May 19, 1970 H. E. ROHRBACHER 3,512,760

WIRE FABRIC AND APPARATUS AND METHOD FOR MAKING SAME

Filed Aug. 4, 1967 2 Sheets-Sheet 1

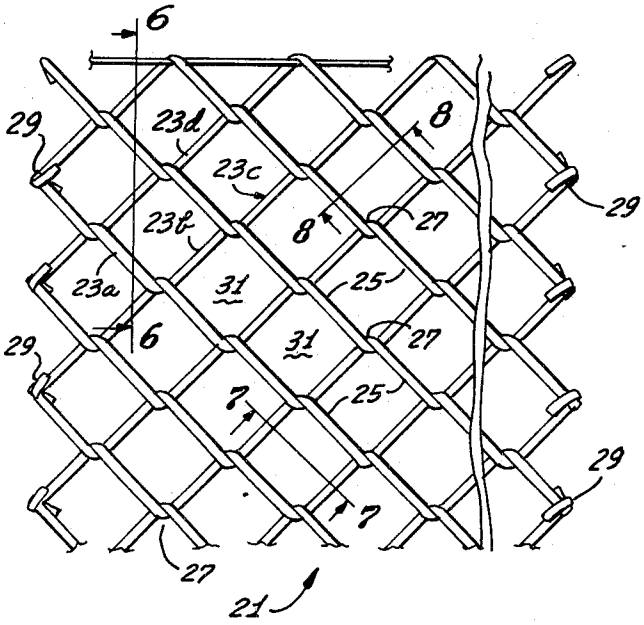


Fig. 1

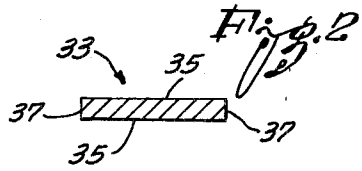


Fig. 2

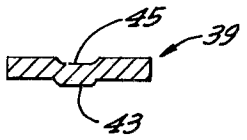


Fig. 3

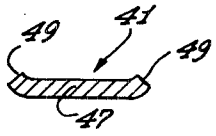


Fig. 4

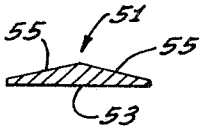


Fig. 5

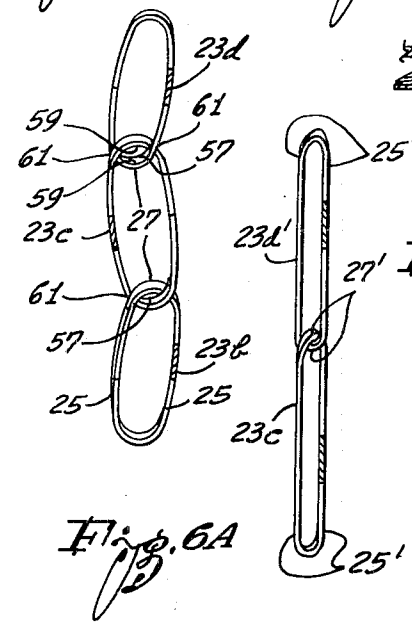


Fig. 6

Fig. 6A

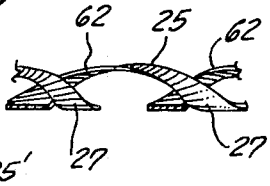


Fig. 7

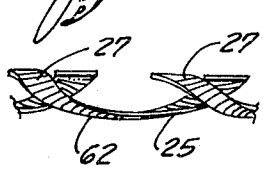


Fig. 8

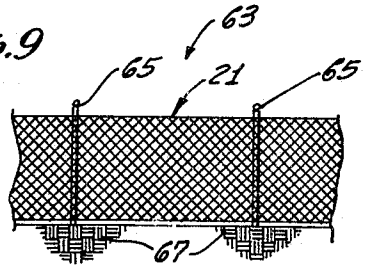


Fig. 9

INVENTOR:
Herbert E. Rohrbacher

By Smyth, Roston & Pavitt

ATTORNEYS

May 19, 1970 H. E. ROHRBACHER 3,512,760

WIRE FABRIC AND APPARATUS AND METHOD FOR MAKING SAME

Filed Aug. 4, 1967 2 Sheets-Sheet 2

Fig. 10

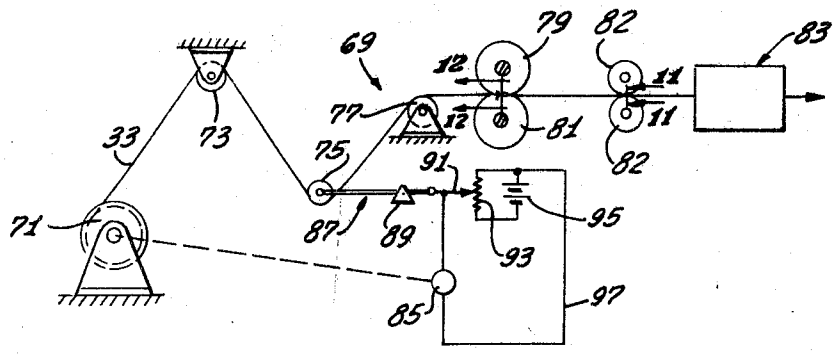


Fig. 11

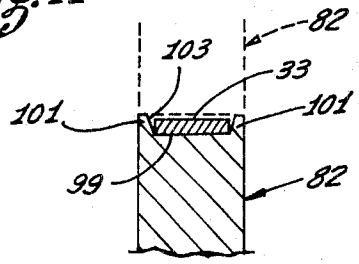


