Aug. 16, 1955 G. L. ROCK 2,715,557

ADJUSTABLE HEADREST FOR CHIROPRACTIC TREATMENT

Filed July 9, 1953 2 Sheets-Sheet 1

Fig. 1.

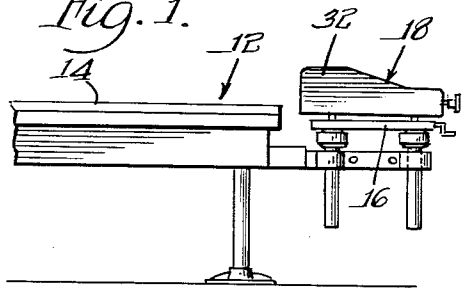


Fig. 2.

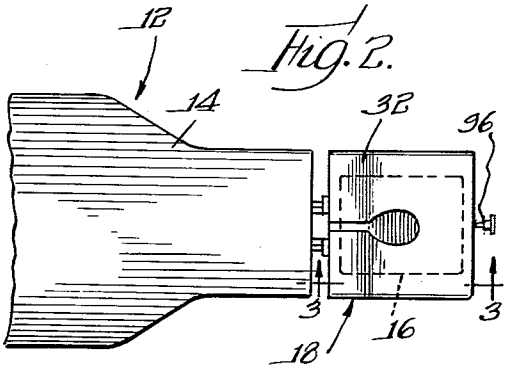
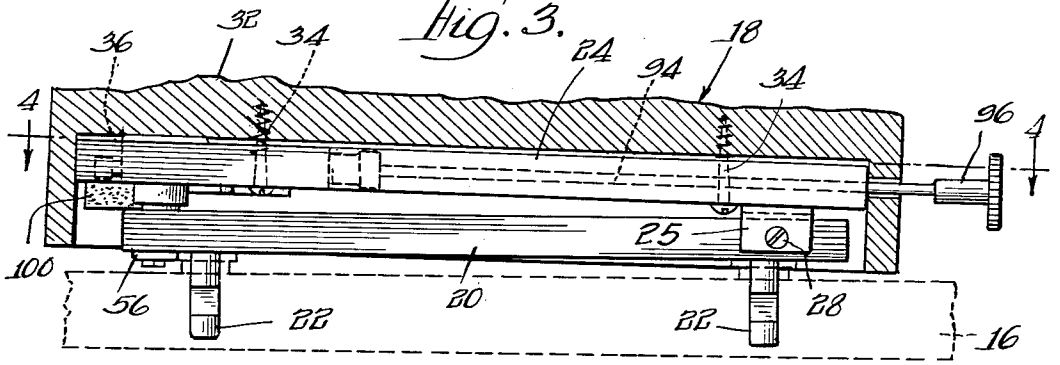


Fig. 3.



