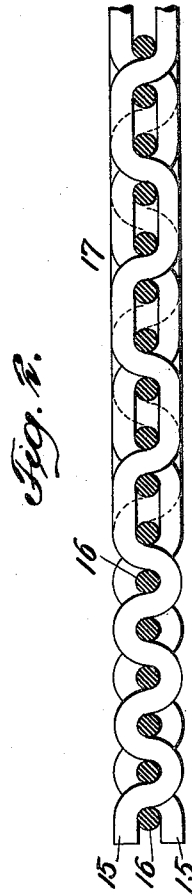
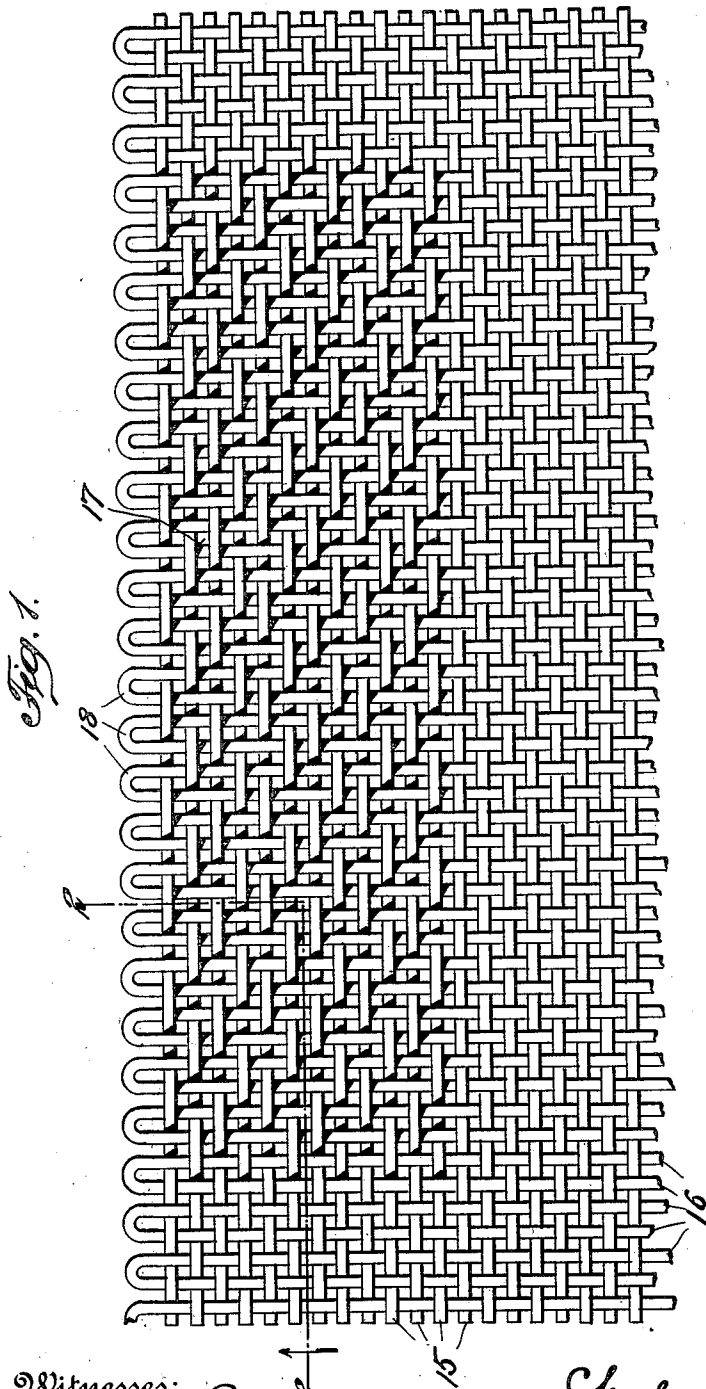


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APPLICATION FILED FEB. 29, 1912.

1,103,943.

Patented July 21, 1914.

2 SHEETS—SHEET 1.



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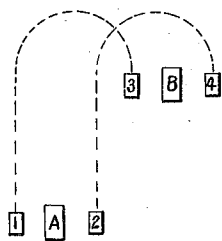
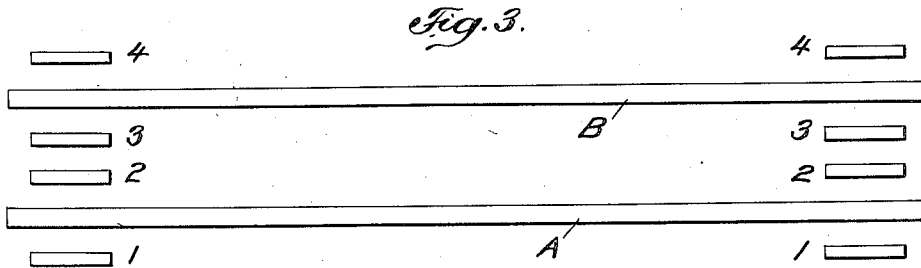


Fig. 4. Fig. 5.

