June 25, 1963 E. L. JEWETT 3,094,984

SURGICAL BRACE

Filed Sept. 1, 1961

Fig. 2

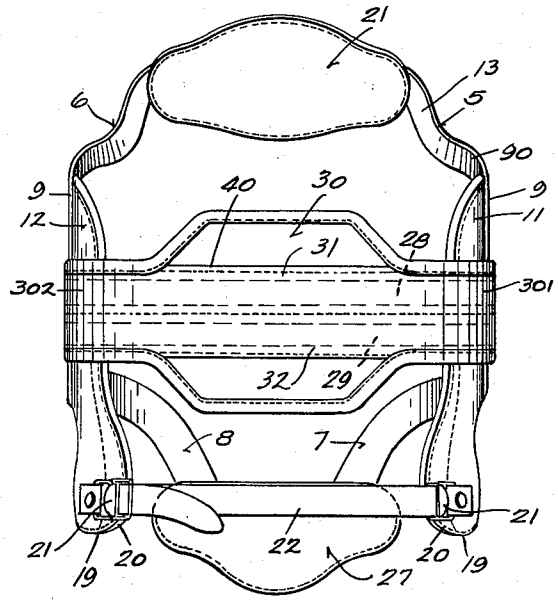


Fig. 3

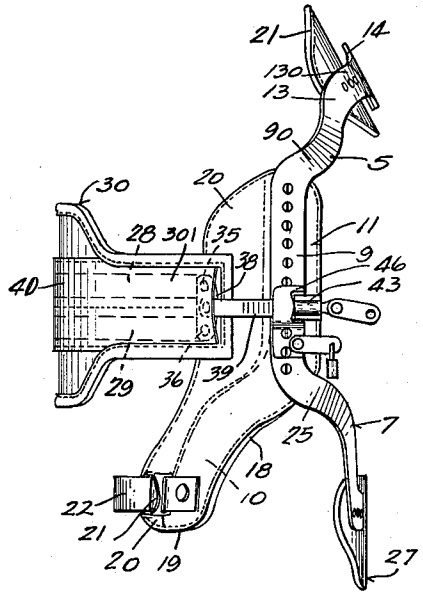


Fig. 1

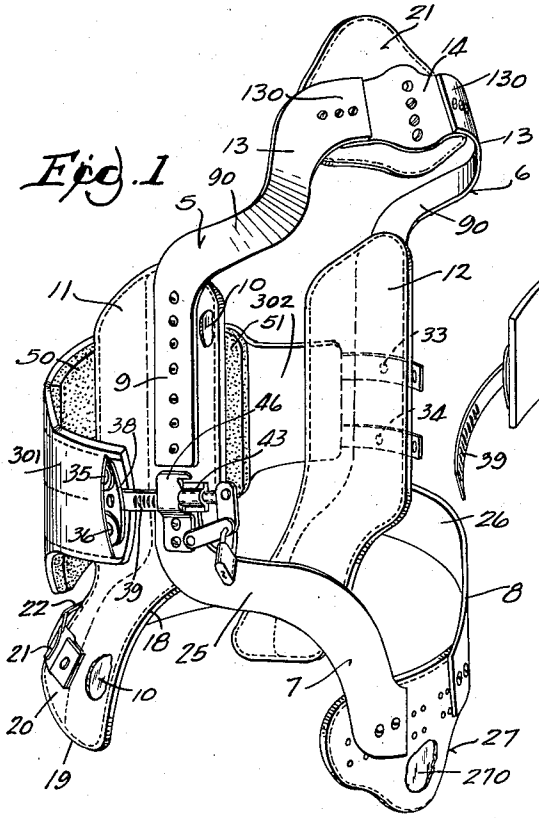
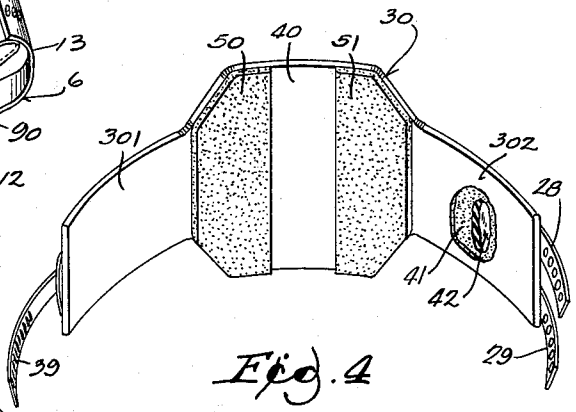


Fig. 4



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United States Patent Office 3,094,984 Patented June 25, 1963

3,094,984

SURGICAL BRACE

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Filed Sept. 1, 1961, Ser. No. 135,669
6 Claims. (Cl. 128—78)

This invention relates to a surgical brace.

A brace embodying the present invention provides a subframe fitted firmly to the patient's pelvic region. The frame as a whole includes bars which are connected to sternal and pubic pads at the front of the patient's body, and to the side pads at opposite sides of the patient's body. Downward and rearward flank extensions from the side pads curve about the patient's flanks and are strapped together about the buttocks.

For patients who have had a fusion operation, the lumbar pad has supplemental cushions spaced at opposite sides of the spinal column to provide pressure support for the lumbar region without pressure upon the area in which the surgical work had been done. These supplemental cushions are desirably adhered to the surface of the lumbar pad. They can be stripped off when no longer needed in order that the brace may function as a hyperextension brace without requiring a substitute pad.

The lumbar pad has dual supporting tension straps of non-extensible metal and these, together with the equalizing bar, if any, are desirably housed within the cover of the lumbar pad.

In the drawings:

FIG. 1 is a view in perspective of a brace embodying the invention.

FIG. 2 is a rear elevational view of the brace shown in FIG. 1.

