the figure, but shows the bed in broken lines; Fig. 6 is an enlarged detail of the brake operating mechanism.

Similar numerals refer to similar parts throughout the several views.

The base of my table consists of an iron frame 1, preferably made of angle iron, having two legs at each end thereof and provided with two upwardly extending brackets or supports near the foot end thereof, in which is mounted the main shaft 17. These brackets or supports are preferably formed integral with the base but may be suitably secured thereto by riveting or in any other way.

The bed frame 2, is mounted upon the shaft 17, secured thereto by keys 17^a. This frame may be formed of flat or angle iron or tubing, or such other material as may be desired.

The bed of my table is preferably composed of three separate cushions, 3, 3^a and 3^b, 3^b being pivoted to a vertical member of the bed frame. The cushion 3, is secured to a frame 4, one end of which is pivoted to an adjustable support 5, sliding in a tubular member 7, of the bed frame and locked in position by a knob 6, and the opposite end of the cushion 3, is supported by a support or bracket 2^d, formed integral with the bed frame 2.

The intermediate cushion 3^a, is preferably secured to the other cushions 3 and 3^b, by elastic supports.

At the lower end of the bed frame 2, supports 2^e, are provided which allow rods 8, to slide therein, the upper end of the rods 8, sliding also in supports 2^d, formed integral with or secured to the bed frame 2.

The lower ends of the rods 8, are pivoted to tread supports 9, and a tread 9^a, is suitably secured to the supports 9. The opposite ends 9^b, of the tread supports pass through a yoke 25, secured to the base 1.

The upper ends of the rods 8, are bent at right angles to the body thereof and connected by a cross rod 8^a. A link 10, has its upper end mounted upon the cross rod 8^a, and its lower end pivoted to an arm or lever extending from the hub 19^b, of the movable cams and preferably formed integral therewith.

Three or more cams are mounted upon the shaft 17, between the side frames of the bed. One of them 19, is a fixed cam secured to the shaft 17, by a set screw 17^a, or other suitable means. The other cams 21 and 24, are preferably formed integral with the hub 19^b, which in turn is secured to or formed integral with a drum 15, around which is mounted a brake band 14. In one end of the brake band 14, a lever 12, is fulcrumed, the lower end of which is pivoted

to one end of a link 13, and the opposite end of the link is pivoted to the other end of the brake band. The opposite end of the lever 12, is pivoted to a link 11, which in turn is pivoted or otherwise suitably secured, to the bed frame 2.

In describing my mechanism, I have referred to the lower end of various levers, etc., and this reference is intended to apply to them when the bed is in its upright or vertical position as shown in Figures 1 and 2.

Steel cables 18, 20 and 23, are secured to the cams 19, 21 and 24, respectively, and pass over pulleys 22, 22^a and 22^b, mounted upon a cross rod secured by the arms depending from the bed frame.

The opposite ends of the cables are respectively secured to springs 26, 27 and 28, adjustably secured to the base 1.

These springs may be set at any desired tension. In practice, I prefer to have the spring 28, of the fixed cam 19, adjusted at sufficient tension to counter balance the weight of the table empty or with a very light patient upon it, and the springs 26 and 27 adjusted at different tensions so that their force will operate progressively upon the cams 21 and 24. These springs should be of sufficient size and force to counter balance the weight of the heavier patients, the intention being to arrange the springs in such a way as to counter balance the weight of all different classes or sizes of patients that may be met with in ordinary practice so as to avoid the necessity of any great exertion in lifting the table to an upright position with the patient on it.

In the operation of my table, the bed is placed in its upright or vertical position as shown in Figure 2 and the patient is then required to stand upon the tread 9^a. His weight upon this tread carries down the supports 9, and the links 8, in turn forcing downward the link 10, turning the hub 19^b, upon the shaft 17, correspondingly. As the hub turns, it carries with it the movable cams 21 and 24 as shown in dotted lines in Figure 2. These cams carry with them their respective cables and thus increase the tension upon the tension springs 26 and 27, until the tension counter-balances the weight of the patient, the cam 19, remaining stationary until the bed itself is moved. After the patient is in proper position upon the tread, the upper end of the bed is lowered to a horizontal position. As the upper end of the bed descends, it carries upward the tread 9^a, but the lower end of the supports 9, being curved as shown at 9^b, and passing through the yoke 25, forces the tread 9^a, into an oblique position as shown in Figure 3 and the weight of the patient is transferred from the tread 9^a, to the bed 3, 3^a and 3^b of the table.