Fig. 12

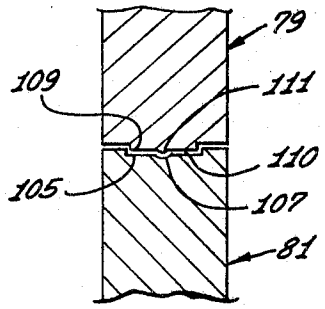
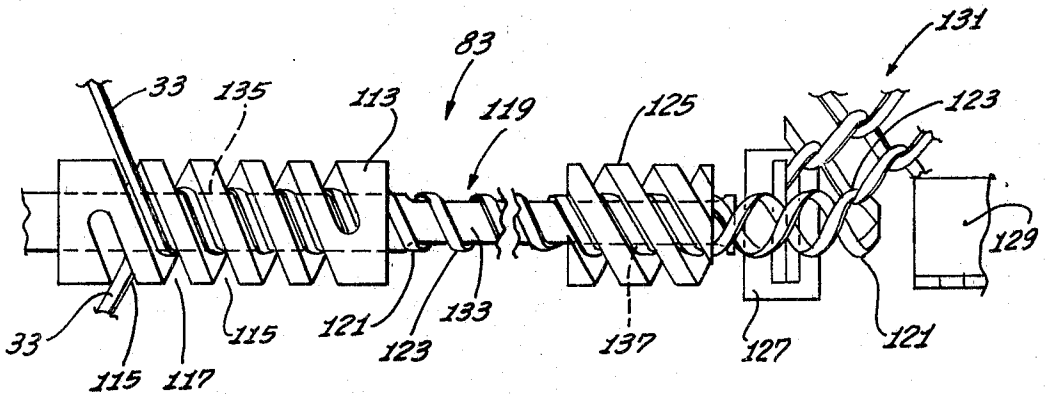


Fig. 13



INVENTOR:
Herbert E. Rohrbacher

By Smyth, Roston & Pavitt
ATTORNEYS

United States Patent Office 3,512,760
Patented May 19, 1970

3,512,760

WIRE FABRIC AND APPARATUS AND METHOD FOR MAKING SAME

Herbert E. Rohrbacher, Whittier, Calif., assignor to Bergandi Manufacturing Company, Inc., El Monte, Calif., a corporation of California

Filed Aug. 4, 1967, Ser. No. 658,530
Int. Cl. E04h 17/02
U.S. Cl. 256—32 8 Claims

ABSTRACT OF THE DISCLOSURE

This disclosure describes a wire fabric of open construction including a plurality of wires each of which is formed into a coil. The several coils are interlinked and secured together to form a wire fabric of open construction. The wire is of non-circular cross section and provides a wire fabric of increased strength.

