J. & J. Miller Jr

Gussets.

No. 71038

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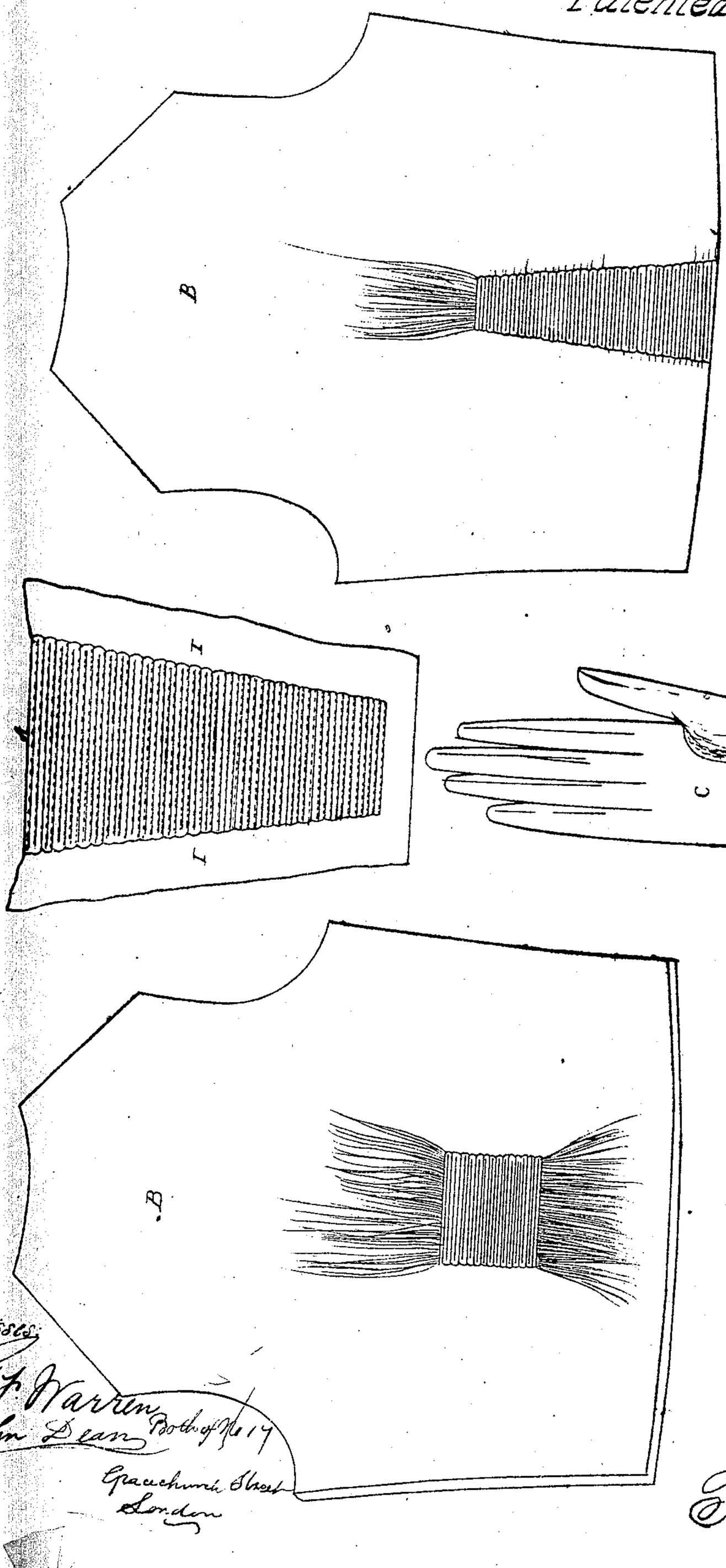

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JAMES MILLER AND JAMES MILLER, JR., OF PECKHAM, ENGLAND.

Letters Patent No. 71,038, *dated November* 19, 1867.

IMPROVEMENT IN ELASTIC GUSSETS FOR WEARING APPAREL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, JAMES MILLER and JAMES MILLER the younger, of 3 Lindo street, Cemetery Road, Peckham, in the county of Surrey, in Great Britain, late of 5 Park Road, North Bow, in the county of Middlesex, have invented a new and improved Method in the Manufacture of Elastic Gussets or Springs, by the insertion of vulcanized India-rubber thread or cord between two pieces of leather-woven fabric or other material, and for which a provisional protection, dated the 31st day of December, 1866, and Letters Patent sealed the 18th of June, 1867, No. 3,451, have been granted to us in the United Kingdom of Great Britain, and a patent also in France and Belgium; and we do hereby declare that the following is a full and exact description thereof.

Our invention has for its object improvements in the manufacture of elastic gussets, suitable for use in boots, stays, gloves, and other purposes, as also for the back of waistcoats or trowsers.

