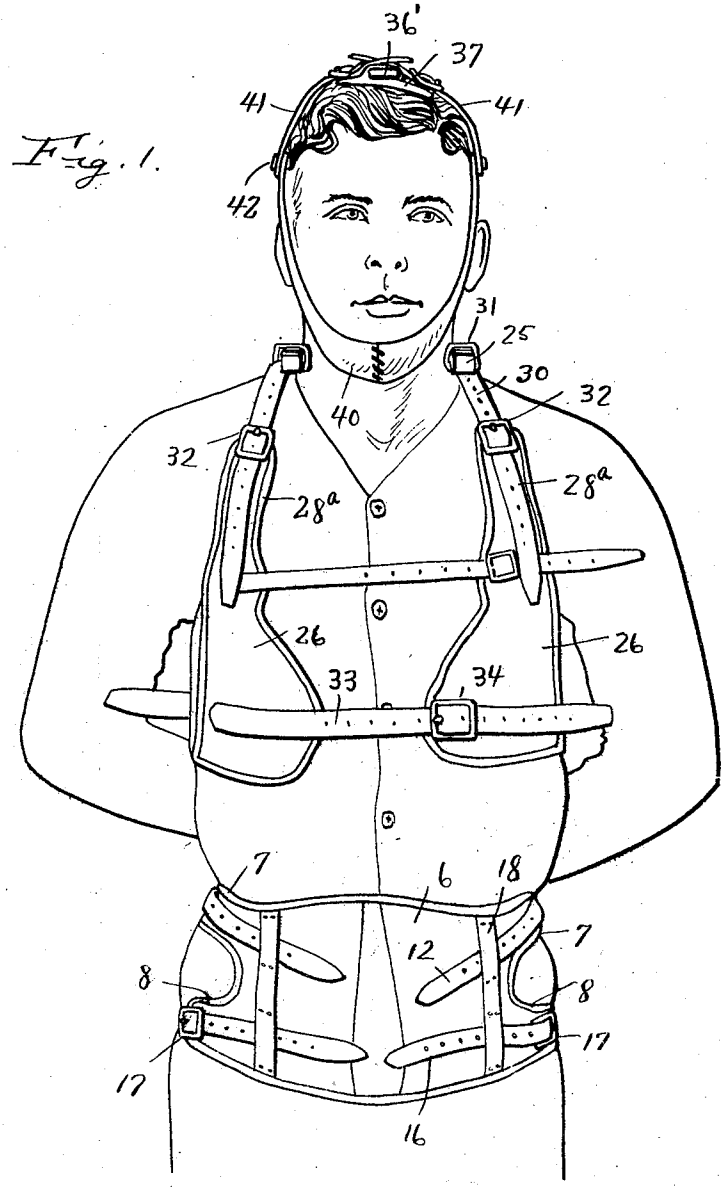
May 5, 1931. J. J. NUGENT 1,803,556

SPINAL EXTENSOR

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Fig. 1.



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Fig. 2.

