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G. A. McMILLEN,
HERNIAL TRUSS.

APPLICATION FILED FEB. 19, 1917.

1,237,667.

Patented Aug. 21, 1917.

Fig. 1.

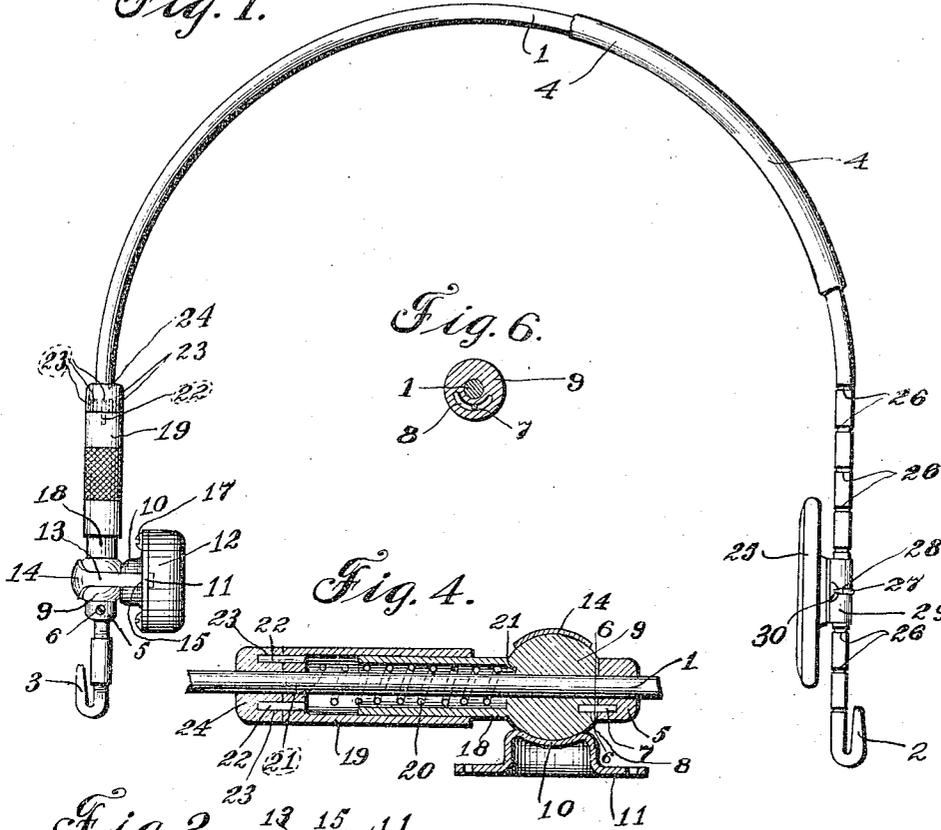


Fig. 6.

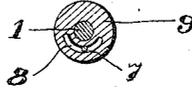


Fig. 4.

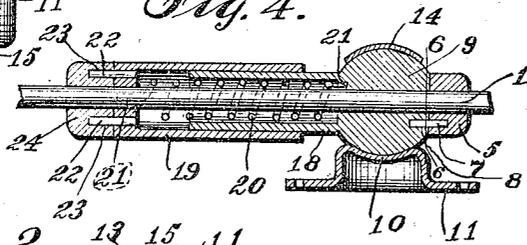


Fig. 2.

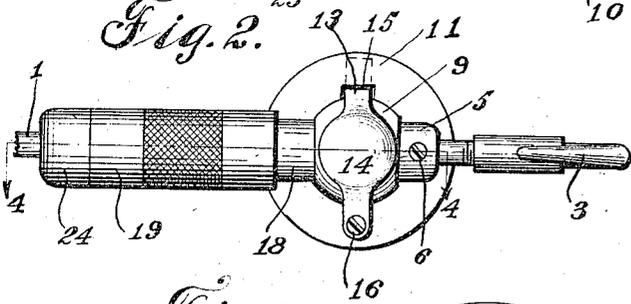


Fig. 3.

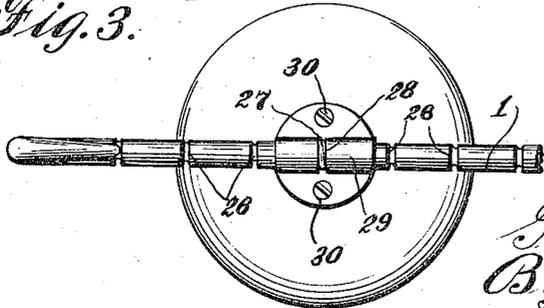
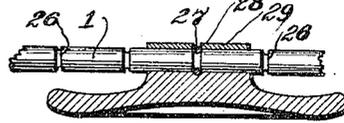


Fig. 5.