BACKGROUND OF THE INVENTION

Wire fabric of open construction has many uses including fencing, furniture, and in various other areas requiring a strong open network. Wire fabric is constructed of many individual wires, each of which is usually constructed of metal and is circular in cross section. In making the wire fabric, each of the wires is formed into a coil and the several coils are appropriately interlinked to form a wire fabric having many openings therein. When the adjacent coils are loosely interlinked rather than clampingly interlocked, the wire fabric is often referred to as chain link.

In order to be suitable for many of its uses, the wire fabric must be of high strength. For example, when wire fabric is used for a freeway fence, it is important that the fence be strong to restrain vehicles from passing therethrough. One disadvantage of conventional wire fabric constructed of round wire is that it does not have as much strength as is desired. In particular, when a chain link fence is struck by an object, e.g. a car, the fence tends to fail locally. That is, the vehicle or other object is often effective to punch a hole through the fencing. Thus, the round wire fabric is locally weak and lacks an ability to distribute an applied impact load over a large area thereof. This can be demonstrated by pulling on a single strand of a wire fabric. Unless the wire is of very heavy gauge, and the mesh is quite small, the strand can be relatively easily pulled perpendicularly out of the plane of the fabric. As the wire is pulled out, it will slip or slide relative to the portions of the coils in contact therewith and may cause deformation of the adjacent coil as well. This simple test evidences a lack of local strength on the part of the strand which is pulled and an inability on the part of the adjacent coil to restrain such strand against being pulled out.

In an effort to make wire fabric stronger, heavier gauge wire has ben used. In addition more of the wire coils have been used to thereby make the chain link of smaller mesh. Although these remedial measures do impart some additional strength to the wire fabric, they make the fabric unduly heavy and expensive. The additional weight makes handling and installation of the wire fabric more difficult. Handling of the wire fabric constructed of round wire is further complicated by burrs and other sharp projections which are often present on the wire.

Conventional wire fabric made of round wire has little esthetic appeal and provides a minimum of privacy and obscurity. When this fabric is used for freeway fencing to divide traffic lanes, it provides a minimum of protection or shielding against the headlights of an oncoming vehicle. That is, when two approaching vehicles are spaced at a distance at which headlight glare from the oncoming vehicle is troublesome, the openings in the wire fabric and the configuration of the wires in the fabric permit a significant amount of the light to pass therethrough.

SUMMARY OF THE INVENTION

The present invention provides a decorative wire fabric of open construction that is significantly stronger for a given mesh size and wire weight than the wire fabric described above. Conversely less metal is required to produce the wire fabric of this invention having a strength equivalent to the strength of the wire fabric constructed of round wire. The wire fabric of this invention has a better ability to cause loads applied locally to be absorbed by a larger area of the fabric and is therefore less subject to local failure. When the wire fabric of this invention is used as a freeway fence to divide oncoming lanes of traffic, the wire fabric eliminates or substantially reduces the amount of illumination that is transmitted between the opposing lanes of traffic through such wire fabric.

The present invention teaches that a stronger wire fabric is obtained by utilizing wire of noncircular transverse cross section. Although some advantages might be realized by using, for example, a wire of generally square cross section, it is preferred to utilize wire with a transverse cross section having an elongated dimension. Although various cross sections meet this definition, it has been found that wire of generally rectangular cross section achieves excellent results and is relatively easily obtainable.

According to the present invention several wires are formed into coils with each of the revolutions of the coils having portions which diverge in side elevation. Each of the divergent portions are integrally interconnected by an interlinking portion. Preferably, in end elevation the coils appear elongated.

In order that a wire having an elongated transverse cross section can be so configured, it is necessary that the wire be twisted or deformed in several directions. The elongated cross section and the twisting or bending of the wire, individually and in combination, act to strengthen the wire against bending. When several of these coils are interlinked and a load is applied to a local region thereof, a much larger area of the fabric is operative to absorb such impact load and thereby tend to reduce the likelihood of a local failure.

To obtain a wire fabric having a chain link characteristic rather than clampingly and immovably fixing the coils relative to each other, it is preferred that the interlinking portions of each wire take the form of a looped or curved reverse bend. The confronting surfaces of the interlinked reverse bends are preferably configured so as to be noncomplementary. Forming coils from wires having flat faces inherently produces looped reverse bends having noncomplementary confronting surfaces. This causes the reverse bends to be engageable at two separate spaced contact points or areas. It is believed that this two point contact attributes to the improved strength properties of the wire fabric of this invention. More particularly when the wires are of rectangular cross section, the edges or short sides of the rectangle will be engageable at the reverse bends to provide the advantageous two point contact.

