(No Model.)

2 Sheets—Sheet 1.

C. VERNIAUD.

TRUSS.

No. 528,046. Patented Oct. 23, 1894.

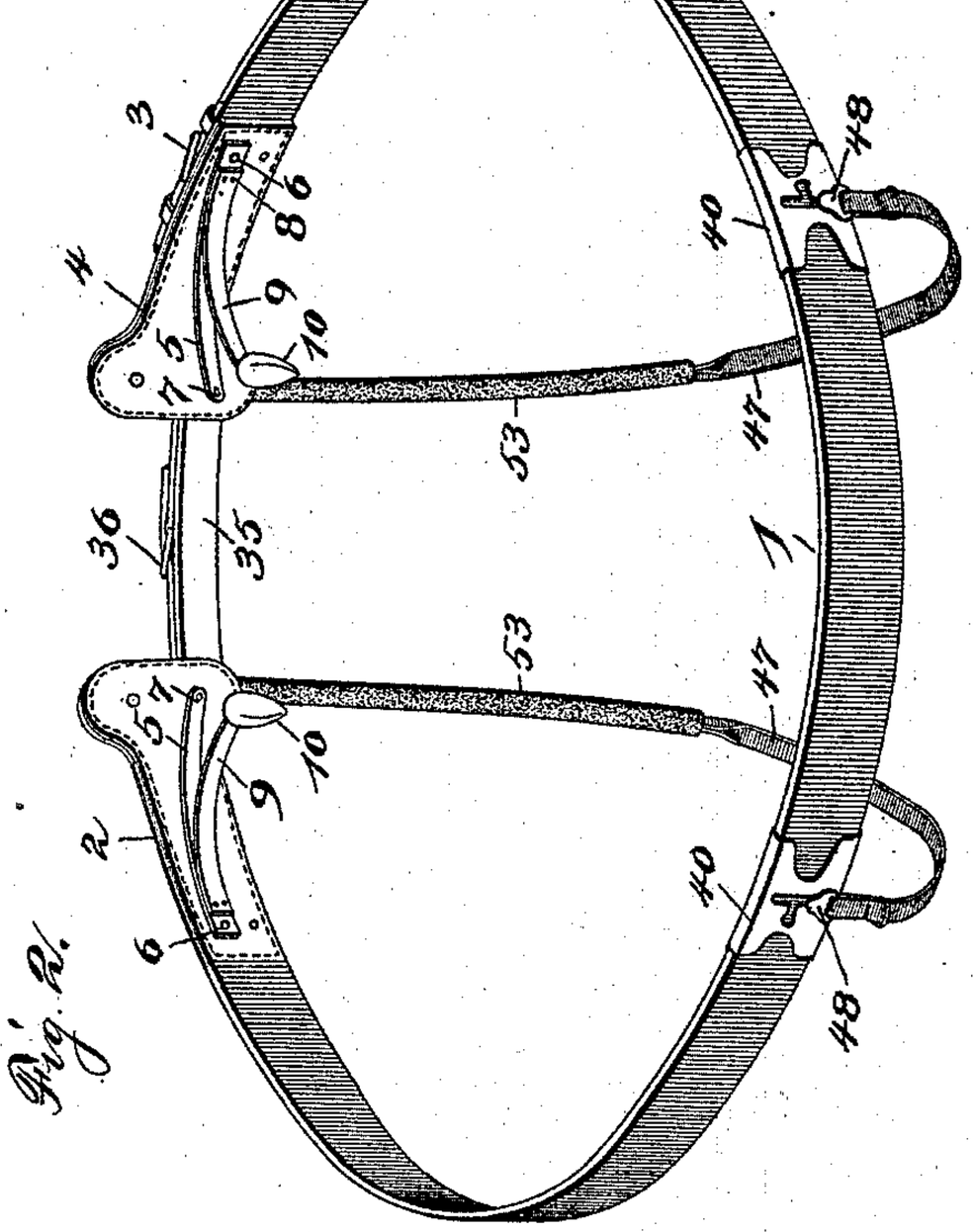

Fig. 2.