In the manufacture of elastic web for gussets, it is usual to weave the vulcanized India-rubber threads or cords into the web fabric in the process of manufacture, the India-rubber threads or cords forming a portion of the warp of the fabric, or, where the web is of leather or other materials, the India-rubber threads or cords are placed or inserted between the two materials, which are attached together by means of cement, and commonly known as corrugated or shirred web, and in both cases is made into a web of long lengths, and each line of India-rubber thread or cord is a separate piece, and the web cut through the shape required for the gusset. Now, according to our invention, each gusset is made separate by itself, and we secure the vulcanized India-rubber thread or cord between two pieces of fabric, leather, or other material, by first stitching several rows with a sewing machine or by hand, the stitching running in parallel lines or rows, as shown in the drawing marked A, and passing through the two pieces of fabric, leather, or other materials. We then proceed to pass or insert the India-rubber thread or cord between the two fabrics or materials in the top row, (refer drawing A,) secured by the stitching, and in place of each line of India-rubber thread or cord being in a separate piece, we insert it in one length, the India-rubber thread or cord, at the end of each traverse across the gusset, being turned round and caused to return in the next row, parallel to itself, and so on from row to row; thus the liability of the India rubber to slip and work out of the gusset is much reduced. When gussets made in this manner are worked into boots, or other articles, the stitching by which they are secured or sewn in is passed through a margin, which we make for that purpose on each side of the gusset, as shown in the drawing A, marked 1, and they have not to be stitched through the India-rubber threads or cords, as is the case with other web gussets.

In order that our invention may be more fully understood, and readily carried into effect, we will describe the manner in which we prefer to proceed.

We first cut the material, leather, silk, cotton, or any other woven fabric, and the lining, to the size required for the gusset when extended, and for leaving the required margin; we then turn over the top edge and baste or tack it down to the lining; we then commence to stitch, with a sewing machine, a series of rows in parallel lines transversely across the gusset, the stitching passing through the two materials, commencing at the top, and so on, from row to row, until the whole of the gusset is stitched. The distance between the rows of stitches will depend upon the thickness of the India-rubber thread to be inserted; about eight or ten rows to the inch is usually a convenient distance. We then pass between the two materials, into every space or cavity between the rows of stitches, wires or needles of a length somewhat longer than the width of the gusset, and of the size of the cavity; the gusset is then ready to be contracted or drawn up to the size required. To do this, we employ a machine made with two jaws, in a similar manner to a vise, one jaw being fixed and the other movable, so that it may be slid backwards or forwards to or from the fixed jaw by means of a screw passing through the centre. The jaws are by preference of wood, and are made flat on their upper surface. When the jaws are closed, a row of teeth or pins of wire is driven into the upper surface of each jaw, the rows of teeth being made to correspond with the contour of the sides of the gusset. When this is done, the movable jaw is moved away from the fixed jaw, in order to put in the gusset for the purpose of contracting or crimping it (the gusset still having the wires or needles in every cavity or row.) We then lay the gusset on the machine or vise by placing each wire or needle between two of the teeth or pins on each jaw, the teeth or pins being at the same distance apart from one another as the wires or needles passing through the gusset, the gusset being in this manner fixed. We

then screw up the machine or vise, to bring the movable jaw up to the fixed jaw; this contracts or draws up the gusset to the size required. We now take the gusset out of the machine in its contracted form, with the wires or needles still in, as previously mentioned, and it is now ready for the process of filling with the India-rubber thread or cord. To do this, we place it as it is on a table or stand, and turn down over it a small plate of steel, hinged to the table, and by pressing down this plate the gusset is held securely. We then withdraw the needles or wires, and insert with a bodkin or needle, in the same cavity or tunnel made by the wires, the thread or strand of India rubber, which is in one length. We then commence at the top cavity to insert the India-rubber thread or cord, and follow back in the next row or cavity, causing it to return parallel to itself, and so on the same, from row to row, until the whole of the cavities are filled with the India rubber. We then pull back the margin that is left as large as required, and tack it down with an ordinary needle, and the gusset is ready for use. The bodkin or needle we prefer to employ for inserting the India-rubber thread is composed of a wire, having a hole bored longitudinally into one of its ends. A short length of the end of the wire is thus formed into a tube. A portion of the side of the bodkin is cut away to form a side opening in the rear end of this tube. This short tube at the end of the bodkin is for the purpose of holding the end of the thread of India rubber. To insert the end of the thread into the tube, a loop of cotton is passed through the side opening above mentioned, and caused to project out from the end of the bodkin; the end of the India-rubber thread is then passed through the loop and the loop is drawn back, by which means the end of the India-rubber thread is drawn into the tube, and as the tube will be internally of less diameter than the India-rubber thread, the end of the thread will be held securely. When it is desired to form a strong margin to the sides of the gusset, (before withdrawing the needles or wires from the tubes or spaces formed between the rows of stitching,) we press down on to the points at each end of the needles or wires a strip of canvas. The points being caused to pass through the middle of the strips, the strips are then pressed down on to the points to bring them close up to the edge of the gusset, and afterwards the wires are removed and the thread or strand of India rubber inserted, as above described, the India rubber being passed through the holes formed by the wires through the canvas, as well as being passed through the spaces or tubes formed across the gusset. When this is completed, the canvas is doubled over, and the margin or edge of the gusset will be composed of two thicknesses of canvas in addition to the fabric and lining of which the gusset is composed. In the waistcoat-back we do not insert a gusset, but make a gusset or spring of the materials of which the back is composed (as shown in the drawing marked B B.) By the same principle we stitch through the back and back-lining of the two materials rows of stitching by the sewing machine or by hand, running in parallel lines, and insert the India-rubber thread or cord between the two materials, commencing at the top row, and causing it to return in the next row parallel to itself, and so on from row to row. The advantage of this is, that it obviates the use of a strap and buckle, and gives more ease and comfort. We apply also our invention of the gusset, made by the same principle as herein described, to gloves, as shown in the drawing marked *c*.

What we claim by our invention, and desire to secure by Letters Patent, is—

Elastic gussets or springs, formed by stitching through two fabrics several rows in parallel lines, and inserting between the same India-rubber thread or cord in one continuous length, substantially as herein described and for the purposes specified.

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