

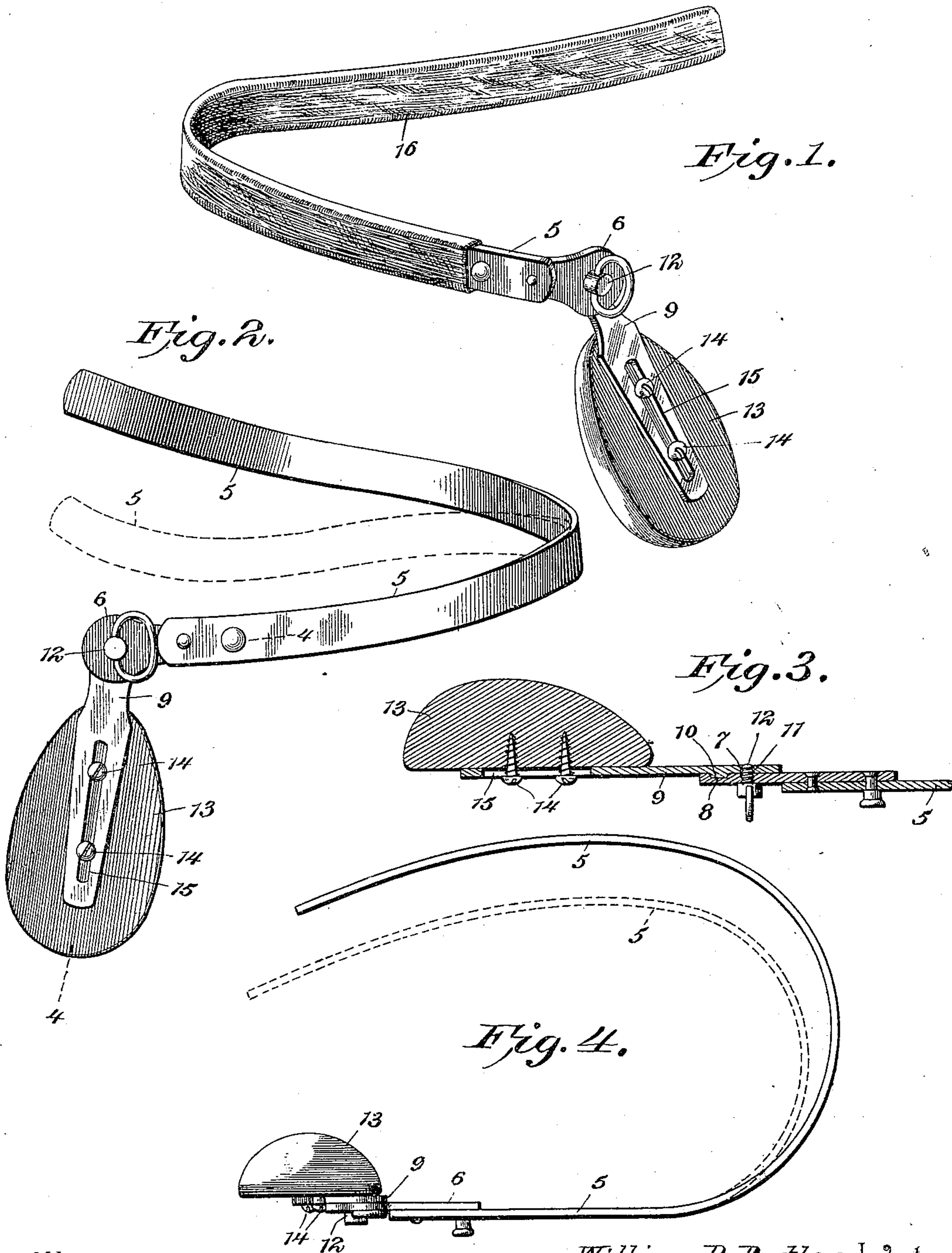
No. 666,375.

Patented Jan. 22, 1901.

W. R. BUTLER.  
TRUSS.

(Application filed Oct. 28, 1899.)

(No Model.)



Witnesses

Howard D. Orr.

H. J. Benkhof

By his Attorneys,

William R. Butler, Inventor,

Cashnow & Co.



# UNITED STATES PATENT OFFICE.

WILLIAM RUFUS BUTLER, OF RICHMOND, VIRGINIA, ASSIGNOR OF ONE-HALF TO FRED H. GARBER, OF SAME PLACE.

## TRUSS.

SPECIFICATION forming part of Letters Patent No. 666,375, dated January 22, 1901.

Application filed October 28, 1899. Serial No. 735,086. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM RUFUS BUTLER, a citizen of the United States, residing at and whose post-office address is No. 816 North Twenty-seventh street, Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Truss, of which the following is a specification.

My invention relates to trusses, and more particularly to devices in which the truss-pad may be reversed or adjusted to properly bear on the hernia to secure great comfort to the wearer.

It is customary in the art to provide a truss with a spring-band and to connect a pad with the band. Such prior constructions usually have the spring-bands made each from a length of metal, usually of steel, which is tempered to impart elasticity permanently thereto and is bent to conform to a shape suitable to fit the wearer; but the steel truss-spring, while possessing the desirable feature of elasticity, is constructed so as to have a certain shape or contour permanently given thereto, so that the shape of the spring cannot be materially altered or changed to suit the person and make the pad bear properly on the hernia without dismantling the truss, drawing the temper of the spring, bending the metal to the required shape, and again tempering the spring, which operations are wholly impracticable. It is therefore customary for a dealer to carry in stock a number of trusses of different sizes and shapes to meet the demands of the trade; but aside from the expense to the dealer the truss is also objectionable, because when after its purchase the user or wearer cannot change the curvature of the spring nor regulate the pressure exerted thereby and the pad on the hernia.