It is important that the material utilized for the wire be deformable to allow a wire netting machine to bend the wire into a coil. Furthermore, in order that the resulting wire fabric can be of high strength, it is important that the material be at least substantially rigid and locally nonflexible. For example, a metal such as steel or

a metal encased in a decorative colored plastic sheath may be utilized.

The transverse cross section of the wires is elongated in a direction which tends to reduce the size of the adjacent openings in the fabric. Accordingly, the openings in the fabric of this invention are smaller than in a corresponding prior art wire fabric. The smaller openings and the increased width of the wires combine to reduce or substantially eliminate the transmission of headlight illumination therethrough when such fabric is utilized in a fence for dividing opposed lanes of a highway.

The present invention teaches further increasing the strength of the wire fabric by utilizing wire having a cross section offering desirable strength properties. For example, the wire may have a channel-shaped transverse cross section or a longitudinally extending reinforcing bead to reinforce the wire against bending.

The present invention also provides a novel machine and method for constructing the wire fabric of this invention. It has been common practice when using circular wire to lay a circularly wound length of the wire on a horizontal supporting surface and allowing the wire netting machine to pull the wire from the supply of wire automatically as required by the machine. Such an arrangement is not suitable however where the wire has an elongated transverse cross section in that such wire cannot be bent as is required in the use of such a system.

To solve this problem, the present invention provides a wire netting or processing machine in which the wire is wound on a reel or spool which is mounted for rotation about a horizontal axis. This eliminates the objectionable bending and distorting of the wire which would occur if the former practice were followed.

With the wire wound on a reel it is impractical to allow the wire netting machine to withdraw the wire as required because of the relatively high inertia of the reel and wire. In particular the inertia of the wire and reel may resist a sudden demand on the part of the processing machine for wire to the extent that the wire may fracture. Accordingly, the present invention provides a motor for unwinding the wire from the reel and control means for regulating the rate at which the wire is unwound so that it will conform generally to the requirements of the processing machine. The motor preferably drives the reel at a variable speed depending upon the rate of demand of the processing machine.

The processing machine of this invention also provides means for altering the cross sectional configuration of the wire prior to the coiling thereof to provide increased strength properties. The present invention teaches the use of a pair of opposed rollers having a circumferentially extending peripheral groove and projection, respectively. The wire is passed through the rolls with the faces thereof being forcibly engaged by the projection to force a portion of the wire into the groove. This forms a longitudinally extending reinforcing bead preferably along the full length of the wire. The reinforcing bead substantially increases the resistance of the wire to bending about a transversely extending axis.

The invention, both as to its organization and method of operation together with further features and advantages thereof may best be understood by reference to the following description taken in connection with the accompanying illustrative drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary front elevational view of a wire fabric of open construction constructed in accordance with the teachings of this invention.

FIGS. 2–5 are enlarged transverse sectional views through four different wire configurations which may be used in constructing the wire fabric of FIG. 1.

FIG. 6 is a sectional view taken along line **6—6** of FIG. 1 and illustrating several of the coils in end elevation.

FIG. 6*a* is a view similar to FIG. 6 showing a modification of the fabric construction.

FIG. 7 is a sectional view taken along line **7—7** of FIG. 1.

FIG. 8 is a sectional view taken along line **8—8** of FIG. 1.

FIG. 9 is a fragmentary side elevational view of a fence embodying the wire fabric of this invention.

FIG. 10 is a schematic elevational view of an apparatus for making wire fabric of this invention.

FIG. 11 is an enlarged fragmentary sectional view taken along line **11—11** of FIG. 10 and showing the configuration of one of the intake rollers of the processing machine.

FIG. 12 is an enlarged fragmentary sectional view taken along line **12—12** of FIG. 10 and showing the rolls for forming a reinforcing bead in the wire.

