Jan. 22, 1957 S. KELES 2,778,358

ORTHOPEDIC SPINAL AND HIP JOINT ATTACHMENT

Filed Oct. 15, 1953

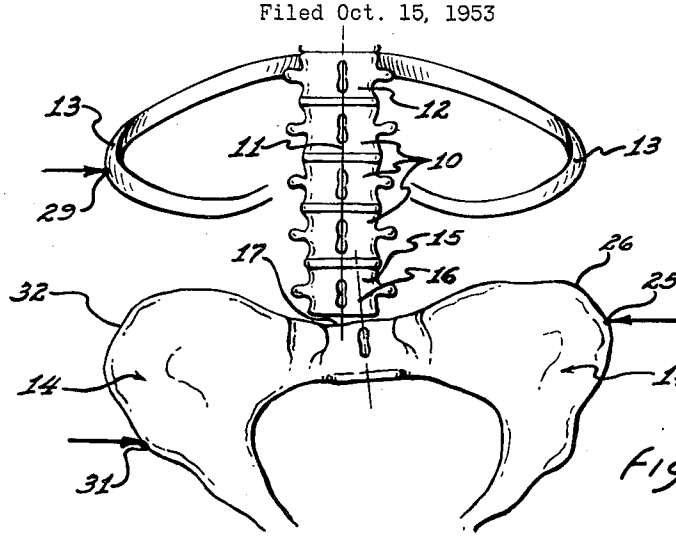


Fig. 1

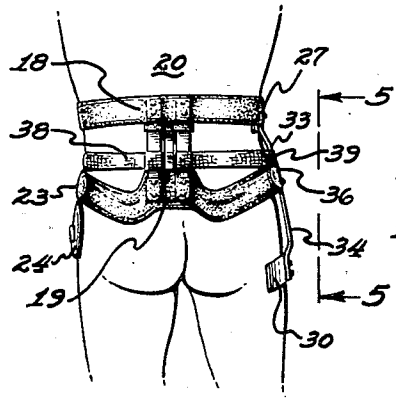


Fig. 2

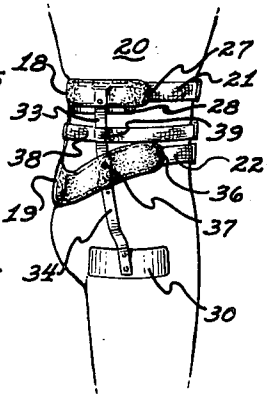


Fig. 3

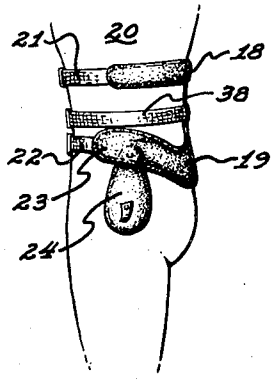


Fig. 4

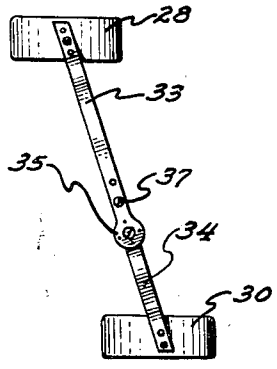


Fig. 5

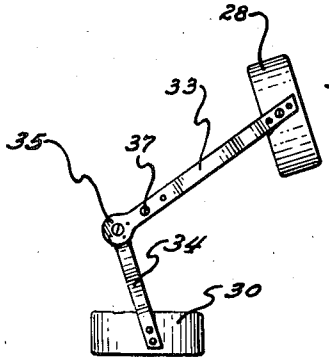


Fig. 6

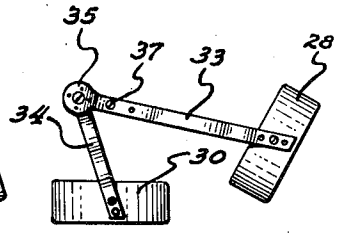


Fig. 7

INVENTOR.
SOL KELES.
BY
Willard S. Grant
ATTORNEY

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ORTHOPEDIC SPINAL AND HIP JOINT ATTACHMENT

Sol Keles, Phoenix, Ariz.

