

(No Model.)

T. HAWLEY.

MANUFACTURE OF RUBBER GOODS.

No. 265,497.

Patented Oct. 3, 1882.

Fig. 1.

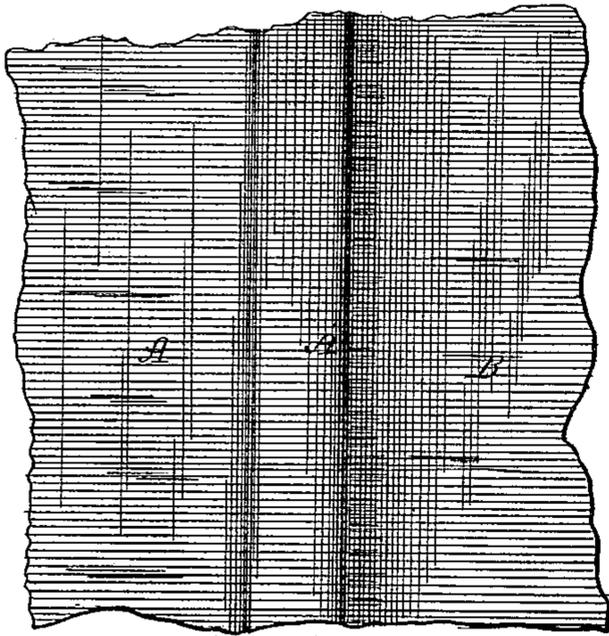


Fig. 2.

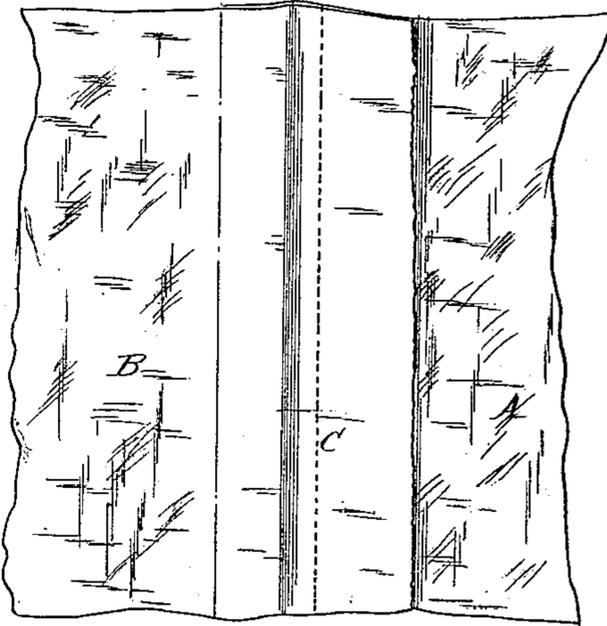


Fig. 3.

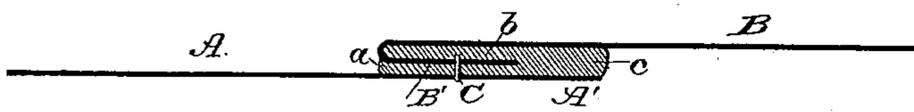
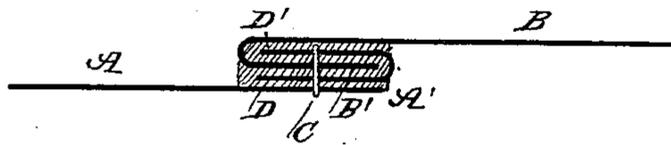


Fig. 4.



Fig. 5.



WITNESSES:

Adm. G. Dieterich
Jno. T. Power

Theodore Hawley,
INVENTOR.
by *Louis Bagger & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THEODORE HAWLEY, OF FAIRFIELD, CONNECTICUT, ASSIGNOR OF ONE-HALF TO EDWARD W. HARRAL, OF SAME PLACE.

MANUFACTURE OF RUBBER GOODS.

SPECIFICATION forming part of Letters Patent No. 265,497, dated October 3, 1882.

Application filed September 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, THEODORE HAWLEY, of Fairfield, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Rubber Goods; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My improvement has relation to textile fabrics covered with rubber, such as rubber blankets, mackintoshes, and other rubber clothing, such as "gossamer" waterproofs, buggy and carriage tops, and other articles manufactured from any kind of rubber-coated textile fabrics in which the manufactured article requires seams or uniting of edges of the fabric.

