Aug. 27, 1940. K. SCHUSTER 2,212,796

WIRE FABRIC

Filed Dec. 30, 1936

Fig. 2.

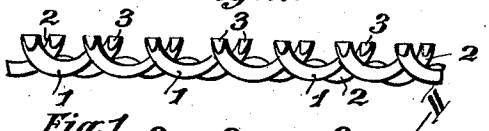


Fig. 1.

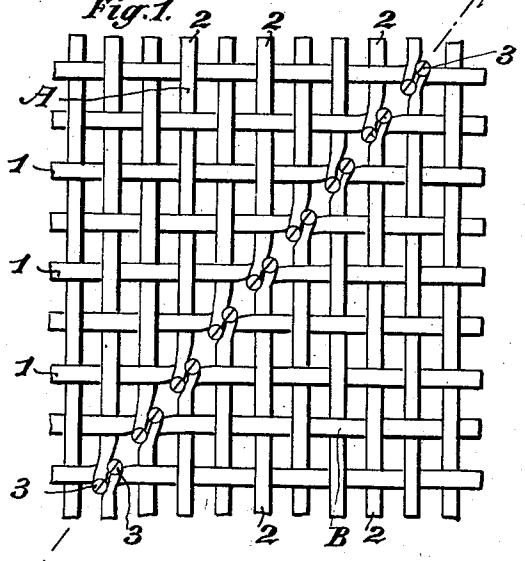
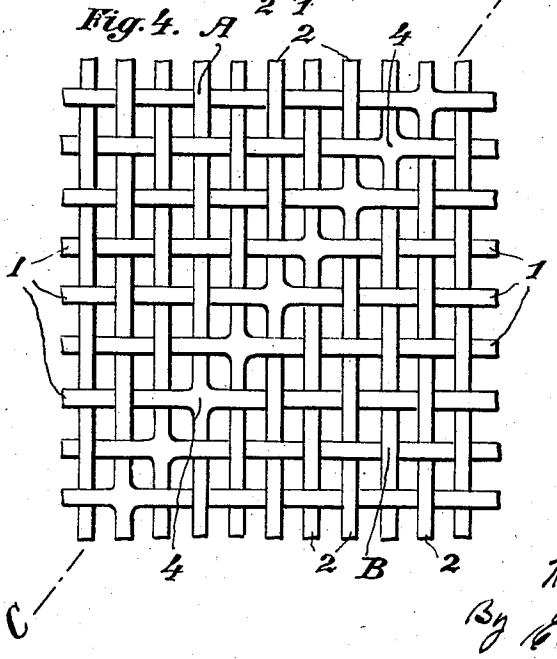


Fig. 3.



Fig. 4.



Inventor:
Karl Schuster,
By E. F. Wendroth
Atty

Patented Aug. 27, 1940 2,212,796

UNITED STATES PATENT OFFICE

2,212,796

WIRE FABRIC

Karl Schuster, Giengen-on-the-Brenz, Germany, assignor to F. Oberdorfer G. m. b. H., Heidenheim-on-the-Brenz, Germany, a joint-stock company of Germany

Application December 30, 1936, Serial No. 118,374
In Germany February 11, 1936

5 Claims. (Cl. 140—3)

This invention relates to a wire fabric, such as employed for the cloth of a paper-making machine.

One object of the invention is to devise a method of joining a wire fabric of this nature without interfering with its continuity.

A further object of the invention is to provide a seam for the fabric which is simple to produce.

A still further object is to effect a join or seam without in any way increasing the thickness of the fabric.

Other objects and advantages of the invention will become apparent as the description proceeds.

In accordance with the invention, the stated objects are accomplished by cutting the edges of the two pieces of fabric, which are to be joined together, obliquely to the longitudinal direction of the fabric and then connecting the cut edges by welding, fusing or soldering the same together.

A convenient method of producing the join, particularly in the case of new fabrics, consists in cutting the edges in zig-zag fashion in relation to the longitudinal direction of the fabric, whilst in repairing worn fabrics by applying a patch to the same it is found convenient to fit the patch in the fabric at the damaged or worn point in the form of a flat portion of suitable shape, for example an oblique oblong shape, this patch being so disposed that its edges are situated obliquely to the longitudinal or transverse direction of the fabric, whereupon the parts are joined together in the manner stated.

According to one method of joining the parts together, the cut edges, or in other words the ends of the warp and weft wires, of one or both pieces of fabric are deflected from the plane of the fabric, placed one against the other and then welded, fused or soldered together. In an additional development of this idea it will be found of advantage to flatten or taper the ends of the wires forming the edges of the pieces of fabric before they are set together, preferably in such fashion that the upwardly bent ends of the wires are flattened off from the bottom in an upward direction to the extent of one half of their thickness, so that when the ends of the pieces of fabric to be connected are placed one against the other the wires will supplement each other at this point to form a round wire.

The connection of the pieces of fabric obliquely to the longitudinal or transverse direction of the fabric has the advantage that the seam in consequence of the bending of the fabric, for example on a paper machine or the like, by reason of rollers or other parts will not be subjected to strain over its entire length or an appreciable part thereof but only at one point at any given time, so that the seam will not be again torn apart. The seam is accordingly very strong and the fabric normally can be torn only in the direction of the weft or warp wires. Despite the seam the fabric is preferably perfectly flexible, since as compared with interlaced seams there is no appreciable increase in thickness at the points where the weft and warp wires cross each other, whilst the size of mesh is not altered.