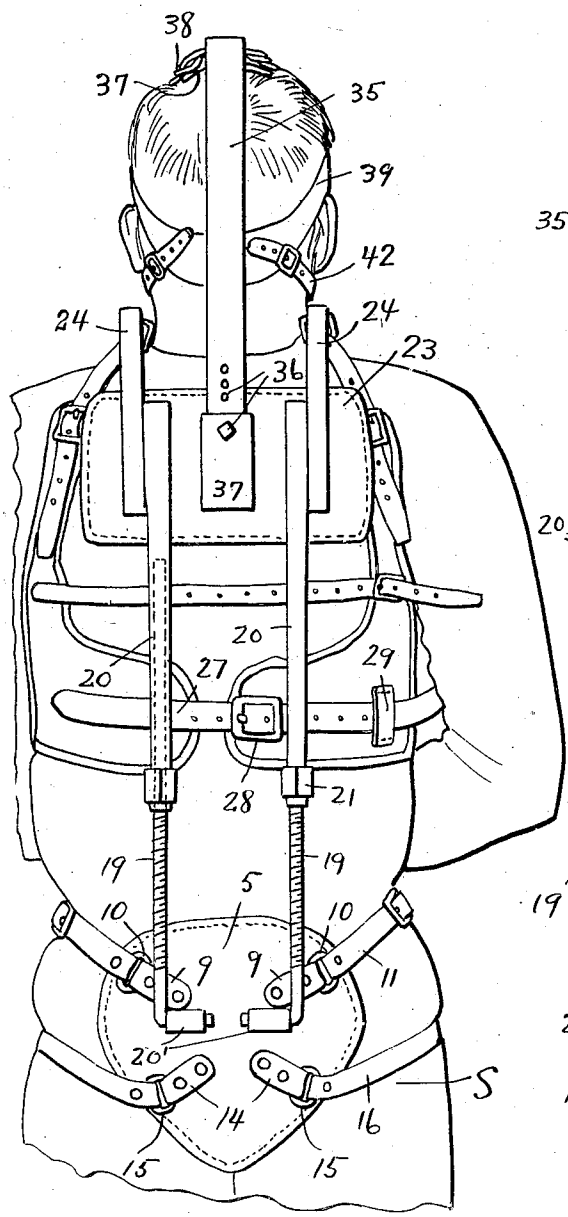
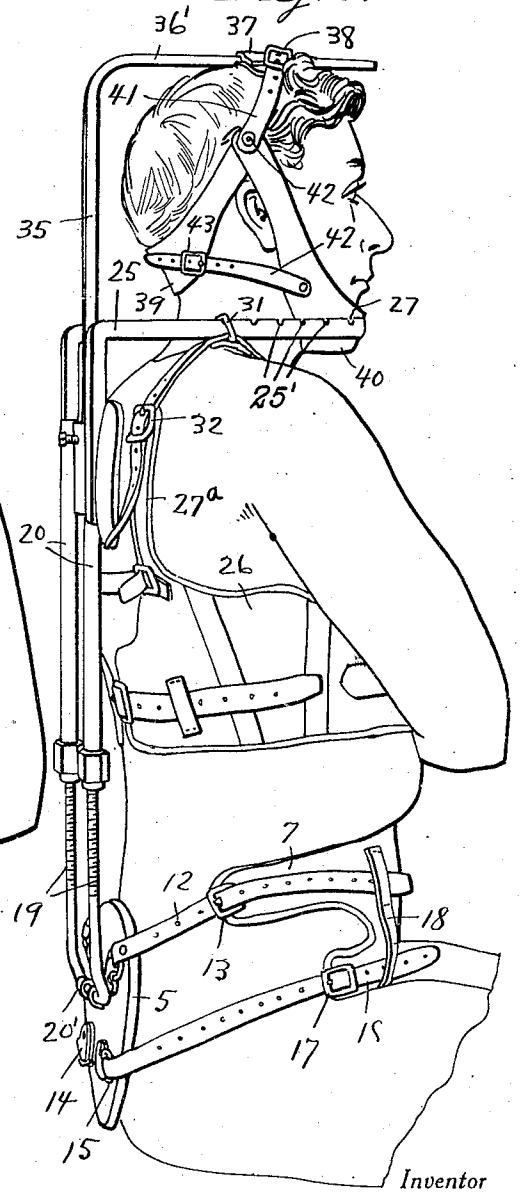


Fig. 3.



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SPINAL EXTENSOR

Application filed December 10, 1929. Serial No. 413,055.

This invention relates to devices for supporting diseased backs, and has as its primary object a device of this type which will be adjustable so that the several vertebræ can be supported and the pressure from one to the other relieved.

A still further object of the invention is to provide a device of this character which will be found beneficial in giving relief and support in spinous processes, following infantile paralysis, spinal meningitis, or any other type of meningitis or complications, rheumatism or injury, fractures of the vertebræ, infections or abscesses of the spinal column, or in short any condition where the weight of the body is taken off of the legs or pelvic bones.