FIG. 13 is a side elevational view illustrating a portion of the machine for making the wire fabric of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings and particularly to FIG. 1 thereof reference numeral **21** designates a wire fabric of open construction constructed in accordance with the teachings of this invention. The wire fabric **21** includes a plurality of individual wire coils generally designated **23***a*, **23***b*, **23***c* and **23***d*, respectively. Each of the coils **23** is constructed from a single piece of wire and includes a plurality of revolutions or turns. Each of the turns has a pair of divergent legs or portions **25** which are integrally connected by an interlinking portion or reverse bend portion **27**. The adjacent coils **23** are interlinked with their reverse bend portions **27** being confronting and engageable. In the embodiment shown in FIG. 1 the reverse bends of adjacent coils are loosely interlinked to avoid rigidly clamping the coils together. Alternate coils **23** may be interconnected or attached to each other as by bending or twisting of the ends of the coils together to form a connection **29**. The coils of the divergent legs may intersect at any desired angle, however, an angle of 90° has been found very satisfactory. Two opposed pairs of the divergent legs **25** define openings **31**, which, in the embodiment illustrated are generally diamond shaped. As best seen in FIG. 6, the coils **23** are elongated in end elevation so that each divergent leg **25** of each pair thereof lie closely adjacent each other.

One feature of this invention is that the wires which form the coils **23** are of noncircular, and preferably, elongated, cross section. FIGS. 2–5 show four different forms of wires having elongated cross sections, it being understood that various other forms of elongated cross section may be utilized.

FIG. 2 shows a wire **33** of rectangular cross section and having generally opposed relatively wide faces **35** and relatively narrow edges **37**. By way of example, if the wire **33** were to have the same amount of metal per inch as standard 11 gauge circular wire, the wire **33** could be ¼" wide by .040" thick, where the width of the wire is the distance between the edges **37** and the thickness of the wire is the distance between the faces **35**. The rectangular wire **33** is a preferred form because wire of this configuration can be relatively easily drawn and is readily available.

FIGS. 3–4 illustrate wires **39** and **41**, respectively, each of which has a cross section which inherently offers substantial resistance to bending loads. The wire **39** is identical to the wire **33** except that the former has a longitudinally extending reinforcing bead **43** which preferably extends for the full length of the wire **39**. The bead **43** is preferably formed by scoring the opposite face of the wire to form a longitudinal groove **45**. The bead **43** need only project very slightly from the face of the wire **39**.

For example, the bead may project 1/64" if the wire 39 is 1/4" wide by .040" thick. Preferably the reinforcing bead 43 extends along a central longitudinal portion of the wire 39. Of course, the width of the bead and the amount that it projects may be varied as desired to form a cross section having the desired strength properties.

The wire 41 is channel shaped in cross section and has a web 47 interconnecting spaced parallel flanges 49. The dimensions of the flanges 49 and the web 47 may be varied as desired to obtain the desired strength characteristics.

FIG. 5 shows still another form of wire 51. The wire 51 is triangular in cross section and has a relatively wide base 53 and a pair of sloping sides 55.

One factor which is believed to be significant in increasing the strength of the fabric is that the adjacent coils engage each other at two points as shown in FIGS. 6–8. Each of the reverse bends 27 are oppositely looped so as to define a space 57 between the adjacent cooperating bends. Stated differently, each of the reverse bends 27 has a face 59 which is directed inwardly toward the center of its respective coils 23. The faces 59 are of noncomplementary, i.e. of nonmating configuration to thereby define the spaces 57. This results in contact between turns of adjacent coils 23 at two spaced areas or points 61. More particularly, the points of contact 61 occur between spaced portions of the edges 62 of the adjacent coils 23. By way of contrast, when round wire is used there is only one continuous area of contact which is subject to allowing relative slipping between the contacting wires. With the present invention, however, such slipping is maintained at a minimum and the wire fabric 21 has the ability to distribute a locally applied load over a large area thereof and is less likely to fail locally.

FIG. 6*a* shows modification in which the reverse bends 27′ have been substantially collapsed to hold or clamp adjacent coils 23*d*′ and 23*c*′ firmly together. This modification may be used where it is preferred that the wire fabric not have a chain link characteristic. It should be understood therefore that the spacing of the legs 25 of a particular coil in end elevation and the sharpness of the reverse bends 27 may be selected to meet the particular requirements of a user.

