

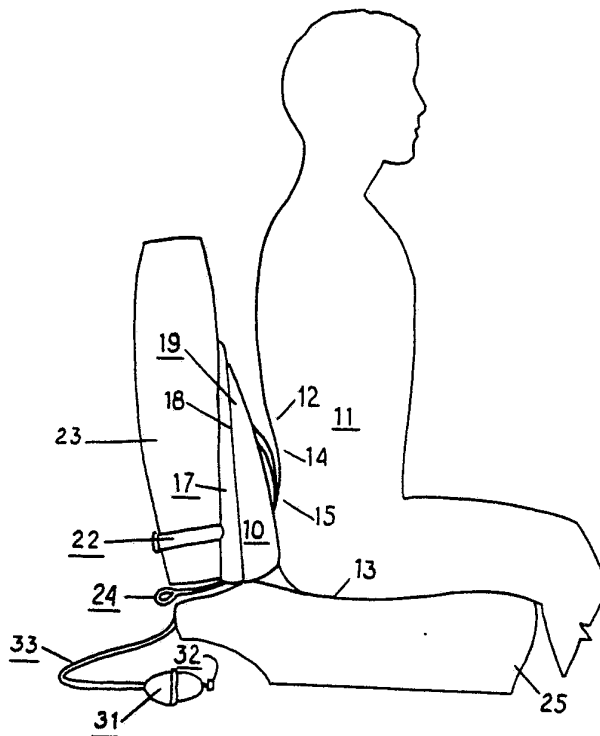


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/US84/00500 (22) International Filing Date: 2 April 1984 (02.04.84) (31) Priority Application Number: 516,111 (32) Priority Date: 22 July 1983 (22.07.83) (33) Priority Country: US  (71)(72) Applicants and Inventors: GRM, Heinz-Gert [DE/US]; 939 South Main Street, Amherst, OH 44001 (US). BAXTER, Kern, C., A. [US/US]; 820 Sheffield Road, Sheffield Lake, OH 44054 (US). (74) Agents: NUNEZ, Gustalo; 4463 Oberlin Avenue, Lorain, OH 44053 (US) et al.  (81) Designated States: DE, FR (European patent), GB, JP.</p>	<p><b>Published</b> <i>With international search report.</i></p>
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(54) Title: A PRESSURE EXERTING DEVICE



(57) Abstract

A pressure exerting device (10) comprising a resilient wedge shaped member (17) and modified U-shape air bladder (19) which may be filled to selected air pressure exerts pressure to a pre-selected pressure in a uniform manner over selected lumbar and sacroiliac areas (12, 14, 15) of the body.

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A PRESSURE EXERTING DEVICEBACKGROUND OF THE INVENTION1 Field of the Invention

5 The field of the invention is a pressure exerting device capable of exerting pressure to surface of a body in a preselected ounce per square inch pressure in a uniform manner throughout a preselected area of the surface of the body.

Description of the Prior Art

10 The nearest prior art known to the inventor are back supporting cushions made of foam rubber or foam plastic. Also, various designs of air pressure filled splints for ankels, etc., have been used in the past. The present inventor is not aware of a specific device which is of modified U-shaped air bladder so that it will exert an even pressure over a desire portion of the lumbar and gluteal areas or the renial and sacroiliac areas of the lower back of the human body while not putting pressure on the dorsal and lumbar vertebrate. Further, the inventor is not aware of any prior devices wherein the degree of pressure or the resiliency of the device  
15  
20 maybe preselected and changed at anytime by the user thereof.

Thus, in distinquishing over the prior art known

1 to the inventor one of the objects of this invention is  
to provide a pressure exerting device capable of exerting  
pressure to the surface of the body in a preselected  
pounds per square inch pressure in a uniform manner  
5 throughout a preselected area of the surface of the body.

A specific object is to provide a device capable  
of exerting pressure to the lumbar and sacroiliac areas  
of a human body in a preselected pressure uniform  
throughout said areas.

10 Other objects and advantages and differences of  
the present invention over prior art will become apparent  
from the following descriptions of the preferred embodiment  
of the invention when taken in conjunction with the appended  
drawings.

15 DESCRIPTION OF THE DRAWINGS

Fig. 1 is a side view of a preferred embodiment  
of the invention.

Fig. 2 is a front view of a preferred embodiment  
of the invention, partially in section.

20 Fig. 3 is a sectional view along the lines 3-3  
of Fig. 2.

Fig. 4 is a sectional view along the lines 4-4  
of Fig. 2.