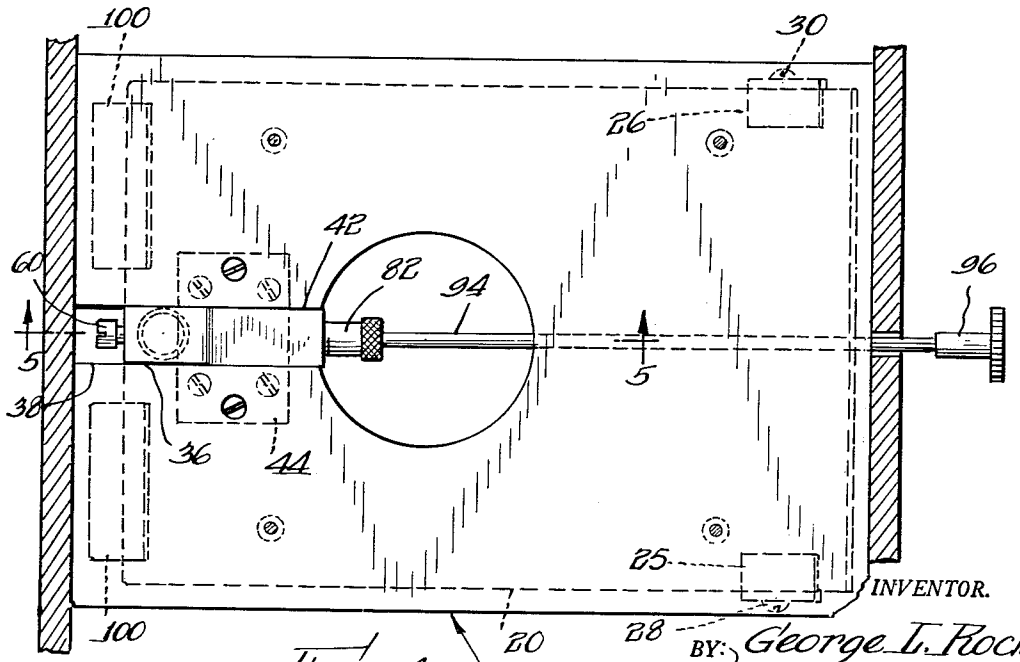


Fig. 4.

INVENTOR.

BY: George L. Rock

Olson & Trexler

Attys.

Aug. 16, 1955 G. L. ROCK 2,715,557

ADJUSTABLE HEADREST FOR CHIROPRACTIC TREATMENT

Filed July 9, 1953 2 Sheets-Sheet 2

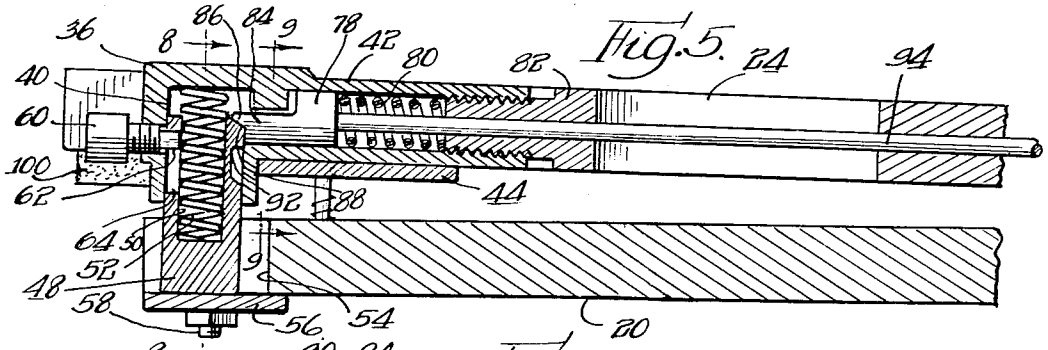


Fig. 5.

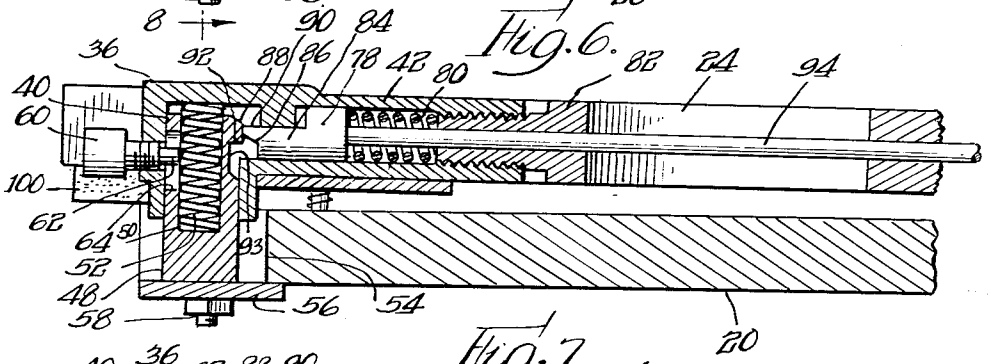


Fig. 6.

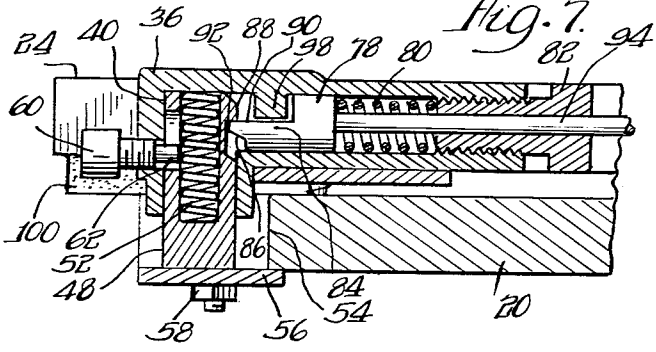


Fig. 7.

