

June 3, 1941.

F. B. WILLIAMSON, JR

2,244,635

STATICPROOF HOSE AND METHOD OF MAKING SAME

Filed April 23, 1940

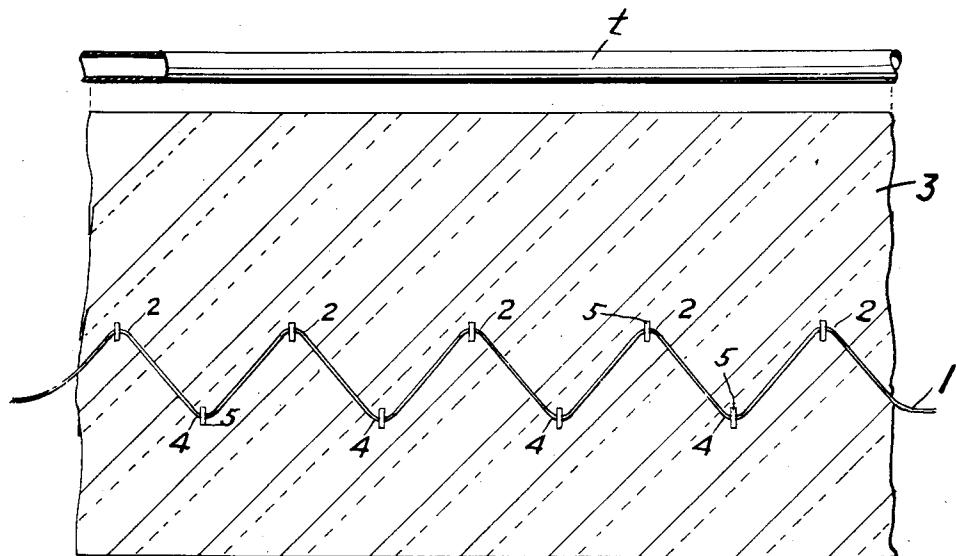


FIG. 1.

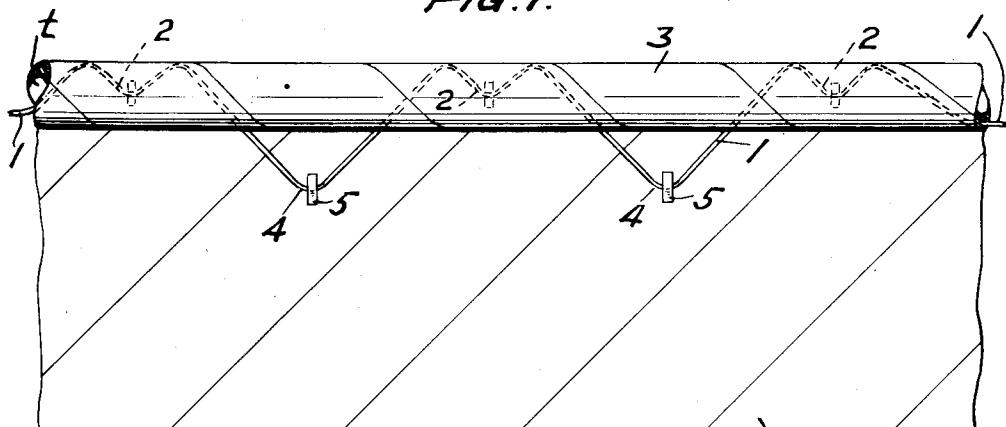


FIG. 2.

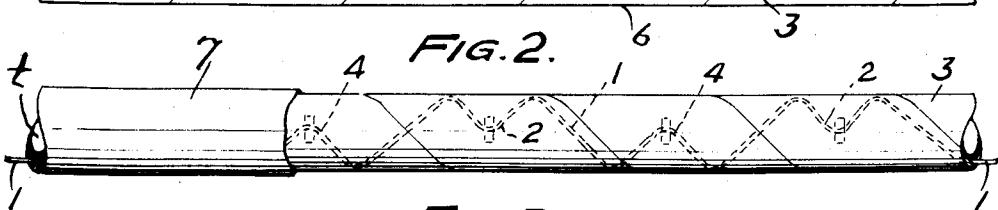


FIG. 3.

INVENTOR

WITNESS:

Robert Mitchell

Frederick B. Williamson, Jr.

BY

Augustus B. Strongton  
ATTORNEY.

## UNITED STATES PATENT OFFICE

2,244,635

STATICPROOF HOSE AND METHOD OF  
MAKING SAME

Frederick B. Williamson, Jr., New Hope, Pa., assignor to The Whitehead Bros. Rubber Co., Trenton, N. J., a corporation of New Jersey

Application April 23, 1940, Serial No. 331,114

4 Claims. (Cl. 154—8)

The principal objects are to obtain the benefit of the full strength of the duck or fabric winding; to minimize the quantity of wire employed; to protect the static conductor from breakage such as is due to bending or flexing the hose; to provide a superior product, and to provide an expeditious and uninterrupted method of making staticproof hose, and one in which wire winding and handling is obviated.