When any of the wires shown in FIGS. 2–5 are formed into coils as shown in FIGS. 1–6 they are inherently bent and twisted as shown in FIGS. 7–8. This bending and twisting of the wire in the formation of the coils 23 produces a configuration which is greatly resistant to bending and is locally nonflexible. Thus, an individual coil 23 is much more difficult to bend locally than is a coil of corresponding weight and shape which has been constructed of round wire. When these individually strong coils 23 are interconnected to form the fabric 21, the result is a fabric of increased strength.

The wire fabric 21 has numerous uses, one of which is in a fence 63 (FIG. 9). The fence 63 utilizes a length of the fabric 21 suitably mounted on upright supporting posts 65. The posts 65 are suitably embedded in a supporting surface 67. Usually the coils of the fabric 21 will extend vertically. The fence 63 is very strong and may be used, for example, as a guard fence or as a freeway fence.

Another feature of the present invention is that the size of the openings 31 (FIG. 1) is materially reduced in that the cross section of the wire is elongated in a direction which reduces the size of these openings. This makes the fence 63 more capable of acting as a visual barrier. This feature is particularly useful in freeway fencing to reduce headlight glare from an oncoming vehicle.

FIG. 10 illustrates schematically a machine 69 which can be used to make the wire fabric 21. In the discussion of the machine 69 it is assumed that the wire 33 of rectangular cross section is utilized, it being understood that the machine 69 can be utilized with wires of other cross section.

The wire 33 is wound on a reel 71 which is suitably mounted for rotation about a horizontal axis. To avoid permanently deforming the wire 33, the wire is wound on the reel 71 with one of the faces 35 directed radially inwardly. The wire 33 moves as a continuous strand over a fixed pulley 73 and passes beneath a movable pulley 75. The wire then passes over another fixed pulley 77 through a pair of bead forming rollers 79 and 81, to the intake pulleys 82 of a wire processing unit 83. The unit 83 pulls the wire 33 from the area of the pulley 75 at the desired rate.

A motor 85, preferably a direct current electrical motor, is suitably mechanically connected to the reel 71 to rotate the reel and unwind the wire therefrom. The motor 85 can be driven at variable speeds. As the motor drives the reel 71, the wire 33 is unwound from the reel and is pushed upwardly over the pulley 73 and toward the movable pulley 75.

The movable pulley 75 is mounted for rotation at the end of an arm 87 which is pivotally mounted about a pivot point 89. The arm 87 terminates rearwardly in a conductor 91 which is maintained in engagement with a resistor 93. A source of power such as a battery 95 supplies current through the motor 85 to a conductor 97, a conductor 99, the conductor 91 and at least a portion of the resistor 93. The conductor 91 and the resistor 93 function as a rheostat to vary the voltage of the power supplied to the motor 85 to thereby vary the speed of the motor.

The arm 87 tends to pivot in the counterwise direction about the pivot point 89 under the influence of its own weight and the weight of the pulley 75. This tendency of arm 87 is resisted and controlled by the amount of slack in the wire 33 at the pulley 75. Thus, if the reel 71 supplies wire to the pulley 75 faster than it is being utilized by the processing unit 83, the amount of slack will increase and the arm 89 will pivot counterclockwise to increase the value of the resistance in the motor circuit to thereby decrease the motor speed and the speed of the reel. Conversely, if the demand rate of the unit 83 exceeds the rate of supply, the arm 87 will be pivoted clockwise to increase the speed of the motor 85. Of course, the rheostat will operate to stop the motor 85 if the amount of slack exists in the wire 33.

The processing unit 83 is provided with one or more intake rollers 82 over which the wire 33 passes as it enters the processing unit 83. To avoid permanent deformation of the wire by the rollers 82, it is important that the rollers have a flat surface 99 for supporting the correspondingly flat face of the wire 33. In the embodiment illustrated in FIG. 11 the rollers 82 have a pair of peripheral flanges 101 which extend radially beyond the surface 99 to form a groove 103 in which the wire 33 rides.

