W. KOPS.

ELASTIC WEBBING.

APPLICATION FILED APR. 13, 1910.

1,047,656. Patented Dec. 17, 1912.

Fig. 2 Fig. 4. Fig. 1. Fig. 5 Fig. 6.

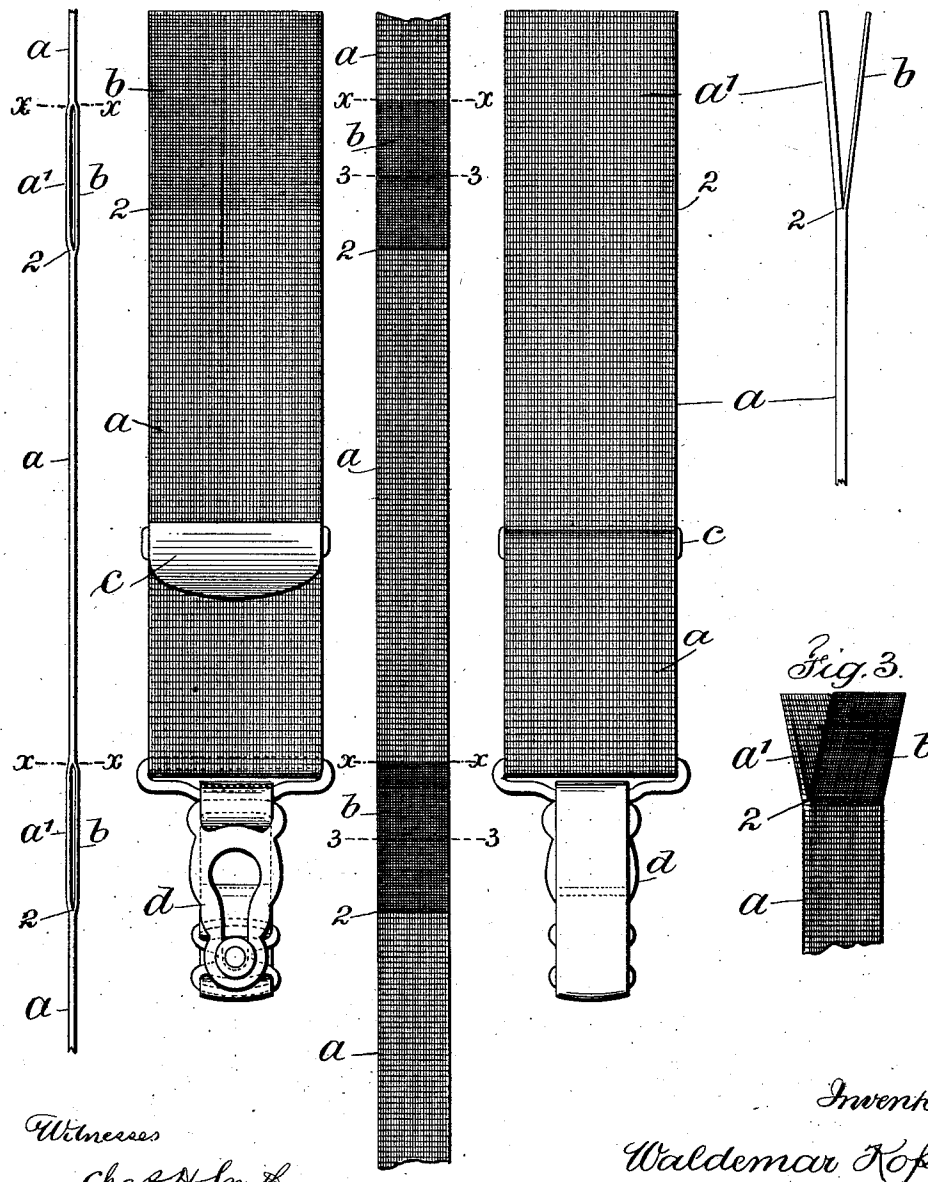

Fig. 3.

Witnesses

Chas. A. Smith

Bertha M. Allen.

