

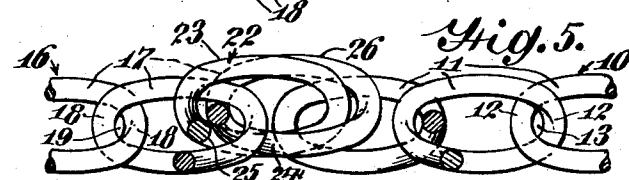
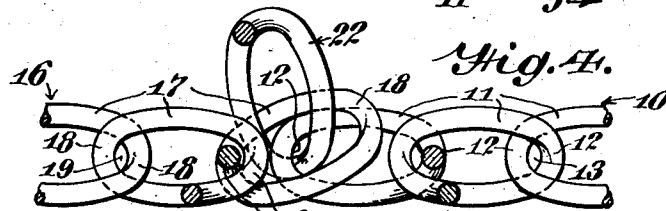
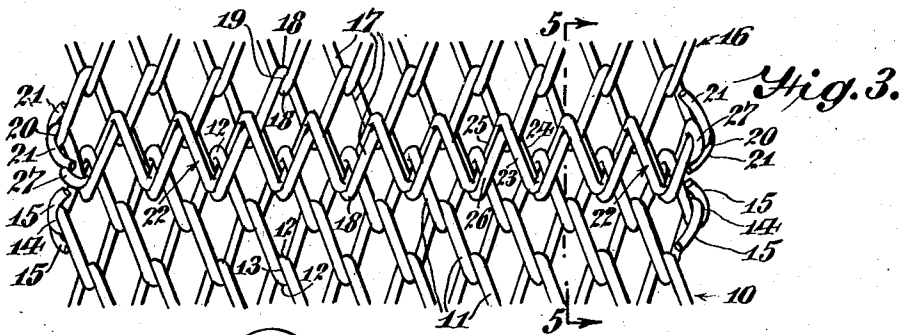
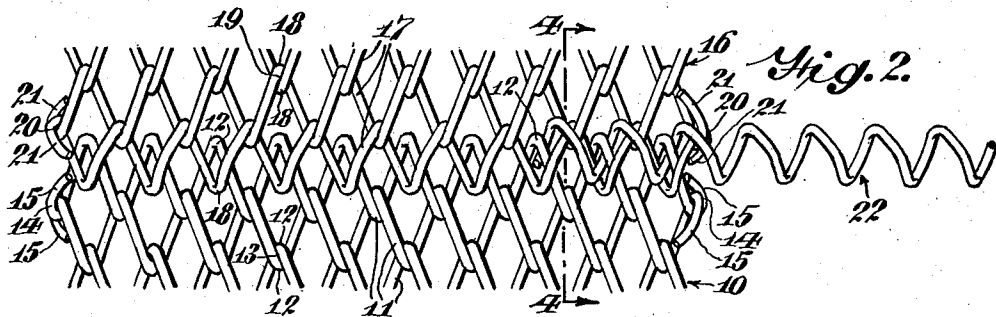
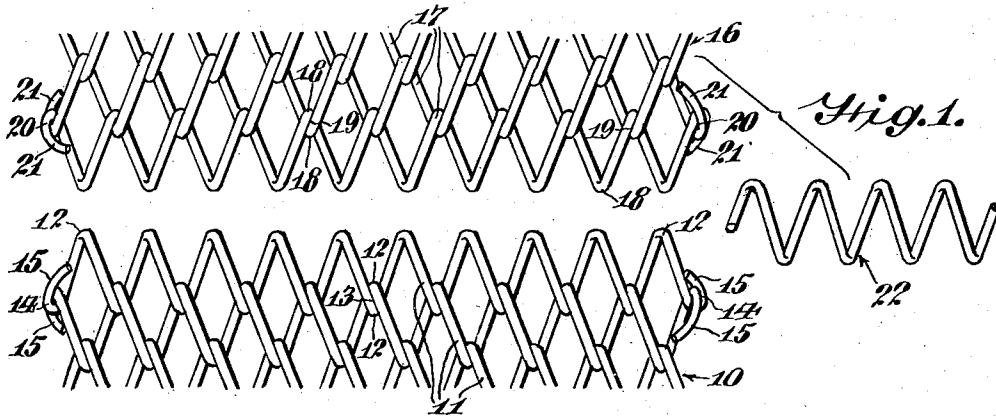
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WOVEN WIRE FABRIC AND METHOD OF MAKING THE SAME

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WOVEN WIRE FABRIC AND METHOD OF
MAKING THE SAME

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This invention relates to woven wire fabrics and the method of making the same, and involves an improvement in woven wire belts and the like which are formed from a plurality of helical coils of wire interwoven with each other in a direction transverse to the run of the belt.