A still further object of the invention is to provide a spinal brace of this character which will not interfere with the circulatory system or the nervous system.

Other objects and advantages of the invention will become apparent during the study of the following description, taken in connection with the accompanying drawings wherein:—

Figure 1 is a front elevational view of my improved spinal brace showing the same in position upon a patient, the patient being shown standing.

Fig. 2 is a rear elevation thereof, showing the same in position on a patient.

Fig. 3 is a side elevation thereof, the patient being shown in a sitting posture.

With reference more in detail to the drawings, wherein similar figures refer to like parts throughout the several views, it will be seen that my device comprises a suitable pad 5, which pad 5 comprises a plate preferably of metal and somewhat of heart shape configuration, said plate having a covering of suitable flexible material. The plate 5 is disposed against the sacrum at the base of the spinal column. An abdominal pad 6 extends across the stomach at the hips, and at opposite ends, said pad 6 is suitably formed to provide end extensions 7 and 8.

Riveted or otherwise secured to the pad 5 adjacent the upper edge thereof, are loop members 9 carrying rings 10. Attached to each of the rings 10 is a strap 11, each of which straps 11 is provided with a plurality of longitudinally spaced openings 12, for adjustable engagement with a conventional buckle 13, carried on the extreme end of the extensions 7, above said abdominal pad 6.

Similar loop members 14 are riveted to the pad adjacent the lower edge of the pad, and these members have associated therewith rings 15, with which are engaged straps 16, which straps 16 are similar in every detail to the straps 12, and said straps 16 are adapted for adjustable engagement with buckles 17 on the free ends of the extensions 8.

Suitable loop forming straps 18 are secured to and extend transversely of the abdominal pad 6 and thru which the free end of the straps 12 and 16 respectively may be passed for retaining these ends against undesirable flapping movement.

A pair of spaced threaded rods 19 have hinge connections 20′ at their lower ends with the pad 5, and these rods 19 extend upwardly in spaced parallelism along the back of the patient. The upper ends of the rods 19 are telescopically received in elongated tubular pad supporting rods 20. Each rod 20 at its lower end is provided with an adjusting nut 21 for cooperation with the threads of the rod 19, for longitudinally adjusting the tubular rods 20 with respect to rods 19.

Secured to the upper ends of the rods 20, and connecting said upper ends is a pad 23 which pad 23 extends across the back of the patient, between the shoulders of the patient. This pad 23 is also formed of an elongated substantially rectangular piece of metal covered by any suitable flexible fabric.

L-shaped rods 24 extend forwardly from adjacent opposite ends of the pad 23, the horizontal arms 25 of said L-shaped bars 24 extending over the shoulders of the patient at opposite sides of the patient as shown to advantage in Figs. 2 and 3.

Pads 26 are disposed one to each side of the patient beneath the arms of the patient, which pads 26 may be terminated chest pads, and extend along the opposite sides of the person, to terminate across the chest and back of the patient. At the back of the patient, the side

pads 26 are adjustably connected through the medium of a strap 27 secured to one of the pads 26, which strap 27 is adapted for adjustable engagement with a buckle 28 on the adjacent end of the other of said pads 26, said last-mentioned pad 26 having a suitable loop 29 thereon, for reception of the free end of said strap 27.

Each of the side pads 26 at their ends are provided with extensions 27*a* and 28*a*, the extension 27*a* of each of the pads extending upwardly at the back of the patient, while the extension 28*a* of each of the pads extends upwardly at the front of the patient.

Shoulder straps 30 have their intermediate portion passing through rings 31 adjustably retained on the horizontal arms 25 of the said L-shaped supporting bars 24, the said arms 25 of said bars at their forward free ends being provided with a series of longitudinally spaced notches 25′ for selectively receiving the rings 31.

The free ends of the shoulder straps 30 are adapted for adjustable connection with suitable buckles 32 secured to each of said extensions 27*a* and 28*a* respectively at the free ends of said extensions, and indicated to advantage in Figs. 1 and 3.