As the upper end of the table begins its descent, its frame 2, carries with it the link 11, thus applying pressure upon the long end of the lever 12, and tightening the brake band 14 upon the drum 15. The action of the brake band 14 in carrying the drum 15 with it also rotates the hub 19^b, thus carrying the cams 21 and 24, with the hub and increasing the tension upon the corresponding springs.

It is obvious that the size, form, number and proportions of the various parts may be varied to suit the requirements of any particular case, that the method of securing the revolution of the movable cams with the shaft may be varied, and that different forms of springs may be used or other well known forms of elastic resistance may be applied, without departing from the spirit of my invention.

I claim:

1. In a chiropractic table comprising a base and a bed hinged thereto, the combination with a balancing spring adapted to counterbalance the weight of the bed, of an additional spring secured to the base and the bed frame, of sufficient strength to counterbalance the weight of a patient.

2. In a chiropractic table comprising a base and a bed hinged thereto, the combination with a balancing spring adapted to counterbalance the weight of the bed, of an additional spring secured to the base and the bed frame, of sufficient strength to counterbalance the weight of a patient, and means for increasing the tension upon such additional spring in proportion to the weight of the patient.

3. In a chiropractic table comprising a base and a bed frame hinged together, the combination with a balancing spring adapted to counter balance the weight of the bed, of a plurality of additional springs secured to the base and to the bed frame, of sufficient strength to counterbalance the weight of a patient, and means for increasing the tension upon such additional springs in proportion to the weight of the patient.

4. In a chiropractic table comprising a base and a bed frame hinged together, the combination with a balancing spring adapted to counterbalance the weight of the bed, of additional springs secured to the base and the bed frame and means for successively increasing the tension upon such additional springs in proportion to the weight of a patient.

5. In a chiropractic table comprising a base and a bed hinged thereto, the combination with a balancing spring adapted to counterbalance the weight of the bed, of an additional spring secured to the base and the bed frame, of sufficient strength to counterbalance the weight of a patient, and means actuated by the weight of a patient

mounting the table, for increasing the tension upon such additional spring in proportion to the weight of the patient.

6. In a chiropractic table comprising a base and a bed frame hinged together, the combination with a balancing spring adapted to counterbalance the weight of the bed, of a plurality of additional springs secured to the base and to the bed frame, of sufficient strength to counterbalance the weight of a patient mounting the table, and means for increasing the tension upon such additional springs in proportion to the weight of the patient.

7. In a chiropractic table comprising a base and a bed frame hinged together, the combination with a balancing spring adapted to counterbalance the weight of the bed, of additional springs secured to the base and the bed frame and means actuated by the weight of a patient mounting the table, for successively increasing the tension upon such additional springs in proportion to the weight of a patient.

8. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, and means for rotating the cam upon the shaft in a direction increasing the tension upon the cable and spring.

9. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, means for rotating the cam upon the shaft in a direction increasing the tension upon the spring and means for locking the cam to the shaft after being so rotated.

10. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a plurality of cams mounted upon the shaft, a corresponding plurality of springs secured to the base, cables respectively connecting the springs and the cams and means for rotating the cams upon the shaft in a direction increasing the tension upon the springs.

11. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a plurality of cams mounted upon the shaft, a corresponding plurality of springs secured to the base, cables respectively connecting the springs and the cams, means for rotating the cams upon the shaft in a direction increasing the tension upon the springs, and means for locking the cams to the shaft after being so rotated.

12. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a plurality of cams mounted upon the shaft, a corresponding plurality of springs secured to the base, cables respectively connecting the springs and the cams and means actuated by the weight of a patient, for rotating the cams upon the shaft in a direction increasing the tension upon the springs.

13. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a plurality of cams mounted upon the shaft, a corresponding plurality of springs secured to the base, cables respectively connecting the springs and the cams, means actuated by the weight of a patient, for rotating the cams upon the shaft in a direction increasing the tension upon the springs, and means for locking the cams to the shaft after being so rotated.

14. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, a hub mounted upon the shaft and secured to the cam and carrying a lever formed integral with the hub, a tread mounted upon supports, rods slidingly mounted in bearings carried by the bed frame, a pivot securing the lower ends of the rods to the tread supports, and a link having one end pivoted to the upper end of the rod and its lower end pivoted to the hub lever.

15. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, a hub mounted upon the shaft and secured to the cam and carrying a lever formed integral with the hub, a tread mounted upon supports, rods slidingly mounted in bearings carried by the bed frame, a pivot securing the lower ends of the rods to the tread supports, a link having one end pivoted to the upper end of the rods and its opposite end pivoted to the hub lever, and means for locking the cam to the shaft.

16. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, a hub mounted upon the shaft and secured to the cam and carrying a lever formed integral with the hub, a tread mount-

ed upon supports, rods slidingly mounted in bearings carried by the bed frame, a pivot securing the lower ends of the rods to the tread supports, a link having one end pivoted to the upper end of the rods and its lower end pivoted to the hub lever, and means actuated by the descent of the bed, for locking the cam to the shaft.

17. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, a hub mounted upon the shaft and secured to the cam and carrying a lever formed integral with the hub, a tread mounted upon supports, rods slidingly mounted in slots carried by the bed frame, a pivot securing the lower ends of the rods to the tread supports, a link having one end pivoted to the upper end of the rods and its lower end pivoted to the hub lever, a drum formed integral with the hub or suitably secured thereto, a brake band positioned around the drum, a brake lever fulcrumed in one end of the brake band, having one arm connected by a link to the other end of the brake band and another arm connected by a link to the frame of the table bed.

18. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam mounted upon the shaft, a spring secured to the base, a cable connecting the cam and the spring, a hub mounted upon the shaft and secured to the cam and carrying a lever formed integral with the hub or suitably secured thereto, a tread mounted upon one end of supports, the opposite ends of which pass through a yoke secured to the base, a rod slidingly mounted in slots carried by the bed frame, a pivot securing the lower end of the rod to the tread supports, a link having one end pivoted to the upper end of the rod and its lower end pivoted to the hub lever, a drum formed integral with the hub, a brake band positioned around the drum, a brake lever fulcrumed in one end of the brake band, having a short arm connected by a link to the other end of the brake band and a longer arm connected by a link to the frame of the table bed.

19. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam fixed to the shaft connected by a cable to a balancing spring secured to the base of sufficient strength to counterbalance the weight of a bed of the table when empty, an additional cam revolvably mounted upon the shaft, an additional tension spring secured to the base, a cable connecting the additional cam and spring and means actuated by the weight of a patient for revolving the revolvable cam upon the shaft in a direction to increase the tension upon its corresponding spring.

20. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam fixed to the shaft connected by a cable to a balancing spring secured to the base of sufficient strength to counterbalance the weight of a bed of the table when empty, an additional cam revolvably mounted upon the shaft, an additional tension spring secured to the base, a cable connecting the additional cam and spring, and means actuated by the weight of a patient for revolving the revolvable cam upon the shaft in a direction to increase the tension upon its corresponding spring, in proportion to the weight of the patient.

21. In a chiropractic table the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam fixed to the shaft connected by a cable to a balancing spring secured to the base of sufficient strength to counterbalance the weight of a bed of the table when empty, additional cams revolvably mounted upon the shaft, additional tension springs secured to the base cables connecting the additional cams and springs and means actuated by the weight of a patient for revolving the revolvable cams upon the shaft in a direction to increase the tension upon their corresponding springs.

22. In a chiropractic table, the combination with a stationary base having a shaft mounted in bearings carried by the base, of a bed frame secured to the shaft, a cam fixed to the shaft connected by a cable to a balancing spring secured to the base of sufficient strength to counterbalance the weight of a bed of the table when empty, additional cams revolvably mounted upon the shaft, additional tension springs secured to the base, cables connecting the additional cams and springs and means actuated by the weight of a patient for revolving the revolvable cams upon the shaft in a direction to increase the tension upon their corresponding springs in proportion to the weight of the patient.

In testimony whereof he affixes his signature.

HERBERT H. MILLER.