Inventor.

Waldemar Kops.

by Harold Serrell

his atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D.

UNITED STATES PATENT OFFICE.

WALDEMAR KOPS, OF NEW YORK, N. Y., ASSIGNOR TO KOPS BROS., OF NEW YORK, N. Y., A FIRM.

ELASTIC WEBBING.

1,047,656. Specification of Letters Patent. Patented Dec. 17, 1912.

Application filed April 13, 1910. Serial No. 555,180.

To all whom it may concern:

Be it known that I, WALDEMAR KOPS, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented an Improvement in Elastic Webbing, of which the following is a specification.

This invention relates to that particular class of elastic webbing in which there is an elastic part woven as usual under tension at the maximum elastic limit of the webbing, that is, with the elastic strands stretched and the warp threads taut and with a non-elastic part woven under normal conditions without tension. Such elastic webbing for instance, as is shown and described in reissued Letters Patent granted to Samuel Kops, May 25, 1909, No. 12,962, and June 8, 1909, No. 12,972.

The object of my invention is to overcome any difficulty that may be present in the manufacture of elastic and non-elastic webbing of a continuous length where the elastic strands are woven into the non-elastic part and to produce a webbing that is non-elastic as well as elastic and having all the advantages in its adaptability for being cut up into strips for various uses in connection with garments and appliances and for connection with a non-elastic fabric,—particularly in the matter of hose or garment supporters as well as elastic and body appliances generally.

In carrying out my invention, I weave the desired amount of elastic webbing as usual under tension at the maximum elastic limit of the webbing, and in which length of elastic webbing there are more warp threads than are necessary or are usually employed. At predetermined places in the length of the elastic webbing a portion of these warp threads are separated from the remaining portion and an additional shuttle with weft threads is employed in the weaving so that while the weaving is continued of the elastic webbing under tension, the second shuttle lays the weft threads in the separated warp threads and weaves a webbing of solid threads in which there are no elastic strands. When the desired length of this non-elastic section has been produced, the second shuttle is removed and the warp threads are then all brought together again and the weaving of the elastic webbing continued for a predetermined length after which the same proportion of warp threads are again separated and with the second shuttle a similar section is woven in which there are no elastic strands, and this operation is progressively continued for the production of a continuous length of webbing as may be desired. The continuous length of webbing contains integral spaced apart non-elastic sections and the same is then adapted to be severed and the line of severance comes at the union in the process of weaving where the use of the second shuttle is discontinued and when the warp threads are again brought together. Therefore in the separated length there is a continuous strip of elastic webbing and a short length of webbing in which there are no elastic strands and which is unyielding. In the use of this length of webbing, the elastic portion running parallel with the juxtaposed non-elastic section is in its elasticity entirely controlled by the non-elastic section when the two parts are connected together to a fabric or garment, because then the pull under tension while on both parts, is controlled by the unyielding non-elastic section and the elastic strands in the parallel elastic section stretch unappreciably; the parallel elastic sections serving more as an anchor in which the elastic strands are held.

In the drawing, Figure 1 represents in elevation part of a continuous woven strip in which there are elastic and non-elastic sections as formed previous to being cut up into lengths. Fig. 2 is an edge-wise view of Fig. 1. Fig. 3 is a perspective view of part of a length of elastic and non-elastic sections as separated from the continuous strip Fig. 1 along the dotted lines x, x. Figs. 4 and 5 are elevations at opposite sides and in larger size of one of these lengths of webbing employed as a hose supporter, and Fig. 6 is an edge view of the sections shown in Fig. 5 at one end thereof.