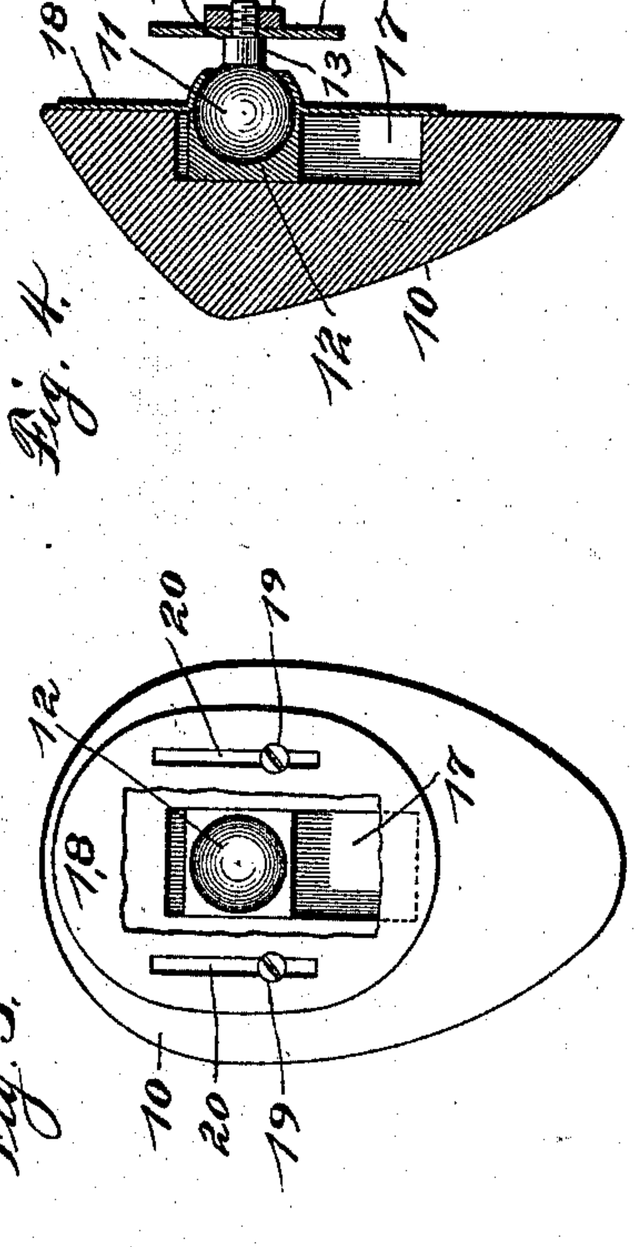

Fig. 4.

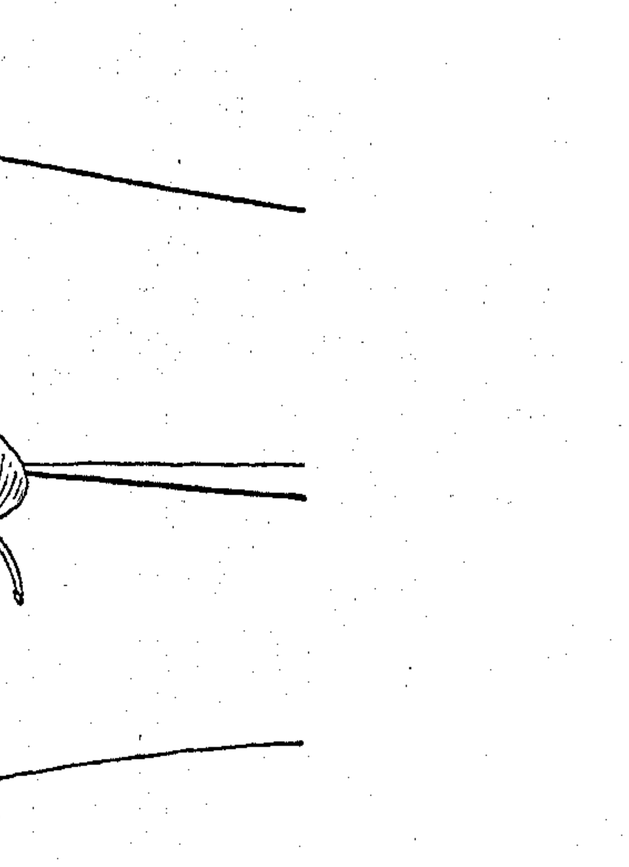

Fig. 3.

