

No. 714,178.

Patented Nov. 25, 1902.

J. HARRIS.

WIRE FENCE.

(Application filed Mar. 3, 1902.)

(No Model.)

Fig. 1

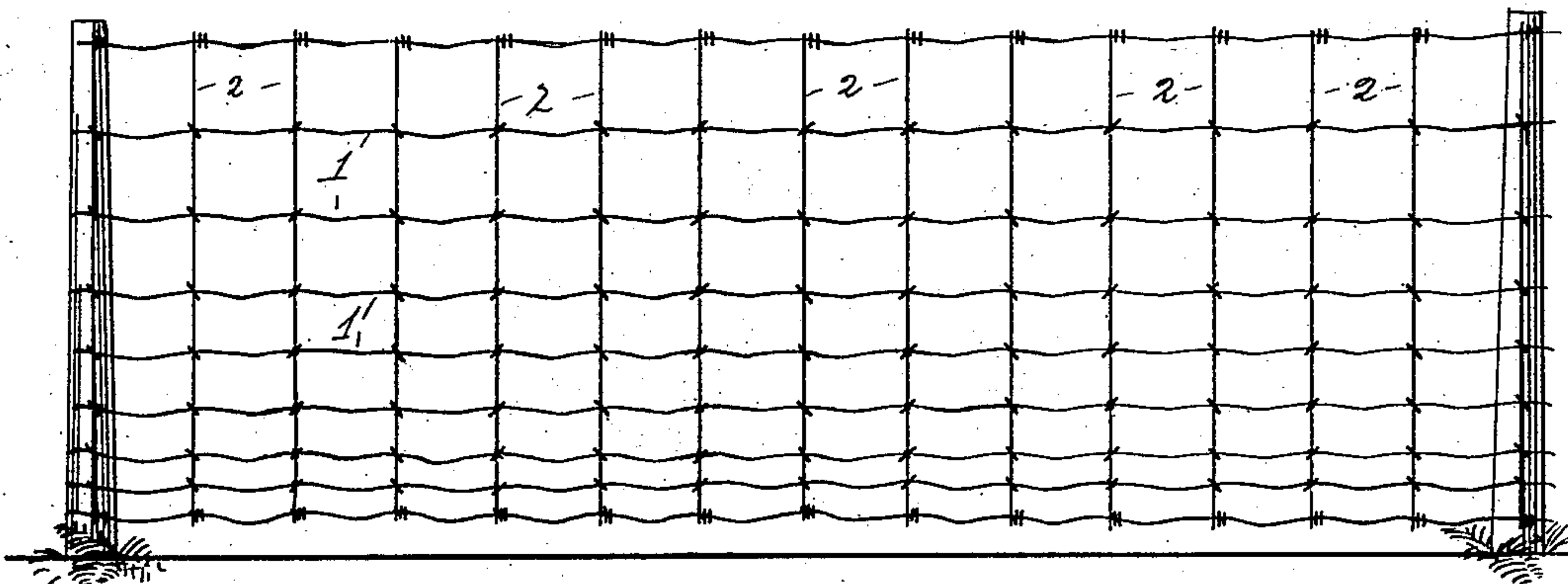


Fig. 2

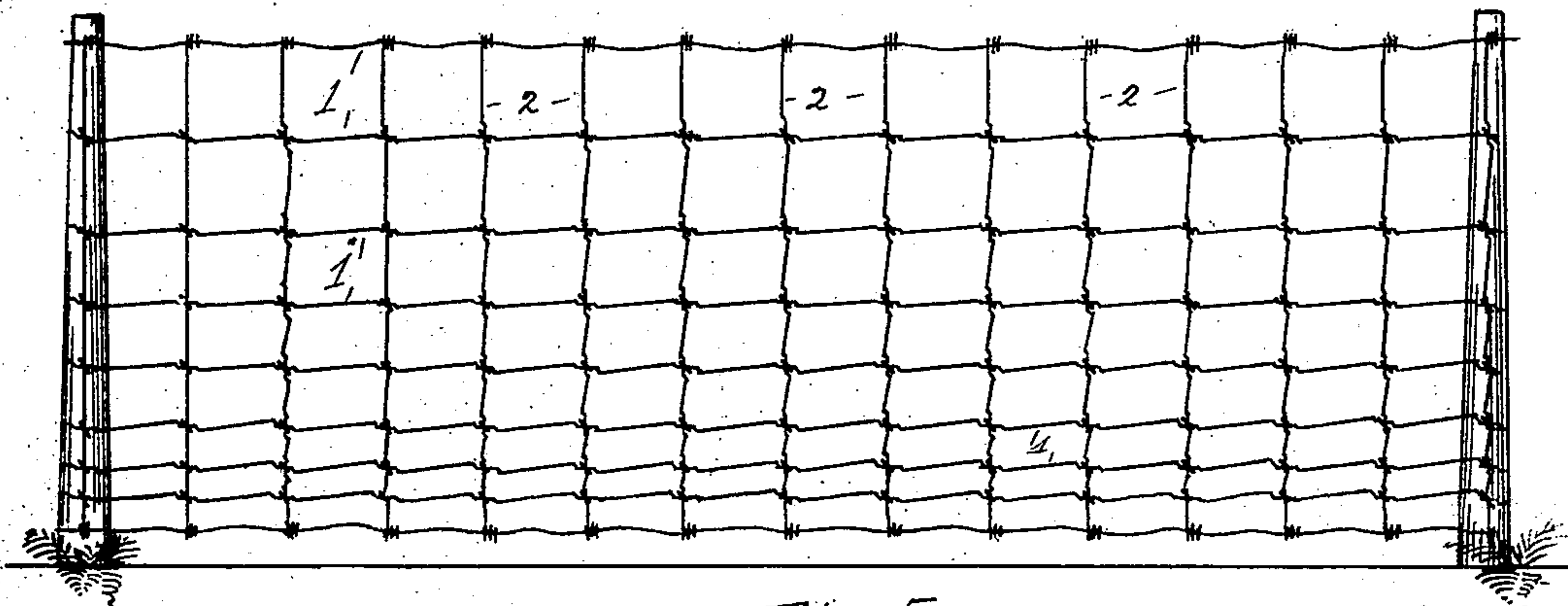


