C. CALLAHAN.
Hose.

No. 218,661. Patented Aug. 19, 1879.

Fig: 1.

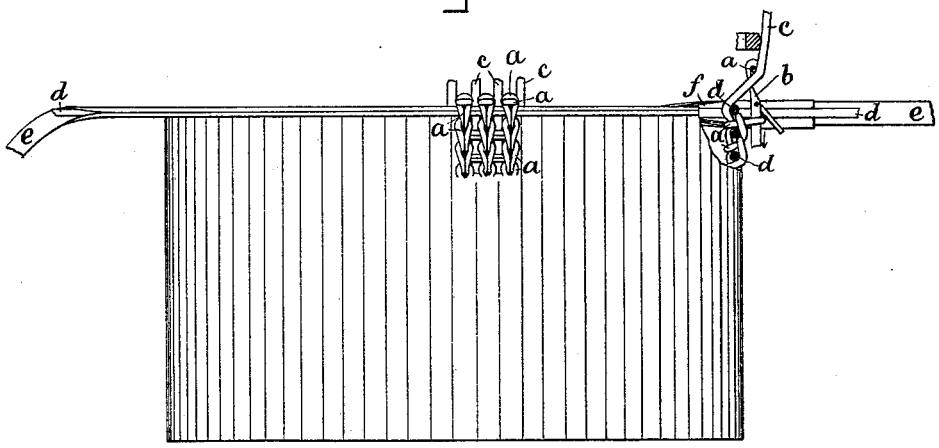
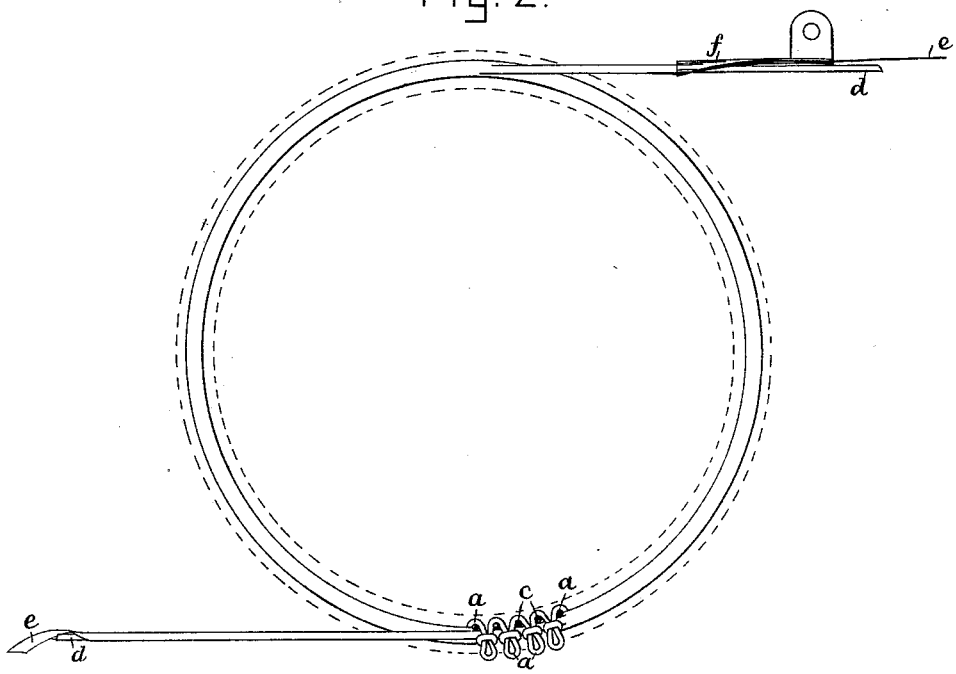



Fig: 2.




Witnesses.
A. E. Whitney.
J. T. Cronin

Inventor
Cornelius Callahan
by Crosby Gregory Attys

# UNITED STATES PATENT OFFICE.

CORNELIUS CALLAHAN, OF CHELSEA, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO EDWIN E. SIBLEY, OF SAME PLACE.

## IMPROVEMENT IN HOSE.

Specification forming part of Letters Patent No. **218,661**, dated August 19, 1879; application filed June 19, 1879.

*To all whom it may concern:*

Be it known that I, CORNELIUS CALLAHAN, of Chelsea, county of Suffolk, State of Massachusetts, have invented an Improvement in Hose, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to hose; and consists in a knitted hose having introduced into and forming part of the fabric a series of independent warp-threads, and a covered weft of wire run helically through the said fabric.

In order to form a surface to which the finishing-surface of india-rubber will adhere, I have covered the wire weft with fibrous material.

In this instance of my invention I have folded about said wire a narrow strip of cloth delivered from a guide; but instead it is obvious that the wire weft might be wound or braided, or have its surface otherwise covered with a fiber or surface to which the india-rubber compound may readily adhere. This wire weft or filling keeps the hose distended and stiffens it, so that it may be used as a suction-hose without fear of its being collapsed.

I am aware that a woven hose fabric has been composed partly of wire.

Figure 1 represents, in side elevation, sufficient portion of a hose to illustrate my invention, and Fig. 2 a top view thereof.

In the drawings I have considered it unnecessary to show every stitch, but have shown at parts thereof the interlooping of the several threads.

This my improved hose will be made on a machine substantially such as described in United States Letters Patent No. 135,625 or No. 140,635, to which reference may be had, it being a machine for the introduction of a fibrous warp and weft into a fabric being knitted.

In this invention, *a a* represent the knitting-thread, or that enchained with itself and about the warp and weft by the needles *b*, one only of which is herein illustrated.

The warp-threads *c* are arrranged in parallel lines between the "wales" of knitted loops, and the wire weft *d*, fed in at one, two, or more places at proper intervals, is laid in between, so as to be surrounded or embraced by each knitted loop, *a*, as shown at the right of Fig. 1. Just before the wire weft reaches the knitting-needles I fold about it a narrow strip of woven fabric or tape, *e*, controlled by a guide, *f*, adapted to hold and bind the fabric or tape about the wire, so that the wire when it arrives in position to be incorporated within and embraced by the knitting-loop is covered or enveloped by a fibrous covering, which enables the india-rubber, during the subsequent process of covering the said hose within and without with india-rubber and vulcanizing it, to readily adhere to the entire hose as strongly and firmly as though the hose was composed entirely of fibrous material.

The dotted lines within and outside of Fig. 2 show the position the india-rubber sheets will occupy in the completed suction-hose, it being understood, however, that said india-rubber sheets are continuous and completely cover the textile portion of the knitted hose above described.

I claim—

A hose composed of a tubular knitted fabric, a series of warp-threads, and helically-arranged fibrous covered or wrapped metallic weft, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CORNELIUS CALLAHAN.

Witnesses:

G. W. GREGORY,

L. F. CONNOR.