

(No Model.)

M. M. SHELLABERGER.
VISIBLE STRIP FOR WIRE FENCES.

No. 465,391.

Patented Dec. 15, 1891.

Fig. 1.

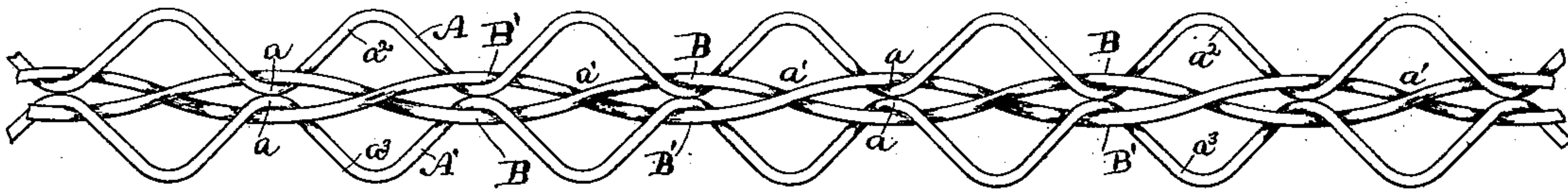


Fig. 2.

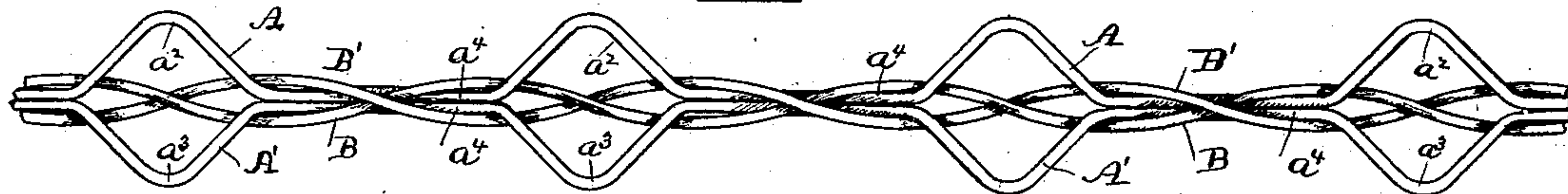


Fig. 3.

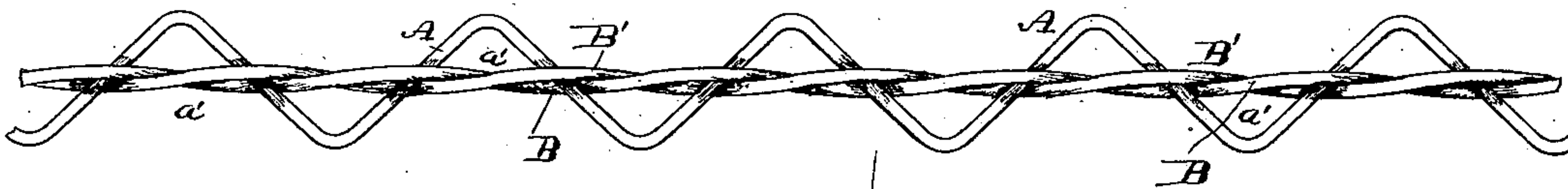


Fig. 4.

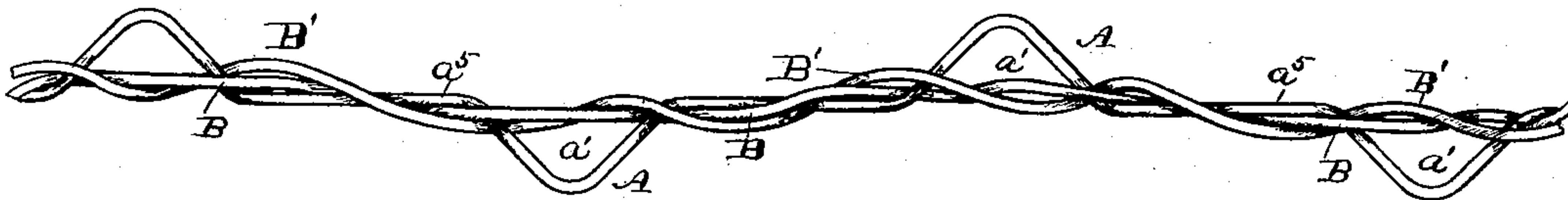
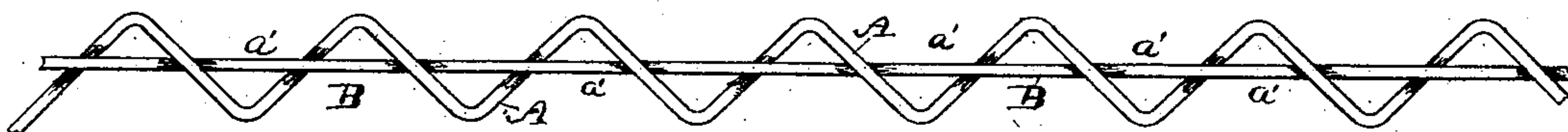


Fig. 5.



