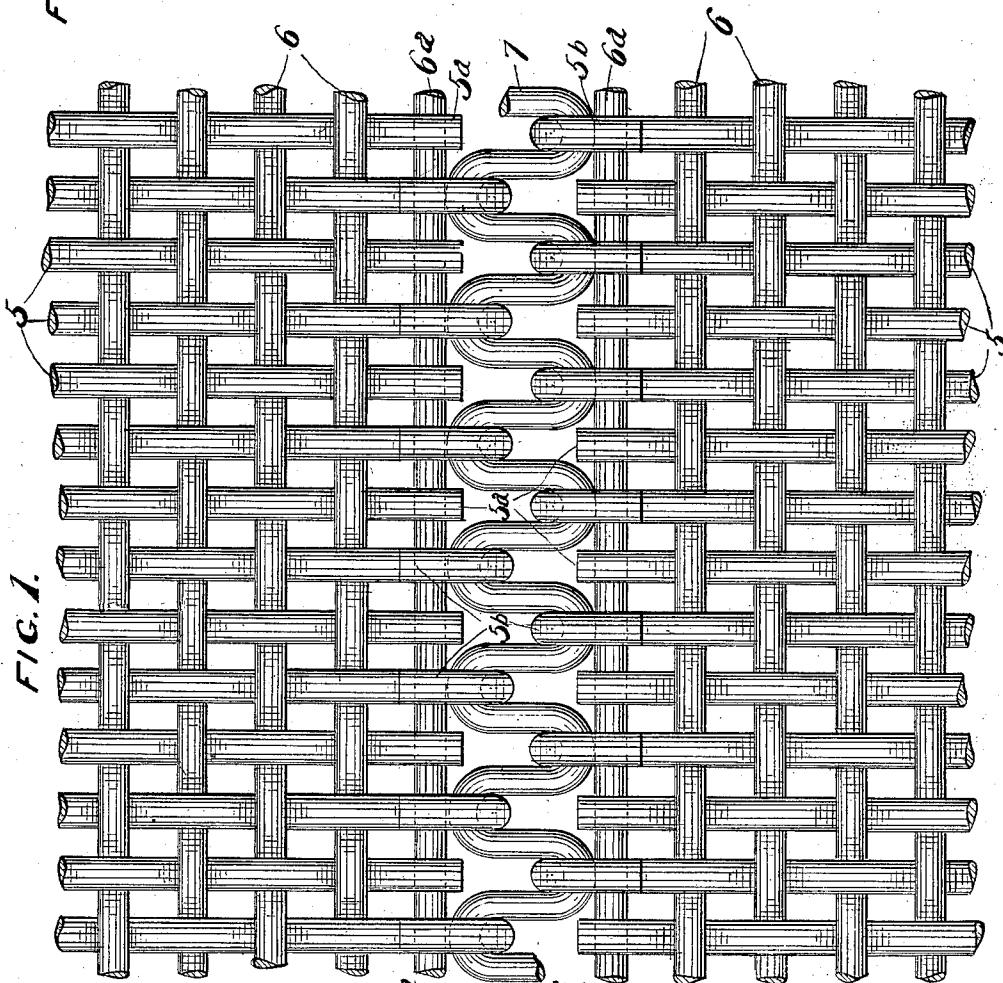
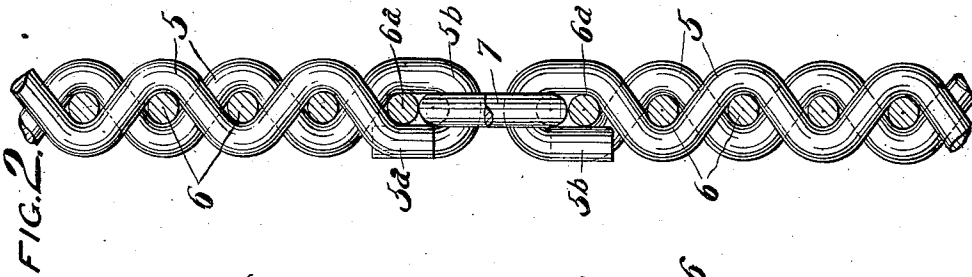


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FOURDRINIER WIRE SEAM.

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1,065,991.

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FOURDRINIER-WIRE SEAM.

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To all whom it may concern:

Be it known that I, ALBERT B. WEISSENBORN, residing in Appleton, in the county of Outagamie and State of Wisconsin, have invented new and useful Improvements in Fourdrinier-Wire Seams, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention has for its object to provide a new seam for Fourdrinier wires, formed by a crimp wire having the ends of alternate warp wires of the wire fabric in hooked engagement therewith.

Another object of this invention is to provide a seam for Fourdrinier wires which will be strong and durable and will not materially close the openings of the seam.

Another object of this invention is to improve upon details of constructions of a seam for Fourdrinier wires.

With the above and other objects in view, the invention consists in a Fourdrinier wire seam as herein claimed, and all equivalents.

Referring to the accompanying drawing in which like characters of reference indicate the same parts in the different views; Figure 1 is a plan view of a portion of a Fourdrinier wire seam formed in accordance with this invention; Fig. 2 is a transverse sectional view thereof; and Fig. 3 is a similar view of a modification.