DESCRIPTION OF PREFERRED EMBODIMENT

25 In Fig. 1 there is illustrated a pressure exerting  
device 10 conformable to the contour of a body 11 to  
exert pressure to the surface of the body in a preselected  
pounds per square inch in a uniform manner throughout a  
preselected area of the surface of the body. In this  
30 instance, the body 11 is a human body having a lumbar  
area 12, a gluteal area 13, reinal area 14 and a  
sacroiliac area 15. In Fig. 1 the device 10 is not in  
full area contact with the body 11 to exert pressure to

1 the surface of the body in the full preselected area  
thereof. Such full pressure exerting contact area  
would be formed by moving the body 11 to the left into  
fuller engagement and larger area engagement with the  
5 pressure exerting device 10 in Fig. 1.

The pressure exerting device 10 comprises a wedge  
shaped member 17 of resilient material having a continuous  
surface 18 and a modified U-shaped air bladder 19 on the  
continuous surface 18. The wedged shaped member 17 has  
10 a thin upper end 20 and a thick lowered end 21, it may  
be covered with cloth, not shown in the drawing, or it  
may be left as a resilient sponge like material cast  
or otherwise formed in the wedged shaped formation.  
Secured to the wedge shaped member 17 and in the lower  
15 portion thereof towards the thick lower end 21 is a  
belt 22 which may be used to encircle the chair or seat  
such for example the seat back 23 in Fig. 1. Also, se-  
cured to the thick lower end 21 is an anchor 24 which may  
be inserted between a seat back 23 and a seat cushion 25  
20 of a chair or the like as illustrated in Fig. 1 to secure  
and hold the thick lower end 21 next adjacent the seat  
cushion 25.

The air bladder 19 is preferably of a modified U-  
shaped having a base portion or sacroiliac bladder  
25 portion 26 at the thick end of the wedged shaped member  
17 and left and right lumbar bladder portions or legs 27  
and 28 respectively extending along the opposite edges  
of the continuous surface 18 from the thick lower end 21  
substantially to the thin upper end 20 of the wedge shaped  
30 member 17. The sacroiliac portion of the air bladder 19  
expands outwardly from the continuous surface 18 a distance  
greater than either of the lumbar portions of the air  
bladder extend outwardly from said continuous surface

RECEIVED



1 when the air bladder is filled with air and not exerting  
pressure against the sacroiliac and lumbar portions of  
the body.

5 The air bladder 19 maybe secured to the wedged  
shaped member 17 by any suitable means and in my preferred  
embodiment is held against the continuous surface 18 by  
a cover 29 which may be made of cloth, velour or such  
other substance as desired. I have found the cover 29  
to be very practical because it can be easily cleaned  
10 and also holds the operative parts of the device in  
operative relation with each other. I have also found  
that the belt 22 and anchor 24 may be secured to the cover  
as well as secured directly to the wedged shaped member  
17 and extend through the cover. When a cover 29 is used  
15 it may form a pocket for insertion of a heating element  
not illustrated, in and on that portion of the continuous  
surface 18 not covered by the air bladder 19. Thus, a  
heat generating means would lie against the continuous  
surface 18 between the lumbar portions 27 and 28 of the  
20 air bladder 19 and between the sacroiliac portion 26 of  
the air bladder 19 and the thin upper end 20 of the wedged  
shaped member 17. The heat generating means may be of  
any suitable type for example, an electrically operated  
heat pad. The area of the continuous surface where the  
25 heat generating means would be held by the cover 27 is  
indicated by the numeral 30 of the drawings.

The air bladder 19 is filled with air to a pre-  
selected pressure by a hand operative device or pump 31  
which is provided with a release valve 32. The pump 31  
30 is connected to the bladder by hose 33 of sufficient length  
that the bladder may be filled to the preselected pressure  
to be exerted against the sacroiliac and lumbar portions  
of the body while the device is in pressure exerting re-  
lationship with the body. If too much air is pumped into

1 the air bladder some of the air may be released and thus  
the pressure reduced by opening the valve 32 to obtain the  
selected pounds per square inch pressure desired.

5 While the pressure exerting device has been designed  
specifically for use in connection with the sacroiliac  
and lumbar areas and renal areas of the body it is under-  
stood that it can be used by changing the pressure in the  
air bladder in the upper neck and other portions of the  
body if desired.

10 It is thus apparent in the preferred embodiment  
of my invention the combination of the somewhat resilient  
wedged shaped member and the air bladder provide a  
pressure exerting device which will exert a pressure  
to the surface of the body in a preselected pounds per  
15 square inch pressure in a uniform manner throughout the  
preselected area of the surface. While various modifi-  
cations of the materials used will become apparent to those  
who construct similiar devices and various sizes and  
dimensions may be required depending on the size of the  
20 areas of the body on which pressure is to be exerted.  
Such modifications are anticipated as coming within  
the spirit and scope of the invention.

