

United States Patent

Eisenhauer

[15] 3,637,260

[45] Jan. 25, 1972

[54] INTEGRAL SEAT AND LEG SUPPORT	2,609,864	9/1952	Gates, Jr.....	297/430
[72] Inventor: Leigh E. Eisenhauer, 3 Warren Road, Van Wert, Ohio 45891	3,129,976	4/1964	Barker et al.....	297/423
	3,259,427	7/1966	Wiest.....	297/232

[22] Filed: Aug. 10, 1970

[21] Appl. No.: 62,337

Primary Examiner—Casmir A. Nunberg
Attorney—Whittemore, Hulbert & Belknap

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 776,917, Nov. 19, 1968.

[52] U.S. Cl. 297/433, 4/254, 128/25, 297/438

[51] Int. Cl. A47c 1/037, A47c 4/52

[58] Field of Search 297/183, 312, 313, 423, 429, 297/433, 438, DIG. 10; 128/25; 272/58, 71; 4/254; 5/61, 62, 81

[56] References Cited

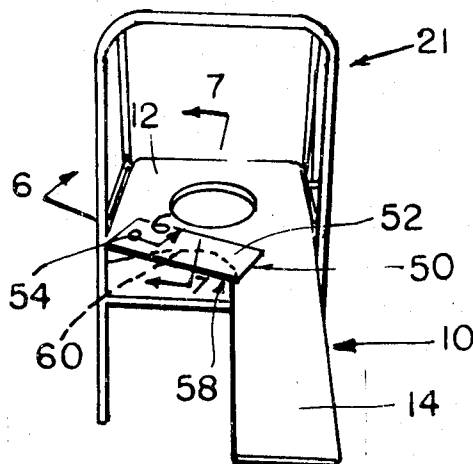
UNITED STATES PATENTS

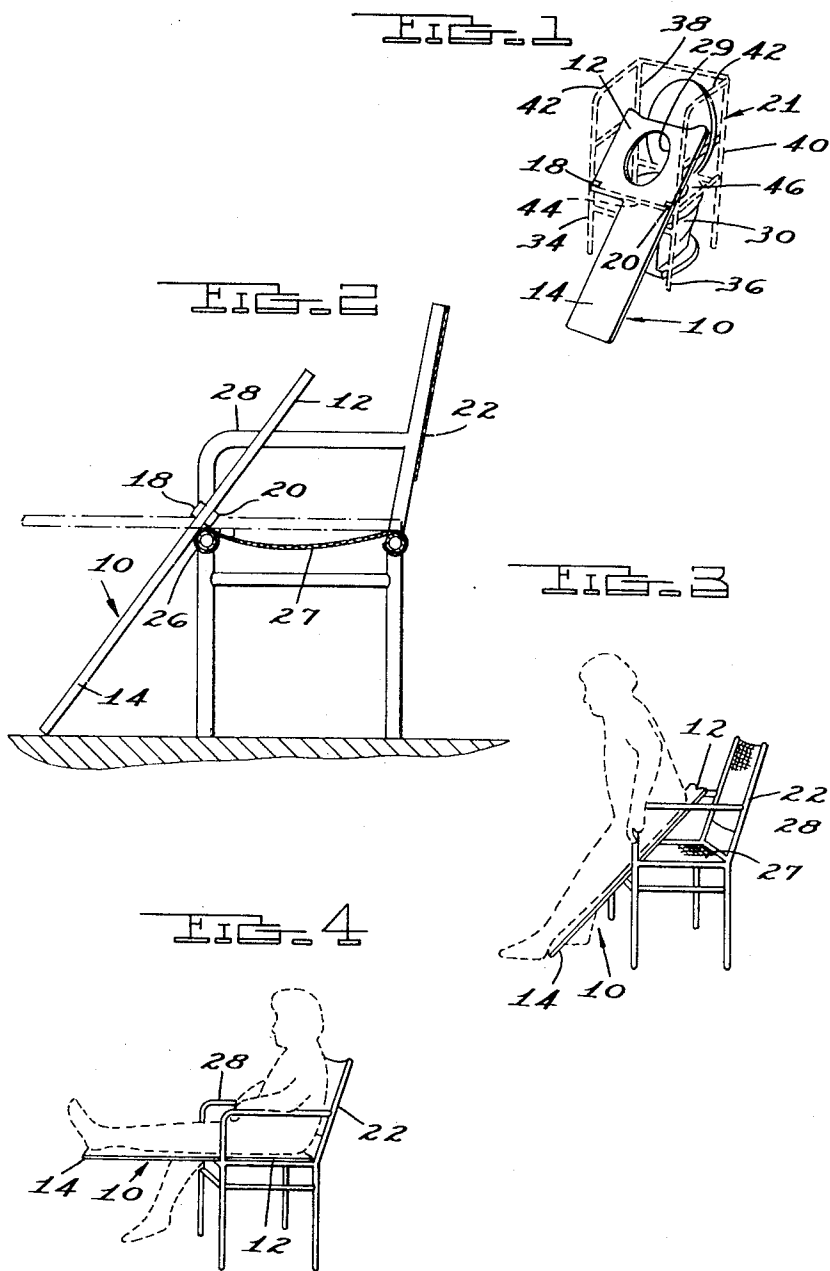
657,875 9/1900 Johnson.....297/313

[57] ABSTRACT

A combination seat and leg support which is preferably in the form of an elongated substantially flat board having a seat portion and a leg supporting portion extending outward from one side of the front edge of the seat portion to support one leg of a person sitting on the seat portion without interfering with the person's other leg. The combination seat and leg support may for example be used by a person having an injured knee or following knee injury. A flexing bar is mounted on the seat portion so that the knee ligaments and muscles may be exercised and the knee joint gradually returned to a normal range of activity.

4 Claims, 7 Drawing Figures





INVENTOR
LEIGH E. EISENHAUER
BY

Whittemore, Hulbert & DeKnap
ATTORNEYS

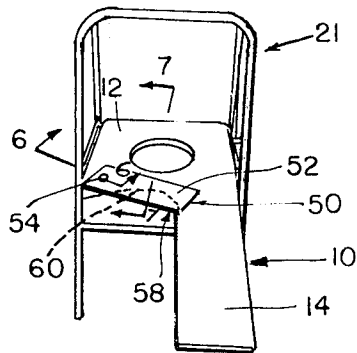


FIG. 5.

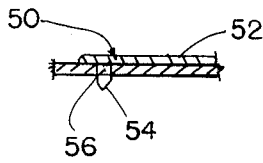


FIG. 6.

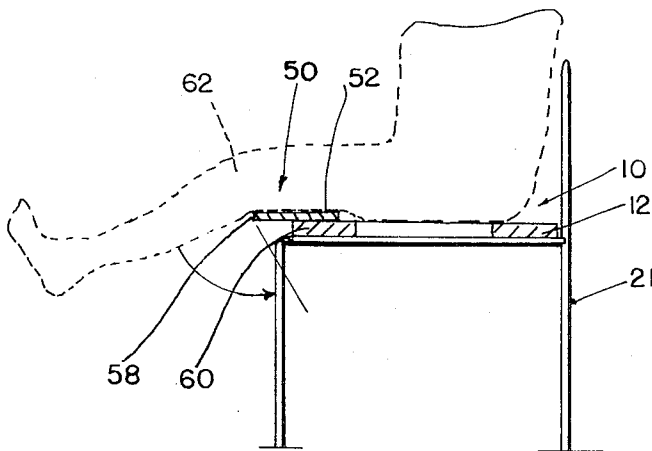


FIG. 7.

INVENTOR

LEIGH E. EISENHauer