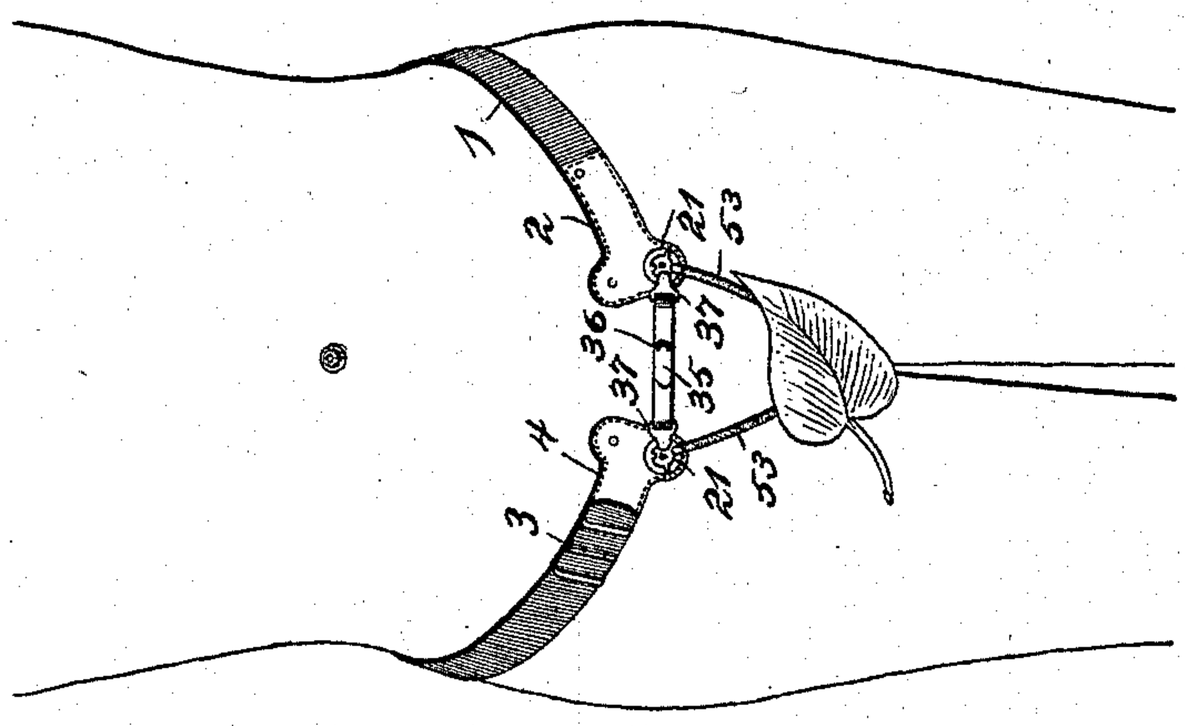

Fig. 1.

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(No Model.)

2 Sheets—Sheet 2.

C. VERNIAUD.

TRUSS.

No. 528,046. Patented Oct. 23, 1894.

Fig. 10.

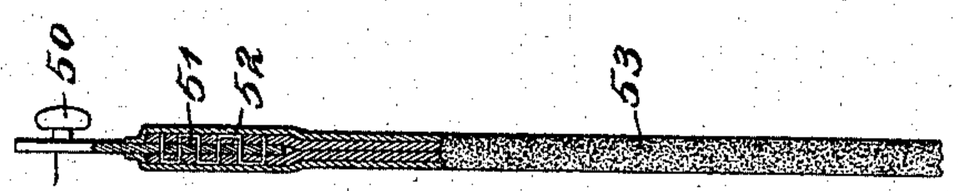

Fig. 9.

