

H. G. HUBBARD.

HOSE GOODS.

No. 177,841.

Patented May 23, 1876.

Fig. 1

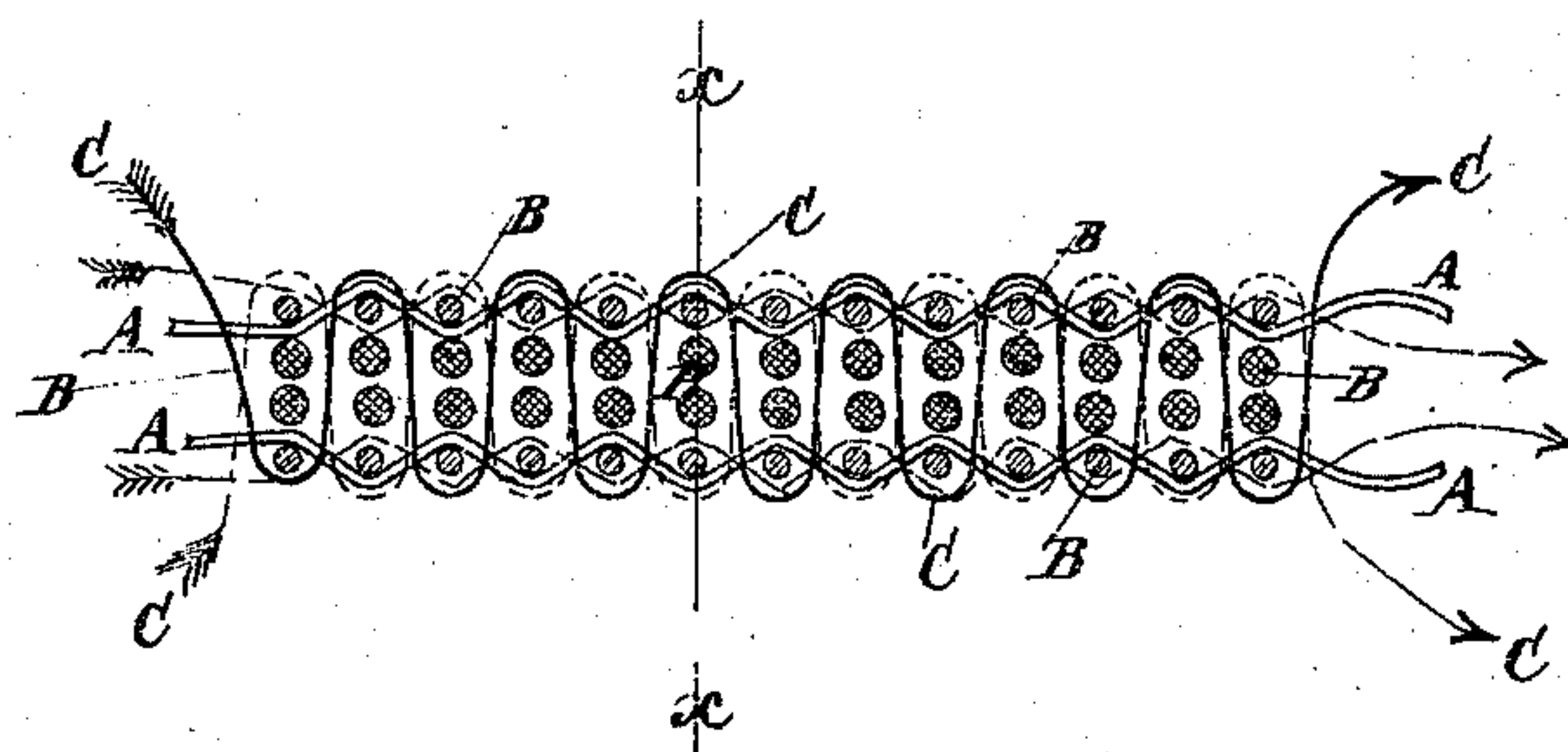


Fig. 2