The object that I seek to attain is the provision of a truss-spring which while it retains its permanent elasticity or resiliency is capable of being readily bent by the dealer, physician, or wearer in any required condition to make the pad bear properly, whereby the truss-spring may be bent to conform to the body and hip of the person, so as to be worn with ease and comfort, to present the pad properly, and exert the requisite pressure through the pad on the afflicted organ. It is

desirable in this art to employ as a spring a metal which will not corrode under the action of moisture and perspiration.

In embodying my invention I have not been able to find in the market a metal or substance which fulfils the requisites of pliability and permanent elasticity, because ordinary permanently-elastic metallic springs are not pliable so as to be bent at will in any required shape to attain the objects of my invention. I have therefore been required to use a metallic alloy known as "German silver" and to temper this metallic alloy by hammering the temper into the lengths of the alloy and then rolling them smooth in order to give the quality of permanent elasticity thereto. As is well known, the alloy designated as "German silver" is not permanently springy, elastic, or resilient, while, on the other hand, it possesses the desirable quality of pliability. I therefore proceed to make the truss-spring of the metallic alloy in the required dimensions and then temper the spring to give the same the required elasticity and preserve its pliability. The spring is now in a condition which enables the same to be bent by hand in any direction and to any required shape—that is to say, the spring-band may be bent around itself to fit the hip, and it may be bent edgewise to properly present the truss-pad to the hernia. The spring-band may be bent laterally and edgewise in either direction to enable the truss to be used on the right or left hand side of the person; but under all these conditions of bending said band it does not lose the requisite elasticity or resiliency, it being understood that the bending force applied to give the requisite shape is sufficient to overcome the elasticity. These physical characteristics of the improved spring-band are especially desirable in a reversible truss employing an adjustable and reversible pad, because the spring may be bent and the pad adjusted to enable the truss to be fitted in any position and on either side of the wearer.

In the drawings, Figure 1 is a perspective view of a truss constructed in accordance with my invention. Fig. 2 is a side view illustrating the spring-band bent in a reverse direction to Fig. 1 and with the pad adjusted to a different position. Fig. 3 is a plan view



showing a variation in the shape of the spring-band. Fig. 4 is a cross-section on the line 4 4 of Fig. 2.

The same numerals of reference indicate like and corresponding parts in each of the several figures of the drawings.

The spring-band 5 of my improved truss is made of the metallic alloy and tempered in the manner hereinbefore described. This band in the course of its manufacture is a straight length of metal substantially rectangular in cross-section, although the shape thereof is not material, and said band is then bent or doubled upon itself to the requisite shape. A rigid or stiff supporting-plate 6 is secured firmly to one end of the spring-band by rivets or other suitable fastenings. Said supporting-plate is provided with a transverse opening 7 and with the radial locking-ribs 8, the latter being formed on one face of the plate in positions radial to the opening. A stiff pad-plate 9 is applied in overlapping relation to the ribbed face of the supporting-plate, and this pad-plate has one or more radial ribs 10, adapted to interlock with the ribs of the supporting-plate. A threaded aperture 11 is formed in the pad-plate, the latter being assembled for its aperture to coincide or register with the hole 7 in the supporting-plate. Through the coincident openings of the two plates is passed the shank of a clamping-screw 12, the latter having threaded engagement with the pad-plate, while its head or shoulder bears against the supporting-plate in order to clamp the two plates firmly together. A pad 13 of ordinary construction is fixed to the pad-plate in any suitable way—such, for example, as by the screws 14 passing through slots 15 in the plate 9, thus permitting the pad to be adjusted lengthwise of the pad-plate. It is evident that the pad-plate and the pad may be adjusted to any required position with relation to the end of the truss-spring, and, if desired, this pad may be reversed.

While the spring-band is made of non-corrosive metallic alloy, it may be desirable at times to inclose the same in a sheath 16,

which may be of fabric, leather, or any other suitable material, thus enabling the spring to be worn with ease and comfort.

In Fig. 2 of the drawings I have shown the free end of the spring-band bent edgewise, so as to occupy a reverse position from that shown in Fig. 1. By reference to the plan view, Fig. 3, it is to be seen that the spring-band can be bent to acquire different configurations. While the different modes of bending the spring-band shown by Figs. 1, 2, and 3 may be adopted, it is to be understood that said band may be adjusted to partake of any other configuration, and such bending of the band may be easily effected by the owner or wearer. Under all these conditions of adjustment of the spring-band it does not lose its permanent elasticity or resiliency, and I am thus enabled to produce a cheap, durable, and satisfactory article which meets the requirements for a reversible device of this character.

Having thus described the invention, what I claim is—

1. A reversible truss comprising a permanently elastic resilient and pliable body band or spring made in a single tempered piece of metallic alloy and bendable edgewise and laterally to change its shape to conform to right and left portions of the human body without detracting from its elasticity or drawing its temper, and a reversible pad adjustably connected to one extremity of said band or spring.

2. As a new article of manufacture, a truss band or spring for application to the human body in one continuous piece of tempered German silver capable of being bent longitudinally and transversely without drawing the temper and retain its inherent resiliency in its different shapes.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM RUFUS BUTLER.

Witnesses:

JOHN A. LAMB,  
R. E. GLOVER.