WITNESSES:

A. G. Boyd-Smith.

R. H. Bishop

INVENTOR

M. M. Shellaburger.

A. S. Coyle
ATTORNEY.

UNITED STATES PATENT OFFICE.

MICHAEL M. SHELLABERGER, OF BEAVER FALLS, PENNSYLVANIA.

VISIBLE STRIP FOR WIRE FENCES.

SPECIFICATION forming part of Letters Patent No. 465,391, dated December 15, 1891.

Application filed April 30, 1891. Serial No. 391,037. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL M. SHELLABERGER, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Visible Strips for Wire Fences; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to visible strips for wire fences, and has for its object to provide a simple and ornamental strip which can be easily and cheaply manufactured and which, when in position, cannot be twisted or distorted by longitudinal strains.

With this object in view the invention consists in a certain novel construction, which will be described in connection with the drawings, wherein—

Figure 1 is a view of a strip embodying my invention. Fig. 2 is a view of a slightly-modified form of strip in which the offsets of the zigzag wires are arranged at intervals, intermediate straight portions of the two wires being opposite each other. Fig. 3 is a view of a slightly-modified form of strip in which only one angular or zigzag wire is employed. Fig. 4 is a view of another modified form of the strip having a single zigzag wire provided at intervals with offsets which project alternately in opposite directions. Fig. 5 is a view of another slightly-modified form of strip in which only one strand is employed.

The angular or zigzag wires A A', Fig. 1, are arranged in the same plane, with their inner angles a in contact and their offsets a^2 a^3 opposite each other, thereby forming square or diamond-shaped spaces or openings a' a' , and the strands B B' are twisted around said angular or zigzag wires, so as to lie, respectively, in the opposite inner angles and hold them in contact. The strands are twisted around the angular or zigzag wires in opposite directions, and intersect each other at the centers of the spaces or openings a' alternately on opposite sides of the plane of the zigzag wires, as shown.

In manufacturing a strip in accordance with my invention the angular or zigzag wires are placed in the position shown and the strands are passed successively around the same. The first or inner strand B is passed around (over and under) and engages in the alternate inner angles of the upper and lower wires, as an inner angle of the upper wire A, then the succeeding inner angle of the lower wire A', then the succeeding inner angle of the upper wire, and so on, whereby said strand B engages in each alternate angle of the upper wire and each alternate angle of the lower wire, the angles which are engaged in the upper wire being intermediate between those which are engaged in the lower wire. The second or outer strand B' is twisted subsequently to the wire B and follows the latter at a distance of one of the spaces or openings a' , so that it engages the alternate angles which are left free by the strand B and which are opposite to the angles engaged by the latter. The strand B' is twisted in the opposite direction to strand B, passes outside the latter, and intersects the same midway between the angles engaged thereby and at about the centers of the spaces or openings. By this arrangement of the strands which engage, respectively, in the opposite or contacting angles of the wires A A' and lie snugly therein, said angles are held firmly in contact, and when the strands are strained or subjected to a severe tension, as when the strip is being applied to the fence or when affected by changes of temperature, they cannot be straightened or drawn more closely together, and therefore the strip cannot be lengthened or distorted. The zigzag wires are not subjected to any strain whatever. It will be seen that the strands intersect each other alternately upon opposite sides of the angular wires, and therefore when the strands are strained the strip will not be twisted for the reason that the strain on one of the strands counterbalances and neutralizes the strain on the other, and the pressure upon one side of the strip is counterbalanced by the pressure upon the opposite side. This is not the case when the strands are twisted around the zigzag wires in the same direction.

In the form of strip shown in Fig. 2 the off-

sets a^2 a^3 are separated or arranged at intervals and the intermediate straight portions a^4 of the corresponding wires A A' are arranged in contact. The strands are twisted in the same manner as described in connection with Fig. 1, so that they intersect each other alternately upon opposite sides of the strip, as shown.

