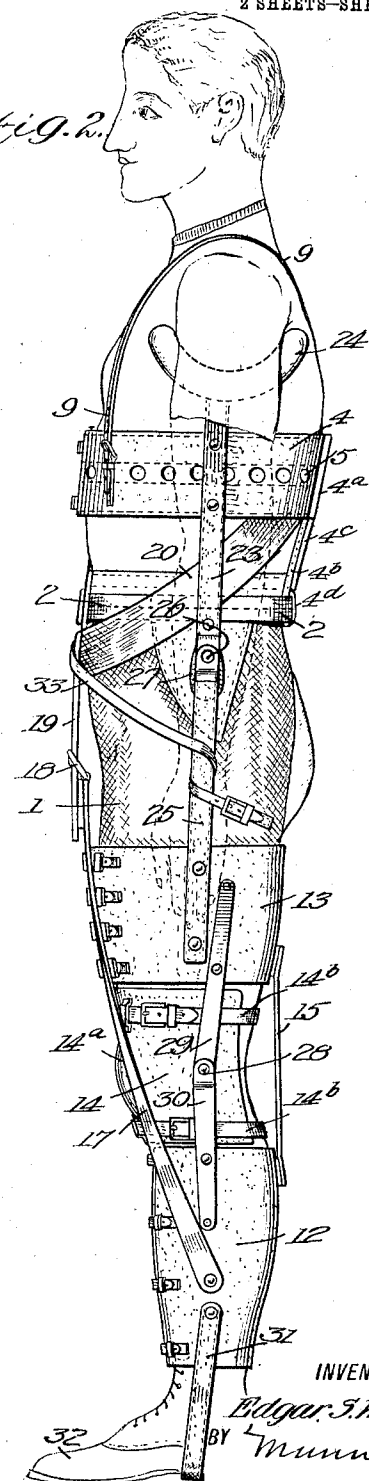
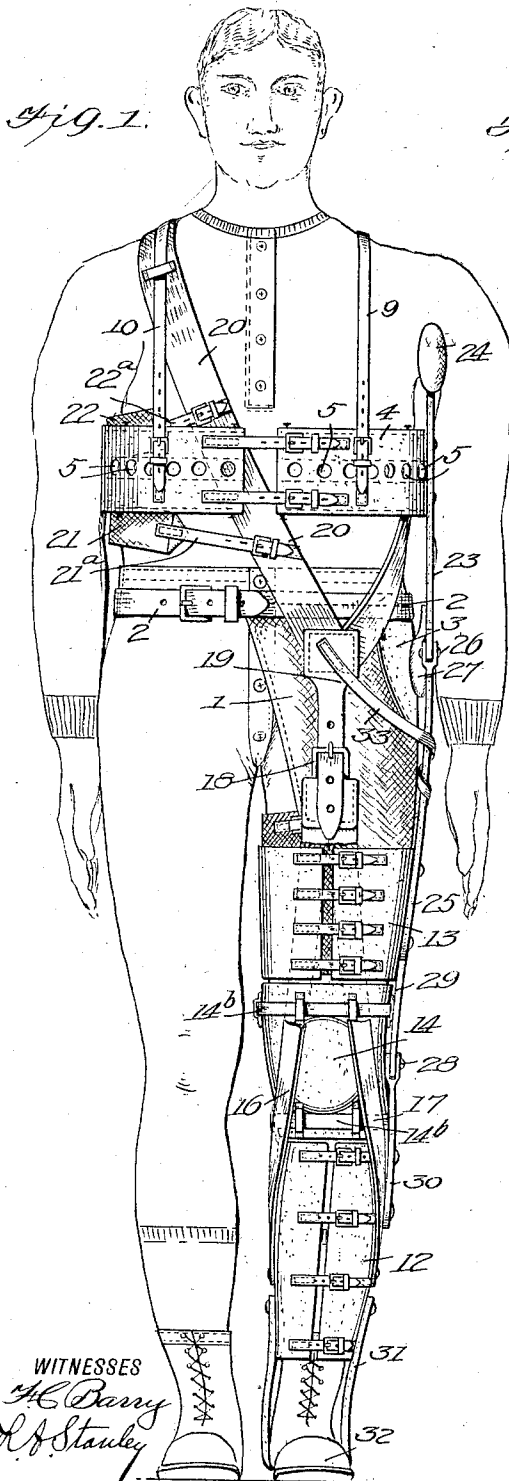


E. S. WEAVER.
INVALID'S BODY SUPPORT.
APPLICATION FILED JAN. 16, 1912.

1,043,648.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.