FIG. 3 is a side elevational view of the brace shown in FIG. 1 and FIG. 2.

FIG. 4 is a perspective view of the lumbar strap and pad assembly as it appears when removed from the brace.

The brace comprises a frame which includes allochiral sternal bars **5** and **6** and allochiral pubic bars **7** and **8** interconnected with each other as hereinafter described. The upper ends of the pubic bars are adjustably connected with the lower ends of the sternal bars by means of reenforcing plates **10** within the respective side pads **11** and **12**.

The lower end portions **9** of the respective sternal bars **5** and **6** are nearly upright at opposite sides of the patient's body. The portion **90** of each sternal bar extends forwardly in an almost horizontal direction and curves about the patient's thorax toward the front of his body. At **13** the respective bars again extend nearly vertically at the front of the patient's body, while at **130** their terminal portions extend toward each other across the front of the patient's body, being adjustably connected with a plate member **14** which completes the frame-forming connection between the sternal bars at this point.

Sternal pad **21** is mounted from frame member **14** in any desired manner. In my companion application, Serial No. 135,510, filed September 1, 1961, the sternal pad is pivoted, but no pivotal connection is shown in the present case.

The pubic bars **7** and **8** have portions **25** and **26** which curve forwardly and downwardly and are adjustably connected with the stiffening plate **270** of pubic pad **27**.

The pubic bars **7**, **8** and pubic pad **27** and the lateral torso pads **11**, **12** constitute a subframe which may be equipped with a buttocks-encircling strap to girdle the patient's pelvic region. Due particularly to the design of the lateral torso pads, the subframe is useful in fusion cases and the like without the sternum pad and arms.

The bars **10** which internally re-enforce the lateral torso

pads **11** and **12** are rather narrow. Below their connections with the pubic bars **7** and **8**, the bars curve rearwardly at **18** and pass downwardly and inwardly behind the patient to their terminal portions **19**. The pad portions **20** behind these bars are flexible. They extend behind the bars to the terminal portions **19** thereof. Here the bars are provided with hooks **21** with which strap **22** may be connected to extend around the patient's buttocks to complete the girdling of the pelvic portions of the patient's body. For hyperextension cases, the strap **22** may not be desired. Its use is optional. In any event, the downward and rearward inwardly curving extensions of the flank pads and the terminal portions **21** of the internal re-enforcement of such pads contribute markedly to the firmness of support provided by this brace.

The lumbar pad **30** extends arcuately about the patient's body and has, within its covering **40**, channels **31** and **32** formed by rows of stitching and which confine the supporting metal tension straps **28** and **29**. These straps are connected to the frame means at **33** and **34** and pivotally connected by rivets **35** and **36** to an equalizer link **38** also housed within the covering of the lumbar pad. An extension strap **39** pivoted to the equalizer link **38** is detachably fastened to the frame hook **46** by the sleeve **43**, which is adjustable on the extension strap **39** by means described in my companion application Serial No. 135,510, filed September 1, 1961, and executed concurrently herewith.

On the inner concave face of the lumbar pad are detachably cemented sponge rubber cushions **50** and **51** laterally spaced at opposite sides of the patient's spine to avoid direct pressure contact with the site of a fusion operation, while still providing firm pressure support for the lumbar region. When the surgical incision has healed sufficiently so that the spine can stand direct pressure of the lumbar pad (which is, of course, itself internally cushioned) the external cushions **50** and **51** can be stripped from the lumbar pad.

It will be observed that the lumbar pad **30** has lateral extensions **301** and **302** which project from the pad proper along the tension straps **28** and **29**. These extensoins lap portions **20** of the torso side pads **11**, **12**, whereby the rear of the patient's body is substantially completely encircled by the padded material. The metal tension straps are nearly completely enclosed.

The several pads shown desirably comprise an internal cushion **41** of material such as sponge rubber usually laminated with a stiffening ply **42**, the jacket being a moisture and soil-resistant cover **40** of material such as artificial leather. The re-enforcing plates and bars constituting the frame are desirably made of surgical steel, being corrosion resistant and strong and inflexible in the sense that they do not yield appreciably under the pressures to which they are subject in use. The metal tension straps are flexible but unyielding under tension.

This brace is particularly adapted for a wide variety of usage both as a flexion brace and a hyperextension brace. As a flexion brace, it will ordinarily have the sternal pad **18** and the sternal bars **5** and **6** removed. As a hyperextension brace, strap **42** may be removed and the auxiliary cushions **50** and **51** of the lumbar pad **30** may be omitted.

I claim:

1. A surgical brace comprising a pubic pad, pubic arms connected with the pubic pad, lateral torso pads connected with the pubic arms, a lumbar pad, and tension strap means for supporting the lumbar pad from the pubic arms, the lumbar pad having lateral extensions along the strap means lapping the lateral torso pads, the lateral torso pads having internal re-enforcement and extending downwardly and rearwardly and curvilinearly inwardly from their connection with said pubic arms.

2. A surgical brace according to claim 1 in further combination with strap means disposed below the lumbar pad and connecting the inwardly curving lower extremities of the lateral torso pads and constituting means cooperative with the pubic arms and pubic pad for completing encirclement of the patient's pelvic region below the lumbar pad.

3. A surgical brace according to claim 1, in which the lumbar pad is provided at its inner face with laterally spaced inwardly exposed cushions and means for detachably connecting the cushions with the pad.

4. A surgical brace according to claim 1 in further combination with a sternal pad and frame means for supporting the sternal pad from the pubic arms.

5. A surgical brace according to claim 1 in which the lumbar pad with its said extensions is provided with

continuous channel means within which the tension strap means is disposed.

6. A surgical brace according to claim 5 in which the lumbar pad and extensions have a cover having stitches defining said channel means, the cover enclosing said tension strap means.

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