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UNITED STATES PATENT OFFICE.

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HERNIAL TRUSS.

1,237,667.

Specification of Letters Patent. Patented Aug. 21, 1917.

Application filed February 19, 1917. Serial No. 149,612.

To all whom it may concern:

Be it known that I, GEORGE A. McMILLEN, a citizen of the United States, and resident of Alton, Illinois, have invented certain new and useful Improvements in Hernial Trusses, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My present invention relates to certain improvements upon the hernial truss which is shown and described in my United States Letters-Patent No. 1,158,383, dated October 26, 1915, and the object of my present invention is to provide improved means for attaching the pad as well as the back disk to the bowed truss-wire or spring, in such a manner that the said pad will more perfectly fit the rupture and support the same automatically during the various movements of the body, whereby the truss will be more comfortable and efficient during use.

A further object of my invention is to provide a surgical truss in which novel means for supporting and adjusting the pad are made use of, together with a novel arrangement of a torsional retaining-spring adapted to be tensioned as delicately as desired, and which is designed to act upon the pad-support, after the latter has been adjusted, to automatically maintain the pad yieldingly yet comfortably in contact with the rupture.

A further object of my invention is to provide an improved and automatically adjustable back-disk which is connected with the supporting wire or spring by novel and efficient means which will allow of its adjustment to fit lean and stout persons with the same supporting wire, and to automatically maintain its pivotal connection with said wire during all the various movements of the body of the wearer.

The invention consists in the novel combination and arrangement of the various parts as hereinafter described and particularly pointed out in the claims found at the end of this specification.

In the drawings:

Figure 1 is a top plan view of my improved truss.

Fig. 2 is an enlarged front elevation, partly in section, of the end of the supporting-wire carrying the hernial pad.

Fig. 3 is a similar view of the opposite

end of the supporting-wire, carrying the back disk.

Fig. 4 is a transverse section on the line 4-4 of Fig. 2, and

Fig. 5 is a transverse section through the back disk and connecting parts, and

Fig. 6 is a detail section, taken on the line 6-6 of Fig. 4.

The numeral 1 designates the bowed supporting-wire or spring of the truss, which is (in the present instance) formed with an integral hook 2 at one of its ends and with another hook 3 at its opposite end detachably secured in place by having its internally-threaded tubular body engaging the threaded end of the said wire.

The usual sheath 4 of rubber, or other suitable material, is provided for said supporting-wire, for an obvious purpose.

A collar 5 is fixed upon said bowed wire 1, by means of a set-screw 6, at a point adjacent the said hook 3, and said collar carries a stop-pin 7 which projects from the inner face of said collar in a direction parallel with the adjacent part of the said bowed wire, and engages the end-walls of a curved slot or recess 8, to limit the rotary movement of a ball 9 which is loosely mounted on said wire, to rock a limited distance, and to slide axially thereon.

Said ball 9 has a flat face which is normally in contact with the flat face of the said collar 5 which carries said stop-pin 7, and the said curved slot 8 is formed in the said flat face of said ball.

The outer surface of the said ball 9 is, of course, spherical in form, so that the socket 10 and the base-plate 11 of the hernial pad 12, may be adjusted to any angle desired, the said base-plate being held on said ball by a U-shaped loop 13 having a ball socket 14 located diametrically-opposite the socket 10 of said base-plate.

One end of said loop 13 is hingedly connected to said base-plate and is readily detachable therefrom by having said end bent outwardly at a right-angle and the bent portion loosely engaging in a slot 15 formed in said base-plate, the other end of said loop being adjustably connected to said base-plate by means of an adjusting and clamping screw 16 passing loosely through a perforation formed in said end and engaging the threads of an aperture in the base-plate.

The apertured end of the said loop 13 is

bent at a right-angle, to rest about parallel to the adjacent surface of the said base-plate, the said perforation being formed in said bent end, and said screw 16 being adapted to draw said bent portion toward said base-plate, and thereby firmly clamp said ball 9 in any desired position to which it may be adjusted between the said sockets of said base-plate and loop.

The base-plate 11 is provided with perforations which are engaged by common screws 17, for securing the said pad 12 to the base-plate.

The outer end of a tubular shank 18 is fixed to the said ball, to rock and slide therewith on the said wire 1, and a sliding sleeve 19 has its outer end in telescopic engagement with the free end of said tubular shank, and in addition to such telescopic engagement the said sleeve is revoluble upon the said shank.

