

(No Model.)

D. C. SMITH.
FENCE WIRE.

No. 578,032.

Patented Mar. 2, 1897.

Fig. 1.

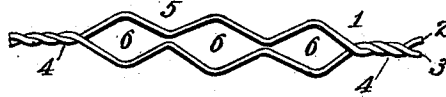


Fig. 2.

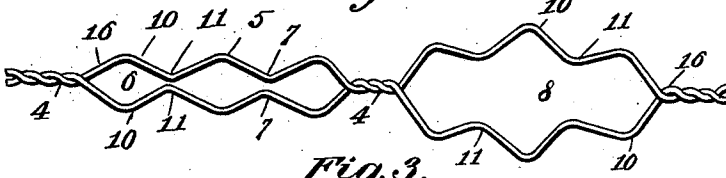


Fig. 3.

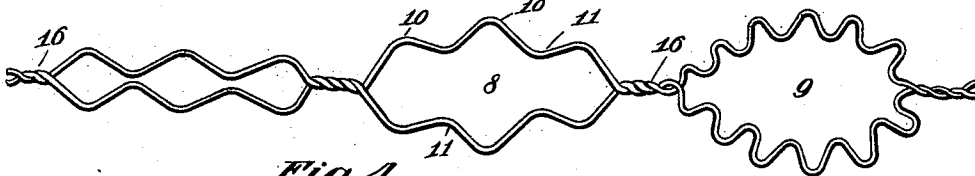


Fig. 4.

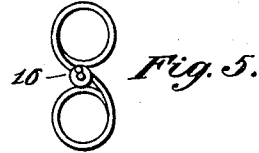
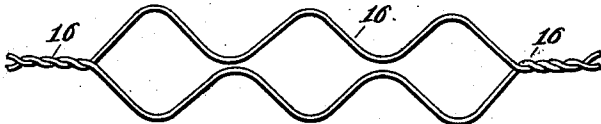


Fig. 6.

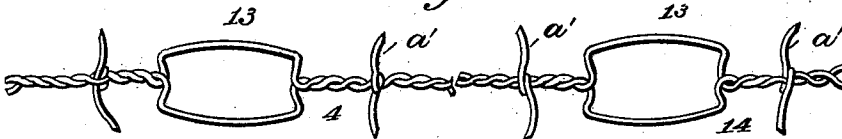


Fig. 7.

Fig. 8.

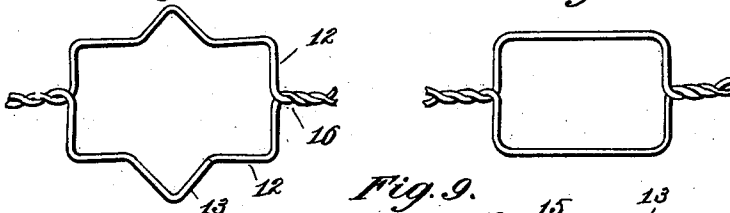
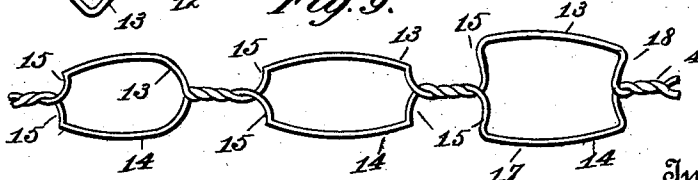


Fig. 9.



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UNITED STATES PATENT OFFICE.

DATUS C. SMITH, OF YONKERS, NEW YORK.

FENCE-WIRE.

SPECIFICATION forming part of Letters Patent No. 578,032, dated March 2, 1897.

Application filed August 28, 1895. Serial No. 560,792. (No model.)

To all whom it may concern:

Be it known that I, DATUS C. SMITH, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Fence-Wire; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements, as hereinafter set forth, in fence-wires.

The object of my present invention is to produce a wire adapted for use in the construction of wire fences generally and possessing the advantages, among others, of visibility, elasticity, and strength.