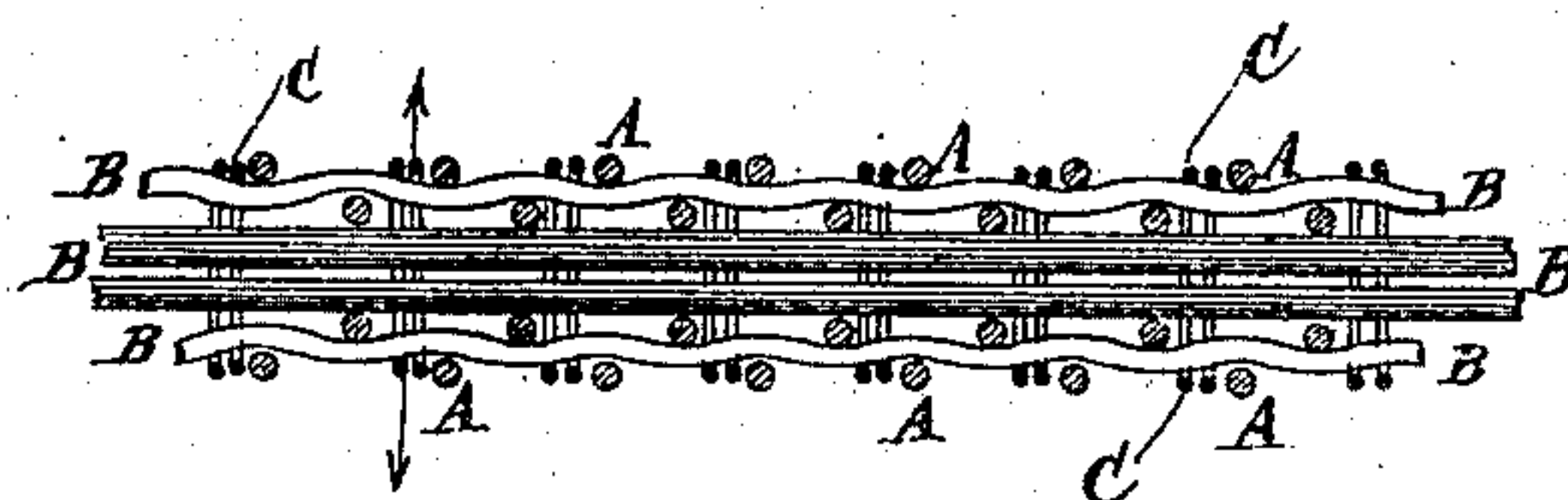


Fig. 3

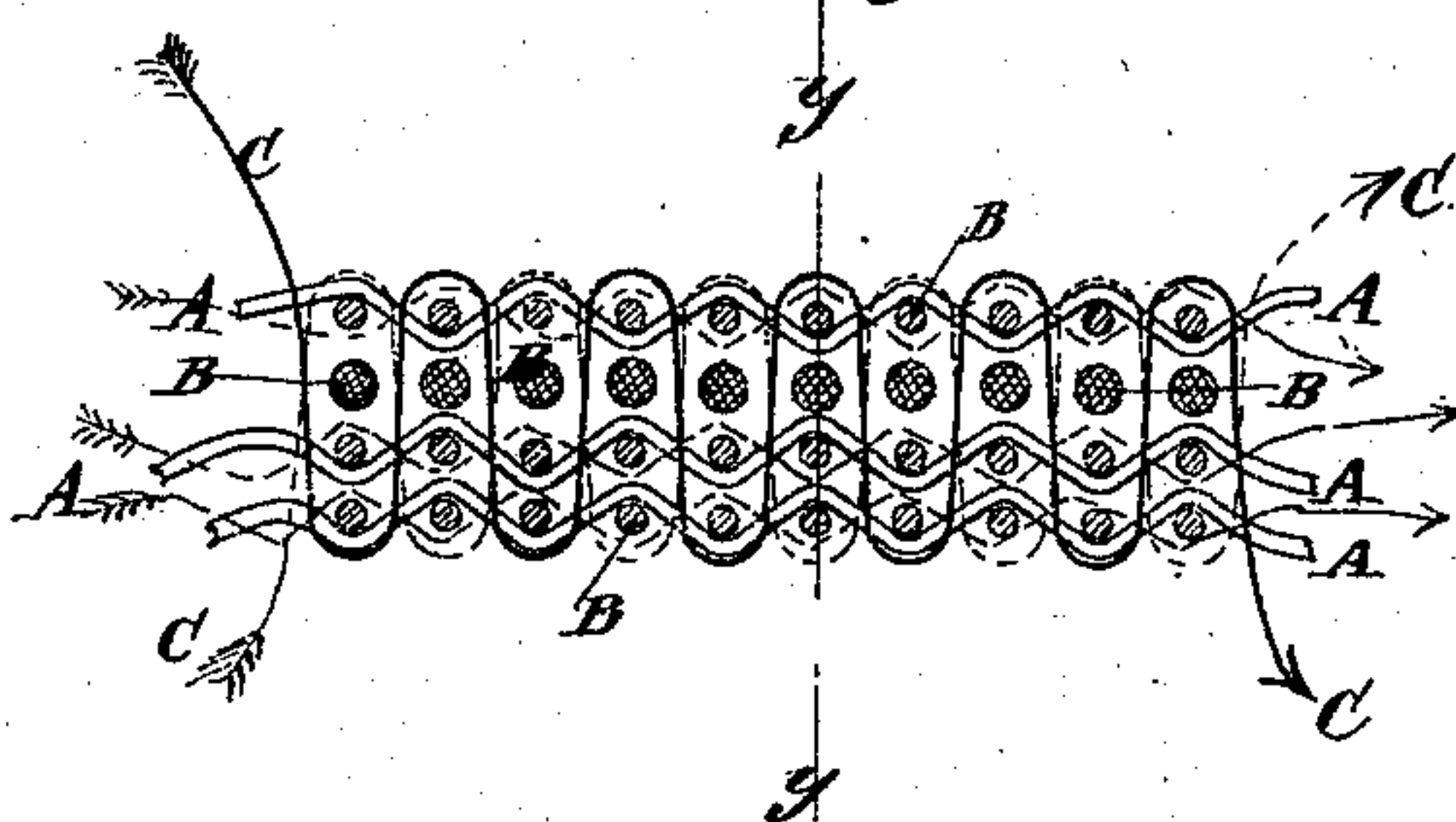
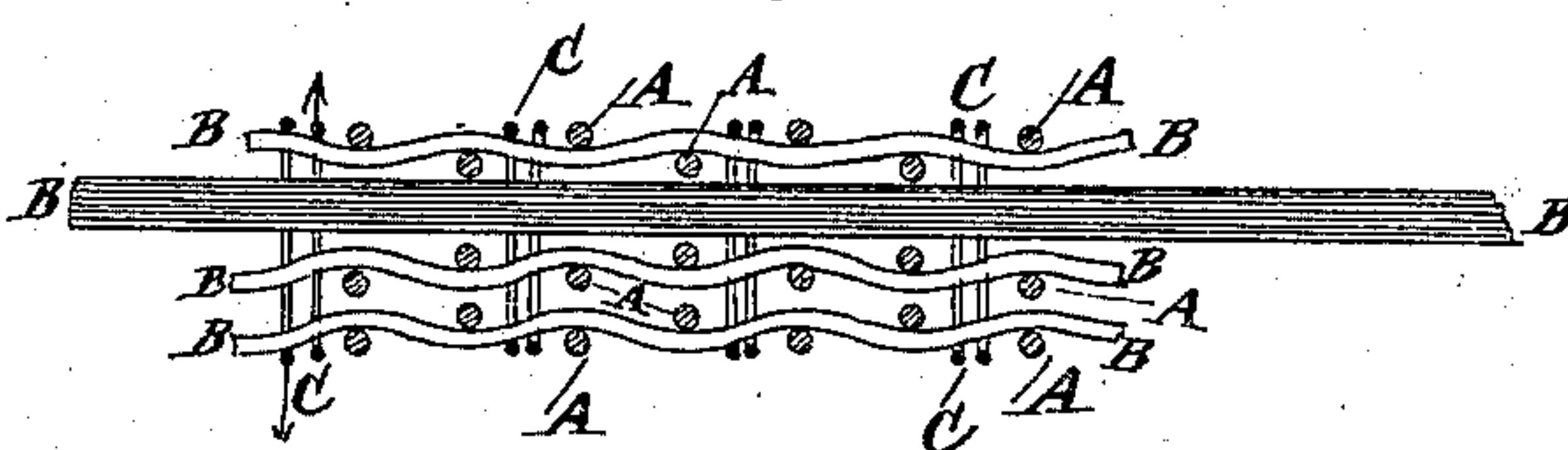