Fig. 5

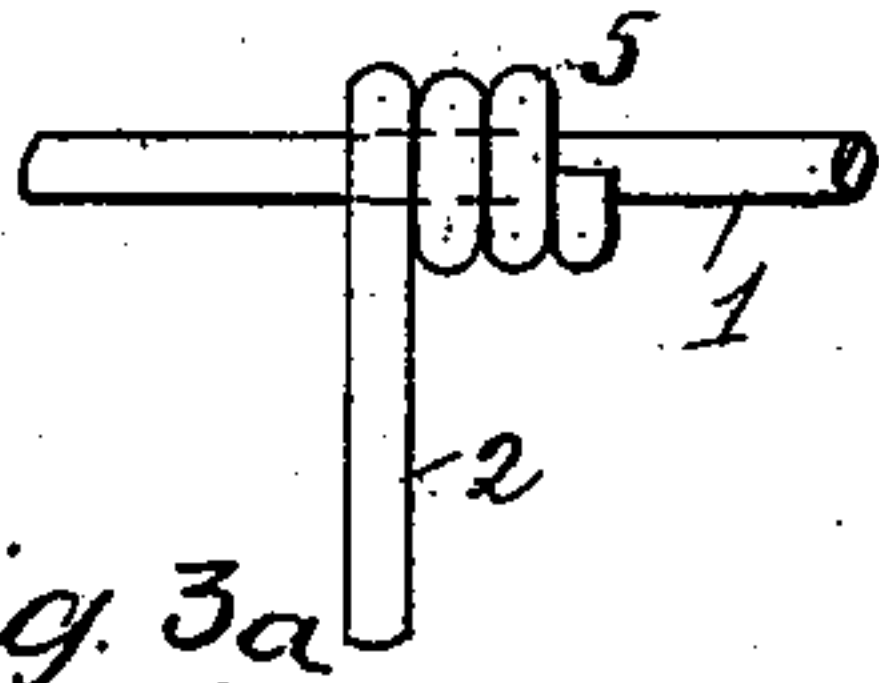


Fig. 6

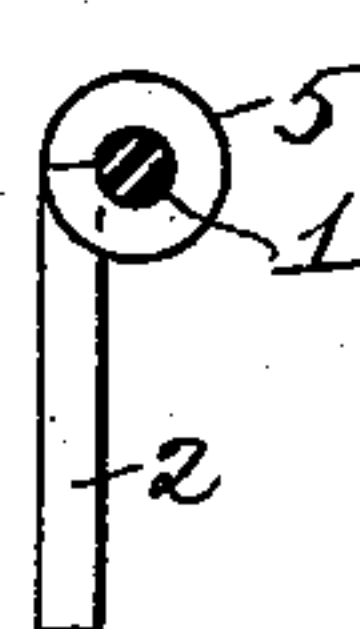