Briefly stated, fence-wires constructed according to my present improvements are formed of a plurality of strands which are manipulated by any suitable means or devices into a series of alternating twists and open portions extending transversely on each side of the twisted portions. The respective strands going to form the wire are twisted closely together for a portion of their length, and then each strand is for a suitable portion of its length carried out in opposite directions to each other and transversely of the twist into open formation, which may be accomplished by either crimping, bending, or corrugating or coiling the respective wire strands, so as to produce a readily-visible open portion by means of which the fence is readily discernible, and, additionally, an elasticity is imparted to the fence-wire which admits of its automatically adjusting itself to changes of temperature and also to ready adjustment in use and construction, besides maintaining, by reason of their reserve elasticity, the necessary tension on the wires. After such elastic open portions have been formed the respective wire strands are again brought into connection and twisted together and then another elastic open portion formed, and so on. These elastic portions may be of varied contour, as desired, some of which are shown in the accompanying drawings, and each wire may have formed therein, as desired, a series of either one or of a multiple of forms of elastic portions, the principle being the same in each form shown.

In the accompanying drawings, Figure 1 represents in front elevation a fence-wire constructed according to my invention in which the wires are crimped intervening of the twists into a series of open diamond shapes. Figs. 2 and 3 show similar views of a fence-wire having alternating twists and irregularly-shaped variable-contoured open elastic portions formed by crimping the strands of the wires transversely and longitudinally. Fig. 4 represents a front elevation, and Fig. 5 an end view, of a fence-wire in which the strands to form the elastic open portion are separated and curved in the form of an open spiral. Fig. 6 represents an elastic barbed wire formed with open loops mediately of the twists. Figs. 7, 8, and 9 represent in front elevation other forms of wire in which variable-shaped open loops, each, however, presenting the same general characteristics as the rest of the forms shown, are formed by extending and bending or curving the wire strands.

While, as already stated, the same general characteristics as to visibility and elasticity are secured by each of the several forms of open loops, each elastic portion being practically of loop form, yet the degree of elasticity and the amount of reserve and retractive elasticity varies, such elasticity being greater in the spirally-looped form, for instance, than in the crimped loops. The specific form of loop, therefore, to be formed in the wire depends upon the use to which the fence is to be put, its character, location, and such like.

In the drawings I have shown the fence-wire 1 as formed of two strands 2 3. It is manifest that, if desired, the fence-wire 1 may be composed of four wires twisted together in pairs to form a pair of double-twisted strands; but such I do not claim, this suggestion being made simply as indicating one mode by which, where the desired thickness of wire is unobtainable, an extra-strong fence-wire may be produced. It is preferable to use two single strands, the gage of which may vary in individual cases according to require-

In carrying my invention into effect I take two lengths or strands 2 3 of wire and by any suitable means or mechanism twist the same

together into a series of close twists 4 of any desired length, and medietely of said twists and at the time or continuously of the formation of said twists either crimp or otherwise extend said strands in opposite directions transversely of the twist 4, and also along the same plane, into a plurality of preferably elongated loops, which latter may be of varied contour, such, for instance, as in the form of a plurality of combined angular and curved waves 5, constituting an open diamond configuration 6, the bends 7 of which, it will be observed on reference to Figs. 1 and 2, do not contact with each other except under strain.

The loop formed by the crimp in the wires may be of more extended open character, as shown at 8, Figs. 2 and 3, or of the contour shown in Fig. 3 at 9, in which the crimps or corrugations are of more pronounced curvature. In Fig. 4 is shown a slight expansion or development of the configuration heretofore referred to, in that those portions of the strands forming the elastic looped portion are waved or convoluted at a more pronounced curvature than in the conformation marked 6. In the loops 6 it will be observed that the outwardly-projecting portions 10 and the inwardly-extending portions 11 are curved, and should necessarily be so, in order to avoid breakage of the wires at those points, and, as shown, the elastic loops in Figs. 4 and 5 extend in open spiral directions, the spirality in Fig. 4 being open in character and the strands do not intertwine.