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1 Claim. (Cl. 128—78)

This invention pertains to improvements in orthopedic supports and is more particularly directed to an orthopedic brace to correct spinal and hip deformities and vertebra disc displacement.

One of the objects of this invention is to provide an improved orthopedic spinal and hip joint attachment to correct misalignment of the lumbar vertebra and discs by the application of pressure at strategic locations on the body of the wearer of the attachment.

Still another object of this invention is to provide an improved orthopedic spinal and hip joint attachment for correcting the displacement of the hip member of the body relative to the lumbar vertebra and discs of the spinal column and which attachment does not impede the standing, bending over or sitting position of the wearer while accomplishing its desired ends.

Still another object of this invention is to provide an improved orthopedic support adapted to engage the body at three points to effect a transverse shifting of the hip portion and pelvis relative to the lumbar vertebra of the spinal column of the body structure without in any way impeding freedom of relative movement of the trunk of the body and the forward and backward bending of the body at the hip.

Still another object of this invention is to provide an improved hinged support member contacting the body at two widely spaced points, with a hinge connection in between, separated from body contact when the brace is strapped to the wearer for purposes of correcting hip dislocation in the body structure.

Further features and advantages of this invention will appear from a detailed description of the drawings in which:

Fig. 1 is a diagram showing the displacement of the lumbar vertebra and pelvis bones of a body structure to be corrected by the novel orthopedic spinal column and hip joint attachment incorporating the features of this invention.

Fig. 2 is a rear view showing the orthopedic attachment being worn.

Fig. 3 is a right hand side view of the structure shown in Fig. 2.

Fig. 4 is a left hand side view of the structure shown in Fig. 2.

Fig. 5 is a view indicated by the line 5—5 in Fig. 2 particularly showing the novel hinged body contacting member when the wearer is in standing position.

Fig. 6 shows the structure of Fig. 5 with the wearer in partially bent over position or sitting position.

Fig. 7 is a view similar to Figs. 5 and 6 but showing the position of the hinged member when the wearer is in fully bent over position.

As exemplary of one embodiment of this invention there is shown in Fig. 1 a situation where the upper lumbar vertebrae 10 are in alignment indicated by the axis 11 on top of which are the thoracic vertebrae 12 and the ribs 13. It will be noted that the pelvic bone indicated generally at 14 and the lower lumbar vertebrae 15 are misaligned as indicated by the line 16 in comparison with the line 11 at the disc 17 between the vertebrae and the pelvic bone 14. Such a displacement of the disc 17 can lead to severe paralysis and damage to the lower portion of the body structure and must be corrected by proper re-alignment of the axes 11 and 16 in the body structure.

Many forms of braces and supports have been applied in an attempt to correct this situation but all have failed because they neglected to allow for the ready flexibility and bending of the trunk of the body at the hips while at the same time maintaining necessary corrective side pressure to keep the axes 11 and 16 in alignment. It is essential that these two functions of transverse pressure and freedom of bending of the body at the hips be maintained under all conditions so that the corrective forces will gradually restore alignment of the axes 11 and 16 and the health of the patient along therewith.

In order to accomplish these ends there is provided the novel orthopedic spinal and hip joint attachment comprising an upper body contacting member 18 and a lower body contacting member 19 which are preferably of U-shaped rigid structure which engage the lower back portion of the patient 20. These members 18 and 19 form the initial positioning devices for holding the structure as a whole on the body of the wearer. Suitable straps 21 and 22 serve to secure the members 18 and 19 on the body of the wearer.

On the left hand end 23 of the lower body contacting member 19 is the pressure pad 24 which engages the side of the hip substantially at the point 25, Fig. 1, toward the upper edge of the ilium 26 of the pelvis 14 on the left hip of the wearer.

