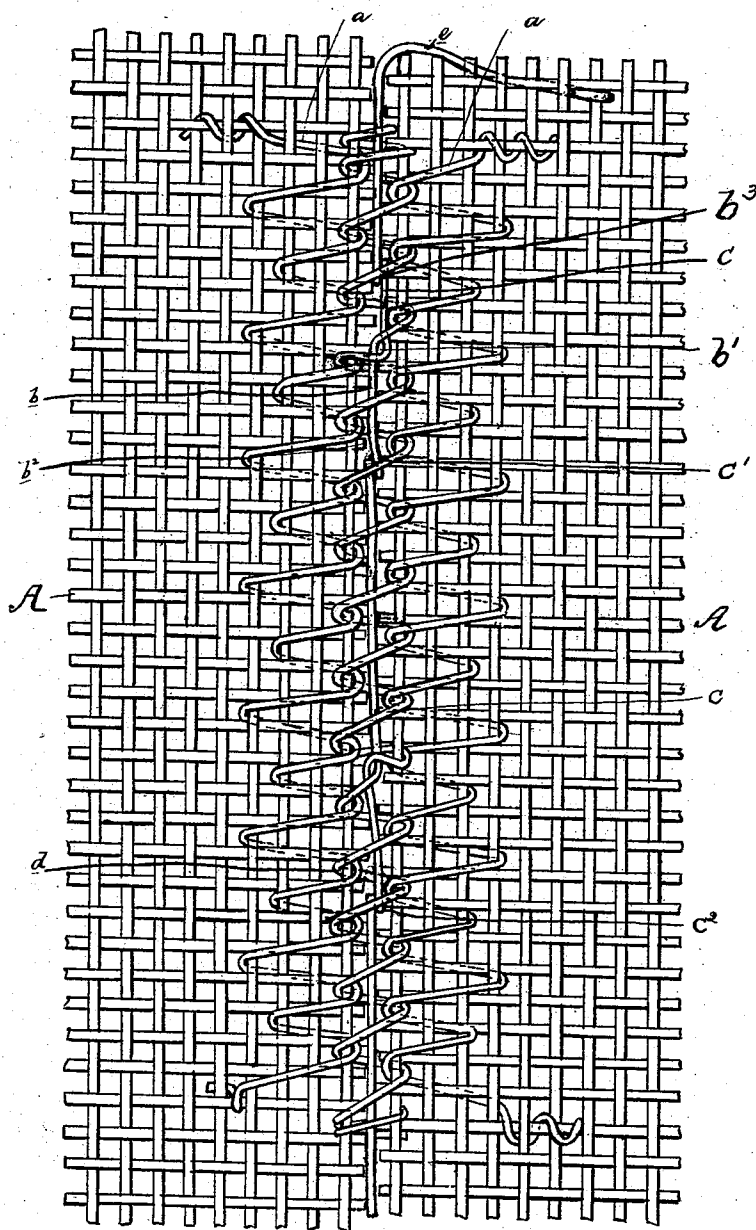


(Specimens.)

J. W. WHITE.
WIRE CLOTH FOR PAPER MACHINES.

No. 512,347.

Patented Jan. 9, 1894.



Witnesses

Albert Popkins.
Harry G. Davis.

Inventor

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by Geo. H. King,
his Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH W. WHITE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO THE
W. S. TYLER WIRE WORKS COMPANY, OF SAME PLACE.

WIRE-CLOTH FOR PAPER-MACHINES.

SPECIFICATION forming part of Letters Patent No. 512,847, dated January 9, 1894.

Application filed July 9, 1892. Serial No. 439,502. (Specimens.)

To all whom it may concern:

Be it known that I, JOSEPH W. WHITE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and
5 useful Improvements in Wire-Cloths for Paper-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make
10 and use the same.

In manufacturing paper by the well known Fourdrinier process the pulp is discharged upon an apron and from thence is evenly distributed over the surface of an endless wire
15 cloth, the latter being mounted on rollers, and having a slow movement lengthwise and the water of the liquid pulp percolates through the meshes of wire cloth, leaving a uniform layer of pulp on the surface of the wire cloth.
20 If the meshes of the wire cloth were not uniform the layer of pulp would not be uniform for the reason that when the finer meshes occurred, less water would be discharged and consequently less pulp would be deposited.
25 and where the meshes were too coarse, likewise the pulp would, by a too free discharge of water be drawn into such coarse meshes, so that the layer of pulp would not readily separate from the wire cloth. However, when
30 the wire cloth is skillfully manufactured there are not likely to be formed any inequalities in the meshes thereof. The difficulty encountered is in so uniting the ends of the cloth, that, at the union or seam the meshes will so
35 nearly approximate the meshes throughout the fabric, that the deposit of pulp at and adjacent the seam will be substantially the same as on other parts of the wire cloth, so that no thin spots or imperfections in the paper will
40 accrue by reason of the seam or joint in the wire cloth. Preparatory to making such joint, splice or seam the respective ends of the wire cloth are "overcast," fine wire being used for the purpose, and this wire, in overcasting is
45 passed through the meshes, successively back of the first, second, third and fourth filling wires from the end, so that the filling wires at the end of the wire cloth are firmly bound together to withstand the strain of the lacing
50 in uniting the ends of the wire cloth, to constitute an endless band or apron. Next, the