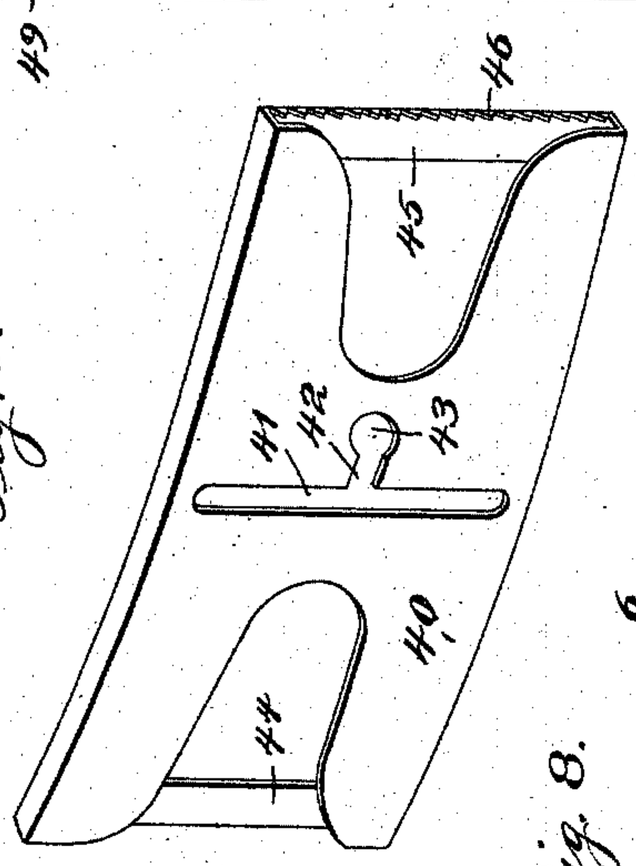

Fig. 6.

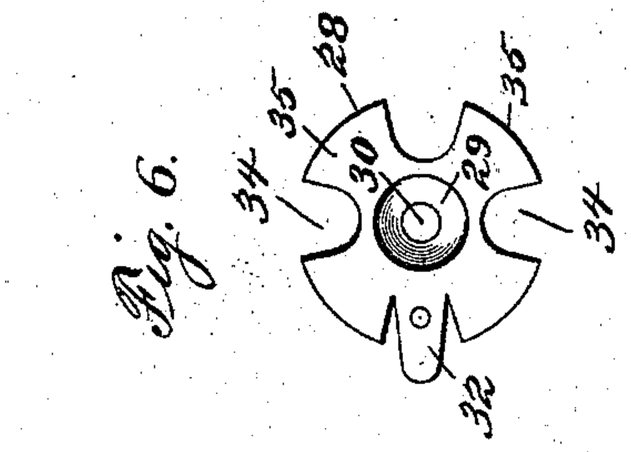

Fig. 5.

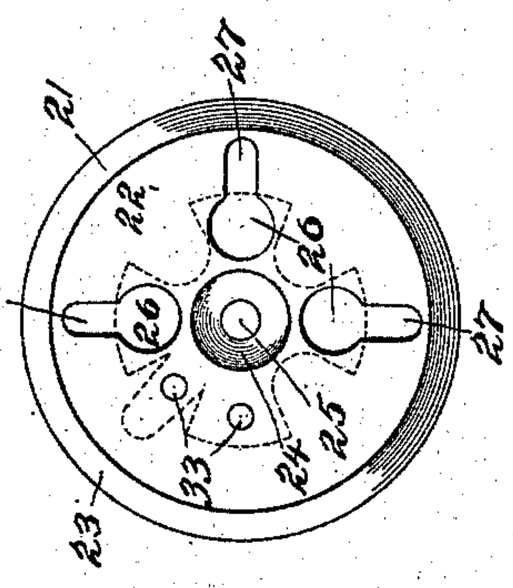

Fig. 8.