To the right hand end 27 of the upper body contacting member 18 is fixed the upper pressure plate 28 of the novel hinge structure shown particularly in Figs. 3, 5, 6 and 7, the pressure plate 28 engaging the body at the point 29 supported by the ribs 13 of the wearer. The lower portion of the hinge member structure has a lower pressure plate 30 which engages the leg and hip portion of the wearer at a point 31 of the right hip lower down on the ilium 32 of the right hip than the point of engagement 25 on the left hip.

The pressure plates 28 and 30 are inter-connected by the lever arms 33 fixed to the member 28 and the lever arm 34 fixed to the lower pressure plate 30, the arms 33 and 34 being connected together and spaced from contact with the wearer at all times by an anti-friction bearing hinge 35 of long life and easy movement and requiring no lubrication.

The right hand end 36 of the lower body contacting member 19 is fixed by suitable screws or other fastening means 37 to the upper lever arm 33 of the novel hinged pressure device in such a manner that there is no contact between the intermediate portions and hinge member 35 of the lever arms 33 and 34 and the body of the wearer so that pressure applied by the strap 22 against the side of the hinged lever arms 33 and 34 does in no way apply any pressure to the body of the wearer, the pressure being applied solely through the pressure pads engaging the body at the points 29 and 31 by the pressure pads 28 and 30 of the hinged member particularly shown in Figs. 3, 5, 6 and 7.

Additional supplementary strap means may be provided at 38 which engage over the outside of the lever arm 33 at the point 39 to give additional pressure to the bearing points 29 and 31 on the body of the wearer.

It is important to note, referring to Figs. 5, 6 and 7, that by means of the novel hinged arrangement at 35 and the location of the pressure plates 28 and 30 of the hinged member device it is possible for the wearer to stand, sit or bend completely over while at the same time main-

taining a constant application of force through the straps to the pressure points **25**, **29** and **31**. It will be further noted that the pressure point **25** is above the pressure point **31**, Fig. 1, while the pressure point **29** is above both of said points so that there is a moment of force tending to move the ribs **13** and lumbar vertebra portion of the spinal column to the right, Fig. 1, while relatively urging the hip portion comprising the pelvic bone **14** to the left to restore alignment of the axes **11** and **16** and the disc **17** of the wearer.

Applicant suffered so many long years and the last two years was paralyzed completely in hip and knee joints, knee-cap and the lower ankle so that applicant couldn't bend them. Applicant couldn't stand, had to sit or lie down all the time. Applicant designed this invention and applied to his body and put the pressure on the higher side and the second day immediately felt better and started walking around step by step and today applicant is perfectly normal. The spine has straightened out and the discs are positioned and the hip is in the right position.

Before the application of this attachment the right hip was one and three-quarter inches to the left and three-quarter inches lower and the left hip was three-quarter inches higher and three-quarter inches out. The joints were opened up and the discs of the spine wide open at **17** as indicated at Fig. 1 of the drawings.

While the apparatus herein disclosed and described constitutes a preferred form of the invention, it is also to be understood that the apparatus is capable of mechanical alteration without departing from the spirit of the invention and that such mechanical arrangement and commercial adaptation as fall within the scope of the appendent claim are intended to be included herein.

Having thus fully set forth and described this invention what is claimed and desired to be obtained by United States Letters Patent is:

In an orthopedic hip brace, a semi-circular upper body contacting member and a semi-circular lower body contacting member interconnected therewith adapted to engage the back of the wearer having ends at the sides of the wearer located respectively above and below the waist line, strap means for securing said body contacting members to the wearer connected to the ends of said members, a first pressure plate on one end of said lower body contacting member adapted to engage a hip of the wearer, a second pressure plate on the opposite end of said upper body contacting member from said first mentioned pressure plate, a third pressure plate adapted to engage the side of the leg of the wearer below said second mentioned pressure plate, a hinge connection means between said second and third mentioned pressure plates arranged for non-engaging position on the wearer, and strap means engaging said hinged connection means to move said first mentioned pressure plate toward said second and third mentioned pressure plates for any position of the body and legs of said wearer.

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