Oct. 28, 1930. H. W. GOODALL 1,779,592

METAL COVERED RUBBER FABRIC HOSE

Filed Feb. 4, 1929

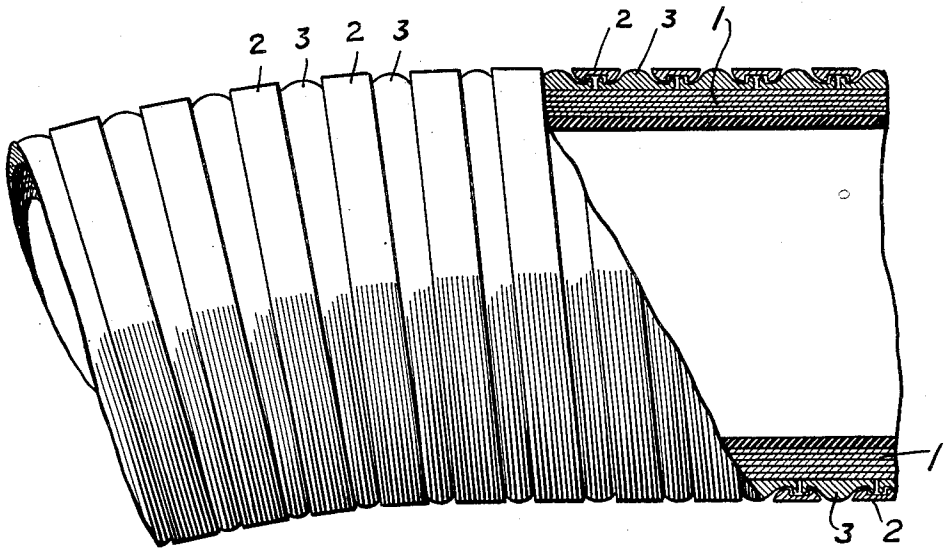


FIG. 1.

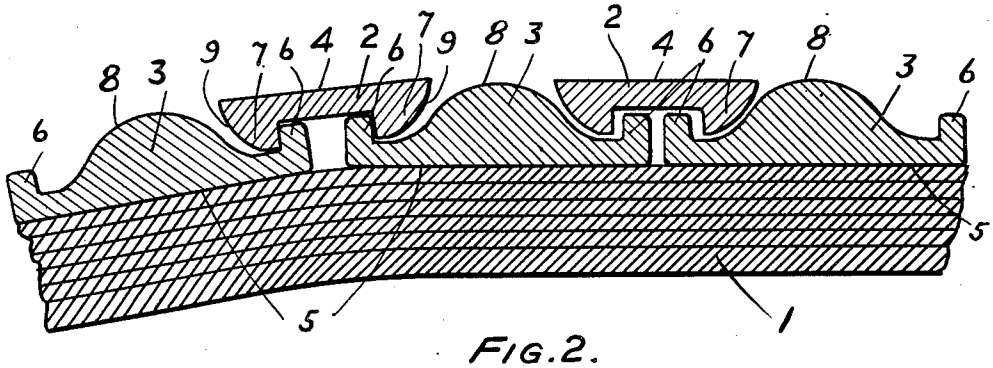


FIG. 2.

INVENTOR

Howard W. Goodall

BY

Augustus B. Stoughton

ATTORNEY.

WITNESS:

Robt. P. Ketchel.

Patented Oct. 28, 1930 1,779,592

UNITED STATES PATENT OFFICE

HOWARD W. GOODALL, OF ALDEN, PENNSYLVANIA

METAL-COVERED RUBBER-FABRIC HOSE

Application filed February 4, 1929. Serial No. 337,309.

Objects of the present invention are to oppose elongation and expansion of hose of the character referred to without resorting to the employment of locked or packed joints at the turns of the spiral winding thereby insuring flexibility and strength and avoiding limitation in the size of the wire or strand employed, while at the same time permitting of the use of comparatively light rubber and fabric tubing since the latter has the principal function of acting as a filler to make the hose fluid or water proof.