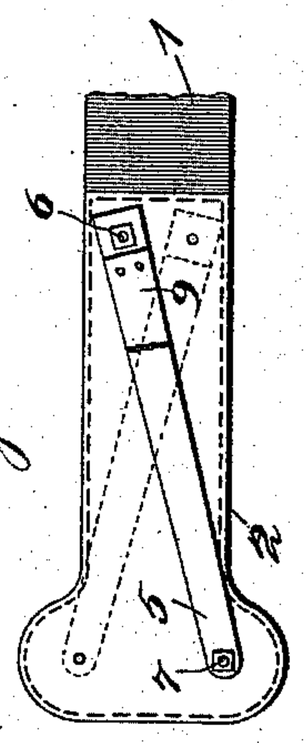

Fig. 7.

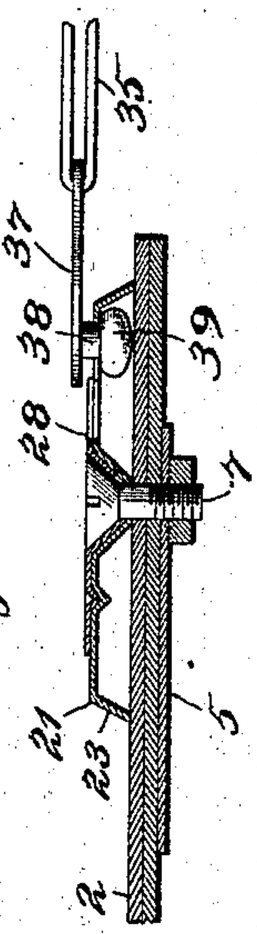

Fig. 13.

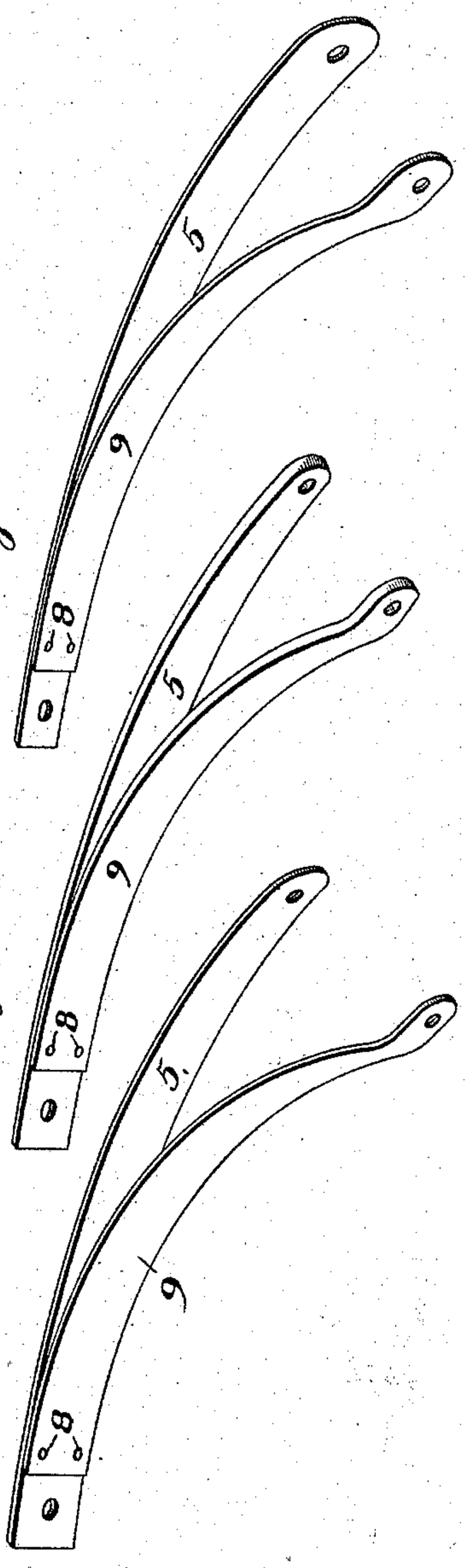

Fig. 12.

Fig. 11.

Witnesses
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UNITED STATES PATENT OFFICE.