Fig. 4



WITNESSES:

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BY

Wm. J. [Signature]

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UNITED STATES PATENT OFFICE.

HENRY G. HUBBARD, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO
RUSSELL MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN HOSE GOODS.

Specification forming part of Letters Patent No. **177,841**, dated May 23, 1876; application filed
March 21, 1876.

To all whom it may concern:

Be it known that I, HENRY G. HUBBARD, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Hose Goods, of which the following is a specification:

Figure 1 is a longitudinal section of a piece of the goods. Fig. 2 is a cross-section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a longitudinal section of a modification of the same. Fig. 4 is a cross-section taken through the line *y y*, Fig. 3.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish goods for hose which shall be so made as to be lighter and less expensive in manufacture than hose goods made in the usual way, while being equally as strong as said goods.

The invention consists in an improved hose goods, of three or more plies, in which one or more of the inner plies are without warp-threads, as hereinafter fully described.

A represents the warp-threads. B represents the woof-threads, and C the binder-threads. The goods, in its general form, is four-ply, but may be three or five or more ply—that is to say, the shuttle must cross the web three, four, five, or more times to lay one course of thread. The outside plies will always be provided with

warp-threads, forming a cloth. One or more of the inner plies is without warp-threads, and this is the distinguishing feature of my invention. The binding-threads are put in in the usual way.

In making these goods less harness is required, owing to the fact that one or more of the plies are without warp-threads, the warp-threads of each ply requiring two harnesses, and the binder-threads being put in by the usual two harnesses, so as to hold the loose woof-threads in their proper relative position, while binding all the plies firmly together into a solid cloth.

By this construction I have the full strength of the woof-threads of all the plies to resist the expansion strain upon the hose, producing a fabric lighter than when made in the usual way, equally strong, and at less cost.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

An improved hose goods, of three or more plies, in which one or more of the inner plies are without warp-threads, substantially as herein shown and described.

HENRY G. HUBBARD.

Witnesses:

E. H. BURR,
R. MATHEWSON.