In Figs. 7, 8, and 9 are shown modifications in the forms of the open loops. In Fig. 7 the construction is substantially the same as is shown at 8 in Figs. 2 and 3, the only difference being that the ends of the loop are rectangular, as shown at 12, instead of angular, as in Figs. 2 and 3. In Fig. 8 the loop is in the form of a rectangle. In Fig. 9 the tops and bottoms of the loops are curved, as shown at 13 14, and at the respective ends is formed a single crimp or deflection 15 15, corresponding with but somewhat greater than the deflection which would naturally occur in a more open twisting of the wire upon changing in an ordinary manner from a close twist, wherein the divergence would follow in open form the natural parallel of the wires in the close twist intervening between the loops. This divergence may have either a rounded turn, as at 17, or an angular one, as at 18. A plain loop following the natural parallel direction of the twist will not keep sufficiently open, and springs have heretofore been resorted to to hold such loops open, but by extending the wire strands outwardly or transversely of the twists, as shown and described by me, the employment of springs is avoided and the loops are maintained in their open position, thereby insuring the maintenance of the elasticity of the fence under all circumstances and conditions.

My improved wire may be variously used,

as, for example, in a woven-wire fence or with barbs a' , as shown in Fig. 6. In the latter case I prefer to have the loops smaller and with curved tops and bottoms. This is for economy in construction, especially as to weight of fencing per rod. By this means a greatly-desired feature will be secured, namely, the production of an elastic barbed wire. I prefer that the barbs be placed on the close-twisted portion, as shown, with the open loops occurring at suitable intervals, say once in four feet, though that distance may be varied, and the barbs may be secured to the looped portion, if desired.

I am aware that a spring-bed has heretofore been constructed comprising a series of longitudinal spring-sections, each formed of wires twisted together and bent at intervals, so as to form laterally-projected rings or loops, the rings of each section connecting with those of an adjacent section, and independent adjusting devices at the ends of said sections, whereby the springs may be fitted to beds of different widths and be tightened longitudinally, each independent of the others, and I make no claim to such constructions.

Having thus described my invention, what I claim is—

1. A fence-wire consisting of a pair of strands or wires twisted together at intervals and spread apart between the twisted portions so as to form an alternating series of twists and elongated visible open loops; each member of the composite wire being bent outwardly at its junction with the twist at an angle thereto and extending thence substantially parallel with the twisted portions to its junction with the bend uniting the same with the next adjacent twist; whereby an alternating series of twists and transversely-extending elastic open loops are provided without interlacing or connecting with adjacent wires or loops and an elasticity is imparted to the fence which adapts it to automatically adjust itself to changes of temperature while securing the necessary tension on the wires, substantially as described.

2. A longitudinally elastically extensible fence-wire adapted to extend horizontally and be secured to fence-posts suitably spaced apart, comprising a pair of strands closely twisted together at intervals throughout its length and provided with an elastic open loop or eye between each pair of twists, so as to form an alternating series of twisted and looped portions; said loops or eyes having their sides crimped or undulating and formed by bending the strands in opposite directions transversely of said twists, so as to extend on opposite sides thereof, whereby an elastic wire is secured having conspicuous loops along its length and which will automatically adjust itself to various changes of temperature and maintain at all times the necessary tension thereon, substantially as described.

3. A longitudinally elastically extensible fence-wire adapted to extend horizontally and

be secured to fence-posts suitably spaced
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length and provided with an elongated elastic
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looped portions; said loops or eyes having an-
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ing the strands in opposite directions trans-
10 versely of said twists, so as to extend on op-
posite sides thereof, whereby an elastic wire

is secured having conspicuous elongated loops
and which will automatically adjust itself to
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at all times the necessary tension thereon, 15
substantially as described.

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

DATUS C. SMITH.

Witnesses:

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P. G. SWENSON.