CLAUDIUS VERNIAUD, OF QUINCY, ILLINOIS.

TRUSS.

SPECIFICATION forming part of Letters Patent No. 528,046, dated October 23, 1894.

Application filed August 21, 1893. Serial No. 483,679. (No model.)

To all whom it may concern:

Be it known that I, CLAUDIUS VERNIAUD, of Quincy, Adams county, State of Illinois, have invented certain new and useful Improvements in Trusses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in trusses of that class for the prevention and holding in place of hernia or rupture, and consists in the novel arrangement, combination, and construction of parts as will be more fully hereinafter described and designated in the claim.

In the drawings, Figure 1 is a front elevation of my improved truss showing it applied to a person in the position it assumes when in practical use. Fig. 2 is a rear view in perspective of my improved truss more clearly showing the same, it being detached. Fig. 3 is a rear elevation of my improved pad, which I make use of in carrying out my invention, parts being broken away to more clearly show the construction of same. Fig. 4 is a vertical central section of the pad illustrated in Fig. 2, more clearly showing the construction of same. Fig. 5 is an enlarged detail plan view of a locking device, which I make use of in carrying out my invention. Fig. 6 is a detail view of a lock detached from the locking device, the same being shown by dotted lines in Fig. 5. Fig. 7 is a central section through the locking device, showing the manner in which it is engaged by the coupling, which is carried by the connecting strap. Fig. 8 is a detail side elevation of one of the stiffening devices, which is made use of in carrying out my invention. Fig. 9 is an enlarged detail view in perspective of a buckle, which I make use of in carrying out my invention. Fig. 10 is a detail side elevation of a portion of the under-strap, showing the manner in which the coupling is connected thereto, and also showing the manner in which it is covered. Fig. 11 is a detail view in perspective of the pad retaining spring, and the spring upon which it is located. Figs. 12 and 13 are like views, showing modified forms of said springs.

The object of my invention is to construct a truss with a pad adjustably mounted on a yielding spring in such a manner that the pad will always have the same pressure upon the hernia as the patient assumes different positions.

A further object of my invention is to construct a truss with a device whereby it can readily be attached and detached from the patient without the aid of buckles.

Referring to the drawings, the numeral 1 designates an elastic belt, one end of which is engaged by a leather stiffening device 2, and the opposite end is constructed to engage a buckle 3, which is carried by another stiffening device 4, the same in construction as the stiffening device 2. By means of the buckle 3, the belt can be adjusted to the required length for fitting different patients.

The stiffening devices 2 and 4 being exactly the same in construction, and carrying springs the same in construction, I will limit my description to one.

Connected to the leather stiffening device is a sheet metal spring 5, one end of which is connected to the engaged end of said stiffening device, and held in position therewith by a bolt 6, the opposite end being connected to the free end of said stiffening device by a bolt 7. Rigidly connected to the spring 5, adjacent the bolt 6, and held in position therewith by rivets 8, is a tapered segmental pad-retaining spring 9, the outer free end of which is provided with a pad 10. This pad 10 is preferably constructed of wood and substantially V-shaped in cross-section and is formed with a blunt portion on one side which is constructed to engage the hernia for retaining it in position. The flat side of said pad is constructed with a socket 12 which is adjustably mounted in a depression 17, which is formed longitudinally in said pad and rectangular in shape.

Connected to the free end of the retaining-spring 9 is a ball 11, which is of such a size that it will engage the socket 12 in the pad 10, and is held in connection with said socket by a plate 18, which is adjustably connected to the flat side of the pad by screws 19 passing through parallel slots 20 formed in said plate. These screws, after passing through said slots, are screwed into the pad, and for adjusting said plate thereon the screws are loosened and the plate 18 is slipped to the

required position and the screws are then tightened, which will retain said plate rigid with the pad.

The depression 17 being rectangular allows the socket, which carries the ball, to move longitudinally therein. The ball 11 is connected to the retaining-spring 9 by a projection 13 being formed thereon, the outer screw-threaded end 14 of which is somewhat smaller than the projection 13, and by this construction forms a shoulder 15, which the spring engages and is held in engagement therewith by a nut 16 being screwed on the outer end 14. By the construction of this nut, the pad can be readily detached from the retaining-spring 9, or made rigid therewith.