As is well understood in the art, conveyer belts made from woven wire fabric in which the helical wires forming the fabric extend in a direction transverse to the run of the belt have a tendency to feed laterally on the driving and supporting rolls and on the guideways for the belt by reason of the diagonal formation of the coils on the surfaces of the belt. In order to avoid the lateral feed inherent in such belts, it has been common practice heretofore to make such belts in sections, one section formed from interwoven helical coils wound in a right-hand direction being joined to a section made of interwoven helical coils wound in a left-hand direction, so that the transverse feed of one section in one direction is counteracted by the transverse feed of the adjoining section in the opposite direction.

Although helical coils wound in the same direction and having the same pitch may be readily interwoven with the bights in interlocking engagement, a similar helical coil having the same pitch but wound in the opposite direction cannot be interwoven therewith in such manner, so that it has been necessary heretofore to provide means different from the helical coils of wire from which the adjacent sections are made for connecting the sections of a belt or the like together. Being of a formation distinct from the helical coils forming the adjoining sections of the belt, the connecting means heretofore use not only destroyed the continuity of the surface of the belt, but also destroyed the uniformity of the appearance of the belt due to the diagonal weave.

It is one of the objects of the present invention to provide a method and means for securing together the adjoining ends of two sections of woven wire fabric.

A further object of the invention is the provision of a method for securing a section of wire fabric made from a plurality of interwoven helical coils of wire wound in a right-hand direction to a section made from a plurality of interwoven helical coils of wire wound in a left-hand direction.

Another object of the invention is the provision of a method and means for securing such sections of wire fabric together whereby one of the standard helical coils of wire utilized in making one or the other of the sections may be employed

in securing the two adjacent sections together, thereby rendering it unnecessary to employ a connecting member of special or unusual construction.

It is another object of the invention to simplify the method of connecting a section of wire fabric formed from a plurality of interwoven helical coils wound in a right-hand direction to a section formed from a plurality of interwoven helical coils wound in a left-hand direction.

A still further object of the invention is the provision of means whereby such right and left-hand sections of wire fabric may be connected together so as to preserve, along the line of juncture, the general appearance of the woven structure.

Still other objects and advantages of the invention will be apparent to those skilled in the art from the following description, taken with the accompanying drawing wherein:

Fig. 1 is a plan view of a portion of a section of woven fabric made from helical coils of wire wound in a right-hand direction, a portion of a section of woven fabric made from helical coils of wire wound in a left-hand direction, and a portion of the helical coil of wire utilized for securing the sections together;

Fig. 2 is a plan view illustrating the manner in which the sections are secured together in accordance with the invention;

Fig. 3 is a plan view showing the completed joint;

Fig. 4 is a sectional view taken on the line 4-4 of Fig. 2; and

Fig. 5 is a sectional view taken on the line 5-5 of Fig. 3.

In practicing my invention, I provide a section of wire fabric 10 composed of a plurality of helically coiled wires 11 wound in a right-hand direction. The coils of the wires 11 are preferably flattened, however, as illustrated in Figs. 4 and 5 of the drawing, so as to form loops or bights 12 which interlock with the corresponding bights of adjacent wires, as shown at 13, when the successive wires are interwoven to form the fabric. The helical coils 11 are preferably formed by winding the wire upon a suitable bar, with such pitch as may be desired. These wires are of such length as may be required to produce the width desired in the fabric section, and a section of any desired length may be produced by interweaving the necessary number of wires. The ends of adjacent wires are preferably interlocked as indicated at 14, and they may be bent back

upon themselves as shown at 15 to form a finished edge.