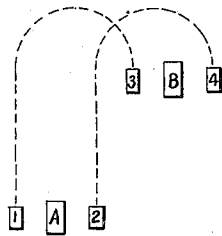
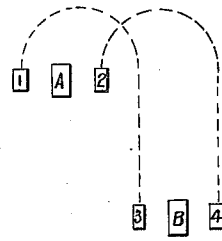


Fig. 6. Fig. 7.

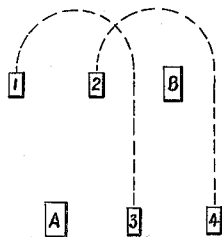
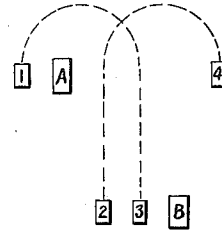


Fig. 8. Fig. 9.

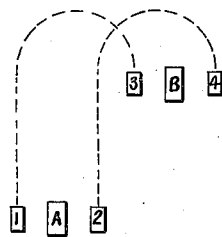
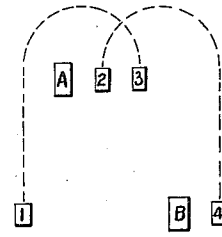
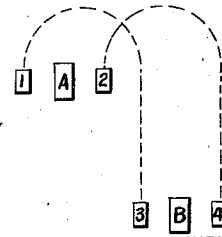


Fig. 10. Fig. 11.



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UNITED STATES PATENT OFFICE.

CHARLES A. COUPS, OF BELLEVILLE, NEW JERSEY.

WIRE-CLOTH FOR USE ON PAPER-MAKING MACHINES.

1,103,943.

Specification of Letters Patent.

Patented July 21, 1914.

Application filed February 29, 1912. Serial No. 680,770.

To all whom it may concern:

Be it known that I, CHARLES A. COUPS, a subject of Great Britain, and a resident of Belleville, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Wire-Cloth for Use on Paper-Making Machines, of which the following is a specification.

The invention consists in a new wire-cloth for paper-making machines having the usual weave throughout its main body portion and at its opposite longitudinal side portions a twill weave of suitable width, say about one inch wide, the warp and weft wires throughout the cloth preferably being of the same diameter and character and the cloth thus formed being very durable and lasting and dispensing with the necessity of employing strengthening wires or cotton or silk threads and the like of the kind heretofore proposed for strengthening the edges of Fourdrinier wire-cloth.

In producing the wire-cloth of my invention I employ a loom having the usual or main front and rear heddles common to this art and equip the loom with eight supplemental short heddles, four being adjacent to each end of said usual or main heddles and, at each side of the loom, two thereof being between the end portions of said main heddles, one in front of the end portion of the front heddle and one in rear of the end portion of the rear heddle. The two main heddles perform their usual functions in the production of the plain weave, and the eight supplemental short heddles are utilized in the production of the strip or band of twill weave along each longitudinal side of the width of the plain weave.

In the practical production of the wire-cloth the length thereof has the plain weave extending entirely across its width at each end for a limited extent, so as to enable the ends to be suitably joined together in the customary manner, while between said end portions of plain weaving the cloth throughout its length has at each side portion a suitable width or continuous strip or band of the twill weaving.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is an elevation, on an enlarged scale, of one longitudinal side portion of a length of wire-cloth embodying my invention, both longitudinal side portions of the length of cloth being identical in every respect; Fig. 2 is a section of the same on the dotted line 2—2 of Fig. 1; Fig. 3 is a diagrammatic top view of the usual two main heddles of a wire-cloth weaving loom and the eight supplemental heddles with which I equip the loom, four of the supplemental heddles being adjacent to the left hand ends and four thereof adjacent to the right hand ends of the main heddles; and Figs. 4 to 11 inclusive are diagrammatic end views taken from the right hand side of Fig. 3, illustrating the various relative positions of the main and supplemental heddles during the weaving of the cloth, Figs. 4 and 5 indicating the positions during the plain weaving throughout the full width of the cloth at the starting of the weaving, Figs. 6, 7, 8 and 9 the positions at the starting and during the weaving which includes the twill strips or bands with the plain weaving, and Figs. 10 and 11 the positions during the final plain weaving finishing the cloth. Figs. 1 and 2 show the cloth of my invention, and Figs. 3 to 11 inclusive indicate the heddle positions for the production of the cloth.

The wire cloth will vary in width, as heretofore, and be formed of the usual fine warp and weft wires 15, 16 customary in weaving wire-cloth for paper-making machines.

The cloth throughout the greater part of its body portion is of the usual plain weave, and the novel feature of the cloth resides in the presence therein, along each longitudinal edge, of a strip or band 17 of twill weaving merged into the plain weaving, this strip or band preferably being about one inch in width and extending nearly the full length of the cloth. The cloth at its opposite ends will have plain weaving for a limited extent across its entire width, as shown at the left and right hand ends of Fig. 1, to enable said ends to be properly joined together in the usual manner.