Fig. 3a

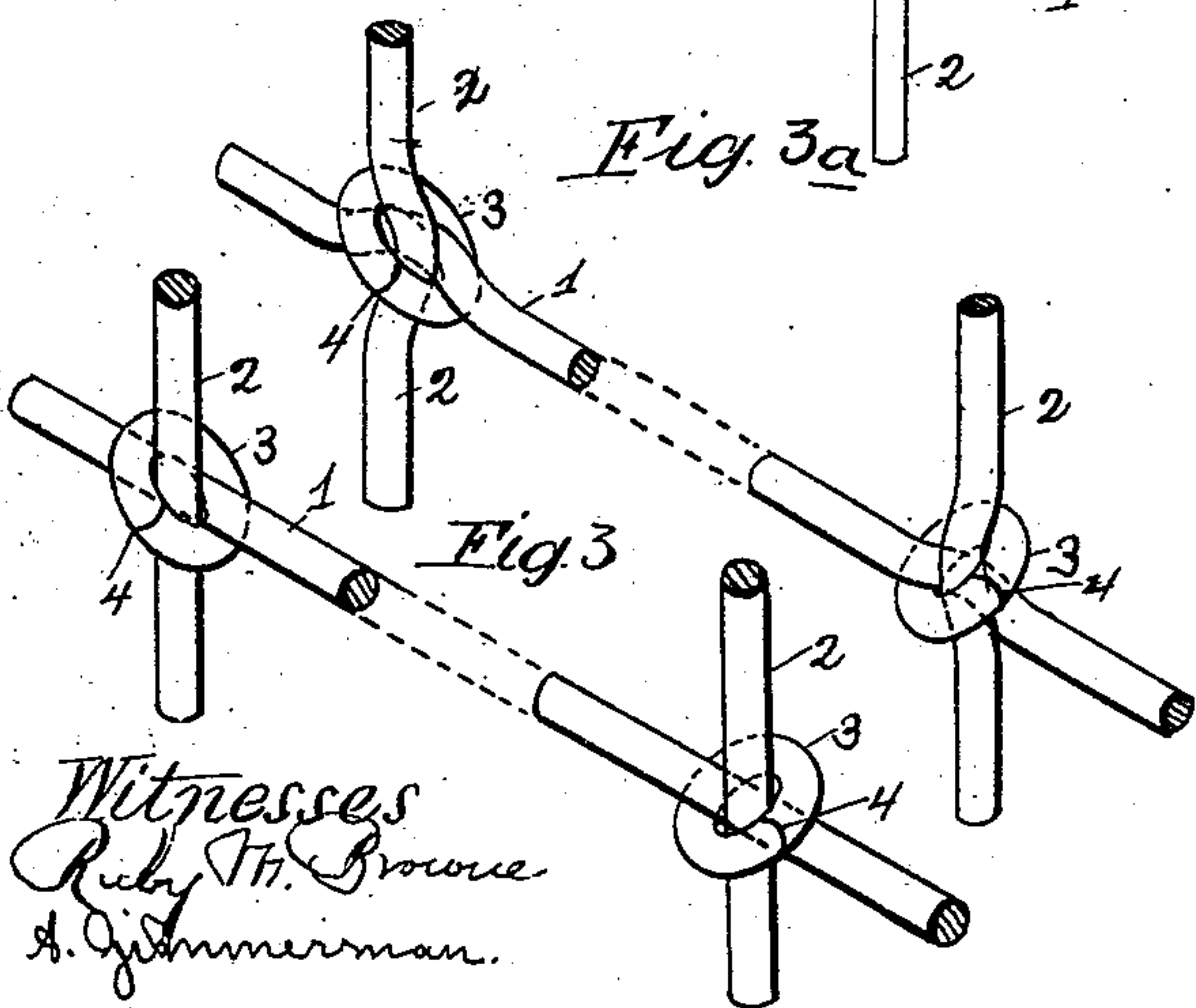
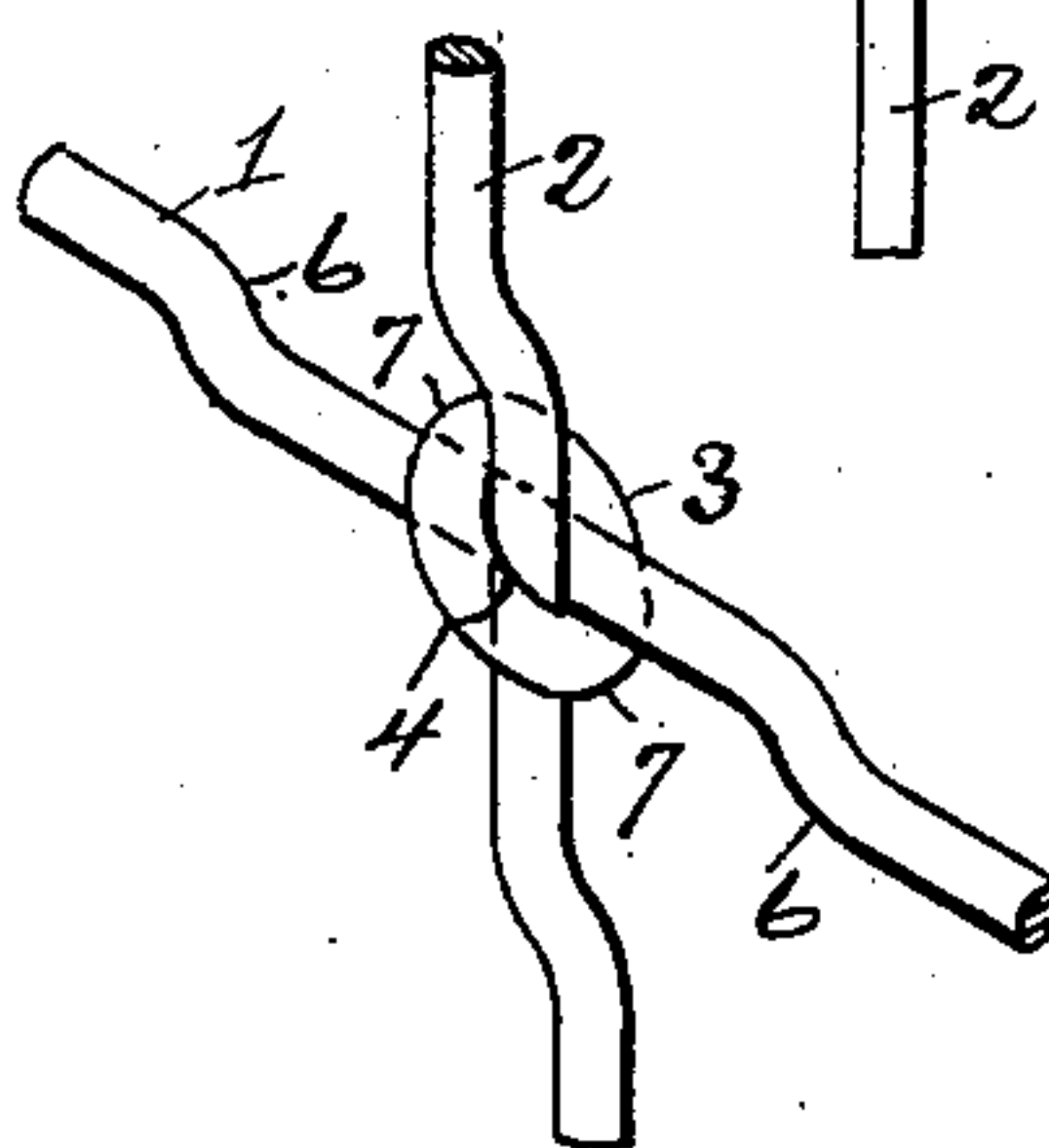


