

July 2, 1968

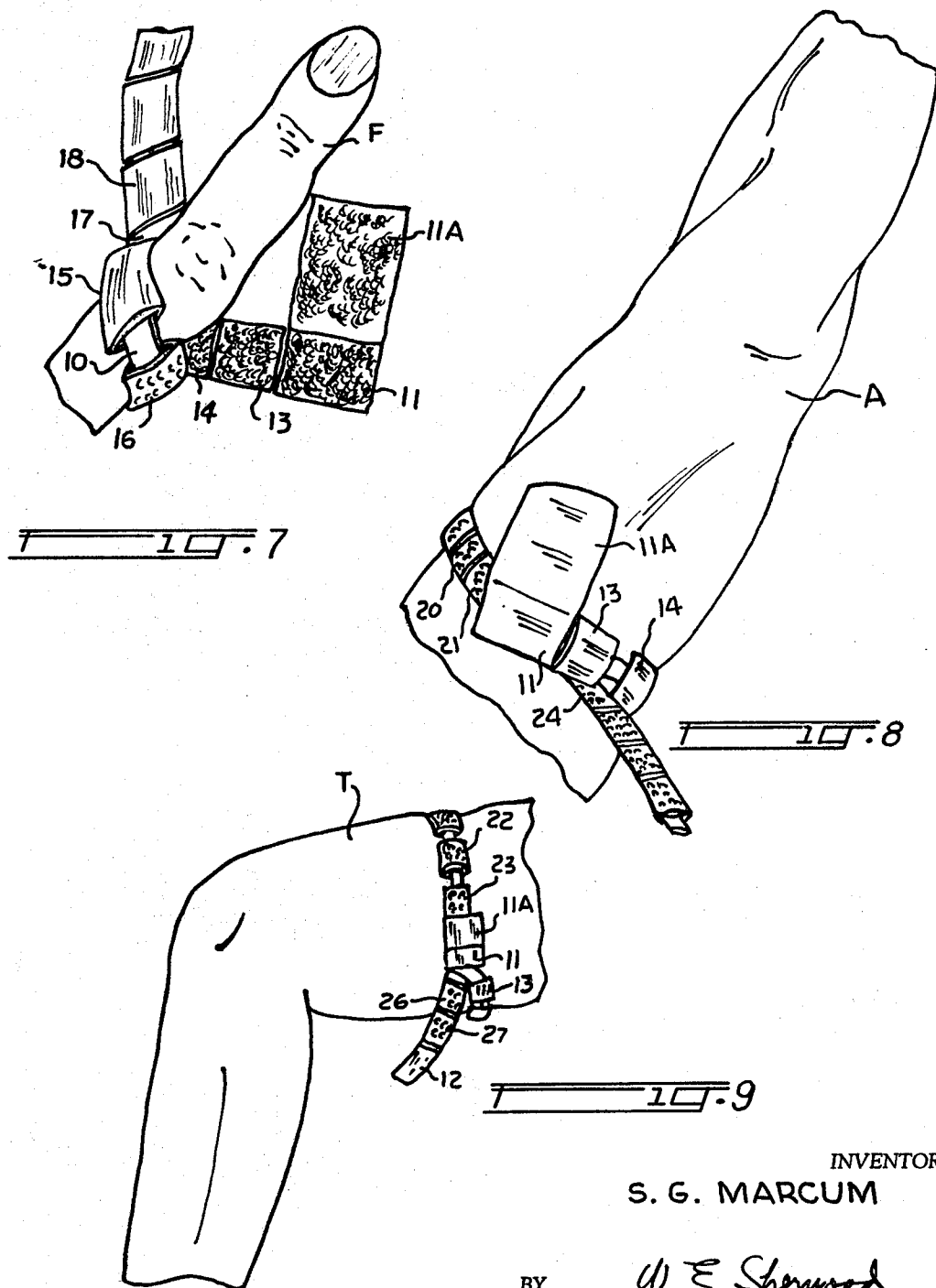
S. G. MARCUM

3,390,680

CONSTRUCTOR

Filed March 4, 1966

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INVENTOR

S. G. MARCUM

BY

W. E. Sherwood

ATTORNEY

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3,390,680
CONSTRUCTOR
Samuel G. Marcum, 206 Main St.,
Irvine, Ky. 40336
Filed Mar. 4, 1966, Ser. No. 531,917
7 Claims. (Cl. 128—327)

This invention relates to an improved constrictor for medical usages, and more particularly to a constrictor which is characterized by its ability to encircle a wide range of sizes of portions of the human body so as to avoid the necessity of having a stock of varied sizes of constrictors at hand.