SUBSTITUTE SHEET



## What is Claimed:

1           1. A pressure exerting device conformable to  
2 the contour of a body to exert pressure to the surface  
3 of the body in a preselected pounds per square inch  
4 pressure in a uniform manner throughout a preselected area  
5 of the surface of the body, said device comprising, a wedge  
6 shaped member of resilient material having a continuous  
7 surface, a modified U-shaped air bladder on said continuous  
8 surface with the base of the U-shaped bladder at the  
9 thick end of the wedge shaped member and with the legs  
10 of the U-shaped bladder extending along the opposite edges  
11 of said surface from said thick end substantially to the  
12 thin end thereof, means securing said bladder to said  
13 continuous surface, and hand operative means connected  
14 to said bladder to fill said bladder with air to a selected  
15 pressure while the device is in pressure exerting contact  
16 with a body.

1           2. A pressure exerting device conformable simul-  
2 taneously to the left and right lumbar areas and the sac-  
3 roiliac area of a body to exert pressure thereto in a  
4 preselected pounds per square inch pressure in a uniform  
5 manner throughout said preselected areas, said device  
6 comprising, a wedge shaped member of resilient material  
7 having a continuous surface, a modified U-shaped air bladder  
8 on said continuous surface with a base of the U-shaped  
9 bladder defining a sacroiliac bladder portion at the thick  
10 end of the wedge shaped member and with the legs of the  
11 U-shaped bladder defining left and right lumbar bladder  
12 portions respectively extending along the opposite edges  
13 of said surface from said thick end substantially to the  
14 thin end thereof, means securing said bladder to said  
15 continuous surface and hand operative means connected  
16 to said bladder to fill said bladder with air to a selected  
17 pressure while the device is in pressure exerting contact  
18 with the respective lumbar and sacroiliac areas of a body.

SUBSTITUTE SHEET





1                   3. The structure as defined in Claim 2 wherein  
2                   said sacroiliac portion of said bladder expands outwardly  
3                   from said continuous surface a distance greater than  
4                   either of said lumbar portions of said bladder expand out-  
5                   wardly from said continuous surface.

1                   4. The structure as defined in Claim 2 including  
2                   heat generating means covering at least a mjaor portion,  
3                   that portion of the said continuous surface between said  
4                   lumbar portions of said bladder and between said sacroiliac  
5                   portion of said bladder and said thin end of said wedge  
6                   shaped member.

1                   5. The structure as defined in Claim 2 including  
2                   said hand operative means being operable to selectively  
3                   pump air into said bladder or release air from said bladder.

1                   6. The structure as defined in Claim 2 including  
2                   fastening means for fastening said device to a back of  
3                   a chair shaped support on which said body may sit.