In Fig. 8 I have illustrated by dotted lines how the location of the pad 10 can be changed, there being suitable apertures formed in the stiffening devices, so that the bolts 6 and 7 can be inserted at different points for retaining the spring 5 at different angles relative to the edges of said stiffening devices.

21 indicates locking devices, one being located on the side of each of the leather stiffening devices 2 and 4 on the opposite sides thereof from the pads and held in position by the bolts 7. These locking devices being the same in construction and operation, I will describe but one.

22 indicates a circular plate, which is provided on its outer marginal edge with an annular rim 23, and extends downward therefrom a suitable distance so as to form a space between the lower surface of said plate and the stiffening device upon which it is located.

24 indicates a depression formed in the center of the circular plate 22, and said depression is provided with an aperture 25, through which the bolt 7 passes. Formed in the circular plate 22 is a series of passages 26, which have smaller passages 27 projecting outward radially therefrom and terminating a distance back from the circumferential edge of said plate 22.

28 indicates a circular plate, which is constructed with a depression 29 in the center thereof, the same in construction as the depression 24, and is provided with an aperture 30 to allow the bolt 7 to pass through it for retaining said plate in connection with the outer surface of the circular plate 22. This bolt 7 holds one end of the spring 5, the circular plate 22 and the circular plate 28 in connection with the stiffening device as required for practical use. The depressions 25 and 29 are formed so as to countersink the head of the bolt 7, as illustrated in Fig. 7.

Formed on or fixed to the edge of the circular plate 28 is a projection 32, so that said plate can be manipulated in the required direction by the operator engaging said projection by his thumb or finger.

Formed in the top of the circular plate 22 are a series of depressions 33, which are constructed to be engaged by a projection formed on the adjacent side of the plate 28. The plate 28 being made of thin metal it will spring and retain the projection in engagement with the depression 33, until said plate has been manipulated by the operator. This projection on the plate 28 is the same distance from the aperture 30 as the depressions 33 are from the aperture 25 in the plate 21, so that when said plate 28 is placed in the position illustrated in Fig. 1, said projection will engage the depression and retain said plate in position until released by the operator.

Formed in the circumferential periphery of the plate 28 are a series of radial passages 34. These passages are so constructed as to form projections 35 on said lock which cover the passages 26 in the plate 21, when said first mentioned plate is in the position illustrated by dotted lines in Fig. 5.

35ª indicates the non-elastic connecting strap, which is constructed with a buckle 36 so that it can be lengthened or shortened as may be required. Located on this connecting strap are two couplings 37, each of which is constructed with a projection 38 formed integral therewith and a head 39 is formed on or fixed to the free end of said projection, which is of such a size that it can be readily inserted within the space beneath the lower surface of the circular plate 22 through one of the passages 26 of said plate. By the construction of the annular rim 23 on said plate, it forms the suitable space between said plate and the stiffening device upon which it is located to allow the head 39 to freely move between said plate and said stiffening device.

The projection 38 is of such a size that after the head has been inserted through the passage 26 of the plate 21 said projection can be drawn out into the passage 27, and the head is of such a size that it cannot be disconnected from said plate only through the passage 26. After the head 39 has been inserted in the manner just mentioned, the plate 28 being in such a position that the passages 34 register with the passages 26, it is turned as illustrated by dotted lines in Fig. 5, so the projections 34 cover the passages 26, which prevents said head from being detached and locks the coupling therewith.