BY

Whittemore, Halbert & Belk, s.p.

INTEGRAL SEAT AND LEG SUPPORT

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation-in-part of my copending patent application Ser. No. 776,917, filed Nov. 19, 1968 now U.S. Pat. No. 3,565,485.

SUMMARY OF THE INVENTION

One object of this invention is to provide a combination seat and leg support for supporting one leg of a person in an outright position when the person is seated.

Another object is to provide a combination seat and leg support which will automatically raise one leg when the person sits down.

Another object is to provide a combination seat and leg support comprising an elongated member having a seat portion and a leg-supporting portion extending outward from the front edge of the seat portion, the member being adapted to fulcrum adjacent the front edge of its seat portion about an edge of a supporting structure from a downwardly sloping position in which the end of the leg supporting-portion engages the floor to a generally horizontal leg-supporting position thus automatically raising one leg when the person sits down.

Another object is to provide a combination seat and leg support wherein the leg-supporting portion is narrower than the seat portion and disposed near one side edge of the seat portion in order not to interfere with the person's other leg.

Another object is to provide a combination seat and leg support which is in the form of an elongated substantially flat board of integral one-piece construction.

Another object is to provide a combination seat and leg support having means on one or both sides thereof to facilitate the fulcruming action.

Another object is to provide a combination seat and leg support having a hole through the seat portion for use in connection with a toilet.

