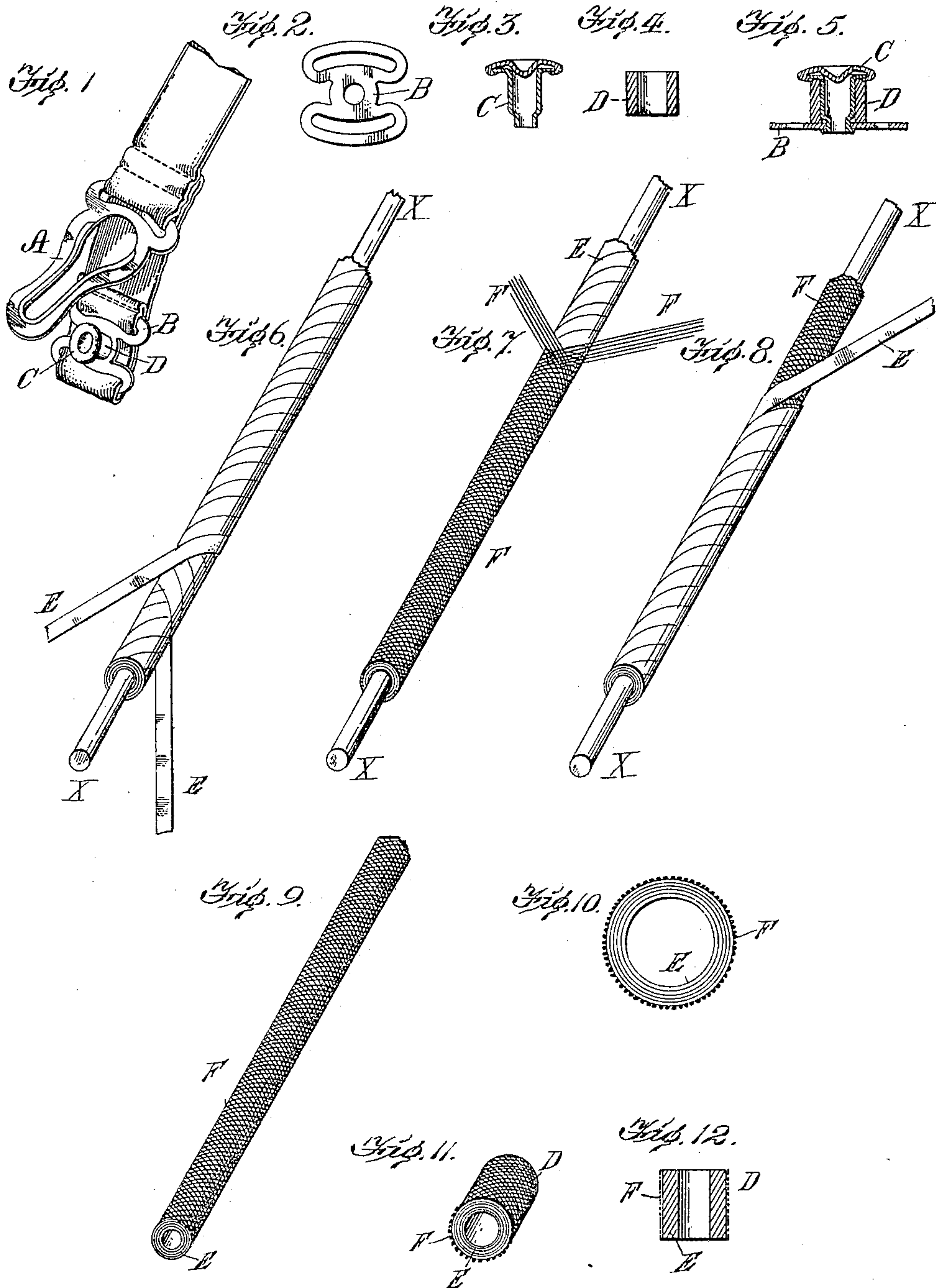


No. 819,164.

PATENTED MAY 1, 1906.

G. H. PHELPS.
GARMENT SUPPORTER.
APPLICATION FILED OCT. 2, 1905.

2 SHEETS—SHEET 1.



WITNESSES

Paul J. Lathmann
E. B. Brewer.

INVENTOR

George H. Phelps.