As is known, the most common use of such a device is for distending the superficial veins of the body member so that they may be punctured with a needle attached to a syringe, either for the drawing of blood for testing, or for the introduction of a material into the veins. One simple device which formerly was used comprises a rubber tubing adapted to be tightly wrapped around the body member and tied in place, but due to certain inherent disadvantages the use of such tubing has been largely supplanted by constrictors which are more easily emplaced or removed; as for example, the type of constrictor disclosed in Munz and Kelson Patent No. 3,086,529 and employing the conventional Velcro material with its coating pile and hook portions affixed to the elastomer strip.

Despite its advantages, however, a constrictor of the type disclosed in said patent is essentially limited to use with a body member of a given general size, with the result that the physician is generally required to have a stock of finger constrictors, arm constrictors, and thigh constrictors at hand and with the concomitant increase of cost and delay in selecting and using the proper size of article.

It is an object of my invention to provide an improved constrictor which may be used upon a wide range of sizes of portions of the human body; which is comfortable to the patient; which does not tear apart upon repeated usage; which may be quickly and easily applied and removed; and which exerts an appropriate pressure upon the member encircled thereby.

These and other objects and advantages will become more apparent as the description proceeds and when considered in conjunction with the accompanying drawing in which:

FIG. 1 is a plan view of the constrictor with its strip of elastomer in fully relaxed position.

FIG. 2 is a plan view of the constrictor of FIG. 1 with the strip of elastomer in stretched position.

FIG. 3 is a sectional view taken on line 3—3 of FIG. 1.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 1.

FIG. 5 is a plan view to a larger scale of the first tab portion of the constrictor.

FIG. 6 is a sectional view taken on line 6—6 of FIG. 5.

FIG. 7 is a perspective view of the constrictor in use upon a finger.

FIG. 8 is a perspective view of the constrictor in use upon an arm, and

FIG. 9 is a perspective view to a smaller scale showing the constrictor in use upon a thigh.

Referring first to FIGS. 1 and 2, an elongated flat strip 10 of a suitable elastomer, such as a conventional elastic webbing material, has attached to its respective ends as by stitching thereto, a first tab member 11 and a second tab member 12. Various lengths and widths of the strip may be employed without departing from the invention but by way of illustration and not of limitation, an overall length of strip about 17 inches when fully relaxed and about 31 inches when fully stretched, is satisfactory.

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As an important feature of the invention, a plurality of relatively short, flexible, first sleeves as shown at 13, 14, 15 are spaced along the strip in enveloping relation thereto adjacent tab 11, and a plurality of generally similar second sleeves 16 to 28 are spaced along the strip between the tab 12 and sleeve 15. Each of the second sleeves includes an inner panel 30 of suitable smooth material, such as leather, adapted to contact the skin when the constrictor is being employed, and an outer panel 31 of Velcro hook material. These panels are joined longitudinally to each other along sewn stitches 32, 33 disposed outboard of the strip 10. Adjacent the transverse mid-line of each sleeve a strong stitch 34 attaches the sleeve to the strip. The lengths of the respective first sleeves and the respective second sleeves preferably are equal.

Each of the first sleeves includes an inner panel 35 of Velcro pile material and an outer panel 36 of any suitable flexible material and which does not necessarily have to be smooth. These panels likewise are joined longitudinally to each other along sewn stitches 37, 38 disposed outboard of the strip. Adjacent their transverse mid-lines these sleeves likewise employ a strong stitch 39, FIG. 5, to attach the sleeve to the strip. As will thus be apparent, the elastomer strip 10 is free to undergo stretching and restoring movement within each of the sleeves and simultaneously to displace the sleeves from and toward each other while undergoing such movement. Significantly, the entire length of the elastomer strip between adjacent transverse mid lines of the sleeves may partake of such movement.

The second tab member 12, which normally is held by one hand during the positioning of the constrictor about the body member and during the stretching of the strip 10, may comprise a relatively long sleeve forming a longitudinal extension of the elastomer strip and with the extreme end of that strip anchored therein by both transverse and crisscross stitches as indicated in FIG. 2. By contrast, the first tab member 11, which is to complete the attachment of the constrictor when larger sized portions of the human body are being encircled, is provided with a laterally extending portion 11A and which preferably extends about twice the length of a typical second sleeve. As shown in FIGS. 5 and 6, the tab 11—11A includes an inner panel 40 of Velcro pile material and another panel 41 of any suitable flexible material stitched to each other by peripheral stitches 42, 43, 44 and 45 and by a longitudinal stitch 46. One or more transverse stitches 47, criss-cross stitches 48, as well as stitches 43, 45, and serve to anchor the tab firmly to the strip 10, with the result that the tab will not tear from the strip even after repeated stretching of the constrictor to its full extent. The invention, of course, contemplates the use of equivalent fastening means, such as vulcanizing, adhesives, and the like for attaching the tabs and the central transverse portions of the sleeves to the elastomeric strip, and therefore, is not to be considered as limited to the use of the described stitching.

