

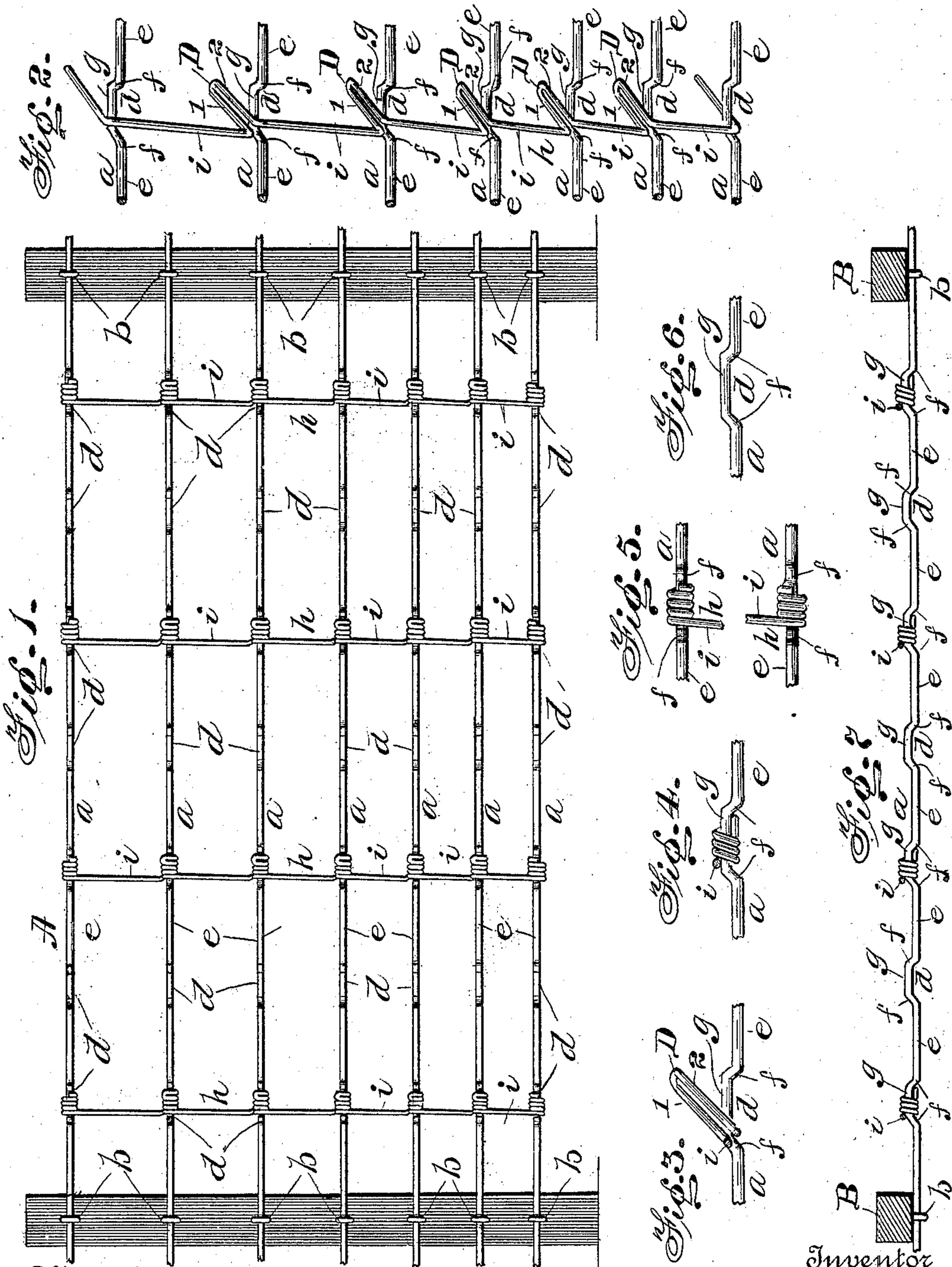
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P. A. REID.
FABRIC FENCE.

(Application filed Oct. 27, 1900.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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FABRIC FENCE.

SPECIFICATION forming part of Letters Patent No. 689,021, dated December 17, 1901.

Application filed October 27, 1900. Serial No. 34,646. (No model.)

To all whom it may concern:

Be it known that I, PETTIS A. REID, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Fabric Fences; 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 wire fences; and it consists substantially in such features of improvement as will hereinafter be more particularly described.

The invention has reference more particularly to that class of wire fences denominated in the art as "fabric" fences and is of the "square-mesh" order, wherein the longitudinal or strand wires and the stay-wires cross each other at right angles and are secured together at the points of intersection.