Referring to Figs. 3, 4, 5 and 6, a repre-

sents a strip or length of elastic fabric and a^1 a continuation of said strip at one end. This length of elastic webbing may be of any well known form and of any desired length or width. At one end of this strip of elastic webbing there is a strip b that is thinner than the strip a^1 and is formed solely of warp and weft threads without any elastic strands; the elastic strands being solely in the parts a a^1. This latter section is close woven and of course is non-elastic. The parts a^1 and b maintain a juxtaposed relation with one another, or in other words, the one is superposed upon the other and they are adapted to receive between them any suitable material fabric or part of a garment, to which it is desirable to attach them. The other end of the elastic webbing may be connected in any desired manner to any desired fabric suitable therefor. In Figs. 4 and 5 I have shown said parts as connected by a buckle c and hose supporter fastening d. The juxtaposed ends a^1 and b are to be both fastened to material which is preferably interposed between them and when they are so connected the elastic section a^1 becomes non-elastic because of the non-elastic character of the section b because the tension of the pull upon the free end of the webbing a is mainly exerted upon the non-elastic portion b; hence the elastic strands which run continuous through the sections a and a^1 are only elastic and yield in the section a; the section a^1 becoming substantially an anchorage for the said elastic section and becoming substantially non-elastic by its sewed union with the interposed material. The sewing threads which pass through the short section a^1 are not liable to injure or cut the elastic strands and if they do at any particular place there is amply sufficient anchorage for the elastic strands so that they are not injured and do not pull out of the section. Thus the useful life of the elastic webbing is prolonged by virtue of the connection of the non-elastic section b controlling the elastic limit of the webbing.

I do not limit the useful application of the device of my invention; notwithstanding the fact that Figs. 4 and 5 illustrate the application thereof to hose supporters, as the same may be used for any other useful purpose such as elastic belts and body appliances generally.

In Figs. 1 and 2 I have shown that these elastic sections are advantageously woven continuous,—the same letters of reference being employed in connection with these figures. In the method of weaving there are more warp threads employed in the elastic section a than are necessary for the weaving, and in the process of weaving when the place 2 is reached a percentage of the warp threads are removed, or in other words, carried off at a different inclination. The weaving then continues of the elastic section a^1 and similarly and with a second shuttle containing weft threads, of the section b, which is composed only of warp threads and weft threads and is entirely non-elastic. When the sections a^1 and b are woven the desired length the second shuttle is removed and the warp threads are all then brought together again and the weaving of the elastic section is continued and which elastic section is a reproduction of the section a. Thus the elastic webbing of my invention may be made continuous.

It is advantageous in cutting up these continuous strands of elastic webbing made according to my invention, to separate the same along the dotted lines x, x, which lines of severance come where the warp threads are again brought together as just previously described, so that when severed, the lengths of webbing have the elastic strip a at one end and the elastic strip a^1 and the non-elastic strip b or sections at the other end as shown particularly in Figs. 3 and 6. I may also cut up these continuous strands of elastic webbing along intermediate lines of severance 3 in strips with similar and equal ends of elastic and non-elastic parts.

I claim as my invention:

1. An elastic webbing consisting of a flat strip woven under tension and with elastic strands therein throughout its entire length and having an integral woven section superposed thereon at one end and comprising non-elastic warp and weft threads only.

2. A length of elastic webbing woven under tension and at substantially the maximum elastic limit of the webbing and in which at spaced intervals there are also superposed non-elastic sections formed integral therewith and comprising solely non-elastic warp threads and weft threads.

3. A length of elastic webbing woven under tension and at substantially the maximum elastic limit of the webbing and in which there are elastic sections at spaced intervals having a less number of warp threads than the adjacent and intermediate elastic sections and integral juxtaposed sections formed from the balance of the warp threads and additional weft threads and which sections are non-elastic.

4. The method of weaving elastic webbing in continuous lengths, comprising the weaving of a section in the usual manner with a superabundance of warp threads and for a predetermined length, separating the warp threads so that one series diverges from the other, with the elastic strands in line with the one series, continuing the weaving of the length of elastic webbing,

and also with another shuttle and the other series of warp threads weaving a length of webbing that is without elastic strands and non-elastic, removing the second shuttle and bringing all the warp threads again together with the elastic strands and continuing the weaving of the length of elastic webbing and repeating the operations progressively.

Signed by me this 8th day of April, 1910.

WALDEMAR KOPS.

Witnesses:

GEO. T. PINCKNEY,

E. ZACHARIASEN.