

G. GERLITZ.

APPARATUS FOR CURING SPINAL CURVATURE.

No. 492,903.

Patented Mar. 7, 1893.

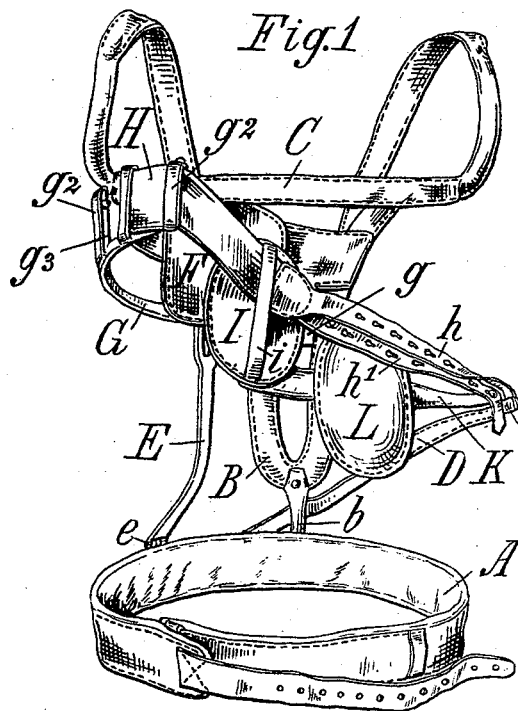
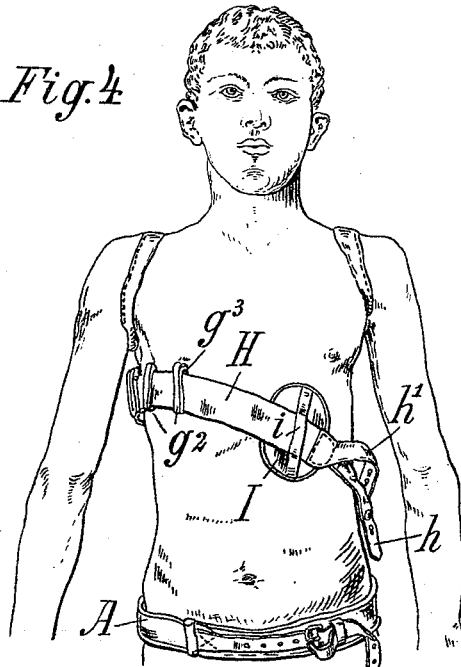


Fig. 4



Witnesses:

Wm. B. Sebastian

B. W. Sommers.

Inventor:

Gottlieb Gerlitz
By *[Signature]* Att'y

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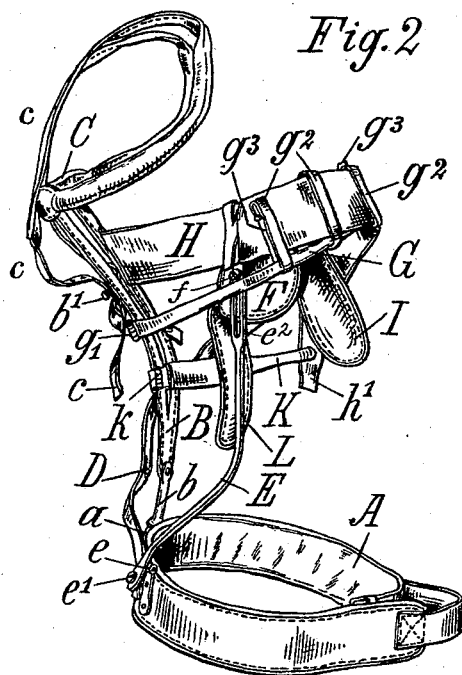
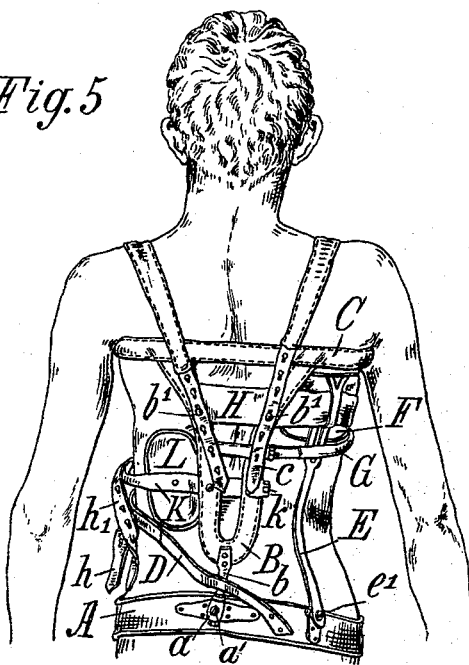


Fig. 5



Witnesses:

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B. W. Sommers

Inventor:

Gottlieb Gerlitz
By [Signature] atty.