The front or forward ends of the side pads 26 are drawn toward one another across the chest of the patient through the medium of a strap 33, which strap 33 has one end thereof secured to one of the side pads 26, and the other end portion of the strap 33, having adjustable engagement with a buckle 34 on the forward end of the other of said side pads 26.

Manifestly by tightening the adjusting straps 33, and 27 respectively, the side pads 26 may be suitably adjusted relative to one another, for exerting the desired pressure upon the body of the patient along the side straps, and front thereof, adjacent the chest of the patient.

A head bar 35 has one end thereof adjustably retained by any suitable means 36 in a sprocket 37, formed on the back supporting pad 23 between the adjacent upper ends of the longitudinal adjustable tubular rods 20. As shown to advantage in Figs. 2 and 3, the head bar 35 extends upwardly, and at its upper end terminates in a right angularly disposed forwardly extending extension 36′, extending across the top of the head of the patient.

A sleeve member 37 preferably formed of leather, felt, or any other suitable material is slidable longitudinally on the horizontally disposed extension 36′, and at opposite ends thereof this sleeve 37 is provided with buckles 38.

A head strip 39 extends across the back and sides of the head at the nape of the neck of the patient, upwardly above the ears of the patient, as shown to advantage in Fig. 3. A chin strap 40 has its ends extending upwardly at opposite sides of the face of the patient, and the free ends of the chin supporting strap 40 are pivotally connected to the free ends of the straps 39, and to the ends of adjusting straps 41 by a common pivotal connection 42. The adjusting straps 41 have their free ends adjustably engaged with the buckles 38.

The chin strap 40 is further adjustably connected with the head strap 39 through the medium of adjusting straps 42 which straps 42 at one end are secured to the chin supporting straps 40 and have their free ends adapted for adjustable connection with buckles 43 on the head strap 39, said connecting straps 42 extending along opposite sides of the head adjacent the neck as clearly indicated to advantage in Fig. 3.

It is believed that from the foregoing description, and a study of the same, and the drawings taken in connection therewith, a clear understanding of the operation, construction as shown, and advantages of a spinal brace of this character will be had by those skilled in the art without a more detailed description thereof.

Having thus described my invention, what I claim as new is:—

1. A spinal brace comprising a pair of rigid supporting members, each of said members being longitudinally adjustable, a pad hingedly connected to said supporting members at one end of said suporting members, said pad adapted for disposition against the spinal column, at the base of said spinal column, a second pad secured to said rigid supporting members at the opposite ends of said members, for connection with the last-mentioned ends of said members, said last mentioned pad extending across the back between the shoulders of a patient, an abdominal pad, adjustable connections between the first mentioned pad and said abdominal pad, supporting members carried by the said second pad and extending forwardly at opposite sides of the neck of the patient, a pair of pads to be disposed at opposite sides of the patient, an adjustable means for drawing the adjacent ends of said last mentioned pads toward one another and across the back of the patient, similar adjusting means for drawing the adjacent forward ends of said pads across the chest of the patient, shoulder straps for each of said last mentioned side pads, means for adjustably securing the intermediate portions of said shoulder straps to the last-mentioned supporting bars, and a head bar arising from said second pad and terminating above the head of the patient, a head strap operatively associated with said head bar, a chin strap oppositely associated with said head bar, and an adjustable connection beween said head straps and said chin straps.

2. In a spinal brace of the character described, a pad adapted for disposition at the base of the spinal column, a second pad extending across the front of the patient at the waist thereof, adjustable straps connecting said pads, a pair of longitudinally adjustable rigid supporting members hingedly connected to the first-mentioned pad to extend upwardly along the back of the patient, a back supporting pad on the upper end of said supporting members, a pair of adjustably connected pads, the pads of said pair being disposed one to each side of the patient, shoulder straps for said pads, and rigid supporting means carried by said back supporting pad for adjustable engagement with said shoulder straps.