end sections of the wire cloth are laid together flatwise with the ends thereof flush with each other and in such position the two ends are overcast or laced at one operation to perma- 55
nently unite the ends of the wire cloth. Care must be taken that the two ends of the wire cloth be not drawn too closely together; otherwise the opposing ends of the warp wire, if brought into close relation with each other, 60
when the seam passes around the rollers, these opposing wire ends will engage each other, and if such were the case, the engaging wire ends would soon become bent so that they would protrude from the surface of the wire 65
cloth, in which case the pulp would adhere to these protruding wire ends and would not easily separate from the wire cloth. On the other hand if the ends of the wire cloth are sufficiently separated to prevent the diffi- 70
culty just mentioned, it will be found that the two filling wires next adjacent the splice, will be about twice the distance apart that the other next adjacent filling wires are separated, in other words that the meshes at the 75
splice will be too large. An extra filling wire might be inserted at the splice in which case another difficulty arises from other causes which I will next mention.

In practice the lacing wires are usually 80
only say from twenty four to thirty inches long, and the tail end of each lacing wire to the extent of three or four inches is left for handling, so that each lacing wire only laces
85 a short distance along the seam; hence in lacing a seam eight or ten feet long, or whatever may be the width of the wire cloth, a large number of these lacing wires are employed, and as the ends of these lacing wires must be fastened, the successive lacing wires are fas- 90
tened together, and for convenience I will call such fastenings knots, whether the wires are tied, looped or twisted together, and these knots are afterward flattened, to conform to the surface of the fabric. Wherever these 95
knots occur in conjunction with a continuous extra filling wire, such extra filling wire and the knot will substantially fill the meshes at and next adjacent the knot, in which case but little pulp would be deposited at and in 100
the immediate vicinity of the knot, and the result would be that a row of thin spots in

the paper would appear corresponding with the row of knots along the seam, and when the paper was cut to lengths the sheets bearing such thin spots would be thrown out as waste material. To avoid this difficulty, instead of using a continuous extra filling wire, short pieces of wire may be used for the purpose, these short pieces extending only from knot to knot of the lacing wire and in no case extending past a knot. Where a knot occurred, it would serve in place of an extra filling wire to reduce the size of the mesh. When the work is skillfully done the meshes at the seam, are so nearly like the meshes at other parts of the fabric that the paper presents a uniform appearance throughout. It will be understood that the extra filling wire or wires would be embraced by the lacing, and thus held in place. If however these short filling wires were not fastened at either end, some of them might eventually work endwise.

I have overcome the difficulty in the following manner, to wit: I utilize the waste end of each lacing wire, for an extra filling wire to reach from thence to the next knot in the lacing, where such filling wire is sheared off, the successive waste ends of the lacing wires being thus used through the splice or seam. In this manner the filling wires do not extend past the knots and each filling wire being fastened at the one end thereof can not move endwise and all of this is accomplished without using any extra knots.

The accompanying drawing is an enlarged plan showing a portion of the seam uniting what are supposed to be the two ends of the wire cloth.

A A represent the two end sections of a wire cloth and *a a* represent the wires used in overcasting the respective ends of the wire cloth preparatory to lacing the ends of the fabric together and *b c d* represent lacing

wires. A short piece of wire *e* is supposed to have been fastened to the wire cloth at the margin of the latter and the lacing wire *b* is supposed to have been fastened in like manner. The lacing wire *b* when in position embraces the wire *e* and confines the latter within the seam. When wire *b* is used up in lacing as short as is convenient to handle, it is fastened at *b'* to the next lacing wire *c* and the remnant or tail end of wire *b* is laid in the seam as at *b²* and wire *e* is clipped off at knot *b³*. In like manner the short extra filling wire *b²* just mentioned is clipped off at knot *c'* where lacing wires *c* and *d* are fastened together, after which the tip end of wire *c* is laid in the seam as at *c²* and so on through the seam, the successive lacing wires being fastened together, and each lacing wire in turn contributing its tail end for a short extra filling wire, such extra filling wires extending only from one knot to the next adjacent knot of the lacing wires and in no case extending past a knot.

What I claim is—

1. As an improved article of manufacture, a wire cloth having its ends laced together, the lacing wires being fastened and filling wires inserted in the seaming and extending between the fastenings, substantially as set forth.

2. The combination with the end sections of a wire cloth, of the successive lacing wires, the free waste end of each lacing being inserted in the seam, substantially as described and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 30th day of June, 1892.

JOSEPH W. WHITE.

Witnesses:

J. F. WENDT,
E. J. THOBABEN.