Another object is to provide a flexing bar so that a person having an injured knee or a knee that has been surgically operated upon may exercise the knee ligaments and muscles and gradually return the knee joint to a normal range of activity.

Another object is to provide a flexing bar or board which is hinged to the seat portion of the support so as to be adjustable.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a combination seat and leg support constructed in accordance with my invention and showing the same disposed in an inclined position against an edge of a supporting frame placed over a toilet.

FIG. 2 is a side elevational view of the combination seat and leg support shown with a chair in a position ready for use in solid lines and substantially horizontal in dotted lines.

FIG. 3 is a perspective view of the structure of FIG. 2 showing a person about to use the combination seat and leg support.

FIG. 4 is similar to FIG. 3 but shows the person fully seated.

FIG. 5 shows a modification in perspective, in which the combination seat and leg support is in inclined position against the front edge of a supporting frame and has the end of its leg-supporting portion engaging the floor.

FIG. 6 is a fragmentary sectional view taken on the line 6—6 in FIG. 5.

FIG. 7 is a fragmentary sectional view taken on the line 7—7 in FIG. 5, the support being shown in horizontal position with its seat portion resting upon the seat of the supporting frame.

The combination seat and leg support of my invention is particularly intended for home and hospital use by persons who are required for one reason or another to keep one leg straight at all times, such for example as persons recovering from knee surgery or having a leg in a cast from hip to ankle.

The combination seat and leg support is generally indicated at 10 in the drawing and comprises an elongated substantially flat board of integral one-piece construction having coplanar seat and leg-supporting portions 12 and 14. The board may be of any suitable material sufficiently strong to support the leg of a person when seated, such for example as wood, metal or plastic.

The seat portion 12 is shown as being substantially rectangular in form but obviously may be round or any other shape. The leg supporting portion 14 is an integral extension of the seat, and as shown extends forwardly from one-half of the front edge of the seat portion. The leg-supporting portion 14 is narrower than the seat and in the particular embodiment shown is about one-half the width of the seat. The leg-supporting portion 14 has one of its longitudinal edges substantially forming a continuation of one side edge of the seat portion and the other of its longitudinal edges is disposed substantially in continuation of the longitudinal center line of the seat. Thus one-half of the front edge of the seat is unobstructed so as not to interfere with the other leg of the person when he sits down. The length of the leg-supporting portion should preferably be as long as or slightly longer than the leg of the person to be supported so as to provide a full leg support.

The combination seat and leg support has transversely aligned ribs 18 on one side and transversely aligned ribs 20 on the other side, located on the seat portion 12 adjacent to the front edge thereof. The ribs on one side of the support are intended to engage the edge of a support structure with which the board is to be used to facilitate the fulcruming action when the person sits down. The ribs on each side of the support are separated so that the ribs not in use on the upper side of the support will be spaced to the sides of the person sitting down.

In use, the combination seat and leg support 10 will be propped up against the edge of a support structure, such as the frame 21 in FIG. 1 or the chair 22 in FIGS. 2-4. Referring to FIGS. 2-4, one set of the ribs 18, 20 engage the front edge 26 of the chair seat 27. The lower end of the leg-supporting portion 14 engages the floor, and the seat portion 12 extends upwardly at an angle over the seat 27 of the chair. When the person wishes to sit down he will stand in front of the inclined board 10 with the leg he desires to keep straight in front of the leg-supporting portion 14 of the board. When he sits down he may grasp the arms 28 of the chair as shown. The weight of his body on the seat portion 12 will automatically cause the board to fulcrum about the ribs 18 or 20 thus automatically raising one leg to a generally horizontal position. The knee is not required to bend at all during this action, and the raising of the leg to horizontal position is automatic and requires no assistance from any other person.

To rise from the chair, the person will normally grasp the arms 28 because he will in most instances need to use his own arms to assist in raising his body. Then as his weight is lifted from the seat, the elevated leg will cause the board to return to the inclined position shown in FIG. 3.

The board in no way interferes with the other leg of the person during the time that he seats himself or rises. It will be obvious that by merely turning the board over it may be used as a support for the other leg.

As shown, the seat portion 12 preferably will have a hole 29 in it so that it can be used with a toilet just as readily as with a chair. However, the hole in the seat portion does not prevent the board from ordinary use with a chair.

FIG. 1 shows the board in position for use with a toilet 30. Ordinarily a person requiring the use of the board to support his leg will also need arm rests to assist him in raising and lowering his body. Hence the movable frame 21 is employed. This frame has the four uprights 34, 36, 38 and 40 which are adapted to rest on the floor at opposite sides of the toilet, and the arm rests 42 at the top. The frame has a transverse horizontal bar 44 at the front between uprights 34 and 36 about which the board fulcrums in the same way it fulcrums about edge 26 in FIG. 2. The bar 44 is at about the level of the toilet seat 46.