The object of the invention is to provide a wire-fabric fence possessing maximum strength and great durability combined with perfect tension and equal elasticity throughout and one also in which there is the greatest possible resistance to thermal changes, as well as to the action of wet and moisture, and in which also the parts are not required to be tightened up from time to time, as is very frequently the case with many former constructions.

A further object of the invention is to provide a fence of the character named which can be readily woven and erected with great rapidity and which can be made to conform to irregular or tortuous lines of direction, as well as to undulating ground-surfaces over or upon which the fence may be built.

The above and additional objects I attain by means substantially such as are illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of a section of wire-fabric fence constructed and arranged substantially in accordance with my invention. Fig. 2 is an enlarged perspective view of one of the vertical stays or connecting-wires and showing the formation therein at intervals of the loops which at the time of constructing or weaving the fence are bent or twisted around portions of the longitudinal or strand wires, and thus firmly secure the

two together. Fig. 3 is a plan view of said stay to show the angle of the loops therein. Fig. 4 is also an enlarged plan view showing the completed fastening between the longitudinal and stay wires as formed by the loops or "kinks" on said stay-wires. Fig. 5 is an enlarged detail showing the construction of fastening between the free ends or extremities of the vertical stay-wires and the uppermost and lowermost longitudinal or strand wires of the fence. Fig. 6 is also a similar view in plan, showing the form of elastic bend or kink in the longitudinal or strand wires which is for taking up expansion due to changes of temperature, as well as to form a seat for uniting with the bent or twisted loops of the stay-wires to prevent displacement of either wire from its proper relation to the other, thereby maintaining the integrity of the fencing. Fig. 7 is a sectional plan view of Fig. 1 on a line taken just above any one of the longitudinal or strand wires.

Preliminary to a more detailed description it may be stated that according to the height to which the fence is built or woven the same is equally adapted as a park-fence, a farm-fence, or a fence intended for general purposes, the principal difference being in the number and size of longitudinal or strand wires employed. The said longitudinal or strand wires are preferably formed of tempered steel to more effectually resist the action of the elements, and the vertical or stay wires may also be formed of the same kind of metal, preferably of lower carbon, if desired, and smaller in size or lighter in weight. Above the uppermost longitudinal or strand wire a suitable barbed wire may be placed or supported when desired, according to the purpose for which the fence is intended, and at proper intervals suitable section stay-posts are preferably inserted in the ground for the purpose of supporting or suspending the fencing in position. These section stays or posts may be constructed of wood, metal, concrete, or other material adapted for the purpose.

Reference being had to the accompanying drawings, A designates as a whole a section of metallic-fabric fencing formed or woven in accordance with my invention, the said fencing comprising in the present instance seven longitudinal or strand wires *a*, which are

tempered or not or of greater or less carbon, as desired, so as to resist external influences, and said wires are supported at intermediate points *b* upon the vertical section stays or posts *B*, of wood, metal, concrete, or other suitable material, which are erected in the ground or in any other preferred manner. As shown more clearly in plan view at Fig. 6, each of said longitudinal or strand wires *a* is formed at regular intervals with bends or kinks *d*, which preferably occupy the same horizontal plane with the intermediate alternating straight portions *e* of said wires, the said bends or kinks being substantially angular at the intersection of the short connecting portions *f* thereof with the main wires and the offset portions *g*. These bends or kinks take up but a comparatively short section of the wires, enough only to form a snug seat for the loops of the stay-wires, hereinafter described, and, as will be observed, they are preferably located or arranged one directly above the other for uniformity of action. Said wires *a* may be arranged any preferred distance apart, they being shown herein with gradually-increasing widths of space between them from the bottom upward. Any selected number or all of the said bends or kinks *d* may be utilized in forming secure seats or fastenings between the wires *a* and vertical stay-wires *h*; but preferably I have selected alternating ones thereof, as shown, since such an arrangement tends to better preserve the strength and general integrity of the fencing. Thus the said vertical or stay wires *h* are each formed at heights substantially corresponding to the heights of wires *a* with loops *D*, which when properly bent or twisted around the bends or kinks *d* extend to one side or the other (according to the side on which the loops are formed) of said stay-wires *h*, the coils formed by said twisted loops being practically parallel with the longitudinal or strand wires *a*. The said loops *D* are each originally bent outward in such manner that when placed in position to be twisted around the kinks *d* the sides 1 and 2, together with the connecting portion or extremity thereof, are in substantially the same horizontal plane; but each of said loops as a whole assumes an angle to the strand-wires less than a right angle, which position enables the loops to be taken up with greater facility when the twisting or wrapping of the loops is effected. In said Fig. 2, for example, a single stay-wire *h* is shown as suspended upon the strand-wires *a* preparatory to twisting or wrapping the loops *D* of said stay-wire around the kinks of said strand-wires. The twisting or wrapping of the loops is effected by the use of a suitable implement or machine (not shown) in the hands of the operator or weaver. It will also be seen in Fig. 2 that the intermediate portions *i* of the stay-wires *h* are in substantially the same vertical plane with the strand-wires *a*, but that they incline or slant downwardly to the left between adjacent