WITNESSES
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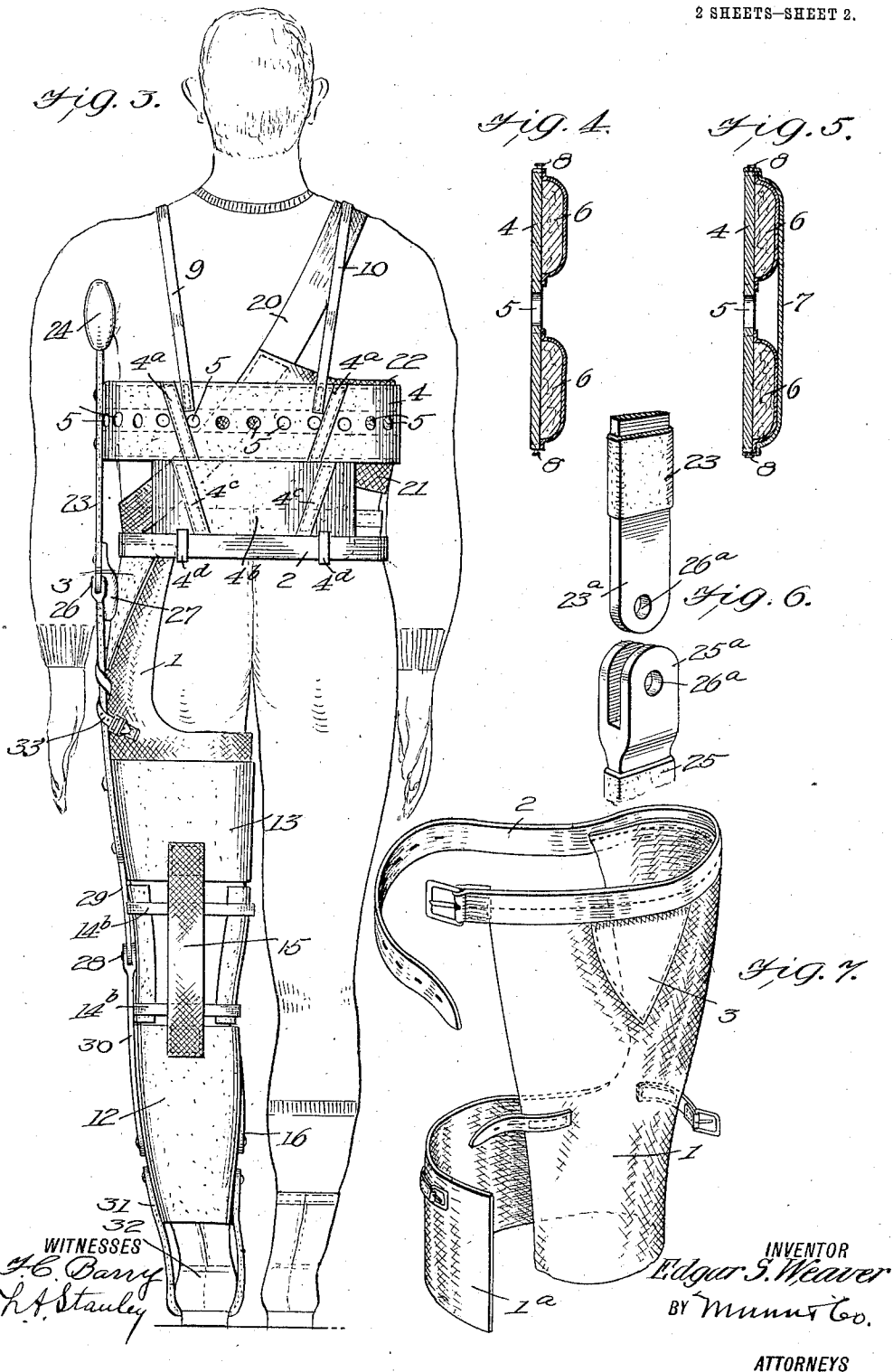
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UNITED STATES PATENT OFFICE.

EDGAR STANLEY WEAVER, OF WASHINGTON, DISTRICT OF COLUMBIA.

INVALID'S BODY-SUPPORT.

1,043,648.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed January 16, 1912. Serial No. 671,423.

To all whom it may concern:

Be it known that I, EDGAR S. WEAVER, a citizen of the United States, and a resident of Washington, in the District of Columbia, have made certain new and useful Improvements in Invalids' Body-Supports, of which the following is a specification.

My invention relates to improvements in body supports for invalids, and it consists in the constructions, combinations, and arrangements herein described and claimed.