(No Model.)

3 Sheets—Sheet 3.

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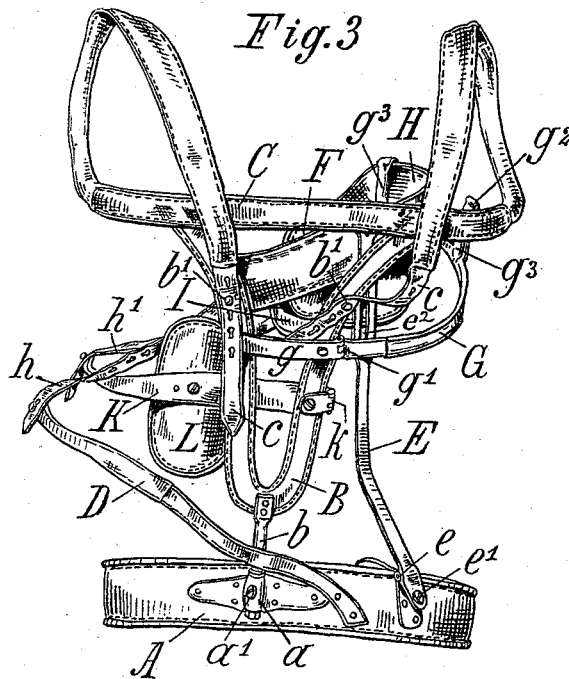
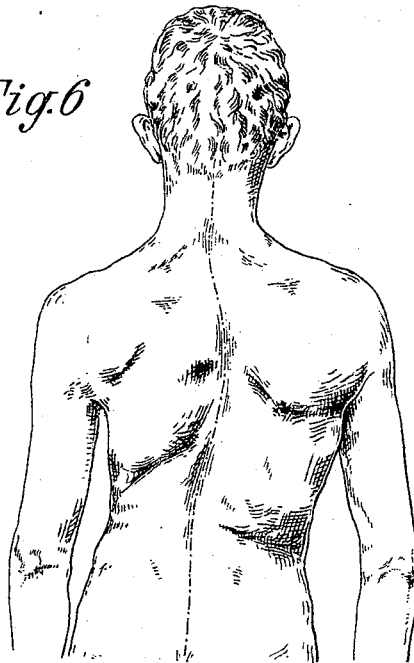


Fig. 6



Witnesses:

W. B. Sebastian

P. W. Sommers

Inventor:

Gottlieb Gerlitz
By J. W. M. M. atty

UNITED STATES PATENT OFFICE.

GOTTLIEB GERLITZ, OF GRAZ, AUSTRIA-HUNGARY.

APPARATUS FOR CURING SPINAL CURVATURE.

SPECIFICATION forming part of Letters Patent No. 492,903, dated March 7, 1893.

Application filed November 21, 1892. Serial No. 452,717. (No model.) Patented in Belgium May 25, 1892, No. 99,869; in Italy June 30, 1892, XXVI, 31,761, and LXII, 312, and in Austria-Hungary August 23, 1892, No. 15,451 and No. 38,441.

To all whom it may concern:

Be it known that I, GOTTLIEB GERLITZ, a subject of the Emperor of Austria-Hungary, residing at Graz, in the Province of Styria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Apparatus for the Removal or Cure of Curvature of the Spine and other Malformations Consequent Thereon, (for which I have obtained Letters Patent in the following countries, viz: Belgium, No. 99,869, dated May 25, 1892; Italy, Vol. XXVI, No. 31,761, and Vol. LXII, No. 312, dated June 30, 1892, and Austria-Hungary, No. 15,451 and No. 38,441, dated August 23, 1892;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention has relation to surgical appliances and more especially to that class of appliances employed for the correction of curvatures of the spine, and has for its object the provision of means whereby this deformity or abnormal condition of the body is more effectually counteracted and corrected than is the case with appliances as heretofore constructed, as will now be more fully described, reference being had to the accompanying drawings, in which—

Figures 1, 2 and 3 show an apparatus of the kind described, and embodying my invention by a front, side, and rear elevation, respectively. Figs. 4 and 5 are views similar to Figs. 1 and 3 illustrating the apparatus as applied to the body, and Fig. 6 is a rear view of a portion of a human body affected with curvature of the spine.