loops, (being a necessary result of the construction,) the degree of such inclination or slant being in proportion to the distance between the loops—that is to say, theoretically the inclination of slant is greater as the distance between said loops decreases. It is evident that if the loops are formed on or made to reside at the other side of said vertical stay-wires *h* then the direction of slant or inclination of the said intermediate portions *i* will be opposite to that just described, or to the right downwardly. In such latter case also the twisting or wrapping of the loops around the kinks will then be effected from right to left. Preferably, however, I employ the construction and arrangement as herein shown.

It is evident that if the fencing is required for any purpose to be made to set outwardly or inwardly from the section-stays *B* it is only necessary to form the kinks thereof quite deep and either outwardly or inwardly at substantially direct right angles, which will partially result in the effect desired.

The loops *D* of the stay-wires *h* are all preferably bent or twisted in the same direction; but the upper and lower extremities of said stay-wires are wrapped or twisted in opposite directions around kinks in the uppermost and lowermost strand-wires *a*, respectively—that is to say, one of such extremities (in the present instance the upper one) is wrapped around the uppermost strand-wire in the same direction in which the loops *D* are wrapped, while the other extremity (the lower) is wrapped around the lowermost strand-wire in the opposite direction. By thus fastening or wrapping the ends or extremities of the stay-wires all slack in such wires is taken up and which gives to the said wires the desired tenseness and leaves the strand-wires fully and equally distributed in their vertical positions, which is the primary purpose of said stay-wires.

In weaving or constructing the fence the weaver employs two independent machines, (not shown,) one to form the stays *h* and the other to weave them into the partly-formed fabric constituted of the strand-wires *a*. By the use of the latter machine the loops are twisted or wrapped around the kinks or seats *d* of wires *a*, as described, and by referring to Figs. 2 and 5 the construction and arrangement will be fully understood. It will further be seen that my improved fastening between the strand and stay wires is very secure, since the latter are not liable to fall to one side or the other even after long use, and the former are likewise prevented from endwise or longitudinal movement under any condition of use. The advantage in the short angular shape of seats or kinks *d* is that said kinks will stand a much greater longitudinal strain to which the strand-wires may be subjected and will not straighten or pull out lengthwise, which would cause the fence to sag or "buckle" in such manner as to almost

completely destroy the function of the fence as such.

Various other advantages could also be pointed out, and therefore I do not limit myself to the particular details of construction shown and described.

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

10 1. A vertical stay for wire-fabric fences, comprising a wire having loops formed therein at intervals, the sides and connecting portion of each loop being in substantially the same horizontal plane, and said loops each extend-
15 ing obliquely to the wire at less than a right angle.

2. A vertical stay for wire-fabric fences, comprising a wire having oblique loops formed therein at intervals, the sides and connecting
20 portion of each of said loops being substantially in the same horizontal plane, and the intermediate portions of the wire being inclined to one side between the loops.

3. A vertical stay for wire-fabric fences,
25 comprising a wire having free ends or extremities, and formed at intervals with oblique loops, the sides and connecting portion of each of said loops being in substantially the same horizontal plane.

4. A vertical stay for wire-fabric fences, 30 comprising a wire having free ends or extremities, and formed at intervals with oblique loops, the sides and connecting portion of each loop being in substantially the same horizontal plane, and the intermediate portions 35 of the stay being inclined to one side between the loops.

5. A wire-fabric fence, comprising a series of strand-wires each having at intervals angular horizontal bends forming short offsets 40 extending parallel with the main portions, and a series of vertical stay-wires each formed at intervals with loops having their sides and connecting portions in the same horizontal planes and twisted around said offsets, said 45 loops each joining with the vertical portions of its wire in single direct bends, whereby the stay-wires are each relieved of torsional strain at the said connecting portions of the loops, as well as at the points of intersection of the 50 sides of the loops with the vertical portions of the wire, substantially as described.

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

PETTIS A. REID.

Witnesses:

G. S. ROHR,
EVERETT R. LEMON.