In the form of strip shown in Fig. 3 one of the angular or zigzag wires is omitted, and the strands B B' are twisted around the single wire in substantially the same manner as above described in connection with Fig. 1. The strands pass, respectively, upon opposite sides of the wire A and extend through the spaces a' and intersect each other at the centers thereof. The strands are twisted around the single wire A in opposite directions and successively. The strand B is first twisted around or passed over and under the wire, so as to pass through each of the spaces a' , and it bears alternately against opposite sides of the wire. The strand B' follows the strand B at a distance of one space a' , and passes through each of the spaces and bears against the opposite sides of the wire A, whereby when strained the strands counterbalance each other, and thus prevent twisting or warping of the strip. In this form of the strip, while the appearance is not as ornamental, owing to the fact that only one of the angular or zigzag wires is employed, the construction is essentially the same and the manner of manufacturing is precisely the same, except that only one zigzag wire (instead of two) is employed.

In Fig. 4 is shown a strip having only one zigzag wire, as in Fig. 3, the offsets of said wire being arranged at intervals, as in Fig. 2. The offsets extend alternately in opposite directions, as in Fig. 3, but are removed from each other or separated by short intermediate straight portions a^5 . This form of zigzag wire does not affect or necessarily alter the relative arrangement of the strands, the latter being successively twisted around the wire in opposite directions and intersecting each other alternately upon opposite sides thereof.

In the form of strip shown in Fig. 5 one of the twisted strands is omitted, the remaining strand B being twisted around the single angular or zigzag wire A, as before described, so as to bear alternately upon opposite sides of the latter. The strand passes through each of the spaces a' , and in manufacturing the strand is applied to the angular wire by passing it around the latter in a circular direction, first over and then under, thereby equalizing the pressure of the strand upon opposite sides of the wire A. In this form of the strip, as in the others described, the strain is applied solely to the strand or strands, and the angular or zigzag wire or wires are entirely free from strain. Furthermore, the strands are caused to bear snugly against the wires, so as to prevent the stretching or extension of the strip when the strands are

strained. Furthermore, the angular wires are prevented from slipping laterally on the strands, owing to the fact that the strands pass through each of the openings or spaces a' and bear equally upon opposite sides of the wires.

It will be seen that whereas I have shown a variety of forms of my device the same principal is maintained in all. The strands are designed to bear the strain and are arranged so as to relieve the zigzag wires of strain. The zigzag wires are held firmly in place, whether single or double, by the strands and cannot be detached or strained out of shape or out of position. The strains upon opposite sides of the zigzag wire or wires are equal and counterbalance each other, so that warping and bending of the strip are prevented. The strands are twisted around the zigzag wire or wires in opposite directions, so that any tendency to twist the strip in one direction is counterbalanced by an equal tendency in the opposite direction.

From the above description it will be seen that the primary advantage which is gained by twisting the strands in opposite directions is that the strain upon the strip is equalized, so that twisting or warping is avoided; but a still further advantage lies in the fact that in manufacturing a strip in accordance with the above description, in the matter of the oppositely-twisted strands, a machine can be operated without "stop" or "interrupted" motion, thus saving time, whereas when the strands are twisted around the zigzag or crimped wire in the same direction I have found it necessary to check the spool which carries the crimped wire at the end of each lateral movement and throw it slightly to the side to allow the twister-head to operate, so as to cause the strands to be twisted between the sides of the loops in said crimped wire.

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

1. In a wire strip for fences, the combination of a zigzag or angular wire, a strand twisted around said wire in one direction, and a second strand twisted around said wire in the opposite direction, said strands alternately in contact with opposite sides of the wire and intersecting each other at the centers of the angles in the latter, substantially as specified.

2. The combination of the angular or zigzag wires arranged with their inner angles in contact, and the strands twisted around said wires and engaging the alternate inner angles thereof, substantially as specified.

3. The combination of the angular or zigzag wires arranged in juxtaposition, with their inner angles in contact and the strands twisted around said wires in opposite directions and engaging alternate inner angles thereof, substantially as specified.

4. The combination of the angular or zigzag wires arranged in juxtaposition, with their

inner angles in contact and the strands twisted
around said wires in opposite directions and
engaging alternate inner angles thereof, said
strands bearing, respectively, upon opposite
5 sides of the wires at each point and inter-
secting each other at intermediate points,
substantially as and for the purpose specified.

In testimony whereof I affix my signature in
presence of two witnesses.

MICHAEL M. SHELLABERGER.

Witnesses:

JOS. C. ROUZER,

ROSIE R. SHELLABERGER.