BY HIS ATTORNEYS

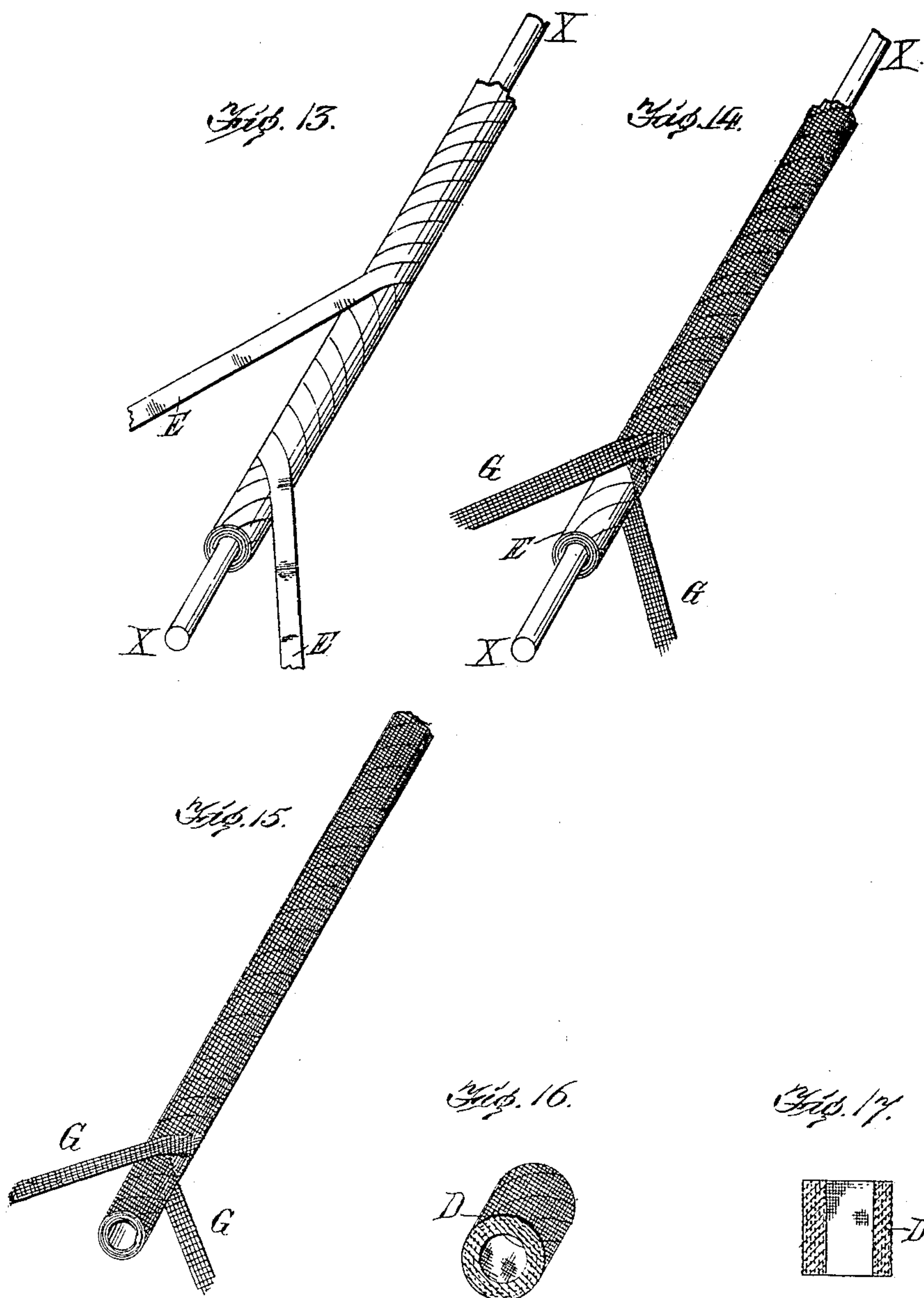
Baldwin & Light.

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WITNESSES
Paul J. Gathmann.
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UNITED STATES PATENT OFFICE.

GEORGE H. PHELPS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO GEORGE FROST COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

GARMENT-SUPPORTER.

No. 819,164.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed October 2, 1905. Serial No. 280,969.

To all whom it may concern:

Be it known that I, GEORGE H. PHELPS, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Garment-Supporters, of which the following is a specification.