The join or seam according to the invention is particularly suitable for repairing damaged or worn points in the wire fabric or aprons of paper-making machines, in which the fabric as far as possible should exhibit no or only a very small break in its continuity despite the seam, and the seam itself should not exert any undue effect. The seam however is also suitable for any other wire fabric in which importance is attached to a neat seam which is pleasing in appearance and does not in any way impair the general net structure.

The method of producing the seam according to the invention will now be described with reference to the accompanying drawing, which illustrates a possible form of embodiment.

Fig. 1 is a plan view of two pieces of wire fabric which are to be joined together and have been prepared in accordance with the invention.

Fig. 2 is an elevational view showing the seam edge of the one piece of fabric according to the line II—II in Fig. 1.

Fig. 3 is a detail view showing two wires before they are welded together, whilst

Fig. 4 is a plan view of the two pieces of fabric after the seam according to the invention has been completed.

Referring now to the drawing, A and B are two pieces of metal cloth or fabric which in accordance with the form of embodiment shown are cut obliquely to the weft and warp wires 1, 2, for example, diagonally, at the points where the weft and warp wires cross each other, to be joined together along the diagonal line.

The ends of the wires along the cut line are then bent obliquely or vertically upwards (in the case of a paper-machine cloth to the extent of approximately .5–1 mm.). The weft and warp wires of each piece of fabric remain slightly intertwined. In order that the seam will not be unduly thickened at the points of connection by reason of the deflected ends of the wires, these ends, proceeding from the bottom, are preferably

tapered or flattened off gradually towards the upper edge to the extent of approximately one-half of their thickness, so that when the ends of the wires are placed together they contact with the flat portions 3, the weft wires 1 of the one piece of fabric in each case supplementing the warp wires 2 of the other piece of fabric or inversely to form a round wire (Fig. 1). The pieces of fabric thus prepared and set together along the diagonal edges (Fig. 3) are protected by cover plates against the welding flame, and the raised ends of the wires if both pieces are now welded together autogenously or electrically to form nodal points 4 of the thickness of the cloth. In this way there is obtained a diagonal seam C—C (Fig. 4) in which the welded points have no appreciably greater dimensions than the crossing points of the interlaced wires.

In certain cases it will not be absolutely essential to deflect or raise the ends of the wires. These may be fitted together end on, whereupon by the pressing together and the welding operation a proper connection will also be obtained.

In joining new pieces of fabric it will be found convenient to allow the seam to extend in zig-zag form transversely or obliquely over the fabric, whilst for the purpose of repairing worn or damaged fabric the procedure will preferably be such that the section bearing the defective point is stamped out in the form of a rhomb, i. e., in the form of a square having its sides disposed diagonally in relation to the weft and warp wires, or in any other suitable self contained form, and a new or used patch of the same form then applied to replace the portion removed. Whatever the form the patch will be so applied that its edges are disposed obliquely to the longitudinal or transverse direction of the fabric, and it will then be welded to the main body of the fabric along all edges in the manner described in the above.

What I claim as new and desire to secure by Letters Patent is:

1. A method of joining pieces of wire fabric, which comprises cutting the pieces of fabric in agreement with each other obliquely to their longitudinal or transverse direction, deflecting the ends of the wires of at least one of the pieces of fabric along the line of cut out of the plane of the fabric, fitting the said wires together so that the wires of the one piece of fabric abut against the wires of the other piece, and thereupon joining the said wires by welding them together.

2. A method of joining pieces of wire fabric, which comprises cutting the pieces of fabric in agreement with each other obliquely to their longitudinal or transverse direction, deflecting the ends of the wires of at least one of the pieces of fabric along the line of cut out of the plane of the fabric, tapering the said deflected ends, fitting the said pieces together so that their respective wires abut one against the other at their tapered ends, and thereupon joining the said wires by welding them together.

3. A method of joining pieces of wire fabric for the purpose of applying a patch to a main body of fabric, which comprises stamping out a piece of fabric from the main body so that the cut edges are disposed obliquely to the longitudinal or transverse direction of the fabric, applying a wire fabric patch of the same form as the removed portion so that the wires of the said patch abut against the wires of the main body of the fabric, and thereupon joining the said wires by welding them together.

4. A method of joining pieces of wire fabric which comprises cutting the pieces of fabric in agreement with each other obliquely to their longitudinal or transverse direction, fitting together the obliquely cut fabric edges so that each warp wire comes in contact with a weft wire of the same and the abutting fabric, and also with a warp wire of the latter fabric, and welding these contacting wires.

5. A method of joining pieces of wire fabric which comprises cutting the pieces of fabric obliquely in agreement with each other obliquely to their longitudinal or transverse direction in a zig-zag line fitting together the obliquely cut fabric edges so that each warp wire comes in contact with a weft wire of the same and the abutting fabric, and also with a warp wire of the latter fabric, and welding these contacting wires.

KARL SCHUSTER.