Fig. 4



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WIRE FENCE.

SPECIFICATION forming part of Letters Patent No. 714,178, dated November 25, 1902.

Application filed March 3, 1902. Serial No. 96,429. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN HARRIS, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Wire Fences, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in woven-wire fence designed to be made in the shop ready for attachment to the posts in the field; and the objects of the invention are to provide a form of fence which will be to some extent elastic and will readily adapt itself to the surfaces of undulating ground and in which all the line-wires will remain stretched and under tension and unaffected by the contraction and expansion caused by variations of temperature.

A further object is to provide a clamping device for the wire crossings so arranged that the clamps upon adjacent stay-wires will have reciprocal binding effects upon one another, so that a weight, as of a person climbing over the fence or of an animal leaning thereon, will only tend to more securely tighten the grip of the clamps and prevent them from slipping upon the wires.

My invention consists, primarily, in the waved or undulating line-wires, which provide some elasticity in the completed fence. This has been previously obtained by means of forming the wires in elongated spirals, but has been disadvantageous in its effects upon the life of the wire, for the reason that the coiling machinery by means of which the spiral was made hardens and makes the wire brittle, besides scraping and injuring the galvanized surface. Simply waving the wire, however, makes it equally elastic without injuring it in any respect.

My invention further consists in the ring-shaped clamps diagonally passing around the wire crossings and in their reversed position upon adjoining wire crossings, in the selvage edge for the fence, and in the means for affording limited play to the clamps, as herein-after described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a complete section or panel of fence mounted upon its posts at either end. Fig. 2 is a completed section of fence, showing a modified form, in which the wires are all slightly bent at the crossings twice in the same direction, which takes the place of the wave shown in Fig. 1, or the wave may be used in addition thereto, if desired. Fig. 3 is an enlarged view of two wire crossings, the connecting line-wire being shown partly in dotted lines. Fig. 3^a is a similar view showing the crossings made more rigid by means of sharp crimps in the wires which the clamping-ring encircles. This, however, is more or less injurious to the wires, and for that reason not as desirable a form of construction. Fig. 4 is a perspective view of a crossing and clamp thereon enlarged from Fig. 2, where each wire is shown bent upon each side of the clamp and continuously in one direction. Fig. 5 shows the extremity of one of the stay-wires wound about the upper wire, thus making a smooth finished edge. The lower extremities of the stay-wires are also wrapped about the lower line-wires, as shown in Figs. 1 and 2. Fig. 6 shows one manner of securing the extremities of the stay-wires to the upper and lower line-wires.

In the views, 1 represents the line-wires; 2, the stay-wires; 3, the circular clamps which are bent by means of suitable dies about the wire crossings, so that the extremities butt together at 4. These clamps can be tightly or loosely fixed about the crossings, as desired, since they cannot possibly come off.