In the event that both legs of the person need to be supported, two boards 10 of identical construction may simultaneously be used back to back, that is the second board will overlie the first with the seat portions in register, or overlying relation, but the second board will be turned over so that its leg-supporting portion will not overlie the leg-supporting portion of the first board but rather will extend alongside of it to support the other leg of the person.

FIGS. 5-7 illustrate a modification of the invention. The combination seat and leg support is the same as the one illustrated in FIGS. 1 to 4 and therefore likewise is designated 10. Such combination seat and leg support 10 in FIG. 5 is shown in inclined position against the front edge of the frame 21 in the same relationship thereto as shown in FIG. 1, although the view in FIG. 5 is taken straight on from the front.

The modification of the invention as shown in FIGS. 5-7 consists in the addition of the flexing bar 50 to the combination seat and leg support 10. The flexing bar 50 is in the form of a flat rectangular bar or board 52. The board 52 when attached to the combination seat and leg support rests flat upon the upper surface of the seat portion 12.

A hinge pin 54 is rigid with and extends downward from the flexing bar or board 52. The hinge pin is located adjacent one end of the bar, that is the end remote from the leg-supporting portion of the support 10.

The seat portion 12 has a hole 56 extending through it. Hole 56 is located near the front edge of the seat portion 12 and adjacent the side edge of the seat portion remote from the leg-supporting portion 14.

The flexing bar or board 52 is removably mounted on or attached to the support 10 by engagement of the hinge pin 54 in hole 56 as in FIGS. 5 and 6. In this position of flexing bar or board 52, its front edge 58 is located slightly forwardly of the front edge 60 of the seat portion 12.

The flexing bar or board 52 is employed to provide a support for the knee of a person who wishes to exercise his knee in order for example to strengthen the knee ligaments and muscles following surgery. FIG. 7 shows a person seated upon the support 10 and it will be noted that his knee 62 is supported by the front edge 58 of the flexing bar or board 52 just above the knee. In this position, the person may flex his lower leg up and down gradually through an increasing angle as shown by the arc in the Figure in order to restore the knee that has been injured or operated upon to full mobility and to strengthen the ligaments and muscles of the knee. It will be understood that in order to make use of the flexing bar or board 52, the person must shift or turn his body so that the leg intended to be supported by the leg supporting portion 14 ex-

tends to the left of the board in FIG. 5 out over the flexing board 52.

In use, the flexing board 52 may be adjusted by turning it about the hinge pin 54 to the desired angle so that its front edge will engage just above the knee of the leg requiring therapy.

The board 52 is relatively rigid and may be made of any suitable material such as wood, metal or plastic. It is thin enough so as not to be uncomfortable when the person is seated upon the support. When it is not desired to use the flexing board 52, it may be readily removed by simply lifting the hinge pin 54 out of hole 56.

What I claim as my invention is:

1. A combination seat and leg support for use with a chair, bed or like support structure, comprising an elongated member having a seat portion at one end, and a leg supporting portion rigid with and extending outward from the front edge of said seat portion, said leg-supporting portion being narrower than said seat portion and disposed near one side edge of said seat portion to support outright one leg of a person sitting on said seat portion while not interfering with the person's other leg, said elongated member being adapted to fulcrum at an intermediate point in its length about an edge of said support structure from a downwardly sloping position in which the end of said leg-supporting portion engages the floor to a generally horizontal leg-supporting position in which said seat portion rests upon said support structure, whereby to automatically raise one leg when the person sits down, and a flexing bar on said support for supporting said one leg of the person above the knee when the person seated upon said seat portion shifts his one leg away from said leg-supporting portion, to enable the said one leg to be bent at the knee through a gradually increasing angle for the exercise and strengthening of the knee ligaments and muscles.

2. The combination seat and leg support defined in claim 1, wherein said flexing bar is mounted on said seat portion to one side of said leg-supporting portion and has a front edge for engaging the said one leg of the person above the knee when said one leg is bent through a gradually increasing angle as aforesaid.

3. The combination seat and leg support defined in claim 2, wherein means are provided for removably connecting said flexing bar to said support.

4. The combination seat and leg support defined in claim 3, wherein said removable connecting means comprises a pivot connection enabling said flexing bar to be adjusted to a convenient angle.

* * * * *

50

55

60

65

70

75