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MALE INCONTINENCE CLAMP

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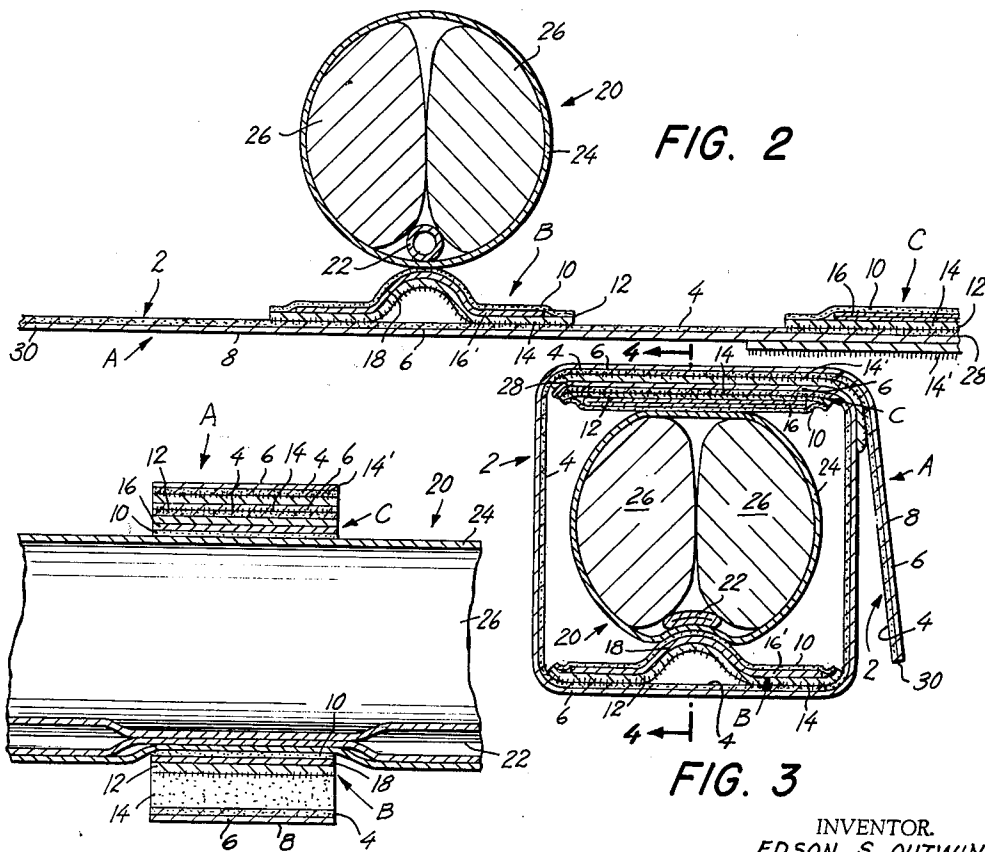
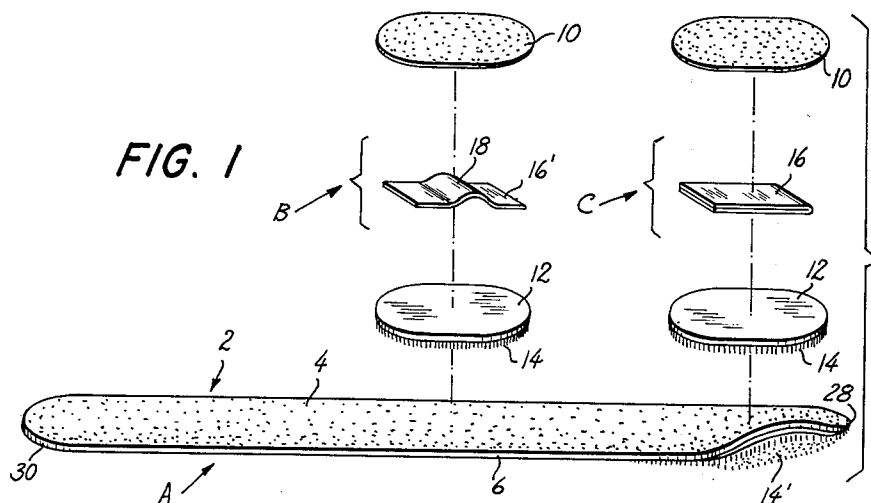


FIG. 3

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MALE INCONTINENCE CLAMP

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9 Claims. (Cl. 128—346)

The present invention relates to a device adapted to be applied to the penis in order to prevent involuntary or uncontrollable passage of urine.