If it is desired to utilize the scored wire 39 in making of the fabric 21, such scoring can be conveniently accomplished by rollers 79 and 81. One preferred form of the rollers 79 and 81 is shown in FIG. 12. The lower roller 81 has a channel 105 formed in the peripheral surface thereof and extending circumferentially completely around the roller 81. A groove 107 which is preferably arcuate in cross section is formed in the bottom of the channel 105 and extends circumferentially completely around the roller 81.

The upper roller 79 has a peripheral circumferentially extending shoulder 109 sized to fit within the channel 105 as shown. A projection 111 extends radially outwardly of the shoulder 109 and extends circumferentially completely around the roller 79. The projection 111 is sized and positioned to cooperate with the groove 107.

The rollers 79 and 81 are suitably firmly rotatably mounted about a parallel rotational axis with the desired clearance space or gap 110 between the shoulder 109 and the channel 105 to accommodate a wire of a predetermined thickness. The spacing between the centers of the rollers 79 and 91 is preferably adjustable so that the same

rollers can accommodate wire of various thicknesses. As wire is fed through the gap **110** between the rollers **79** and **81**, the rollers rotate and the projection **111** forcibly bears on a longitudinally extending central region of the wire with sufficient force to deform such center region downwardly into the groove **107**, to form a longitudinally extending reinforcing bead such as shown at **43** in FIG. 3. This method of reinforcing the wire is preferred because it can be carried out immediately prior to utilization of the wire and does not necessitate additional handling of the wire as would be required if the scoring operation would be carried out independently of the machine **69**.

FIG. 13 shows a portion of the processing unit **83**. Except as specifically noted herein, the processing unit **83** may be of the type described and claimed in U.S. Pat. Nos. 2,625,961 and 3,008,497.

The wire **33** is fed into two separate strands from two separate reels **71** to a stationary worm **113** having two sets of helical slots **115** and **117** to guide the two wires **33** onto a rotary mandrel or forming blade **119** to form two corresponding wire coils **121** and **123** thereon. The coils **121** and **123** pass through a second worm **125** which tighten the coils following which the wire coils pass through a cutter **127** and forming tube **129** in a well known manner. In the forming tube **129** the coil **121** and **123** are woven into the previously formed wire fabric, the previously formed fabric being generally designated **131** in FIG. 13. This weaving action is carried out in the same well known manner as when wire of circular cross section is used.

The mandrel **119** has a central section **133** of reduced height to prevent tightening of the coils **121** and **123** from causing the coils to bind on the mandrel. The mandrel **119** has portions **135** and **137** within the worms **113** and **125**, respectively. When round wire is being processed, these portions **135** and **137** must be frustoconical and progressively decrease in diameter as they extend to the right in FIG. 13. Because of the small area of contact between wire of circular cross section and the mandrel **113** this tapering of the mandrel **119** is necessary to avoid pressure welding of the wire to the mandrel. Because of the larger bearing area between the flat wire **33** and the mandrel **119** it is not necessary to taper the portions **135** and **137** to avoid pressure welding. Accordingly, the structure of the processing unit **83** of this invention is simplified in that the portions **135** and **137** of the mandrel **119** are generally cylindrical rather than frustoconical.

Although exemplary embodiments of the invention have been shown and described, many changes, modifications, and substitutions may be made by one having ordinary skill in the art without necessarily departing from the spirit and scope of this invention.

I claim:

1. A wire fabric of open construction comprising:

a first elongated wire of deformable, substantially rigid material formed into a coil having a plurality of turns with each of said turns having a pair of divergent portions which diverge in side elevation, said wire being substantially rectangular in transverse cross section, said wire having a face defining the long dimension of the rectangular cross section and facing generally inwardly of said coil with at least a major portion of said face being generally flat in transverse cross section;

a second elongated wire of deformable, substantially rigid material formed into a coil having a plurality of turns with each of said turns having a pair of divergent portions which diverge in side elevation, said second wire being substantially rectangular in transverse cross section, said second wire having a face defining the long dimension of the rectangular cross section of the second wire, said face facing generally inwardly of said coil thereof with at least a major portion of said face being generally flat in transverse cross section;

each of said pairs of divergent portions of both of said wires being joined by reverse bend portions, said reverse bend portions of said first and second wires being interlinked to weave said wires into a wire fabric with the reverse bend portions of said first and second wires being arranged in confronting pairs and with the divergent portions forming openings in said wire fabric, the confronting surfaces of each of said pair of reverse bend portions being engageable at multiple spaced locations to increase the strength of the wire fabric;