Having thus described one form of constrictor embodying the invention, the practical advantages of the same will be apparent to one skilled in the art and when considered with respect to FIGS. 7 to 9. If a finger F as seen in FIG. 7 is to be encircled, the constrictor is emplaced and stretched so that the pile surface, for example, of the sleeve 14, when a medium sized finger is being treated, engages with the hook surface of the sleeve 16. Due to the described construction, the strip 10 between the lines of attachment of the respective sleeves can stretch and thus separate the adjacent sleeves to the necessary extent to permit the engagement of their coating surfaces. Similarly, if an arm A (FIG. 8) is to be encircled the constrictor is arranged with the smooth surfaces of the second sleeves against the skin and is pulled taut with

the pile surfaces of the first tab 11 and a portion of the first sleeve 13 in engagement with the hook portions of one or more second sleeves, for example, sleeves 21 to 24.

When a thigh is to be encircled, a tighter grip of the constrictor normally is required, and as seen in FIG. 9 the first tab 11-11A preferably is canted so that it may grip the hook surfaces of two or more of the second sleeves. Due to the freedom of movement of the elastomer strip 10 within the first sleeve 13 (FIG. 5) between its stitch 39 and the outer end of such sleeve, the strip 10 can be twisted through any desired angle up to 90° so as to bring the major length of the first tab into operative position with respect to the second sleeves which it is to engage.

In each of the described usages, the physician normally uses both hands in attaching the constrictor, but may release the constrictor merely by a tug on the first tab using one hand.

The planar area of the first tab is substantially greater than the planar area of the second tab thereby to make grasping the same easier for both the manual positioning of the constrictor and the later removal of the same after it has served its intended purpose.

Having thus described and illustrated certain specific embodiments of my invention, it will be apparent that numerous changes and modifications may be made therein and it is intended by the appended claims to cover all such changes and modifications which fall within the true spirit and scope of the invention.

What is claimed is:

1. A constrictor characterized by its ability to encircle a wide range of sizes of portions of the human body and comprising, an elongated flat strip of elastomer having a substantial length when relaxed and a substantially greater length when fully stretched, first and second grasping tabs attached to the respective ends of said strip, a plurality of relatively short, flexible, flat first sleeves spaced along said strip in enveloping relation thereto and adjacent said first tab and anchored to said strip adjacent the transverse mid-lines of said first sleeves and permitting stretching and restoring movements of said strip within said first sleeves between adjacent anchoring lines thereof, a plurality of relatively short, flexible, flat second sleeves spaced along said strip in enveloping relation thereto between said second tab and the nearest of said first sleeves, said second sleeves being anchored to said strip adjacent to the transverse mid-lines of said second sleeves and permitting stretching and restoring move-

ments of said strip within said second sleeves between adjacent anchoring lines thereof, each of said first sleeves having a Velcro pile material forming one of its outer surfaces, and each of said second sleeves having a Velcro hook material forming one of its outer surfaces, the Velcro hook material of said second sleeves being disposed of the opposite side of said strip from the Velcro pile material of said first sleeves.

2. A constrictor as defined in claim 1 wherein the aggregate length of said second sleeves is substantially greater than the aggregate length of said first sleeves and said first tab.

3. A constrictor as defined in claim 1 wherein said first tab includes a laterally extending portion adapted to engage with a selected one of said second sleeves when larger sized portions of the human body are to be encircled.

4. A constrictor as defined in claim 1 wherein each of said second sleeves comprises an inner panel of smooth material and an outer panel of Velcro hook material, said panels being affixed to each other longitudinally of said strip and outboard of the edges of said strip.

5. A constrictor as defined in claim 1 wherein each of said first sleeves comprises an inner panel of Velcro pile material and an outer panel of smooth material, said panels being affixed to each other longitudinally of said strip and outboard of the edges of said strip.

6. A constrictor as defined in claim 1 wherein the lengths of the respective first and second sleeves are substantially equal.

7. A constrictor as defined in claim 1 wherein the planar area of said first tab is substantially greater than the planar area of said second tab.

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RICHARD A. GAUDET, *Primary Examiner*.

J. D. YASKO, *Assistant Examiner*.