Eneuresis, or "bed-wetting," is a common problem of children, and occurs even among adults. The causes of this condition are obscure, and often have a psychological or psychiatric base; the cure of this condition is elusive and often requires an extended period of time. While the condition exists it is desirable to have means for averting the undesirable external effects of the condition, such as soiled clothing or bed clothes, embarrassment in social situations, and disturbed sleep.

Similar problems arise in the case of persons suffering from paralyzed bladders, and here the need for means for positively preventing the escape of urine is most critical.

One way to achieve the desired result is to so compress the urethra—the tube in the penis in which the urine flows—as to prevent the passage of urine there-through. However, the physiological structure of the penis is such as to make it difficult to maintain this effect without adverse secondary effects. The urethra extends the length of the penis alongside areas of spongy tissue, so that selective compression of the urethra without undue compression of the spongy tissue has eluded the art. Tourniquet-like devices have been proposed in the past as incontinence clamps, but they have suffered from the dual drawback of being insufficiently secure in the closing off of the urethra and of clamping the spongy tissue so strongly so as to produce artificial erections.

Another problem which arises in the design of devices of the type under discussion is that the body members involved differ greatly in size as between individuals, thereby making it difficult, as a practical matter, to devise a standardized design capable of being used under substantially all circumstances.

A further source of difficulty is the tenderness and delicacy of the penis and the surrounding body areas, which therefore require, as a practical matter, that the clamp not irritate those areas. This is of particular importance when the device is to be used throughout the day, and not just while the patient is sleeping. A collateral difficulty arises from the fact that the body areas involved are subject to copious perspiration, and the clamp must therefore be readily cleanable, and preferably washable, if it is to be used for any appreciable time.

It is the prime object of the present invention to devise a male incontinence clamp which solves all of the above specified problems and which, in particular, provides for the secure and reliable closing off of the urethra without impeding blood circulation through the adjacent spongy tissues, and which does so by means of a structure which is not bulky, which is not irritating, which may readily be washed, and which, in a given standardized design, is capable of being efficiently used with penises of widely different sizes.

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To this end the clamp comprises a part of rigidified pads one of which is designed to engage the penis directly adjacent the urethra and the other of which is designed to engage the penis at a point substantially diametrically opposed to the first pad. These pads are held in place by a flexible strip of material designed to be wrapped around the penis, the pads being independently positionable on the inner surface of that strip at such points as are appropriate to the proper location of the pads relative to the size and shape of the penis of a particular patient. This is accomplished by so constructing the inner surface of the flexible strip and the outer surface of the pads as to have a mutually pressure-sensitive adherent characteristic. When the flexible strip is wound about the penis, a section of the free end thereof will overlies the outer surface of another section of the strip, and the facing inner and outer surfaces of those overlying strip sections are also constructed to have a cooperating pressure-sensitive adherent characteristic. Thus the pads may be removably applied to the strip in proper position and the strip, with the pads attached thereto, may be applied to the penis and removed therefrom, the clamp being wrapped tightly enough about the penis so as to cause compression of the urethra. The existence of the two diametrically opposed rigidified pads ensures proper closing off of the urethra without unduly constricting the spongy areas of the penis. The pad which directly engages the urethra may have an intermediate portion to facilitate the closing off of the urethra without unduly constricting the other portions of the penis. The pads may readily be removed from the flexible strip so that the latter may be cleaned or washed, the pads thereafter being re-attachable thereto so as to reconstitute the assembled clamp. The outer surface of the flexible strip may be made smooth, and therefore non-irritating.

