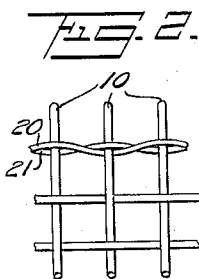
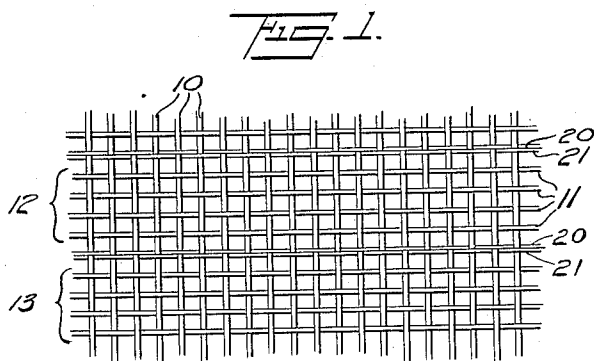


July 27, 1926.

1,593,668

J. O'NEILL
FOURDRINIER WIRE

Filed March 3, 1925



INVENTOR
Joseph O'Neill
BY
Marshall & Hawley
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH O'NEILL, OF PORT CHESTER, NEW YORK.

FOURDRINIER WIRE.

Application filed March 3, 1925. Serial No. 12,817.

This invention relates to improvements in wire fabrics such as are used on Fourdrinier paper making machines and its object is to improve such fabrics and to provide a Fourdrinier wire of greater strength and of longer wearing quality than those heretofore available.

Another object of the invention is to provide a Fourdrinier wire with strengthening elements which do not interfere with its required drainage characteristics.

These and other objects will appear from the following specification in which I will describe the invention and will point out its novel features in the appended claims.

Fig. 1 of the drawings is a plan view of a Fourdrinier wire which is made according to and embodies the present invention, and

Fig. 2 is a view on a larger scale of a smaller portion of the improved fabric illustrating the novel construction thereof, the view being a substantially plan view but showing the fabric slightly tilted in order to more clearly show its construction.

The fabric when made according to my invention comprises the usual transverse wires or weft 10 which are all of one diameter and are equally spaced apart, and groups of a desired number of the usual longitudinal or warp wires 11. These are also of one diameter which may be the same as that of the transverse wires and all of them in each group are equally spaced apart. These transverse and longitudinal wires are woven in the usual way. In Fig. 1, I have shown the groups of longitudinal wires as containing four wires each, but this is solely for illustrating purposes, as any desired number may be used in each group. The two of these groups shown in Fig. 1 are designated by the reference numerals 12 and 13.

Between the proximate wires of adjacent groups is a space substantially twice as great as that between the other longitudinal wires. In these spaces are strengthening elements, each of which comprises two wires 20 and 21, preferably of smaller diameter than that of the other wires, and these are woven into the fabric in the novel manner illustrated. The wire 20 goes over one of the transverse wires 10 and under the next one, while the wire 21 goes under the first

mentioned of these transverse wires and over the next one so that they alternately and oppositely pass over and under adjacent transverse wires.

I have found that in order to get the desired strengthening effect, the wires 20 and 21 should be put together as closely as possible and they, in fact, come in contact with each other where they cross between each of the transverse wires. They are, therefore, interlinked with each other and with the transverse wires.

It is well known that the Fourdrinier wire or apron is an expensive part of that type of machine on which they are used and that they are subjected to so much wear that their life is limited. I am aware of the fact that attempts have been made to strengthen Fourdrinier wires by providing pairs of longitudinal wires which pass alternately and oppositely over and under adjacent transverse wires but these have not met the requirements of paper makers. In the first place, they have always been of the same diameter as that of the other longitudinal wires so that where they are located, the wire has in it lines of undesirable thickness, which cause grooves in the paper as it is formed. In the second place, although they have been spaced apart slightly, they interfere materially with the required drainage characteristic because of the fact that these small drainage spaces become clogged.

My novel construction, however, overcomes both of these difficulties when the wires of the strengthening elements are made of smaller diameter than that of the other longitudinal wires. It has been found in actual practice that wires made according to this invention outlast those heretofore available and that they are fully as effective in every other particular.

Where slight grooves in the paper are not undesirable, it is possible to use wires in the strengthening elements of the same diameter as that of the other longitudinal wires if they are placed as closely together as I put them because of the fact that they are so disposed that they do not interfere with the drainage as there are no spaces between them which can become clogged by the plup. For this reason, I do not limit

myself to the use of smaller strengthening wires although this is one of the desirable features of this invention.

I have described my invention as for a wire fabric for use in a Fourdrinier machine, but as it is also useful for bolting and straining purposes, I intend no limitations other than those imposed in the appended claims.

10 What I claim is:

1. A wire fabric comprising a plurality of transverse wires of like diameter equally spaced, groups of longitudinal wires of similar diameter also equally spaced, with the space between adjacent groups substantially double that between the wires of the groups, and strengthening elements intermediate the groups, said strengthening elements each comprising a pair of wires of smaller diameter alternately and oppositely

passing over and under adjacent transverse wires and contacting with each other between the transverse wires.

2. A wire fabric comprising a plurality of transverse wires of like diameter equally spaced, groups of longitudinal wires of similar diameter also equally spaced, with the spacer between adjacent groups substantially double that between the wires of the groups, and strengthening elements intermediate the groups, said strengthening elements each comprising a pair of wires of smaller diameter alternately and oppositely passing over and under adjacent transverse wires crossing and in contact with each other between the transverse wires.

In witness whereof, I have hereunto set my hand this 27th day of February, 1925.

JOSEPH O'NEILL.