I then provide a section of wire fabric 16 composed of a plurality of helical coils 17 wound in a left-hand direction. The coils of the wires 17 are preferably flattened similarly to the coils of the wires 11, thus providing bights 18 which interlock with the bights of adjacent coils as shown at 19 when the left-hand coils are interwoven to form a fabric. The width of the section 16 is the same as the width of the section 10, and a sufficient number of helical wires 17 are employed to give to the section 16 a length substantially equivalent to the length of the section 10, although it is not essential that the length of these two sections be the same. The ends of adjacent wires 17 in interlocking engagement with each other, as shown at 20, are bent back upon themselves as shown at 21 to form a finished edge as in the case of the right-hand section heretofore described.

In order to secure the sections in end to end relation, a right-hand fabric section 10 is brought into such position with respect to a left-hand fabric section 16 that the terminal loops 12 of an end wire are in overlapping engagement within the terminal loops 18 of an end wire of the left-hand section, as shown in Fig. 2. The means which I utilize for securing the two sections together comprises a helical coil 22 which may be similar to helical coils 11 or helical coils 17. As illustrated in Fig. 2, the helical wire 22 is similar to helical wires 11, that is, it is wound in a right-hand direction and the pitch of the coils is the same as that of the wires 11.

With the right and left-hand sections 10 and 16 arranged as shown in Fig. 2, the helical wire 22 may be readily woven through the terminal loops 12 without interference by the helical wires of the left-hand section 16, and, as will be observed from the drawing, the helical wire 22 passes through consecutive terminal loops 12 and over the diagonally extending portions of the terminal wire 17 of the adjacent section.

In case a left-hand coil similar to helical wire 17 is used for securing adjacent fabric sections together, the connecting coil would be woven through the fabric from the side opposite to that illustrated in the drawing so as to engage through the terminal loops 18 instead of terminal loops 12, the connecting coil in that case having a pitch the same as the pitch of helical wires 17.

After the helical connecting wire 22 is completely woven through the terminal loops 12 and tension is applied to the two sections 10 and 16 thus connected, the connecting coil 22 assumes the position illustrated in Figs. 3 and 5, wherein the diagonally extending portions 23 of the connecting wire are substantially superposed above the diagonally extending portions 24 of the terminal wire of the left-hand section, and the diagonally extending portions 25 of the connecting wire are substantially subjacent the diagonally extending portions 26 of the terminal wire of the left-hand section. The opposite ends of the connecting wire 22 may be bent around the terminal wire of the section 16, as shown at 27, so as to retain the connecting wire in position.

As will be clear from Fig. 3, this arrangement of the connecting coil with respect to the terminal coils of the adjoining sections does not detract from the usual diagonal weave effect in the fabric. The method herein described provides a simple, economical and unobtrusive way for securing adjacent sections of woven wire fabric to-

gether. The improved structure also provides means for securing the ends of adjacent wire fabric sections together in such a manner as not to interfere with the operating surface of the fabric at the junction of the two sections. The latter is of particular importance where the fabric is employed in a belt for conveying various articles. As illustrated in Fig. 5 of the drawing, the connecting wire 22 and the terminal wire 17 are slightly elevated above the level of the sections 10 and 16. It will be understood, however, that when tension is applied to the two sections the coil 22 and the terminal coil 17 assume positions in which the elevation of these coils above the surface of the fabric is emphasized to a lesser extent, so that this elevation of the coils which form the joint between the two sections does not interfere with the use of the fabric in a conveyor or for other purposes.

I have illustrated herein the application of my improvement to a portion of a belt comprising two adjoining sections. It will be understood, however, that such a number of right and left-hand sections as may be required to produce a belt of the desired length may be secured together in a similar manner, and that the opposite ends of the length of fabric thus produced may be secured together in the same manner to complete an endless belt.

Having thus described my invention, what I claim and desire to secure by United States Letters Patent is:

1. The method of making a wire fabric belt or the like which consists in providing a section formed of transversely extending helical wires twisted in the same direction into interlocking engagement, providing another section formed of transversely extending helical wires twisted in the opposite direction into interlocking engagement, placing the coils of an end wire of one section in overlapping engagement within the coils of an end wire of the other section, and threading a helical wire through the coils of the first mentioned end wire.

2. The method of making a wire fabric belt or the like which consists in providing a section formed of transversely extending helical wires twisted in the same direction into interlocking engagement, providing another section formed of transversely extending helical wires twisted in the opposite direction into interlocking engagement, placing the coils of an end wire of one section in overlapping engagement within the coils of an end wire of the other section, and threading through the coils of the first mentioned end wire a helical wire twisted in the same direction.