To the accomplishment of the above, and to such other objects as may hereinafter appear, the present invention relates to the construction of a male incontinence clamp as defined in the appended claims, and as described in this specification, taken together with the accompanying drawings.

FIG. 1 is a three-quarter perspective exploded view of the various parts of the clamp of the present invention, showing the relative positions of those parts;

FIG. 2 is an end cross sectional view of an idealized penis with the clamp of the present invention ready to be secured thereto;

FIG. 3 is a view similar to FIG. 2 but showing the clamp in position, closing off the urethra; and

FIG. 4 is a cross sectional view taken along the line 4—4 of FIG. 3.

The clamp of the present invention comprises a flexible strip A of fabric or plastic or a combination of both, and a pair of rigidified pads generally designated B and C adapted to be mounted thereon.

The strip A is of a length such as to be capable of being wrapped around a large penis in an overlapping manner. The inner surface 2 thereof has imparted thereto a pressure-sensitive adherence characteristic. In the form here specifically disclosed that characteristic is produced by means of a soft pile-like layer 4 formed of a felted or woven fabric material, permanently adhesively secured to

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the base layer 6 of fabric or plastic which preferably has a smooth outer surface 8.

Each of the pads B and C comprises a soft outer layer 10 of spongy or soft material such as foam rubber or plastic or woven fabric, which is adhesively secured to a backing sheet 12 from the outer surface of which a large number of stiff barbs or hooks 14 extend. Sandwiched between the outer layer 10 and the backing sheet 12 is a stiff rigidifying reinforcement member 16, which may be formed of a light but strong material such as aluminum. The rigidifying strip 16' of the pad B may have a raised intermediate portion 18, to which the outer layer 10 of the pad B will conform in shape, for a purpose hereinafter to be disclosed.

The barbs 14, when pressed into the pile-like surface 4, engage with the fabric of the latter, thereby to reliably hold the pads B or C in position on the strip A, but the application of appreciable pull to either of the pads B or C will permit them to be removed from the pad A without damaging any part of the assembly. This type of pressure-sensitive adherence is known per se, and material having the barbs 14 and having a pile-like surface readily cooperable therewith are on sale today under the trade name "Velcro".

In the illustrations a penis 20 is more or less schematically indicated, the urethra being designated 22, the skin covering being designated 24, and the spongy areas being designated 26. As shown in FIG. 2, the pad C is attached to the inner surface 2 of the strip A adjacent one end 28 thereof, and the pad B is attached to the inner surface 2 of the strip A at a point longitudinally spaced therefrom by a distance such that, as may be seen from FIG. 3, when the strip 2 is wrapped about the penis 20 the pad C is brought to a position substantially diametrically opposed to the pad B. The free end 30 of the strip 2 is then wrapped relatively tightly around the penis 20, overlapping the strip end 28, and is secured in position in any appropriate manner. The wrapping is sufficiently tight so that the pads B and C are forced toward one another, the pad B compressing the urethra 22 and closing it off (this compressive action being particularly effective when the raised intermediate portion 18 is present as shown), and the pad C producing a flat counterpressure to the pressure exerted by the pad B, thereby preventing undue compression of the spongy areas 26. As a result blood can still circulate freely through the spongy areas 26, and no artificial erection is produced.

Any desired means can be employed to secure the free end 30 of the strip A in position, provided that the strip A can be unwound and removed from the penis 20 when desired. As here specifically disclosed, a multiplicity of barbs 14' are provided on the outer surface of the strip A adjacent its end 28 and substantially opposite the pad C, these barbs 14' engaging the pile-like inner surface 4 of that portion of the strip A which overlies the strip end 28 when the clamp is placed in proper position. This serves to detachably hold the clamp in position, is effective for all penis sizes, and, because the barbs 14' are completely covered by the outer overlapping section of the strip A, the outer surface of the clamp, when in position, remains smooth and non-irritating.