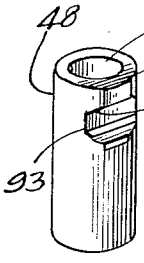


Fig. 10.

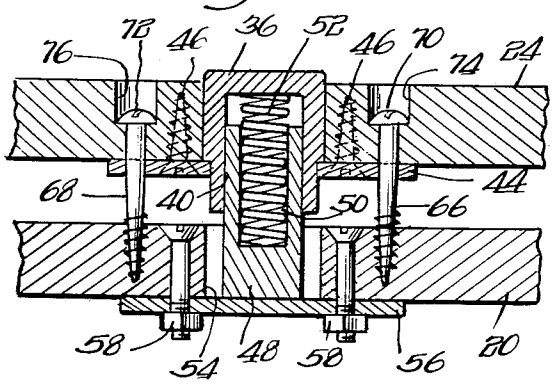


Fig. 8.

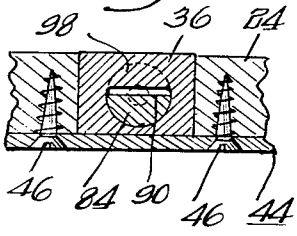


Fig. 9.

INVENTOR.
George L. Rock
BY
Olson & Trevler
attys.

United States Patent Office 2,715,557 Patented Aug. 16, 1955

2,715,557

ADJUSTABLE HEADREST FOR CHIROPRACTIC TREATMENT

George L. Rock, Jonesville, Mich.

Application July 9, 1953, Serial No. 366,943

10 Claims. (Cl. 311—10)

The present invention relates to a novel apparatus for chiropractic treatment, and more particularly to a novel yieldable section, such as a headrest for use with chiropractic tables, benches, and the like.

As is well known, many chiropractic treatments are carried out by applying pressure to the patient in order to obtain a desired adjustment of the vertebrae. One problem encountered by the person administering the treatment is the application of just the right amount of pressure to obtain the desired results. This problem is particularly acute when it is necessary to apply the pressure with a sudden movement since the doctor is unable to gauge the pressure accurately. When insufficient pressure is applied, it is obvious that the desired treatment or adjustment will not be effected, and if too much pressure is applied, the patient may be subject to undue pain and, in addition, the desired results may not be obtained. It is, therefore, a primary object of the present invention to provide a novel apparatus for use in chiropractic treatment, whereby a predetermined pressure may be consistently applied for a given treatment.

Another object of the present invention is to provide a novel apparatus for chiropractic treatment, whereby a predetermined pressure may be applied with a sudden motion to obtain the desired adjustment of the patient.

A more specific object of the present invention is to provide a novel apparatus for use in chiropractic treatment which includes a movable table section or the like on which the patient may rest, which table section is retained against movement until a predetermined pressure has been applied to the patient.

Still another object of the present invention is to provide a novel apparatus of the above described type, wherein movement of the table section is relatively rapid upon the application of a predetermined pressure, and such movement is abruptly stopped to facilitate a desired adjustment of the patient.

A further object of the present invention is to provide a novel apparatus of the above described type which is of simple and economical construction and which is easy to operate.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings, wherein:

Fig. 1 is a fragmentary side elevational view, illustrating a chiropractic table embodying the novel features of this invention;

Fig. 2 is a fragmentary plan view of the chiropractic table shown in Fig. 1;

Fig. 3 is an enlarged vertical cross sectional view taken along line 3—3 in Fig. 2;

Fig. 4 is a cross sectional view taken along line 4—4 in Fig. 3;

Fig. 5 is an enlarged fragmentary cross sectional view taken along line 5—5 in Fig. 4;

Figs. 6 and 7 are fragmentary cross sectional views similar to Fig. 5, but illustrating the operation of the novel apparatus of this invention;

Fig. 8 is a cross sectional view taken along line 8—8 in Fig. 5;

Fig. 9 is a fragmentary cross sectional view taken along line 9—9 in Fig. 5; and

Fig. 10 is a perspective view illustrating a novel element of this invention.