The inner end of the said sleeve 19 is closed, so that one end of a coiled spring 20 bears against said closed end, while the opposite end of said spring engages the said ball 9 within the said tubular shank 18, the ends of the wire composing said spring being bent at a right-angle and fixed in a suitable hole or recess formed in said closed end of said sleeve 19 and in the said ball, to secure the ends of said spring to said parts, as indicated by the numeral 21, and whereby when the said sleeve is rotated or rocked, or when the said ball is rocked, the said spring will exert a torsional and yielding strain upon the part which is not rotated, it being understood that all of said parts, to-wit, the ball 9, the spring 20, the sleeve 19, and its closed end, are mounted loosely upon the said supporting wire 1.

One or more pins 22 are fixed in the closed inner end of the said sleeve 19, and project parallel to the axis of the sleeve, to engage a series of holes or recesses 23 formed in the abutting flat face of another collar 24 which is soldered, welded or otherwise fixed on the said supporting wire 1 at the inner closed end of said sleeve.

The spring 20 may be adjusted to exert more or less torsional strain upon the ball 9, and through it to the base-plate 11 and the hernial pad 12, by merely shoving said sleeve axially toward said ball until the said pins 22 are disengaged from the recesses 23 in which they were located, and then rotating said sleeve in the desired direction, to cause the said spring to exert more or less torsional strain, and then causing said pins to engage other recesses of the series, to hold and lock the sleeve in the desired adjustment; thereby holding the said pad 12 with the desired yielding pressure against the affected part the outer surface of said sleeve being knurled, as shown.

This in addition to the adjustment per-

mitted by the ball-and-socket connection between the said pad 12 and the supporting wire, by means of which the pad may be disposed at any angle desired, and also with the proper degree of yielding pressure against the rupture, so that the rupture will be held in place with the least discomfort or annoyance to the patient.

The back disk.

A back disk 25, made of hard rubber or other suitable material, is revolubly and axially movable upon the supporting wire 1 adjacent the end which carries the fixed hook 2, by the following means in the present instance:

A series of annular grooves 26, located about one-half inch apart, are formed in the said wire, and a split-ring 27 is located in the desired one of said grooves, to engage the walls of a slot 28 formed in a clip 29 secured to the back of said back disk 25 by means of common screws 30, whereby the said disk will be securely connected to the said supporting wire and yet be free to rotate thereon in any desired position to which it may have been adjusted; the only thing necessary to fit the disk and the truss to lean or stout patients being the removal of the said screws 30, and the said split ring 27 may then be moved into the desired one of the series of annular grooves 26, and the detached parts replaced to the position shown.

Further description of the construction or operation of my improved truss will be unnecessary to persons skilled in the art.

I claim as my invention the following:

1. An improved truss, comprising the usual supporting wire or bowed spring; a ball mounted loosely on said wire, to slide and rotate; a fixed part on said wire adjacent said ball; a connection between said ball and said fixed part, for limiting the rocking movement of said ball; another fixed part on said wire on the opposite side of said ball, and separated a distance from said ball; a spiral spring mounted between said ball and the last-mentioned fixed part; and means for attaching one end of said spring to said ball and its opposite end in revoluble adjustment with relation to said last-mentioned fixed part, to vary the torsional power exerted by said spring upon said ball; in combination with a U-shaped loop having a ball-socket in engagement with the said ball; a base-plate having a ball-socket in engagement with said ball, and clamped into contact with said ball by said loop, but adjustable on the ball to any angle desired; a hernial pad attached to said base-plate; and a back disk adjustably connected to said wire by means which permit said disk to rotate on said wire and be adjusted axially to fit a lean or stouter patient.

2. An improved truss, comprising the

5 bowed supporting-wire; two collars fixed on
said wire at a distance from each other, the
collar nearest the end of said wire having
a stop-pin fixed in it and projecting there-
10 from in a direction toward the other fixed
collar; a ball mounted on said wire to
rock and slide adjacent said fixed collar
which carries said stop-pin, said ball having
formed in it a curved recess the opposite
15 walls of which are engaged by said pin to
limit the rocking movement of said ball; a
tubular shank on said ball; a sleeve mount-
ed on said tubular shank, to slide and to
rock thereon; means for closing one end of
20 said sleeve; a spiral-spring having its ends
fixed the one to said ball and the other to the
means which closes the end of said sleeve,

and said spring mounted on the said wire
within said tubular shank and said sleeve;
a pin fixed in the means which closes the end
20 of said sleeve and projecting into one of a
series of recesses formed in the adjacent
fixed collar, whereby the torsional strain of
said spring may be adjusted; a hernial pad
adjustably connected to the said ball; and a
25 back disk suitably connected to said wire.

In testimony whereof, I have signed my
name to this specification, in presence of two
subscribing witnesses.

GEO. A. McMILLEN.

Witnesses:

W. W. LOWE,

CHAS. W. HERKIMER.

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