My invention relates to garment-supporters of the class in which the garment is held between a button and a loop which passes over the button and the intervening fabric. In United States Patent No. 552,470, granted Robert Gorton, December 31, 1895, a garment-supporter of this class is shown in which the button comprises in its construction rubber or other material having similar properties which afford a surface of such nature that the fabric held by the clasp is prevented from slipping and the tearing of the fabric is prevented. Rubber has heretofore been most generally used for this purpose, although leather and felt have been employed to some extent.

In my application for patent, Serial No. 267,175, filed June 27, 1905, I have shown a garment-supporter in which a substitute for rubber is employed. This substitute is described as being formed of paper treated with a composition to give it characteristics resembling leather, which characteristics are made permanent, so that the material provides a most excellent substance for use in place of the rubber, leather, or felt heretofore employed. I have now found that in order to manufacture economically the paper tubes or ferrules employed it is desirable to use fairly strong paper and that such paper is not usually sufficiently bibulous to absorb quickly the liquid composition with which the paper is impregnated, but by first making a tube of paper impregnated with the composition and then covering this tube with braided threads or with coarse-woven fabric and then saturating, impregnating, or coating the tube thus covered with the composition described in my application the desired substitute for rubber, felt, and leather can be economically produced and the desired leathery surface can be obtained and maintained. I have also found that ferrules for use in such hose-supporters can be economically produced by forming them entirely of coarse-woven fabric

which will absorb a proper amount of the composition to give the desired effect. 55

In the accompanying drawings, Figure 1 is a perspective view of a portion of a hose-supporter with my improvements applied. Fig. 2 is a plan view of the base-plate of the button. Fig. 3 shows a vertical section of the button. Fig. 4 shows a vertical section of the ferrule. Fig. 5 shows a vertical section of the button, base, and ferrule assembled. Fig. 6 shows how a tube may be formed of strips or ribbons of paper wound spirally. Fig. 7 shows how such a tube may be covered with threads braided thereon. Fig. 8 shows how the braided covering may be in turn covered by a strip of paper. Fig. 9 is a perspective view of the tube formed as indicated in Fig. 7, which is the preferred form of my invention. Fig. 10 is a view, on an enlarged scale, showing a cross-section of the tube shown in Fig. 9. Fig. 11 is a perspective view of a ferrule of suitable size for use in a hose-supporter. Fig. 12 shows a section of such a ferrule. Fig. 13 shows how a paper tube may be formed by spirally winding strips of paper on a mandrel. Fig. 14 shows how such a tube may be covered with strips or ribbons of a woven fabric wound spirally. Fig. 15 shows how a tube may be formed entirely of strips of textile material. Fig. 16 shows a ferrule cut from a tube of the kind illustrated in Fig. 15. Fig. 17 shows a section of such a ferrule. 60 65 70 75 80 85

All of the parts shown in Fig. 1 of the drawings are of well-known construction with the exception of the ferrule and need not be particularly described. 90

A indicates the loop of the clasp; B, the base-plate of the button; C, the metal button, and D the ferrule surrounding the shank of the button.

The base, button, and ferrule are shown, respectively, separately in Figs. 2, 3, and 4. In Fig. 5 these parts are shown assembled. 95

To produce the preferred form of my improved ferrules, I use a bibulous paper sufficiently heavy and strong to withstand the strains in the formation of the tube and I cut this paper into strips or ribbons E and wind it spirally on a mandrel X. (See Fig. 6.) Preferably the first winding is of dry or untreated paper; but the subsequent windings are treated with a cement designed es- 100 105

pecially to give the paper characteristics resembling leather—*i. e.*, toughness, durability, some elasticity, and a surface which will prevent any fabric which it engages from slipping. Such a cement I have found may be made of four parts of commercial gelatin, twenty parts of water, and one part of glycerin.

Gelatin has wonderful toughness and imparts toughness to paper saturated with it, while glycerin gives a permanent elasticity to paper so saturated. The gelatin is first soaked in cold water for about twenty-four hours and is then liquefied by a warm-water bath, after which the glycerin is added and the compound is thoroughly mixed.

