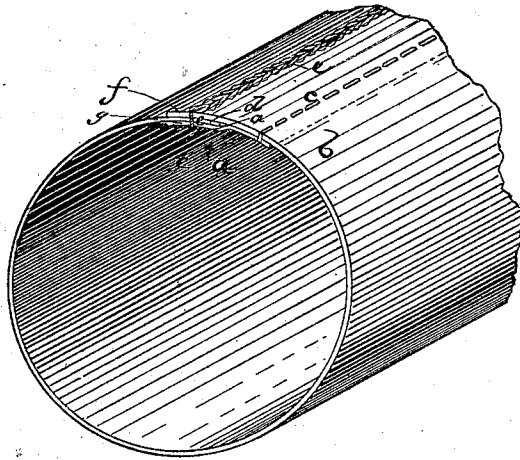


A. S. LIBBY.

Hydraulic Hose.

No. 133,785.

Patented Dec. 10, 1872.



Witnesses.

*Mr. W. Frothingham.*

*L. H. Cratimer.*

Inventor.

*Asa L. Libby.*

*By his Attys.*

*Crosby & Gould.*

# UNITED STATES PATENT OFFICE.

ASA S. LIBBY, OF LAWRENCE, MASSACHUSETTS.

## IMPROVEMENT IN HYDRAULIC HOSE.

Specification forming part of Letters Patent No. 133,785, dated December 10, 1872.

### *To all whom it may concern:*

Be it known that I, ASA S. LIBBY, of Lawrence, in the county of Essex and State of Massachusetts, have invented an Improved Hydraulic Hose; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

United States Letters Patent No. 130,303 have been granted to me for an improved hydraulic hose, which hose consists of a strip of woven material (preferably canvas or duck) formed into a tube by uniting the edges, the opposite edges being protected and the impermeability of the joint increased, by doubling, folding, or re-enforcing them where the stitches pass through the material to effect the union of the edges. In such patent the edges are shown as united by stitches passing from the inside to the outside of the tube.

My present invention also relates to the manufacture of hose formed from a woven strip by uniting the opposite edges; but instead of effecting the union of the edges by stitches, or only by stitches passing through the lapped edges from the inside to the outside of the tube, or vice versa, I use a welt-piece, and make this the bond of union between the two edges to be united, using two rows of stitches, the first formed by any suitable wax-thread sewing-machine and uniting one edge of the welt to the main strip, (at some distance from the edge,) and the opposite edge of the main strip being then introduced between the welt and the first-mentioned edge

of the main strip, and the three edges being then united by the second row of stitches passing through the three edges, this second stitching being effected by a machine similar to that shown in patent No. 74,289. My invention consists in a hose thus made, or in a hose made of a strip of woven material formed into a tube by first stitching a welt to the strip and then uniting the opposite edge of the welt and the two opposite edges of the strip by the row or rows of stitches passing through the three edges from inside to outside of the tube, or vice versa.

The drawing represents a piece of hose embodying the invention.

The welt-piece *a* is first united to the strip *b* by the row of stitches *c*, made on a common wax-thread sewing-machine, and is subsequently again united to the same edge of the strip *b* and to the opposite edge *d* thereof by a row of stitches, *e*, made by a machine similar to what is shown in said Patent No. 74,289, the edge *d* being inserted between the edge *f* of the strip *b* and the edge *g* of the welt *a*.

I claim—

The improved hydraulic hose, having a welt-piece, *a*, united to the woven strip *b* by the row of stitches *c*, and to the edges *f* and *d* by the row of stitches *e*, running through the welt and the edges *f d* when the said welt-piece is on the inside of the hose, substantially as shown and described.

ASA S. LIBBY.

Witnesses:

FRANCIS GOULD,  
M. W. FROTHINGHAM.