Other objects of the invention will appear from the following description at the end of which the invention will be claimed.

Generally stated, the invention comprises plies provided by a fabric wide enough when wrapped or rolled on an inner tube and on itself to provide all the plies, and a sinuous static conductor disposed between adjacent plies and having its successive bights or loops wound or laid in opposite directions and terminating substantially in a straight line generally parallel to the axis of the inner tube.

The invention also comprises the method which consists in laying alternate bights or loops of a sinuous static conductor at points in a substantially straight line on the face of a fabric wide enough when wound on an inner tube and on itself to provide all the plies, and laying the intermediate bights or loops at spaced points in another line substantially parallel to the first and spaced from it a distance substantially equal to the circumference of the hose, said sinuous conductor being spaced inward from the side edge of the fabric far enough to provide on each side of it material for plies, and wrapping said fabric and conductor on the inner tube of the hose and on itself as a continuous operation.

The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawing forming part hereof and in which,

Figure 1 is a plan view showing diagrammatically an inner tube and the fabric provided with a sinuous static conductor and intended to be wound on the tube and on itself.

Figure 2 is a view drawn to an enlarged scale and showing the fabric partly wound on the inner tube; and

Figure 3 is a side view illustrating staticproof hose embodying features of the invention with a part of the outer cover removed.

Referring to the drawing, 1 indicates a sinuous static conductor. The alternate bights or loops 2 are arranged at spaced points in a substantially

5 straight line on the face of a fabric or duck 3. The fabric or duck 3 consists of strips cut on the bias and secured together as is customary. According to my invention the fabric 3 is wide enough when wrapped on an inner tube *t* and on itself to provide the plies which make up the carcass of the hose. The intermediate bights or loops 4 of the sinuous conductor are shown as arranged at spaced points in another line substantially parallel to the first but spaced from it a distance which may be substantially equal to the circumference of the hose. The keepers 5 are shown as a means for attaching the sinuous conductor to the fabric. The sinuous conductor is spaced inside of the side edge 6 of the fabric far enough to provide material for plies on each side of it. The fabric 3 with the static conductor arranged as described is then rolled on the inner tube *t* and on itself producing the finished hose with the exception of a cover 1.

10 It may be remarked that the full strength of the fabric 3 is available in the finished hose because the fabric 3 is a single uncut piece and provides all the plies that may be required. Furthermore the single continuous operation of wrapping the fabric 3 with the sinuous conductor arranged as described, on itself and on the inner tube completes the plies, and spiral winding of the conductor as a single operation is 15 obviated.

20 The finished product may be described by saying that when the fabric is wound the points or apexes of the loops or bights 2 and 4 lie in a substantially straight line so that one loop, for example 2, is spiralled for example left handed, and the other loop 4 is spiralled or laid right handed.

25 Reference has been made to attaching the loops of the conductors to the fabric along straight lines but it is obvious that the lines need not in all cases be straight and their distance apart need not necessarily be equal to the circumference of the hose.

30 It may be remarked the sinuous form of the conductor and its described arrangement are such that it is not subject to breakage when the hose is bent or flexed.

35 It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction, arrangement and procedure and matters of mere form without departing from the spirit of the invention which is not limited to such matters or otherwise than the prior art and the appended 40 claims may require.

I claim:

1. A staticproof hose having an inner tube and a multi-ply carcass, said plies provided by a fabric wide enough to supply all the plies and wrapped on the inner tube and on itself and a sinuous static conductor disposed between adjacent plies and having its successive loops or bights spiralled in opposite directions and terminating in a line generally parallel to the axis of the hose.

2. The method of making staticproof hose which consists in laying of the apexes of alternate loops or bights of a sinuous static conductor at spaced points on the face of a duck fabric wide enough when wrapped on an inner tube and on itself to provide all the plies, and laying the apexes of the intermediate loops at spaced points distant from the side edge of the fabric far enough to provide enough material on each side of the conductor to furnish plies, the loops or bights of the conductor being long enough to substantially completely encircle the circumference of the hose and then wrapping the fabric and conductor on the inner tube of the hose and on itself as a single operation.

3. The method of making a staticproof hose having plies which consists in attaching the apexes of the alternate loops or bights of a sinuous static conductor at spaced points and in a substantially straight line to the face of a fabric wide enough when wrapped on an inner tube and on itself to provide all the plies and attaching the apexes of the intermediate loops at spaced points in another line substantially parallel to the first and spaced from it a distance substantially equal to the circumference of the hose, said sinuous conductor being spaced inward from the side edges of the fabric far enough to provide material for plies on each side of it, and wrapping the fabric carrying the conductor on the inner tube of the hose and on itself as a single operation.

4. A staticproof hose having an inner tube and a multi-ply duck fabric carcass in combination with, a sinuous conductor arranged between adjacent plies with its alternate and intermediate loops or bights extending respectively in oppositely directed spirals substantially completely around the circumference of the hose.