In these drawings, 5 indicates the warp wires of the Fourdrinier wire fabric and 6 the weft wires thereof. The ends of the wire fabric, instead of being united by stitching them together with a wire thread running back and forth across the seam and passing through the openings of the fabric, as usual, are united by means of warp wires at each end engaging alternate reverse bends of a sinuously bent crimp wire 7 which extends the full length of the seam and lies in the plane of the weft wires. This is preferably done by cutting the alternate warp wires at each end of the fabric so as to leave short ends 5^a projecting slightly beyond the end weft wire 6^a or bent therearound and leaving the intermediate warp wires somewhat longer but bending them all in the same direction from the plane of the fabric and then back upon themselves to form hooks 5^b which include the end weft wires 6^a as well as the bends of the crimp wire 7 in their looped portions. When this connection with the crimped wire is made by the

alternate warp wires of each end of the fabric the seam is complete as shown in the drawings.

The crimp wire connecting with the warp wires of each end of the fabric forms a strong bond between them which will not yield or become disengaged in use and does not materially interfere with the regularity in size of the interstices of the fabric, and in that form of the invention shown in Figs. 1 and 2, as all of the wire ends lie on one face of the fabric the other face is perfectly smooth.

With this construction the thickness of the fabric remains practically the same at the seam as at other places, but after the seam has been formed in the manner above set forth it is preferably passed between rollers to smooth it off and in order to strengthen it and prevent the possibility of parts working loose it is passed through a soldering operation in which the solder is spread over all of the warp wire ends and the end weft wires 6^a so as to completely surround all of the joints of the seam, and this is followed by a hot air blast to prevent the solder filling in the meshes of the fabric.

The shorter wires which are idle wires so far as the seam is concerned may be bent around the end weft wires as shown at 5^c in Fig. 3, instead of being merely cut off beyond the end weft wires, and this has its advantage when the Fourdrinier wire is used in making print paper, where on account of the stock being of short fiber and containing a quantity of filler it would be liable to have a tendency to hug more closely to the projecting ends of the shorter warp wires than would be the case with the long fibered stock. With the ends of these shorter warp wires bent around the end weft wires, as shown in Fig. 3, such possible tendency is avoided.

The crimp wire 7 constitutes what is known as the closing wire of the seam and is made of a sinuous form to better maintain the original positioning of the warp wires which it connects. If this closing wire 7 were straight instead of being sinuous and the warp wire end bends were fastened to it they would be liable to slide along and bunch together in places, therefore leaving closed and open places and the seam would be rendered uneven. Furthermore it would be difficult to make the warp end bend come in the exact place and therefore the strain

on the warp ends would be greater in some cases than in others. Another reason why a straight wire would not serve the purpose of the crimped wire is because the warp end would be a single end to the point where it is wrapped around the straight wire and if it were made double it would require a long loop and the suction would have a tendency to draw the paper stock under this loop and when the paper left the wire it would pick up the stock at such points. In using a sinuous wire the warp end bends include the loops of the sinuous wire and also the end weft wire, drawing the bends of the sinuous wire against the end weft wires and limiting the distance between the end weft wires making a seam of uniform width. A sinuously crimped wire doubles itself in passing from one side to the other, forming practically the same construction as the body of the wire cloth. It is not as practical to use a straight wire because the warp end bends alternate and therefore this wire must deflect to the thickness of the warp bends if the straight wire and the end weft wire are to be included in the bend. Another reason for employing a crimped closing wire instead of a straight one is that a straight wire would bring the warp end bends in a straight line and have a tendency to stop up the seam, but in using a crimped wire the wire end bends alternate from one side to the other, leaving the seam more open.

What I claim as my invention is:

1. A Fourdrinier wire seam, wherein the ends of the warp wires are made alternately long and short, with the longer warp wire ends bent to form hooks, and a sinuously bent crimp wire having its bends engaged by the hooks of the ends of the fabric for binding them together.

2. A seam for Fourdrinier wires, comprising a sinuously bent crimp wire having its bends on one side engaged by hooks formed by bent ends of alternate warp wires of one end of the fabric and its bends on the other side engaged by hooks formed by bent ends of alternate warp wires of the other end of the fabric.

3. A seam for Fourdrinier wires, comprising alternate shorter and longer warp wire ends on each end of the fabric, and a sinuously bent crimp wire through the bends of which the longer ends of the warp wires of both ends of the fabric are bent, all of the longer warp wire ends having their extremities lying on the same face of the fabric.

4. A seam for Fourdrinier wires, comprising hooks formed by bent ends of the warp wires at each end of the fabric, and a sinuously bent crimp wire having its bends engaged by the hooks at both ends of the fabric, each of said hooks containing in its looped portion the end weft wire of the fabric as well as the bend of the crimp wire.

5. A seam for Fourdrinier wires, comprising alternate shorter and longer warp wire ends on each end of the fabric, each warp wire terminating in a longer end at one end of the fabric and in a shorter end at the other end of the fabric, the longer ends of the warp wires being bent to form hooks, and a sinuously bent crimp wire engaged by the hooked ends of the warp wires of both ends of the fabric.

In testimony whereof, I affix my signature, in presence of two witnesses.

ALBERT B. WEISSENBORN.

Witnesses:

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F. HEINEMANN.