Other objects of the invention will appear from the following description and the invention, stated generally, comprises a hose including a fabric and rubber or like tube and spirally wound metal strands each flat on one face and marginally flanged on the other face, one of said strands being spirally disposed on the surface of the tube with its flat face in contact therewith, and the other of the strands being spirally disposed on the first mentioned strand with its flat face outward and with its marginal flanges slidably arranged to abut on the confronting flanges of successive turns of the first mentioned strand, to afford flexibility and oppose endwise elongation as well as radial expansion.

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

Figure 1 is a side view partly in central longitudinal section of hose embodying features of the invention, and

Fig. 2 is a view drawn to an enlarged scale and showing a longitudinal section through the wall of the hose and indicating at the right, somewhat diagrammatically, the position of the parts when the hose is straight, and at the left, also diagrammatically, the position of the parts when the hose is bent.

Referring to the drawing 1 indicates a fabric and rubber or like tube, 2 and 3 indicate spirally wound metal strands each flat on one face 4 and 5 and marginally flanged on the other face. On the strand 3 the flanges are indicated at 6, and on the strand 2 the flanges are indicated at 7. On the strand 3 between the flanges 6 there is provided a rounded bead 8. The strand 2 is provided with rounded corners 9 disposed outside of the flanges 7. The strands are arranged with the flat face of one next the tube and with the flat face of the other outermost. It is not material which strand is arranged with its flat face next the tube. However, as shown, the flat face 5 of the spirally wound strand 3 is next the tube 1, and the flat face 4 of the spirally wound strand 2 is outermost. The flanges 7 are slidably arranged in respect to, and to abut on the confronting flanges 6 of successive turns of the strand 3. The top of the bend 8 is flush with the flat surface 4 when the hose is straight, imparting to the hose an attractive appearance and a comparatively smooth exterior. The rounded form of the bead 8 and the rounded corners 9 afford clearance and also provide surfaces well adapted to work the one over the other.

In use and under pressure it is well known that a hose tends not only to expand radially but also to elongate. Inasmuch as the described hose is spirally wound the metal winding opposes radial expansion.

However, by the provision of the flanges on the strands of the winding slidably arranged to abut on each other, the tendency to elongate is opposed. The flexibility of the hose is insured by reason of the slidable relation of the abutting flanges. Referring to the lefthand side of Fig. 2, it is evident that the hose may be easily bent because the flanges 6 of adjacent turns of the strand 3 on the inner radius of the bend are free to approach each other while on the outer radius the flanges 6 may recede from each other for quite a little distance before they abut upon the flanges 7. Again referring to the righthand side of Fig. 2, it is evident that elongation of the hose or tendency thereto brings the flanges 6 of adjacent turns of the strand 3 into abutment with the flanges 7 of the strand 2 so that elongation is opposed and prevented.

The strand 3 is shown as somewhat wider than the strand 4 and in such case the strand 3 is well adapted to cover the surface of the tube. It may be said that the flanges 7 of the strand 2 straddle the flanges 6 of adjacent turns of the strand 3, while at the same time the flanges are afforded relative movement

and are arranged to abut as has been described.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement 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 claims may require.

I claim:

1. A hose including a fabric and rubber tube and spirally wound metal strands each flat on one face and marginally provided on the other face with flanges having inner flat edges disposed at a right angle to said flat faces and whereof one is provided with a rounded bead between its flanges and whereof the other is provided with rounded corners outside of its flanges, said strands arranged with the flat face of one next the tube and with the flat face of the other outermost and with the flat edges of their flanges in sliding arrangement to abut and said rounded beads and said rounded corners in sliding relation.

2. A hose including a fabric and rubber tube and spirally wound metal strands each flat on one face and marginally provided on the other face with flanges having inner flat edges disposed at a right angle to said flat faces and whereof one is provided with an outwardly convex rounded bead between its flanges and whereof the other is provided with rounded corners outside of its flanges, said strands arranged with the flat face of one next the tube and with the flat face of the other outermost and with the flat edges of their flanges in sliding arrangement to abut the flat face of the turns of one strand lying in substantially one plane when the hose is straight, and the flat face of the turns of the other strand and the top of the rounded bead of the first mentioned strand lying in substantially one plane parallel with the first mentioned plane when the hose is straight so that said rounded flanges and said rounded corners are in sliding relation.

HOWARD W. GOODALL.