If desired, that part of the free end 30 which extends outwardly beyond the strip end 28, as shown on the right hand side of FIG. 3, may be cut off after the clamp has once been applied, since it will no longer be needed. This excess portion of the strip A is provided in order that a strip of standardized design should be adaptable for use by substantially all persons.

The clamp is readily removable merely by pulling the overlapping free strip end 30 up from the strip end 28, and may be reapplied at will merely by the act of pressing it in position. When the clamp is to be cleaned the pads B and C may be removed therefrom merely by pulling them off from the strip A, the strip A may be cleaned or washed, and the pads B and C resecured to the strip A

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merely by pressing them into position. The clamp takes up very little space and is of truly minimal weight, and therefore may be used with comfort as well as with safety, and without any adverse social effects.

While but a single embodiment of the present invention is here specifically disclosed it will be apparent that many variations may be made therein all within the scope of the present invention as defined in the following claims.

I claim:

1. A male incontinence clamp comprising a strip of flexible material having an outer surface and an inner surface, said inner surface having, at least over substantial areas thereof, a pressure-sensitive adherence characteristic, first and second pads each having an inner surface, a substantially rigid reinforcement, and an outer surface adherently cooperable with said areas of said inner strip surface, said pads being removably adhered to said inner strip surface at positions such that they oppose one another when said strip is wound about a penis, and cooperating adherence means on the outer surface of said strip and the inner surface of the free end of said strip for securing said strip in wound-about relation to said penis, said reinforcement of said second pad comprising a raised intermediate portion, the inner surface of said second pad conforming thereto in shape, said raised portion being adapted to register with the urethra and press it closed when said clamp is in position on a penis.

2. The clamp of claim 1, in which the first of said pads is located on said strip adjacent one end thereof, the other end of said strip defining said free end, said cooperating adherence means on the outer surface of said strip being located in substantial registration with said first of said pads.

3. The clamp of claim 1, in which the first of said pads is located on said strip adjacent one end thereof, the other end of said strip defining said free end, said cooperating adherence means on the outer surface of said strip being located in substantial registration with said first of said pads, the remainder of the outer surface of said strip having a non-adherent surface characteristic.

4. A male incontinence clamp comprising a strip of flexible material having an outer surface and a pile-like inner surface, first and second pads each having an inner surface, a substantially rigid reinforcement, and an outer surface having hook-like elements extending therefrom and detachably adherently engageable with said pile-like inner surface of said strip, said pads being removably adhered to said inner surface of said strip at positions such that they substantially oppose one another when said strip is wound about a penis, the free end of said strip overlapping another portion of said strip when said strip is thus wound, and similar hook-like elements on the outer surface of said strip portion which is thus overlapped by said free strip end.

5. The clamp of claim 4, in which the first of said pads is located on said strip near one end thereof, the other end of said strip defining said free end, said hook-like elements on the outer surface of said strip being located in substantial registration with said first of said pads.

6. The clamps of claim 5, in which said reinforcement of said second pad comprises a raised intermediate portion, the inner surface of said second pad conforming thereto in shape, said raised portion being adapted to register with the urethra and press it closed when said clamp is in position on a penis.

7. The clamp of claim 4, in which the first of said pads is located on said strip near one end thereof, the other end of said strip defining said free end, said hook-like elements on the outer surface of said strip being located in substantial registration with said first of said pads, the remainder of the outer surface of said strip being substantially smooth and free of said hook-like elements.

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8. The clamp of claim 7, in which said reinforcement of said second pad comprises a raised intermediate portion, the inner surface of said second pad conforming thereto in shape, said raised portion being adapted to register with the urethra and press it closed when said clamp is in position on a penis.

9. The clamp of claim 4, in which said reinforcement of said second pad comprises a raised intermediate portion, the inner surface of said second pad conforming thereto in shape, said raised portion being adapted to register with the urethra and press it closed when said clamp is in position on a penis.

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