In the apparatus shown in the above figures of drawings A, indicates a pelvis belt of usual construction to which is pivoted a spine brace or support consisting of a substantially horse shoe or V-shaped steel bar, B, provided with a pintle *b*, fitted loosely and revolving freely in a sleeve bearing *a*, on the pelvis belt A. The brace B is held against vertical displacement in the sleeve *a*, by a nut and collar on its pintle *b*, respectively abutting

against the opposite faces of said sleeve, and the freedom of rotation of the brace may be adjusted by means of said nut and by means of a set screw *a'*, working in a threaded aperture of the sleeve *a*, and impinging upon the pintle *b*.

Instead of providing the belt A with a sleeve bearing, the said bearing may be formed on the brace, B, and the belt provided with a pin or pintle, as will be readily understood.

To the upper end of the diverging arms of the brace B, is secured a shoulder strap, C, that extends across the back of the body, its two branches, *c*, being first passed under the arms, then over the shoulders and secured to buttons, *b'*, on the arms of the back or spine brace B.

To one side of the pivotal connection between the pelvis belt, A, and brace, B, (to the right or left according to the direction of curvature of the spine) is secured an arm or band D, of spring steel in such manner as to extend in an upwardly inclined direction around the body to the front thereof toward the chest, said arm D, performing the function of a more or less elastic lever, and will hereinafter be called a lever.

To the belt A, in proximity to the lever D is hinged a pressure bar or arm, E, that extends upward to the curvature of the ribs below the shoulder blade, and has an extension projecting beyond its joint *e*, in which projection is fitted a set screw, *e'*, that bears on the pelvis belt A, or on the hinge strap for the pressure bar and serves to regulate the pressure exerted by the upper end of said bar on a pad F, that is adjustably secured to the said upper end of the bar by means of a binding screw, *f*, extending through a longitudinal slot, *e²* in said bar, as shown in Fig. 2.

A curved steel bar, G, is hinged to one of the arms of the back brace, B, at a point, *g'*, below the shoulder strap either to the right or left hand arm of the brace according to the direction of the curvature of the spine, said bar extending around one side of the body to the chest and is provided at that point with several uprights or pillars *g²* to which loops of leather *g³* are secured. This end of the bar G is so shaped or bent that the uprights or pillars will stand clear of the breast

or chest, and through the leather loops g^2 passes a strong elastic strap or belt, H, one end of which is secured to one of the arms of the back brace, B, either the right or left according to the direction of curvature of the spine, said strap or belt passing over pad F, and its pressure bar, E, and its opposite end h is buttoned to a button on lever D. The strap or belt, H, carries a movable pad I through the loop i of which the belt passes, said pad bearing against the body at or below the breast opposite to that point where said belt is held clear of the body by the pillars g^3 . In exceptional cases where the chest or breast has no prominence or is not deformed, the pad I may be dispensed with, and the lever D made somewhat longer for the purpose of preventing pressure upon the breast, somewhat in the same manner as is done by the small uprights or pillars on the opposite breast.

The tendency of the leverage exerted upon the body by the lever D under the stress of the elastic strap or belt H is to force the pelvis to the right or left, according to the point of connection of said lever and belt with the pelvis belt and back brace, and at the same time the chest is forced in an opposite direction, which has for its result the turning back the twisted or curved upper portion of the body to a straight line, the back brace serving as a general fulcrum for this leverage in opposite directions. By increasing or decreasing the tension of the belt H, which can be done by shortening or lengthening the same on its connections with the lever D, the pressure exerted by the spring arm E and pad F may be varied, and therethrough the pressure exerted by the pad I, whereby the breast is forced inwardly to a greater or less extent toward or to a normal position. The tendency of the elements described is to so act upon the spine as to force it back into a normal straight position, or even beyond such normal straight position, and the relative arrangement of the parts is such as not to weaken the same by counter pressures exerted thereon. The parts of the body displaced by the apparatus remain in their relative positions until the defect in the spine has been corrected and said parts will return to their normal relative positions after such correction and removal of the apparatus.

When the curvatures exist chiefly in the lumbar region I employ a second pressure spring K, hinged at k to one of the arms of the back brace B, said pressure spring being provided with a pad L that has bearing on the body on the side opposite to the direction of flexure or curvature of the spine, see Fig. 5, said spring having a button at its end to which an auxiliary strap h' on the elastic belt H is secured through the medium of which the pressure exerted by the pad L is also controlled.