3. In a spinal brace of the character described, a pad adapted for disposition at the base of the spinal column, a second pad extending across the front of the patient at the waist thereof, adjustable straps connecting said pads, a pair of longitudinally adjustable rigid supporting members hingedly connected to the first-mentioned pad to extend upwardly along the back of the patient, a back supporting pad on the upper end of said supporting members, a pair of adjustably connected pads, the pads of said pair being disposed one to each side of the patient, shoulder straps for said pads, and rigid supporting means carried by said back supporting pad for adjustable engagement with said shoulder straps, said last-mentioned means also including means for retaining said rigid supporting members against swinging movement, and said back supporting pad against the back of the patient.

4. In a spinal brace of the character described, a pad adapted for disposition at the base of the spinal column, a second pad extending across the front of the patient at the waist thereof, adjustable straps connecting said pads, a pair of longitudinally adjustable rigid supporting members hingedly mounted to the first-mentioned pad to extend upwardly along the back of the patient, a back supporting pad on the upper end of said supporting members, a pair of adjustably connected pads, the pads of said pair being disposed one to each side of the patient, shoulder straps for said pads, and rigid supporting means carried by said back supporting pad for adjustable engagement with said shoulder straps, said last-mentioned means also including means for retaining said rigid supporting members against swinging movement, and said back supporting pad against the back of the patient, and a head supporting rod, means for adjustably securing one end of said rod to said back supporting pad, said rod being substantially of L-shape in form and having one arm thereof extending forwardly for disposition above the head of the patient, a chin strap, and, adjustable connections between said chin strap and the last-mentioned arm of said head supporting rod.

5. In a spinal brace of the character described, a pad adapted for disposition at the base of the spinal column, a second pad extending across the front of the patient at the waist thereof, adjustable straps connecting said pads, a pair of longitudinally adjustable rigid supporting members hingedly mounted to the first-mentioned pad to extend upwardly along the back of the patient, a back supporting pad on the upper end of said supporting members, a pair of adjustably connected pads, the pads of said pair of adjustable pads being disposed one to each side of the patient, shoulder straps for said pads, and rigid supporting means carried by said back supporting pad, said last-mentioned means also including means for retaining said rigid supporting members against swinging movement, and said back supporting pad against the back of the patient, a head supporting rod, means for adjustably securing one end of said rod to said back supporting pad, said rod being substantially L-shaped in form and having one arm thereof extending forwardly for disposition above the head of the patient, a chin strap and adjustable connections between said chin strap and the last-mentioned arm of said head supporting rod, a head supporting strap engaging the head adjacent the nape of the neck at the back of the head, and said last-mentioned adjustable means having means for securing said head strap in operative relation to said chin-supporting strap.

6. In a spinal brace of the character described, a pair of upper and lower pads, one of which is adapted to be disposed at the base of the spine, and the other of which is adapted to engage the back of the wearer adjacent the shoulders, relatively rigid brace means connecting said upper and lower pads, means for retaining said lower pad at the said base of the spinal column, a pair of relatively rigid members carried by said upper pad and having horizontal end portions extending above the shoulders, side pads for engaging the body below the shoulders, means for retaining the side pads in position on the body, shoulder straps for said side pads, means adjustably connecting said shoulder straps with the last referred to rigid members.

7. In a spinal brace of the character described, a longitudinally adjustable member for disposition along the back of the wearer, a pad carried by said member adjacent one end thereof, means for retaining said pad in position on the body of the wearer, a second pad carried by said member adjacent the opposite end thereof, a pair of angular rods carried by said second pad, and respectively having an end portion for disposition over the shoulder of the wearer, a pair of chest pads, one for disposition to each side of the wearer,

means for retaining said chest pad in position on the body of the wearer, shoulder straps for said chest pad, rings carried by said shoulder straps, the end portions of said rods being notched for adjustably retaining said rings in engagement with said rods.

In testimony whereof I affix my signature.

JOHN J. NUGENT.