40 indicates two slides, which are adjustably located on that portion of the belt 1 which engages the patient's back. They being the same construction, I will limit my description to one. Formed in one side of said slide is a vertical slot 41, and a slot 42 is also formed therein which communicates with said first mentioned slot, and the inner end 43 thereof is enlarged for a purpose hereinafter mentioned. 44 and 45 indicate strengthening ribs, which are formed integral with said slide adjacent the ends thereof, and a suitable distance from the side to form a passage through which the belt is adapted to pass. Formed on the rib 45 are a series of teeth 46 to engage the belt and retain said slide in the required position therewith. When it is desired to adjust the slide relative to the belt, the

operator pushes the belt over so it will disengage the teeth and allow it to be moved longitudinally on said belt to the required position. The space between the rib, which carries said teeth, and the adjacent side of the slide, is wide enough to permit this operation. 47 indicates two elastic under-straps. One end of each of these under-straps 47 is constructed with a coupling 48, the same in construction as the coupling 37, and is provided with a projection and a head. This head is inserted into the slide 40 through the enlarged end 43 of the slot 42, so that the head will be on one side while the coupling is on the other side of the slide 40, thus preventing it from being detached from the slide while the belt is in practical use. Connected to each of the opposite ends of the under-straps is a coupling 49 which is constructed with a projection and a head 50. This coupling is similar in construction to the coupling 37 and the head 50 is the same in size as the head 39, so that it can readily be inserted through one of the passages 26 and be locked therein in the same manner as the coupling 37 is locked to the plate 21. This coupling 49 is constructed with a narrow projection 51 over which the adjacent end of the under-strap is doubled and connected thereto by means of stitches 52, there being suitable apertures formed in the projection 51 to allow said stitches to pass through. Each of the under-straps 47 is doubled back from the coupling 49 about half way the length of said strap and the doubled portion is covered with a covering 53, preferably chamois skin, and is connected to the elastic strap and the coupling 49 by the stitches 52 passing through it. The object of these coverings is to prevent the straps from rubbing the patient, as they will contract and expand as the patient moves, and by these coverings being loose on said straps they will adhere to the body and allow the straps as they expand and contract to move through them, thus taking the friction off from the body.

When it is desired to apply the truss to a patient, the operator first adjusts the belt 1 to the desired length by the buckle 3 and applies the belt in the manner illustrated in Fig. 1. The pressure of the belt 1 upon the body can be regulated by the connecting-strap 35ª, as it is provided with a buckle 36 for this purpose. By the construction of the under-straps, they can be made to readily engage and disengage the belt in the manner hereinbefore stated, and passing around the body, as illustrated in Fig. 1, they prevent the belt 1 from slipping up and hold it in the required position to retain the pads with the hernia. The springs 9 being connected to the springs 5 in the manner hereinbefore stated, when pressure is brought to bear upon the pad 10, said springs will bend down upon the springs 5, and said springs 5 will form the fulcrum for said springs 9, and cause the resiliency of the springs 9 to be the same, as they travel their entire length upon the springs 5. These springs 9 are a suitable amount thinner and narrower at their free end to overcome the resiliency as the fulcrum grows closer to the pad.

In Figs. 12 and 13 I have shown modifications of the springs 9, and in a great many cases I have found by practical experience that these forms are preferable to the form illustrated in Fig. 11.

By the construction of the pad with a ball and socket, it will readily yield to the motion of the patient and retain its normal position with the hernia, and it being adjustable relative to the spring, it can be easily adjusted to conform with the hernia without interfering with the belt.

As shown in the drawings and described in the specification, there are two pads connected to the belt, but the belt can be constructed with but one pad without materially altering my invention.

What I claim is—

A truss constructed with an elastic belt 1, stiffening devices 2 and 4 connected to the ends of said belt, a non-elastic connecting strap 35ª, one end of which is connected to the stiffening device 2 and the opposite end to the device 4 by means of the locking devices 21 which are connected to said stiffening-devices, elastic under straps 47 connected to the locking-devices 21, the opposite ends connected to the adjustable slides 40 which are located on the back of the belt 1, covering 52 connected to the ends of the elastic under straps adjacent to the locking devices 21, springs 5 in combination with the stiffening-devices 2 and 4, springs 9 connected to the springs 5, and pads 10 connected to the outer free ends of the spring 9, substantially as set forth.

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

CLAUDIUS VERNIAUD.

Witnesses:
GEORGE H. RICE,
JOHN G. MYERS.