

E. HOFFMAN.
WOVEN WIRE FABRIC.
APPLICATION FILED JUNE 25, 1910.

986,569.

Patented Mar. 14, 1911.

Fig. 1.

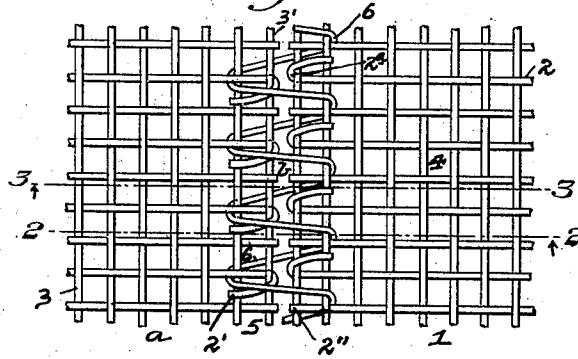


Fig. 2.

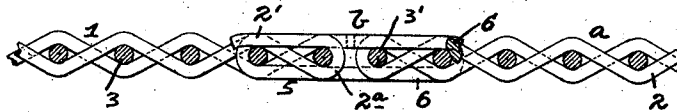
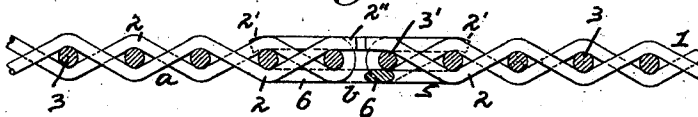


Fig. 3.



Witnesses

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Inventor:

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UNITED STATES PATENT OFFICE.

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WOVEN-WIRE FABRIC.

986,569.

Specification of Letters Patent.

Patented Mar. 14, 1911.

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To all whom it may concern:

Be it known that I, EDWARD HOFFMAN, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Woven-Wire Fabrics; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to woven wire fabrics or screens, and has special reference to the seams in what are known as "Fourdrinier" wire belts for use in paper making machines. In the manufacture of these Fourdrinier belts, the ends of the wire cloth or fabric formed for the same are connected together in the usual manner to form the belt by a stitching or over-casting wire on each end of the cloth or fabric in order to keep the chute or filling wire from pulling out or raveling, and this stitching or over-casting wire fills up one-half of the meshes or openings in the cloth or fabric. These two over-casted ends are then brought together and joined or closed with a wire thread which is laced across such ends spirally and between alternate third and fourth meshes or openings on said ends, with the crossing portion of said lacing wire entering the third mesh on one end and entering the fourth mesh on the other end, which forms a seam between said ends and the complete endless belt. In these belts it is desired to get the seam formed with a mesh as near as possible to the size of the mesh in the body of the belt, and in the same plane, in order to allow the water from the pulp carried on the belt in forming the paper to be sucked through the same, as in the body, by the usual suction process employed, and to avoid the formation of marks on the paper so formed thereon. These belts are delicate and expensive and various objections have been found and difficulties have been encountered in the formation of the seam in these Fourdrinier belts in the general manner at present employed, in that the seam is generally of such a width that a mark is formed on the paper of such a size and shape, and the stitching and lacing very often stretches or pulls out of shape at some point from different causes, so that a larger mesh is formed at such point than in the body of the belt, which will allow some of the pulp to pass through the same with the water and so injure or mark the paper

so formed at this point, so that the belt is rendered useless thereby.

The object of my invention is to overcome these objections and difficulties and to provide a Fourdrinier belt, in which the seam connecting the ends of the same together is formed of an extremely narrow width, as well as such a seam which will retain its desired shape and mesh as in the body of the belt and will not be liable to open up or stretch in manufacture or in use.

To these ends my invention consists, generally stated, in the novel arrangement, construction and combination of parts for a seam in Fourdrinier belts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved seam for Fourdrinier belts, I will describe the same more fully, referring to the accompanying drawing, in which—

Figure 1 is a plan view showing a portion of the two ends of the fabric laced together to form my improved seam between the same. Fig. 2 is a sectional view of the fabric and seam on the line 2—2, Fig. 1. Fig. 3 is a like view on the line 3—3, Fig. 1.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