In rubber goods of this description as heretofore manufactured it has been customary to unite the edges of the several pieces of fabric which go to produce the complete article either by overlapping and cementing the seams or by overlapping and stitching them, with or without a re-enforcing strap, band, or cord inserted into the seam. By either of these two methods it has been customary to cement or stitch the pieces of gum-coated fabric together before vulcanizing the fabric, so that by vulcanizing the entire article the seams when cemented will adhere closely together, and when formed by stitching the process of vulcanizing or solarizing the article will close up the needle or stitch holes. While either one or both of these processes will answer the purpose very well in light fabrics, (such as gossamer waterproofs and the like, because if cemented the seams are not subjected to great tensile strain, and if stitched fine needles and thread may be used, leaving small stitch-holes, which are readily closed or filled up by the process of vulcanizing,) experience has demonstrated the necessity of adopting a different method where pieces of heavier gum-coated fabrics are used—as, for example, in the manufacture of rubber-coated blankets, heavy rubber clothing, tarpaulins, (when consisting of more than one piece,) and carriage-tops.

It is the object of my improvement to overcome this difficulty; and to this end my said improvement consists in the construction of a seam which, while possessing all the advantages of the stitched and the cemented seams, shall be free from the objections which can with propriety be urged against either.

To enable others skilled in the art to which my improvement appertains to understand properly the scope and nature of the same, I have on the accompanying sheet of drawings shown two pieces of gum-coated fabric seamed or united according to my method.

Figure 1 represents a front or face view—*i. e.*, the rubber-coated side. Fig. 2 is a view of the inner side. Fig. 3 is a cross-section of the seam; and Figs. 4 and 5 are similar cross-sections, showing modifications in the construction of the seam where exceptional strength is required.

Similar letters of reference indicate corresponding parts in all the figures.

At the outset it is proper to remark that while the several figures represent correctly the construction of the seam they have purposely been exaggerated, as it would be impractical to illustrate the details of the seam if the figures were drawn to scale. The thickness of cement is out of proportion, but will convey a fair idea of the manner in which it is intended to apply the cement.

A and B represent two pieces of gum-coated fabric united according to my improved method in the following manner: One edge of one of the pieces, B, is placed upon the other, with the unvulcanized gum-coated surfaces facing each other, a part of the under piece, A', projecting out over the edge of B, as clearly shown in the drawings. The upper piece, B, is then doubled upon itself, as shown at B', but not until after the part B has been united to A by one or more parallel rows of stitching, (shown at C.) The edge of A underneath the overlapping doubled edge of B is covered with a thin coating of cement, (shown at *a*,) and prior to the doubling of B upon itself the stitching C is coated with a thin layer of cement, (shown at *b*.) This is continued beyond the doubled edge B' on both sides of the central stitching, extending to the overlapped edge A' of the top piece, and thus

uniting or cementing A' to B, as shown at *c*. Thus we have a cemented and stitched seam uniting the overlapped edges of A and B, involving a double layer of cement, *a* and *b*, which will completely fill up the stitch-holes or needle-holes at C, the row or rows of stitching being besides covered by the overlapping part of B. After pressing the seam, with or without the aid of heat, to properly flatten and compact it, the united fabric is subjected to the usual vulcanizing or solarizing process, by which the several layers or coatings of cement are thoroughly incorporated with the rubber surfaces of the fabric, so as to completely cover and protect the stitching and form a homogeneous part along the entire length and width of seam.

The modification shown in Fig. 4 consists simply in inserting a strip of the fabric D between the edge A' of part A and the doubled overlapping edge B' B of the other piece or part, the row of stitching C passing through the several parts, B', D, and A'. In Fig. 5 this interposed strengthening-strip D is shown of sufficient width to permit of its being doubled around and over the doubled edge B' of the top piece, B, as shown at D', the row or rows of stitching C passing through the parts B', D', D, and A', as shown. To this construction resort need only be had where the seams are subjected to extraordinary tension, as in tarpaulins and similar goods, which are subjected to rough handling and usage. It will be seen

that the modifications represented in Figs. 4 and 5 do not differ in any essential point from that shown in Fig. 3, the only difference being the insertion of the re-enforcing or strengthening strip D.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In the manufacture of goods from rubber-coated textile fabrics, the described method of forming a seam, which consists in first placing the two pieces of fabric to be united upon each other and cementing the gum-coated surfaces along the edge where the seam is to be, then making one or more rows of stitches through the cemented edge, then cementing the top of the stitching and the uppermost piece of fabric on both sides thereof, then doubling said fabric upon itself across the stitching, then flattening and compacting the seam thus formed by pressure, and finally vulcanizing the two pieces of fabric and their uniting-seam, substantially as and for the purpose herein shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

THEODORE HAWLEY.

Witnesses:

DANIEL MOLONEY,
JAMES O. BURR.