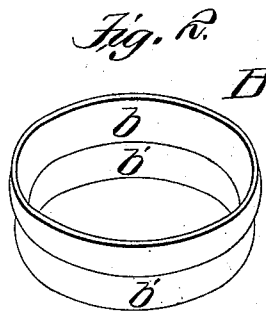
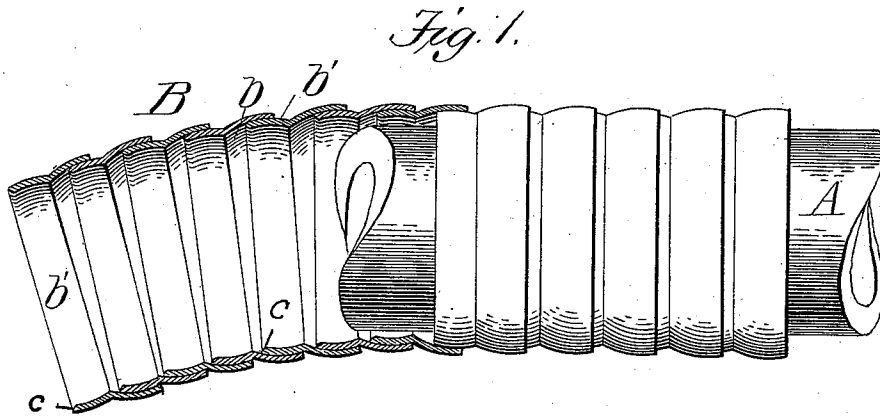


(No Model.)

A. P. COCHRANE.
FLEXIBLE HOSE COVERING.

No. 536,419.

Patented Mar. 26, 1895.



Witnesses
J. P. Cornwall
Hugh H. Wagner

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UNITED STATES PATENT OFFICE.

ALBERT P. COCHRANE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
ELIZABETH COCHRANE, OF WHITE PLAINS, NEW YORK.

FLEXIBLE HOSE-COVERING.

SPECIFICATION forming part of Letters Patent No. 536,419, dated March 26, 1895.

Application filed May 9, 1893. Serial No. 473,539. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. COCHRANE, a citizen of the United States, residing in the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Flexible Hose-Coverings, of which the following is a specification.

My invention has relation to improvements in flexible hose coverings and consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claim.

In the drawings, Figure 1 is an elevational view partially in section showing the application of my improved covering on a section of hose; and Fig. 2 is a perspective view of one of the rings forming the covering.

The object of my invention is to construct a hose covering comprising a series of overlapping rings, which will thoroughly protect the hose, allow the latter to bend without injury to the same, the series of rings being so passed one over the other that a maximum amount of play is permitted between the rings without binding, the rings being further so constructed as to limit the amount of play between each other and thus avoid the slipping of one ring from its engaging ring at any point of the hose while the latter is bent.

Referring to the drawings, A represents a piece of hose to be protected.

B indicates the covering or shield as a whole. The latter is built up of a series of telescopic rings passed one over the other. Each ring is made of a single piece of metal and is composed of two portions, a diametrically large portion "b" having respectively suitable inner and outer concave and convex surfaces, and a diametrically reduced portion "b'" having corresponding inner and outer surfaces. The inner concave surface of the portion b forms a bearing for the reduced portion of the next succeeding ring when the hose is bent from the straight line, as seen in the section in Fig. 1. It will be observed from an inspection of this figure that the chord of the arc along which the surfaces of the large portion are described is inclined to the general axis of the ring, whereas the chord of the arc about which the reduced portion is described is substantially parallel to the axis of the ring, so that the large portion flares outwardly from

the line of juncture of the same with the reduced portion. By this construction, the several rings not only pass over one another readily and without binding but the necessary play is permitted between the rings to enable the covering to bend with the hose to any degree. The large portion is wider than the reduced portion so that in every part of the bent position of the hose sufficient bearing surface between two consecutive rings should always remain.

The maximum amount of bend given to the covering as a whole or the amount of play between the successive rings, is determined when the outer edge of the large portion of one of the rings comes in contact with that part of the outer surface of the large portion of the next succeeding ring, that lies adjacent to the line of juncture between the portions b and b'. In other words (and as shown in the sectional portion of Fig. 1) that part of the outer surface of any portion b which lies adjacent to the line of juncture between the two portions b and b', forms an abutting surface for the edge of the large or flaring portion of the next succeeding ring, thereby limiting the bend of the covering as a whole, preventing the rings from playing out of each other, and leaving the hose intact when once covered.

To prevent "pinching" the hose when the same is under inflation, and to permit free movement between the rings, I bevel or round off the inner edge of the periphery of the reduced portion as at "c" which construction permits the free action of the rings over the hose.

It will be seen that the two curved portions of the ring meet along a circular line described from the center of the ring by a radius in a plane at right angles to the general axis of the ring, and that the outer edges of the two portions of the ring describe circles parallel to this line. This construction, coupled with the feature of the large portion flaring outwardly from the line of juncture admits of the ready passage of one ring over another and in enabling the operator to couple up a series of such rings at a moment's notice.

I am aware that flexible piping in sections has been constructed having sections convex at their ends and concave at the center, the end of one section being slightly smaller than

the end of the following telescoping section. I am also aware that suction hose has been constructed with interior rings having a cylindrical portion enlarged at one end, to form a curved socket, but these I do not claim.

Having described my invention, what I claim is—

In a hose covering, a ring composed of a diametrically large portion having suitable
10 respective inner concave and outer convex surfaces, a diametrically reduced portion having similar curved surfaces, the said reduced portion being narrower than the large portion, the chord of the arc along which the surfaces
15 of the large portion are described being inclined to the axis of the ring, and the chord of the arc of the reduced portion being substantially parallel to the axis, thereby making the large portion outwardly flaring, with re-

spect to the outer surface of the reduced portion, from the line of juncture with said reduced portion, said curved portions meeting on a circular line radially described in a plane at right angles to the axis of the ring, said line forming an abrupt termination for the
25 outer abutting surface formed on the large portion adjacent to said line, the outer edges of the ring being parallel to said line of juncture between the two portions, substantially as set forth.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this
26th day of April, 1893.

ALBERT P. COCHRANE.

Witnesses:

F. R. CORNWALL,
HUGH K. WAGNER.