Referring now more specifically to the drawings, wherein like parts are designated by the same numerals throughout the various figures, a chiropractic table **12** illustrating the principles of this invention is shown in Figs. 1 and 2. The table **12** includes a main body section **14** and a headrest table section **16** mounted on the main table section by the adjustable means fully shown and described in my co-pending application, Serial No. 366,949, filed July 9, 1953.

The principles of the present invention are illustrated by the novel headrest **18** mounted on the table section **16** and shown best in Figs. 1, 2, and 3. The headrest **18** includes a base plate member **20** which is adapted to be connected with the top section **16** by a plurality of pins **22** extending into suitable apertures in the top section. A second plate member **24** is superimposed on the plate member **20** and is pivotally connected thereto by hinges **25** and **26** and pivot pins **28** and **30**. A suitable padding **32** of any conventional design adapted to receive the head of a patient is secured to the upper plate member **24** by any suitable means such as screws **34**. With this structure, it is seen that the upper plate member **24** and the padding thereon are mounted for pivotal movement about the pins **28** and **30** to and from upper and lower positions.

The plate member **24** is normally retained in its upper position by the structure shown best in Figs. 4, 5, and 8. This structure includes a housing **36** disposed in a slot **38** in the upper plate member **24** and having a generally vertical disposed bore **40** with an open bottom end. The housing also includes a generally horizontally extending hollow section **42** for a purpose described fully hereinbelow. A plate member **44**, which is secured to the housing by any suitable means, such as welding or brazing, is provided with suitable apertures for receiving screws **46** for securely connecting the housing to the plate member **24**.

In order to urge the plate member **24** to its upper position, a pin **48** (see Fig. 10) is slidably mounted in the vertical bore **40** of the housing **36**, as shown best in Figs. 5 and 8. The pin **48** is provided with a bore **50** for receiving a compression spring **52**, which compression spring acts between the bottom of the bore **50** and the top of the housing **36** to urge the pin downwardly. The lower end of the pin **48** enters a suitable recess **54** formed in the lower plate member **20** and engages a plate **56** closing the bottom of the recess and secured to the plate member **20** by suitable bolt assemblies **58**. It is believed to be obvious that downward movement of the pin **48** is limited by the plate **56**, and, thus, the spring **52** resiliently biases the plate member **24** toward its open position. In order to prevent the pin **48** from rotating in the bore **40**, a screw **60** is threaded into the housing **36** and is provided with a pin **62** entering an elongated vertical slot **64** in the side of the pin **48**. After the apparatus has been assembled, upward movement of the plate **24** is limited by means of a pair of screws or the like **66** and **68** threaded into the lower plate member **20** and extending upwardly through aligned apertures in the housing plate **44** and the upper plate member **24**. The upper ends of the screws **66** and **68** are provided with enlarged heads **70** and **72**, respectively, which are slidable in bores **74** and **76** in the upper plate member and limit upward movement of the plate member **24** by engagement with the bottoms of these bores. While the upper plate mem-

ber **24** is preferably made of wood, it is protected against undue wear from sliding contact with the screws **66** and **68** since the housing plate member **44** is preferably made of metal and provides bearings slidably receiving the screws.