3. The method of making a wire fabric belt or the like which consists in providing a section formed of transversely extending helical wires twisted in the same direction into interlocking engagement, providing another section formed of transversely extending helical wires twisted in the opposite direction into interlocking engagement, placing the two sections in end to end relation with the coils of one end wire in overlapping engagement within the coils of the other end wire, and threading through the coils of one of said end wires only a helical wire twisted in the same direction to retain the coils of said end wires in overlapping engagement.

4. In the art of making woven wire belts or the like, the method of securing together in end to end relation two sections formed from oppositely twisted helical wires in interwoven engage-

ment, which consists in inserting the coils of one end wire into overlapping relation within the coils of the adjacent end wire, and threading through the coils thus inserted a helical wire twisted in the same direction to retain the coils of said end wires in overlapping engagement.

5 5. In the art of making woven wire belts or the like, the method of securing together in end to end relation two sections formed from oppositely twisted helical wires in interlocking engagement, which consists in overlapping the coils of one end wire within the oppositely twisted coils of the other end wire, and threading through the coils thus overlapped, within said oppositely twisted coils, a helical wire twisted in the same direction as said overlapped coils.

10 6. In the art of making woven wire belts or the like, the method of securing together in end to end relation two sections formed from oppositely twisted helical wires in interlocking engagement, which consists in inserting the coils of one end wire into the oppositely twisted coils of an end wire of the adjacent section from one side of the adjacent section, and, on the opposite side of the adjacent section, threading through the coils thus inserted a helical wire twisted in the same direction.

15 7. A woven wire fabric comprising adjacent sections composed of interwoven helical wires of opposite twist with the bights of the end wire of one section arranged to overlap within the bights of the end wire of the adjacent section, and a helical wire with a twist similar to the wires of one of said sections woven through the overlapping end bights of the latter section and engaging within the bights of the end wire of the adjacent section.

20 8. A woven wire fabric comprising sections of interwoven helical wires of one direction of twist alternating with sections of interwoven helical wires of the opposite twist and having the coils of the end wire of one section overlapping within the coils of the end wire of the adjacent section upon one side of the latter, and a helical wire on the opposite side thereof woven through the overlapping coils of the adjacent section to hold the adjacent sections together.

25 9. A woven wire belt comprising sections of interwoven helical wires of right-hand twist alternating with sections of interwoven helical wires of left-hand twist, with the coils of the end wire of one section overlapping within the coils of the

end wire of the adjoining section upon one side of the latter, and a helical wire on the opposite side thereof and of opposite twist thereto woven through the overlapping coils of the adjacent section to hold the adjacent sections together.

5 10. A woven wire belt comprising sections of interwoven helical wires of right-hand twist alternating with sections of interwoven helical wires of left-hand twist, with the coils of the end wire of one section overlapping within the coils of the end wire of the adjoining section upon one side of the latter, and a helical wire on the opposite side thereof and of opposite twist thereto woven through the overlapping coils of the adjacent section, with the coils thereof substantially in superposed relation with respect to the coils of one of the wires of opposite twist.

10 11. A woven wire belt comprising end to end sections of interwoven helical wires of right-hand twist alternating with sections of interwoven helical wires of left-hand twist, with the coils of the end wire of one section overlapping within the coils of the end wire of the adjoining section, and a helical wire woven through the overlapping coils of one of said end wires, without passing through the coils of the adjoining section, to thereby connect the adjoining sections together.

15 12. A conveyer belt structure comprising end to end sections of woven wire fabric, adjoining sections being formed from oppositely coiled interwoven helical wires extending transversely of the belt, with the coils of an end wire of each section overlapping within the coils of the end wire of the adjacent section, and means for securing adjacent sections together comprising a helical wire having the bights thereof positioned within the bights of one of said end wires and interwoven through the bights of the opposing end wire.

20 13. A wire fabric structure comprising sections formed of a plurality of interwoven helical wires of right-hand twist alternating with sections formed of a plurality of interwoven helical wires of left-hand twist and having substantially the same pitch as the wires of right-hand twist, the coils of the end wire of one section overlapping within the coils of the end wire of the adjoining section on one side thereof, and a helical wire woven through the overlapped coils of the first-mentioned end wire, on the opposite side of the said adjoining section, to secure the adjoining sections together.

RAYMOND J. GUBA.