The line-wires, as shown in Fig. 1, are waved or undulating on the vertical plane only, which makes the entire fence elastic, so that the upper or lower edges can be slightly lengthened if one end of the fence is raised or lowered to conform to the shape of the ground. This waving of the wire on one plane is obtained by means of a machine described in an application for a patent filed simultaneously herewith and is formed in the wire by means of oppositely-moving curved blocks, which impress their curves upon the wire and is not to be confused with the spiral wire now employed for the purpose.

The stay-wires are secured to the line-wires by means of the circular clamps, and the

clamps are preferably set to brace or lock one another, as seen in Fig. 3, where the clamps on adjacent crossings are reversed in position, thus lying at different angles, so that neither
 5 can be moved upon its wires without clamping the other one more tightly than ever, whereas if all the clamps were secured at the same angles they could be made to slide together. It will be readily seen in Fig. 3
 10 that the weight of the foot upon the line-wire between the clamps will cause both clamps to bind more tightly than before upon the vertical wires.

In Fig. 6 the extremity of the stay-wire is
 15 shown wound about the upper wire at 5. This makes a very neat finish and a smooth edge, which will not catch or tear anything brought into contact with it and makes a fine appearance.

In Fig. 4 a peculiarity in the waving of the line-wires is shown, where 6 represents short bends, one on each side of the ring-clamp and on both the stay and line wires. This permits some freedom of movement if the clamp is
 25 loosely set about the crossing and permits some play of the wires upon each other if a sudden change in the inclination of the ground should require a bend in the fence. The peculiarity of this feature of construction is
 30 found in the fact that each bend is repeated in the same direction, which has the effect of engaging the projecting edge only of the ring, as at 7, on each side directly with the shoulder as the ring moves from side to side. This
 35 prevents the ring from moving past the shoulder, which could not occur if the parts had any other relation to one another. This form of crossing can be used also with the waved wire, but is useful without, and the rings can
 40 also be reversed in position, if desired.

It can be said of this invention that its advantages are great in its extreme simplicity and freedom from sharp or projecting points, that tear or injure the hair or wool of animals, and, furthermore, there are no crevices
 45 for the collection of moisture to rust the fence, which is especially the case in the movable joint shown in Fig. 4, which, being loose, dries out as quickly as the rest of the fence.

50 Another important advantage is found in the fact that any size of wire can be employed to clamp the fence-wires and also for the wires composing the fence.

I believe myself to be the first to wave the line-wires on one plane, to reciprocally lock
 55 the clamps upon the joints, and to form a loose joint with a clamp loosely set therein, but limited in its movement.

Having described my invention, what I claim as new, and desire to secure by Letters
 60 Patent, is—

1. The combination with a wire fence of line and stay wires, and clamps upon the wire crossings, comprising metal rings diagonally
 65 placed thereon, the rings upon adjacent joints being reversed in position in relation to one another, substantially as described.

2. The combination in a wire fence, of line and stay wires, clamps upon the wire crossings, comprising, rings diagonally placed
 70 thereon, the rings upon one set of joints being reversed in angular position relatively to the rings upon the adjacent joints, and finished smooth edges to the fence, comprising upper
 75 and lower line-wires and the extremities of the stays wrapped thereon, substantially as described.

3. The combination with the line-wires of a fence, wound in one plane only and the stay-wires therefor, of means for securing the wires
 80 together comprising ring-clamps diagonally placed on the wire crossings, the rings on alternate joints being reversed in angular position, and the wrapped extremities of the stay-wires, substantially as described.
 85

4. The combination, in a wire fence, of line-wires wound in one plane only, stay-wires secured thereto, and means for securing the stay-wires to the line-wires, consisting of the
 90 wrapped extremities of the stay-wires, and rings diagonally encircling the wire crossings, the rings on adjacent joints being reversed in position relatively to one another, and means for preventing the rings from slipping on the
 95 line-wires, consisting of a bend on each side of the ring and closely adjacent thereto, the wire being twice bent in the same direction, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of
 100 two subscribing witnesses.

his
 JONATHAN X HARRIS.
 mark

Witnesses:

WM. M. MONROE,
 C. H. OLDS.