When a patient is to be treated, it is understood that the head of the patient rests on the padding **32**, and the doctor applies a downward pressure so that the padding and the upper plate member **24** move downwardly until the upper end of the pin **48** engages the top of the housing **36**, whereupon such downward movement is abruptly arrested. In accordance with a feature of the present invention, means is provided for preventing such downward movement of the plate member **24** until the desired pressure has been applied to the patient. In addition, as will appear from the description hereinbelow, this means indicates the exact moment when the doctor should relieve the pressure. This means is shown best in Figs. 5, 6, 7, and 9 and includes a plunger **78** slidably mounted in the hollow horizontally extending housing section **42**. The plunger **78** is normally urged toward the left when viewed in Fig. 5 by means of a compression spring **80** acting between the plunger and a plug **82** threaded into the end of the housing section **42**. The plunger **78** includes a finger **84** which extends into the housing bore **40** for engagement with the pin **48**. As shown in Fig. 5, the free end of the plunger is cut away to provide an inclined cam surface **86** cooperable with a similarly inclined cam surface **88** on the pin **48** for restraining upward movement of the pin relative to the housing **36**, and thus restraining downward movement of the plate **24**. These cam surfaces are constructed so that when downward pressure is applied to the plate member **24**, the plunger **78** is forced toward the right against the action of the compression spring **80**. The spring **80** is constructed so as to resist such movement until a predetermined pressure has been applied by the doctor. In addition, the predetermined pressure may be adjusted by controlling the initial compression of the spring **80** with the threaded plug **82**.

When the predetermined downward pressure has been applied to the plate member **24**, the plunger **78** moves toward the right so that the cam surfaces **86** and **88** disengage from each other as shown in Fig. 6 to provide a quick release. When the parts are in Fig. 6 position, it will be understood that the holding or retaining affect of the spring **80** is substantially neutralized by reason of the relative shifting of the cam surfaces **86**, **88** to inoperative holding position and the plate member **24** moves rapidly downwardly until the top of the pin **48** engages the top of the housing **36**, as shown best in Fig. 7.

After the downward movement of the upper plate member **24** has been abruptly stopped, it is desirable to prevent rebound of the plate member in order to allow proper flexing and adjustment of the patient's muscles. Therefore, the action of the spring **52** tending to raise the plate member **24** is neutralized by engagement of an upwardly facing abutment surface **90** on the plunger finger with a downwardly facing abutment or stop surface **92** provided by a recess **93** in the side of the pin **48**. The locking engagement of these surfaces **90** and **92** when the plate member **24** is in its lowermost position is illustrated in Fig. 7.

In order to release the locking surfaces **90** and **92** and permit the spring **52** to raise the plate member **24**, an actuating rod **94** is secured to the plunger and extends outwardly through aligned bores in the threaded plug **82**, the plate member **24**, and the padding **32**, as shown best in Figs. 3 and 4. A knob **96** is secured to the outer end of the rod **94**, whereby the rod may be pulled outwardly, thereby to disengage the locking surfaces **90** and **92**. In order to prevent the plunger from turning during actuation by the rod and to assure proper initial assembly, a block **98** is secured within the housing, as shown in Figs. 5, 6, 7, and 9, for engagement with the upper surface **90** of the plunger finger.

While the operation of the above described apparatus is believed to be clear to those skilled in the art, a brief description of the operation is as follows. The patient is first positioned on the table **12** with his head resting on the padding **32**. The doctor then applied downward pressure with his hands to the correct location on the patient. The doctor applies increasing pressure until a desired predetermined amount has been reached, whereupon the plunger **78** is cammed toward the right until the cam surfaces **86** and **88** disengage from each other. When this occurs, the padding section and the upper plate member **24** move rapidly downwardly until the top of the pin **48** engages the top of the housing. If desired, one or more sponge rubber blocks **100** may be secured to the upper plate member in the manner shown in Figs. 3 and 4 to deaden the sound created when the upper plate member is abruptly stopped. As pointed out hereinabove, upward rebound of the plate member **24** is prevented by locking the pin **48** in the position shown in Fig. 7. In addition, when the rapid downward movement starts, the doctor immediately releases the pressure on the patient. However, the downward movement of the plate member is sufficiently rapid and abrupt so that it is impossible for the doctor to remove the pressure before the lower limit of movement has been reached and the patient has been correctly treated.

From the above description, it is seen that the present invention has provided a novel and simple apparatus, whereby the application of a predetermined pressure for a given treatment is assured. In addition, it is seen that the novel apparatus of the present invention not only indicates to the doctor that the correct pressure has been applied, but also indicates substantially the exact moment when he should start to relieve the pressure. Furthermore, it is seen that while the present invention has provided resilient means for retaining the padding against downward movement until the predetermined pressure has been applied, means has also been provided to prevent rebound of the padding, thus allowing proper adjustment of the patient's muscles. It will be understood that while the principles of the present invention have been described with particular reference to a headrest for a chiropractic table, the same principles may be applied to other sections of a chiropractic table.