It will of course be understood that all the metallic portions of the apparatus are, as

usual incased in a suitable material, as shown in the drawings, while the form and dimension of the several parts will depend upon the extent of the curvature and the dimensions of the wearer of the apparatus, and the latter is to be fitted to the body or to a plaster cast taken from the body of the wearer.

In applying the apparatus the steel bow or arm G is turned back out of the way on its hinge, the shoulder straps are passed under the arms forwardly, then over the shoulders and the ends c of said straps buttoned to the back brace B. The pelvis belt A is then buckled on, whereby the back brace B, is properly positioned with its arms on opposite sides of the spine, and exerting a given pressure upon the body; this straightening action of the back brace is intensified to any desired degree by the application of the pressure spring E, the pad F tending to press that part of the body to which it is applied not only in a forward direction but in a lateral direction to produce the required flattening of the ribs, and displacement of the spine, which could not be produced if the back brace B were rigidly connected with the pelvis belt A. This tendency of rotation of the back brace under the pressure of the body is intensified by the steel bow G, the elastic belt H, and the inclined lever D, said parts being successively positioned on the body and secured in place as described, and the arrangement of the parts is such that the pressure exerted by said steel bow G, belt H, and lever D, is not counteracted by any counter pressure, and through the pad I pressure is simultaneously applied to the protruding portion of the chest or breast, which pressure combined with that exerted by pad F tends to force the parts into a normal position without interfering with the free development of the side and back. The small uprights or pillars g^3 , admit of a like free development of the part of the chest or breast not under pressure, while the elastic belt and oblique or inclined lever D tend to straighten the laterally hanging or deformed portion of the chest. The displacement of the spine from its curved to a straight line under the action of the apparatus also results in a more normal carriage of the head.

The advantage derived from the described apparatus lies in the fact that only those parts of the body required to be acted upon are brought in contact with the apparatus, while the remaining portions of the body are free from all pressure.

The apparatus may be worn even under rather tight fitting clothing and also during sleep without great inconvenience, and its action upon the body can be adjusted and maintained uniform by means of the adjusting screw a' that regulates the freedom of revolution of the back brace B.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. An apparatus for treating curvatures of

the spine, comprising a pelvis belt, a forked
revoluble back brace, a pressure bow, an elas-
tic strap or belt connected with the pressure
bow and back brace, a chest pad on said belt,
5 an elastic lever connected with the pelvis and
elastic belts and extending around the body
upwardly toward the chest, and a spring bar
extending from the pelvis belt upwardly to or
near the shoulder blade, said bar provided at
10 its upper end with a pad, substantially as and
for the purpose set forth.

2. An apparatus for treating curvatures of
the spine, comprising a pelvis belt, a forked
revoluble back brace, a pressure bow, an elas-
tic strap or belt connected with the pressure
15 bow and back brace, a chest pad on said belt,
an elastic lever connected with the pelvis and
elastic belts and extending around the body
upwardly toward the chest, a spring bar ex-
tending from the pelvis belt upwardly to or
20 near the shoulder blade, said bar provided at
its upper end with a pad, and a suitable sup-
porting strap secured to the upper end of the
arms of the back brace and having branches
25 adapted to be passed under the arms over the
shoulders and secured to the back brace, sub-
stantially as and for the purpose set forth.

3. In an apparatus of the class described,
the combination with the pelvis belt, and
30 forked back brace revoluble on the belt, of a

regulating device for regulating the freedom
of revolution of the brace, for the purpose set
forth.

4. In an apparatus of the class described,
the combination with the pelvis belt and the
spring bar E, of a pressure regulating device
35 for regulating the pressure exerted by the
said bar, for the purpose set forth.

5. In an apparatus of the class described,
the combination with the pelvis belt and back
brace B, of an arm hinged to one of the
40 branches of the back brace, and a pad, L, con-
nected with said arm, for the purpose set forth.

6. In an apparatus of the class described,
the combination with the pelvis belt, the back
brace B, and the inclined lever, D, of the bow
45 G hinged to one of the branches of the back
brace and provided at its outer end with pil-
lars, g^3 projecting vertically therefrom, said
pillars provided with retaining loops and an
elastic belt connecting said back brace with
50 lever D, and passing through the loops of bow
G, substantially as and for the purpose set
forth.

In testimony whereof I affix my signature in
55 presence of two witnesses.

GOTTLIEB GERLITZ.

Witnesses:

A. SCHLESSING,
JULIUS GOLDSCHMIDT.