the material of at least one of said wires being deformed transversely of said one wire to define an integral stiffening element which stiffens said one wire against bending about a transversely extending axis, said stiffening element extending for a substantial distance longitudinally of said wire;

each of said confronting surfaces of said pairs of reverse bend portions being relatively broad in transverse cross section and having a pair of edges extending longitudinally therealong, said reverse bend portions of said first and second wires being oppositely looped, respectively, to space said confronting surfaces and to cause edgewise engagement of both of said edges of each of said pair of reverse bend portions whereby the multiple points of engagement are along the edges of said reverse bend portions; and

each of said coils being elongated in end elevation and the rectangular transverse cross section of said wires being at least substantially continuous throughout said reverse bend portions.

2. A wire fabric as defined in claim **1** wherein said stiffening element lies generally centrally of said one wire, said one wire having a projection on one side and a generally corresponding depression on the other side thereof which define the opposite sides, respectively, of said reinforcing element.

3. A wire fabric as defined in claim **1** wherein said reinforcing element includes a turned up edge portion of said one wire, said turned up edge portion extending for a substantial distance longitudinally of said one wire.

4. A freeway fence comprising:

at least a pair of spaced upright support members;

a wire fabric of open construction extending between said support members and supported in an upright manner thereby;

said wire fabric including a first elongated wire of deformable, substantially rigid material formed into a coil having a plurality of turns with each of said turns having a pair of divergent portions which diverge in side elevation, said wire being substantially rectangular in transverse cross section, said wire having a face defining the long dimension of the rectangular cross section and facing generally inwardly of said coil with at least a major portion of said face being generally flat in transverse cross section;

a second elongated wire of deformable, substantially rigid material formed into a coil having a plurality of turns with each of said turns having a pair of divergent portions which diverge in side elevation, said second wire being substantially rectangular in transverse cross section, said second wire having a face defining the long dimension of the rectangular cross section of the second wire, said face facing generally inwardly of said coil thereof with at least a major portion of said face being generally flat in transverse cross section;

each of said pairs of divergent portions of both of said wires being joined by reverse bend portions, said reverse bend portions of said first and second wires being interlinked to weave said wires into a wire fabric with the reverse bend portions of said first and second wires being arranged in confronting pairs and with the divergent portions forming openings in said

wire fabric, the confronting surfaces of each of said pair of reverse bend portions being engageable at multiple spaced locations to increase the strength of the wire fabric;

each of said confronting surfaces of said pairs of reverse bend portions being relatively broad in transverse cross section and having a pair of edges extending longitudinally therealong, said reverse bend portions of said first and second wires being oppositely looped, respectively, to space said confronting surfaces and to cause edgewise engagement of both of said edges of each of said pair of reverse bend portions whereby the multiple points of engagement are along the edges of said reverse bend portions; and

each of said coils being elongated in end elevation and the rectangular transverse cross section of said wires being at least substantially continuous throughout said reverse bend portions.

5. A fence as defined in claim **4** wherein the material of at least one of said wires is deformed transversely of said one wire to define an integral stiffening element which stiffens said one wire against bending about a transversely extending axis, said stiffening element extending for a substantial distance longitudinally of said one wire.

6. A fence as defined in claim **5** wherein said stiffening element lies generally centrally of said one wire, said one wire having a projection on one side and a generally corresponding depression on the other side thereof which defines the opposite sides, respectively, of said reinforcing element.

7. A fence as defined in claim **5** wherein said reinforcing element includes a turned up edge portion of said one wire, said turned up edge portion extending for a substantial distance longitudinally of said one wire.

8. A wire fabric as defined in claim **1** wherein an end of at least one of said wires is bent to interconnect the first and second wires.

References Cited

UNITED STATES PATENTS

124,286	3/1872	Peters	245—6
314,576	3/1885	Hewitt	245—8
352,909	11/1886	Billings	245—6

FOREIGN PATENTS

1,378,653	10/1964	France.
1,006,186	9/1965	Great Britain.

RICHARD J. HERBST, Primary Examiner

U.S. Cl. X.R.

245—6; 140—92.3