An object of my invention is to provide a device by means of which a person, such as a paralytic, who is deprived of the use of some of his limbs, may be enabled to support his body and even to walk.

A further object of my invention is to provide a device by means of which a leg which has been paralyzed or otherwise rendered unable to support the body may be moved so as to aid in walking.

A further object of my invention is to provide backings or supports for those parts of the body in which the control of the muscular action has been lost.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application in which similar reference characters indicate like parts in the several views and in which—

Figure 1 is a front view showing the manner of attachment of my improved device, Fig. 2 is a side view, Fig. 3 is a rear view, Fig. 4 is a transverse section through the main body band, Fig. 5 is a similar view to Fig. 4 showing a modified form, Fig. 6 is a detailed view of the hip and knee joints, and Fig. 7 is a perspective view of the hip support.

The device hereinafter described is designed particularly for one whose limbs and body on one side have been totally paralyzed, with the object, as stated above, to permit the body to be supported and the paralyzed limbs to be so moved as to render it possible for the wearer of the device to walk. The principles upon which the device operates, however, would apply to cases other than that of paralysis, such as rheumatism, loco-

motor ataxia, or other diseases which would render a limb useless for purposes of locomotion.

Referring now particularly to Fig. 7, I have shown therein a hip support 1, which is made of canvas or any suitable flexible material. This has a portion 1^a which is designed to encircle the leg and to be secured to the body portion 1 by means of straps and buckles or otherwise. At the top of the body portion 1 is a belt 2 to which the portion 1 is secured. Fig. 7 illustrates a canvas body portion 1 sewed to the belt 2. Near the union of the belt and the canvas portion I place a wear-resisting triangular strip 3 of leather or other similar material. The purpose of this will be explained later.

The main body support is shown in Figs. 1 to 3. It consists of a flexible band 4, which is perforated at 5 at intervals, for purposes of ventilation. In order to render the band comfortable in its position on the body, I provide pads such as that shown at 6 in Figs. 4 and 5, these pads being stuffed with any suitable material. Since the band is to be worn next to the under-clothing I may place a removable strip 7 such as that shown in Fig. 5, which buttons to the band 4 at 8. This strip or lining may be removed and replaced by a clean strip. The band 4 is held in position by straps 9 and 10, which pass over the shoulders and the band may be adjusted by means of the adjusting straps 11. The straps 9 and 10 are perforated to permit of the adjustment of the height of the main body support. This body support is reinforced at the back by leather covered metal strips 4^a (see Fig. 3) and has a downwardly extending flexible member 4^b attached to it at its lower end, this member 4^b also being provided with metal reinforcing strips such as those shown at 4^c and serving as an additional back support. The band 2 of the hip support extends through keepers 4^d at the bottom of the back support 4^b.

At 12 and 13 I have shown two bands which are designed to encircle the leg and to be held in position by straps and buckles as clearly shown. These leg bands are made of stiff unlined material such as leather. Between these bands is a protective band 14 for the knee, this band being also of leather or other similar material and having a por-

tion 14^a of a rounded shape and extra stiffness for protecting the knee cap. This band is held in place by means of the straps 14^b. The leg bands 12 and 13 are connected in their rear by means of a flexible and preferably elastic strap 15 whose purpose will be described later. Secured to either side of the leg band 12 are straps such as those shown at 16 and 17, these straps joining at their tops and being connected by means of a buckle 18 to a strap 19 which in turn is connected to a shoulder band 20, which passes around the shoulder which is not paralyzed or otherwise rendered useless. In the figure the strap passes around the right shoulder and back again under the left arm. This strap 20 is made of some material which will bend, but which will not stretch, such as canvas. It is held in place by means of straps such as those shown at 21 and 22 which pass underneath the right arm and are secured to the main shoulder strap 20 by the smaller straps 21^a and 21^b respectively.

Secured to the main body support at one side, (the left in Fig. 1,) is a leather-covered metal brace 23 provided at its top with an arc-shaped shoulder support 24. This brace connects with a similar brace 25, which is secured to the leg band 13 by means of a joint 26, which is shown in detail in Fig. 6. In the latter figure it will be seen that the brace member 25 terminates in a fork 25^a arranged to receive the lower end 23^a of the brace member 23, the pivot pin 26 being passed through the alined openings 26^a. A pad 27 is secured to the member 23 between the brace member and the body and is designed to engage the protective strip 3 of the hip support 1. At 28 is another joint similar to that shown at 26 which connects a brace member 29 attached to the leg band 13 with a brace member 30 attached to the leg band 12. A U-shaped brace member 31 is secured to the lower part of the leg band 12 and passes underneath the shoe 32.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

The apparatus described above is designed to be worn over the under clothing, but underneath the outer clothing such as the coat, vest, shirt and trousers of the wearer. In the application of the apparatus the hip support 1 is first placed in position. The shoulder strap 20 is adjusted and the body support, leg bands, and knee support are buckled on in the manner described. It will be seen that the apparatus is really in three parts, the hip support constituting one part, the main shoulder strap 20 and its retaining straps 21 and 22 constituting a second part, and the remainder of the apparatus constituting the third part.