The plain weave in the cloth between the longitudinal planes of the inner edges of the strips or bands 17 is produced in the customary manner in a loom having the

usual main heddles A, B diagrammatically represented in Figs. 3 to 11 inclusive, and the plain weave at the opposite ends of the length of cloth and in direct line with said strips or bands 17 is produced by the eight short heddles 1, 2, 3, 4, which during such plain weaving have the movements represented in Figs. 4 and 5. The warp wires are not threaded in those portions of the main heddles which are in line with the heddles 1, 2, 3, 4.

The twill strip or band 17 is produced by the four parallel supplemental heddles 1, 2, 3, 4 adjacent to each end of the main heddles A, B, the supplemental heddles 1 being at the front and the supplemental heddles 2 at the rear of the end portions of the main heddle A, and the supplemental heddles 3 being at the front and the supplemental heddles 4 at the rear of the end portions of the main heddle B, as shown in Fig. 3, the heddles 2, 3, thus being close together and between the main heddles.

The weave of the band or strip 17 will be understood from Figs. 1 and 2, and will be recognized as a two-up and two-down twill weave, each warp wire 15 alternately being over two weft wires and under the next adjacent two weft wires and being so laid by the movements of the supplemental heddles through which said warp wires are threaded, as diagrammatically illustrated in the drawings.

The warp wires for the main body of the cloth are, between the inner ends of the short heddles, 1, 2, 3, 4, alternately threaded through the respective heddles A, B, as usual, and the warp wires for the opposite side portions of the cloth are threaded through the heddles 1, 2, 3, 4, which are employed at the starting of the weaving operation to, in conjunction with the heddles A, B, produce the plain weave, then to produce the twill strips or bands while the heddles A, B make the plain weave between said strips or bands, and finally to, in conjunction with the heddles A, B, complete the length of cloth with the plain weave extending throughout its entire width. In threading the warp wires through the heddles 1, 2, 3, 4, the first wire in each set of four wires will be threaded in heddle 1, the second in heddle 3, the third in heddle 2, and the fourth in heddle 4.

During the plain weaving at the first end of the length of cloth the heddles 1, 2 and heddle A move together and the heddles 3, 4 and heddle B move together, said sets of heddles having alternate up and down movements, as indicated in Figs. 4 and 5. The twill weave will start with the heddles in the position shown in Fig. 6, with the heddle A and heddles 1, 2 down, and the heddle

B and heddles 3, 4 up, and the next move of the heddles will be to the position shown in Fig. 7, with heddles 1, A, 4 up and heddles 2, 3, B down; the following movement of the heddles is represented in Fig. 8 showing heddles 1, 2, B up and heddles A, 3, 4 down; while Fig. 9 represents the final one of the cycle of movements of the heddles in making the twill weave and shows heddles 1, B, 4 down and heddles A, 2, 3 up. At the finish of that part of the weaving which includes the twill bands or strips, the heddles are all given the requisite movements for the plain weaving shown in Figs. 10 and 11, which movements are repetitions of the movements indicated in Figs. 4 and 5.

It is believed that the method of producing the wire cloth will be fully understood from the foregoing description and the accompanying drawings without further explanation.

It is customary in weaving wire-cloth to provide in the loom a stiff wire at each side over which the filling or weft wires are folded, leaving loops 18, at the edge of the cloth, said wires forming no part of the cloth and the cloth stripping itself from said wires as it approaches and is wound upon the breast beam of the loom, and in the weaving of my cloth I make use of said wires for their usual purposes.

The wire-cloth of my invention is very durable and capable of withstanding long use. Various means have heretofore been resorted to for resisting the tendency of the wires, in wire cloth of the class to which my invention pertains, breaking near the longitudinal sides of the cloth.

Ordinarily a few silk and cotton threads are woven, with the plain weave, into the edge portions of the cloth but these have not been efficient, although they are in almost universal use. My invention dispenses with the employment of the aforesaid silk and cotton threads, and also of wires when they have been suggested for said threads. The twill weave bands constituting integral parts of my wire-cloth render the cloth as a whole of increased durability and value.

What I claim as my invention and desire to secure by Letters-Patent, is:

1. A length of wire cloth for paper-making machines having throughout its main body portion and entirely across a limited extent of its end portions a plain weave and along its longitudinal side portions between said plain-weave end-portions, bands of twill weaving merging into said plain weaving.

2. A length of wire cloth for paper-making machines having throughout its main body portion and entirely across a limited extent of its end portions a plain weave and

along its longitudinal side portions between
said plain-weave end-portions, bands of twill
weaving merging into said plain weaving,
the warp and weft wires throughout the
5 cloth being of the same diameter and char-
acter, and said twill weaving being of the
two-up and two-down character.

Signed at New York city, in the county
of New York and State of New York, this
27th day of February, A. D. 1912.

CHARLES A. COUPS.

Witnesses:

ARTHUR MARION,

CHAS. C. GILL.