While the preferred embodiment of the present invention has been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

I claim:

1. In an apparatus for use in chiropractic treatment, a member for supporting a portion of the body of a patient, means mounting said member for movement to and from upper and lower positions, means for normally retaining said member in said upper position and operable to permit said member to be moved to said lower position, and resilient means for locking said last named means to prevent downward movement of said member until a predetermined downward pressure is applied to said member and for releasing said member for downward movement when said predetermined pressure is applied thereto.

2. In an apparatus for use in chiropractic treatment, a member for supporting a portion of the body of a patient, means mounting said member for movement to and from upper and lower positions, resilient means for normally supporting said member in said upper position, means for retaining said member substantially at said upper position during the application of downward pressure thereto until said pressure is built up to a predetermined amount and for releasing said member when said predetermined amount of pressure has been applied for movement against the action of said resilient means and to said lower position, and means operable when said member is adjacent said lower position to render said resilient means ineffective, whereby to eliminate substantially rebound of said member.

3. In an apparatus for use in chiropractic treatment, a base member, a support member movably mounted above said base member for movement to and from upper and lower positions, which support member is for supporting a portion of the body of a patient, pin means mounted on one of said members for movement to and from extended and retracted positions, said pin means when in its extended position being operatively engageable with the other of said members for retaining said support member in its upper position, and spring means for retaining said pin means in its extended position during the application of downward pressure to said support member until said pressure is built up to a predetermined amount and for releasing said pin means when said predetermined amount of pressure has been applied and permitting downward movement of the support member.

4. An apparatus, as defined in claim 3, which includes means for abruptly limiting the downward movement of said support member.

5. An apparatus, as defined in claim 3, which includes spring means for resiliently biasing said pin means toward its extended position, locking means for locking said pin means in its retracted position when the support member is adjacent its lower position to prevent substantial rebound of said support member, and means for operating said locking means to release the pin means, thereby permitting the pin means to return to its extended position.

6. An apparatus, as defined in claim 3, wherein said pin means and said spring means include cooperating cam surfaces extending at an angle to the direction of movement of the pin means so that upon the application of said predetermined amount of downward pressure, said cam surfaces cause movement of the spring means so as to release the pin means.

7. In an apparatus for use in chiropractic treatment, a base member, a support member movably mounted above said base member for movement to and from upper and lower positions, which support member is adapted to support a portion of the body of a patient, one of said members having an element movably mounted thereon so that a portion of said element is movable toward and away from the other of said members, said element when in one position retaining said support member in its upper position, and resiliently biased cam means engageable with said support element to retain said support element in said one position until a predetermined amount of downward pressure is applied to said support member, whereupon said cam means is operable to release said support element and permit downward movement of the support member.

8. An apparatus, as defined in claim 7, which includes spring means for resiliently biasing said support element towards said one position, and releasable means for locking said support element against movement toward said one position when the support member is adjacent its lower position, whereby to eliminate substantially rebound of said support member.

9. An apparatus, as defined in claim 7, wherein said cam means is mounted for reciprocable movement and includes a cam surface and a locking surface, and said support element includes a cam surface cooperable with said first mentioned cam surface to retain the support element in said one position until the application of said predetermined amount of downward pressure, and said support element includes a locking surface engageable with said first mentioned locking surface to restrain the support element against movement towards said one position after the support member has been moved downwardly to its lower position.

10. In an apparatus for use in chiropractic treatment, a member for supporting a portion of the body of a patient, means mounting said member for movement to and from upper and lower positions, and means retaining said member substantially at the upper position thereof and resistant to downward movement of the number upon application thereto of a downward pressure up to a predetermined amount and including quick release means shiftable upon attainment of the predetermined amount of downward pressure to an inoperative position permitting sudden downward movement of the supporting member to its lower position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,079,795	Naysmith	Nov. 25, 1913
1,194,939	Bishop	Aug. 15, 1916
1,269,354	Williams	June 11, 1918
2,381,922	Norris	Aug. 14, 1945
2,571,829	Buckley	Oct. 16, 1951