The different figures of the drawing are shown in an exaggerated form and as illustrated, 1 represents the woven wire cloth or fabric, which is formed in the usual manner of weaving from the warp wires 2 and filling, weft or chute wires 3, and with the usual openings or meshes 4 between such wires. For its use as a Fourdrinier belt in paper making machinery, the fabric 1, as so formed, is made of the proper width and length for the machine on which it is to be used, and then in order to form such fabric into the continuous belt, such as is shown at a, the ends 5 of such fabric are joined or connected together in the following manner—Every alternate warp wire 2 has its end portion bent back from the ends 5 on the fabric 1 and over the chute wire 3' on said ends, as at 2', and such bent ends are pressed down against the body of the fabric, as shown in Fig. 2. The projecting or picket ends 2'' on the other alternate warp wires 2

beyond the chute wire 3' are cut off from said warp wires substantially on a line with the bent or knuckle portion 2^a on the warp wire 2, which portion fits over and around the end chute wire 3', as shown in Fig. 3. After the bent ends 2' on the warp wires 2 have thus been bent over the chute wire 3' and clenched or secured thereto by being pressed down on the same and onto the body of the fabric, and the picket ends 2'' on the other warp wires 2 have thus been removed from the ends 5 of the fabric beyond the bent ends 2', such ends 5 of the fabric are connected, joined or closed together to form the belt *a* by the seam *b* between such ends, which is formed by stitching or lacing a closing wire 6 in the usual manner between said ends and through alternate openings or meshes 4 formed between the second and third chute wires 4 from such ends, as shown in Fig. 2, so that it rests upon said second wires and spirally between such ends. The closing wire 6 is flattened or pressed down in any suitable manner, which will enable the seam formed by said wire to be in the same plane as the body of the belt *a* and thereby form the finished belt ready for use.

It will thus be seen that the Fourdrinier belt so produced will enable a very narrow seam to be formed in the same for connecting the ends of the woven wire fabric or cloth together for such belt and thereby avoid the formation of unusually wide marks on the paper formed by such belt. By such a form of seam closing the ends of the belt it will enable a strong and secure connection and will thus overcome all liability of the same stretching or pulling out of shape, as in the ordinary forms and thereby prevent any of the pulp from passing through the seam and so forming thin portions or marks on the paper formed, while at the same time the same amount of water can be permitted to pass through the meshes of the seam as in the body of the belt. The seam so formed in the belt can be applied thereto in a rapid and simple manner, will be less liable to be rendered defective than in the ordinary forms of seams employed in this class of goods, and will thus overcome all liability of forming a belt unfit for use, as well as save considerable cost and expense in labor and materials used in this line of work, while the formation of the seam in this manner will also overcome the stitching or overcasting on the two ends of the cloth or fabric, and will not require the use of solder, brazing or welding, all of which tend to weaken and spoil the fabric.

It will be evident that my improved seams for Fourdrinier belts, can be used in other forms of belts, cloths or fabrics from woven wire, while various changes in design and construction of the same may be resorted to,

without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as my invention and desire to secure by Letters Patent is—

1. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a closing wire connected through such fabric ends and between the meshes formed by the second and third chute wires from such ends.

2. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a closing wire connected spirally through such fabric ends and between alternate meshes formed by the second and third chute wires from such ends.

3. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a flattened closing wire connected through such fabric ends and between the meshes formed by the second and third chute wires from such ends.

4. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a flattened closing wire connected spirally through such fabric ends and between alternate meshes formed by the second and third chute wires from such ends.

5. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same on the ends of the fabric bent over and back of the end chute wire on such fabric ends, the intermediate warp wires being shortened and unbent at their ends to form an open mesh, and a closing wire connected through the meshes on such fabric ends and back of the end chute wires.

6. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same on the ends of the fabric longer than the ends of the other warp wires and bent over and back of the end chute wire on such fabric ends, and a closing wire connected through such fabric ends and between the meshes formed by the second and third chute wires from such ends.

7. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same on the ends of the fabric longer than the ends of the other warp wires and bent over and back of the end chute wire

on such fabric ends, and a closing wire connected spirally through such fabric ends and between alternate meshes formed by the second and third chute wires from such ends.

- 5 8. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same on the ends of the fabric longer than the ends of the other warp wires and
10 bent over and back of the end chute wire on such fabric ends, and a flattened closing wire connected through such fabric ends and between the meshes formed by the second and third chute wires from such ends.
- 15 9. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the alternate warp wires having the ends of the same on the ends of the fabric longer than the ends of the other warp wires and
20 bent over and back of the end chute wire on such fabric ends, and a flattened closing wire connected spirally through such fabric ends and between alternate meshes formed by the second and third chute wires from such ends.
- 25 10. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a closing wire
30 connected through such fabric ends and between the meshes formed by the second and third chute wires from such ends.

11. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a closing wire connected spirally through such fabric ends and between alternate meshes formed by the second and third chute wires from such ends. 35 40

12. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a flattened closing wire connected through such fabric ends and between the meshes formed by the second and third chute wires from such ends. 45 50

13. A seam for Fourdrinier and other woven wire belts or fabrics, which consists of the warp wires having the ends of the same bent over and back of the end chute wire on such fabric ends, and a flattened closing wire connected spirally through such fabric ends and between alternate meshes formed by the second and third chute wires from such ends. 55

In testimony whereof, I, the said EDWARD HOFFMAN, have hereunto set my hand.

EDWARD HOFFMAN.

Witnesses:

G. L. McMILLEN,
C. ZIMMERMAN.