SUBJECT TO BE MET



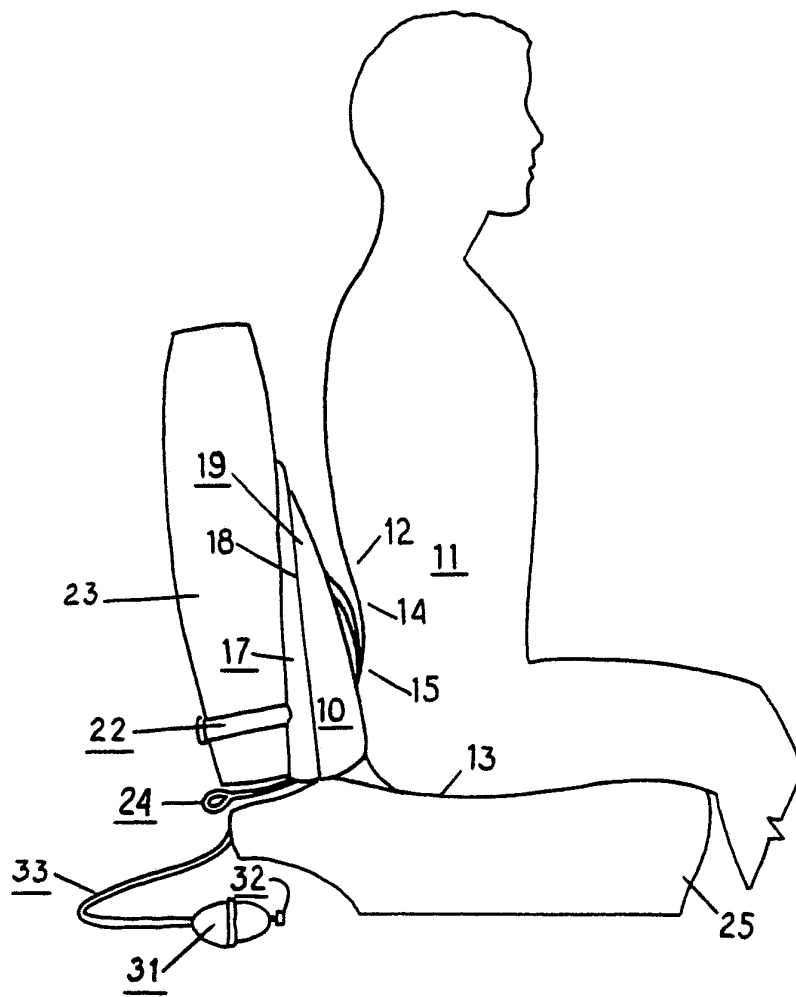


Fig. 1

Fig. 3

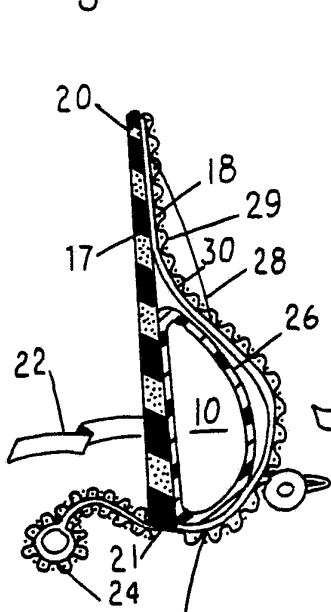


Fig. 2

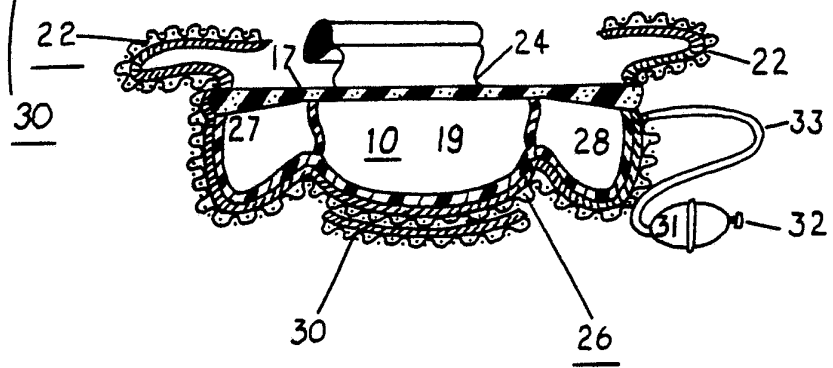
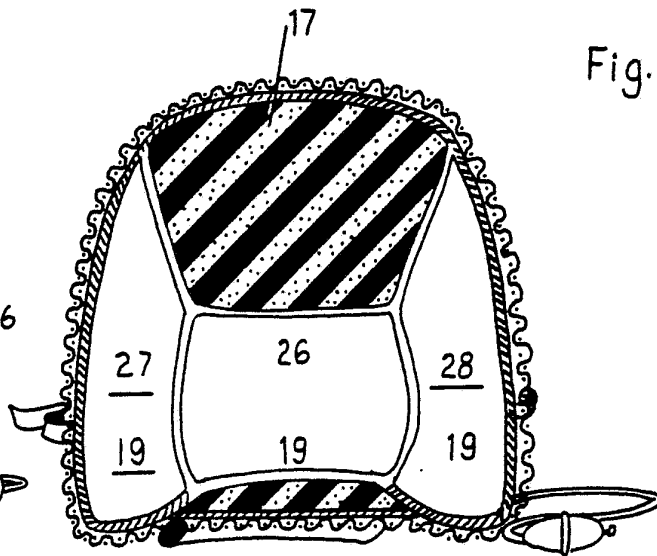


Fig. 4



# INTERNATIONAL SEARCH REPORT

International Application No PCT/US84/00500

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) <sup>3</sup>			
According to International Patent Classification (IPC) or to both National Classification and IPC			
Int C1 A61F 5/00			
US C1 128/70, 297/284			
<b>II. FIELDS SEARCHED</b>			
Minimum Documentation Searched <sup>4</sup>			
Classification System	Classification Symbols		
US	128/1R, 128/69-71, 78, 128/132R, 128/DIG 20 297/284, 297/460		
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>5</sup>			
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <sup>14</sup>			
Category *	Citation of Document, <sup>16</sup> with indication, where appropriate, of the relevant passages <sup>17</sup>	Relevant to Claim No. <sup>18</sup>	
A	US, A, 3,348,880	24 October 1967 SWANN	
A	US, A, 4,071,031	31 January 1978 LOWMAN	
Y	US, A, 3,974,827	17 August 1976 BODEEN	1-6
X	AT, , B, 267,348	27 December 1968 SCHMIRLER	1-6
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<b>IV. CERTIFICATION</b>			
Date of the Actual Completion of the International Search <sup>2</sup>	Date of Mailing of this International Search Report <sup>2</sup>		
21 June 1984	<b>27 JUN 1984</b>		
International Searching Authority <sup>1</sup>	Signature of Authorized Officer <sup>20</sup>		
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