The paper E, Fig. 6, is spread or saturated with the cement before it is wound upon the mandrel. Preferably the strips E are wound spirally in opposite directions in the manner indicated in Fig. 6. In order that the surface of the tube may be made to absorb or hold more of the composition, I envelop the paper tube formed in the manner specified and indicated in Fig. 6 with a covering formed by braiding threads F, Fig. 7, thereon. This braiding may be accomplished in any of the well-known braiding-machines suitable for the purpose. When this is accomplished, the tube may be removed from the mandrel and soaked in the composition until the desired amount of the composition has been absorbed or taken up by the tube to produce the desired surface.

It is not of so much importance that the paper or inner portion of the ferrule should be coated or impregnated with the cement as it is that the fabric or outer covering should be impregnated. A tube made of a ribbon of paper is somewhat elastic, while the impregnated fabric or outer covering gives to the tube a surface which is leathery and prevents the clasp to which the tube or ferrule is applied from slipping when secured to a garment.

The completed tube formed of paper with a braided covering is indicated in Fig. 9. A cross-section thereof on an enlarged scale is shown in Fig. 10, and Fig. 11 shows a perspective view of a ferrule cut from such a tube.

I may apply a single winding of paper E over the braided covering in the manner indicated in Fig. 8 before soaking the tube; but I prefer not to do so. Instead of providing a covering of braided threads I may wind over the paper tube strips or ribbons of a coarse-woven cloth G, as shown in Fig. 14, the inner portion of the tube being formed of strips of paper E, Fig. 13, in the manner before described. After the paper tube is covered with the spiral winding of cloth ribbons in the manner indicated in Fig. 14 the cloth-covered tube may be soaked in the composition in the manner before specified.

If preferred, after the tubes have been allowed to dry for, say, twenty-four hours, they may be coated with a waterproof varnish, such as hard-oil varnish, and allowed to dry for, say, forty-eight hours; but this is not essential, as a suitable substance, such as chromic acid, may be combined with the gelatin in such manner as to render it insoluble and waterproof after it has been exposed to the action of sunlight.

I have described the kind of cement which I have found to be most efficient; but I do not wish to be limited thereto except so far as is required by the appended claims.

The ferrules are applied to the buttons in much the same manner that ferrules of rubber, leather, or felt have heretofore been applied—that is to say, the ferrule D is slipped on to the shank of the button C and then the button C is attached to the base-plate B, the parts thus assembled appearing as shown in Fig. 5. I have also found that instead of forming the tube partly of paper and partly of woven fabric it may be formed wholly of strips or ribbons G of woven fabric in the manner indicated in Fig. 15.

Fig. 16 is a perspective view of a ferrule formed from a tube made wholly of woven fabric in the manner indicated in Fig. 15, and Fig. 17 shows a section of such a ferrule.

In my application for patent filed June 27, 1905, Serial No. 267,175, I have shown a hose-supporter clasp comprising a loop and a button having a covering of paper or fibrous material treated with a cement to render it leathery. I do not claim in this application what is claimed in the application just referred to.

In my application for patent, Serial No. 289,315, filed November 27, 1905, I have shown a hose-supporter clasp comprising a loop and a button having a covering formed of paper or similar material and inclosed by a textile or fibrous material which renders it antislipping. I have also claimed in said application a covering for the button the exterior part of which is of textile or fibrous material which renders it antislipping and the body of which is composed of material which is elastic. I do not broadly claim such subject-matter in the present application.

I claim as my invention—

1. A hose-supporter clasp comprising a loop and a button having a covering formed of paper covered by a fabric and impregnated with a cement to render it leathery.

2. A hose-supporter clasp comprising a loop and a button having a covering, the exterior portion of which is formed of a fabric and which is impregnated with a cement which renders it tough, soft and yielding.

3. A hose-supporter clasp comprising a loop and a button having a covering, the exterior part of which is impregnated with a cement to render it leathery.

4. A hose-supporter clasp comprising a

loop and a button having a covering of paper wound into a tube, covered with a fabric and impregnated with a cement which renders it leathery.

5 5. A hose - supporter clasp comprising a loop and a button having a covering of paper coated with a cement and which is covered with textile fabric impregnated with cement to render it leathery.

10 6. A hose - supporter clasp comprising a loop and a button having a covering of pa-

per coated with a cement and which is in turn covered by threads braided upon it and impregnated with a cement to render it leathery.

In testimony whereof I have hereunto sub-
scribed my name. 15

GEORGE H. PHELPS.

Witnesses:

ROBERT GORTON,
EDGAR J. SMITH.