Consider now the operation of the device.

In the standing position such as that shown in Figs. 1, 2 and 3, the brace members 23, 25, 29, 30 and 31 are practically in alinement, and the shoulder pad 24 being underneath the left arm forms a brace for the left shoulder. The main body support braces the body and especially the back, due to the back support 4^b. The member 1 forms a support for the left hip, while the leg bands support the left leg. The apparatus permits one who is totally paralyzed on one side, as described, to stand erect. Now when it is desired to walk, the right leg is extended as in the act of walking and the right shoulder is raised, thereby lifting the left leg from the ground. The left leg is now swung forward by a hitch from the shoulder, the right side of the body bending at the hip joint. The weight of the body can now be borne by the brace members long enough to lift the right leg for another step. A person may thus walk without the use of a crutch, as I have demonstrated in my own case. When it is desired to sit down it is only necessary to bend the body as in the natural act of sitting when the hip joint as well as the knee joint will be flexed and will permit the wearer to assume a sitting posture. I desire to call attention to the fact that the left leg is not held stiffly by the apparatus, but will be permitted to assume its natural position, *i. e.*, flexed at the knee. In rising from a sitting posture, it is necessary, of course, to bring the brace members 23, 25, 29, 30 and 31 into alinement and this is done by rising suddenly on the right leg and at the same time giving a hitch upward with the right shoulder. This will bring the parts into the position shown in Fig. 2. In order to give the knee joint sufficient play and at the same time to prevent the left leg from being thrown too far forward, I provide the strap 15, which, as stated, is preferably elastic. This is permanently adjusted so that where the knee tends to bend too far the elasticity of the band will bring it back instantly to the proper position. The pad 27, as stated before, which engages the shield 3, prevents the rubbing of the joint 26 upon the pad. In order to insure the retention of the strap 19 in its proper place a strap 33 may be looped around the brace member 25 and secured to the hip support 1 in the manner shown.

While I have described this invention as being particularly applicable to one who has been totally paralyzed on one side, it will be seen that the device may be used where one has been partially paralyzed or in cases of locomotor ataxia, rheumatism, or similar diseases which render certain parts of the body without muscular control. Thus where one has lost the use of the lower part of one leg for instance, the device may

be equally useful, since it permits the manipulation of the limb by means of the shoulder on the opposite side.

I am aware that various modifications of the device based on the same general plan might be made without departing from the spirit and the scope of the invention.

I claim:—

1. In a body support for invalids, a leg band above the knee, a leg band below the knee, a jointed brace member connecting said leg bands, a shoulder support, a brace member connecting the upper leg band with said shoulder support, and a shoulder strap secured to said lower leg band and arranged to pass around the shoulder on the opposite side of the body.

2. In a body support for invalids, a leg band above the knee, a leg band below the knee, a jointed brace member connecting said leg bands, a body brace adapted to encircle the body, a jointed brace connecting the upper leg band with said body brace, a shoulder support at the top of said second named jointed brace, and a shoulder strap secured to said lower leg band and arranged to pass around the shoulder on the opposite side of the body.

3. In a body support for invalids, a leg band above the knee, a leg band below the knee, a jointed brace member connecting

said leg bands, a body brace adapted to encircle the body, a jointed brace connecting the upper leg band with said body brace, a shoulder support at the top of said second named jointed brace, a shoulder strap secured to said lower leg band and arranged to pass around the shoulder on the opposite side of the body, a rigid foot brace in substantial alinement with said first named jointed braces, and a flexible hip brace disposed between said second named jointed brace and the body of the wearer.

4. In a body support for invalids, a leg band above the knee, a leg band below the knee, a jointed brace member connecting said leg bands, a shoulder strap, a pair of leg straps connected with said shoulder strap, one of said leg straps being secured to one side of said leg band and the other of said leg straps being secured to the other side of said leg band, a knee band, and a rounded shield carried by said knee band, said knee shield being normally disposed underneath said leg straps for protecting the knee and for serving as a bearing member for said leg straps.

EDGAR STANLEY WEAVER.

Witnesses:

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C. J. HARGIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."