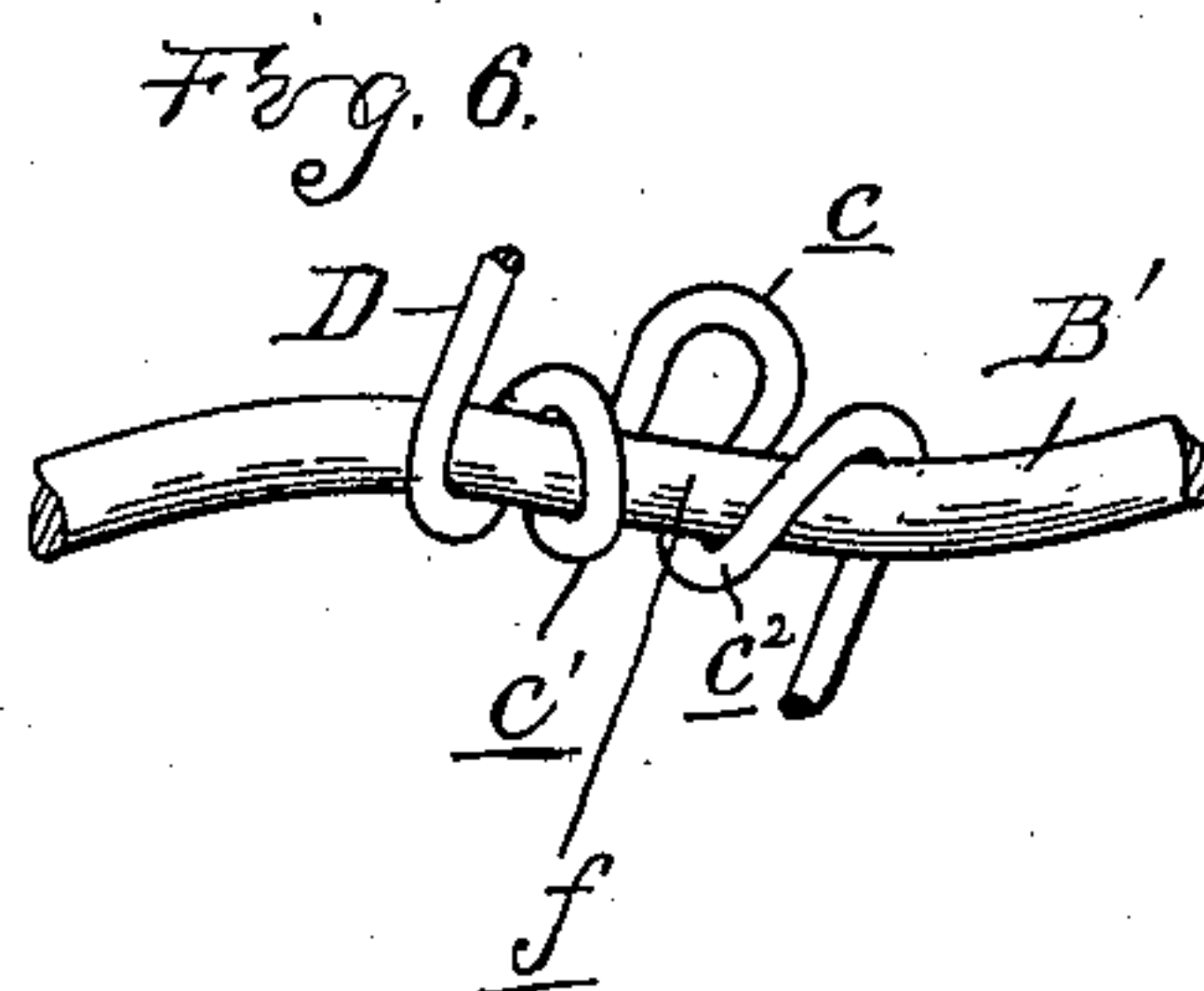
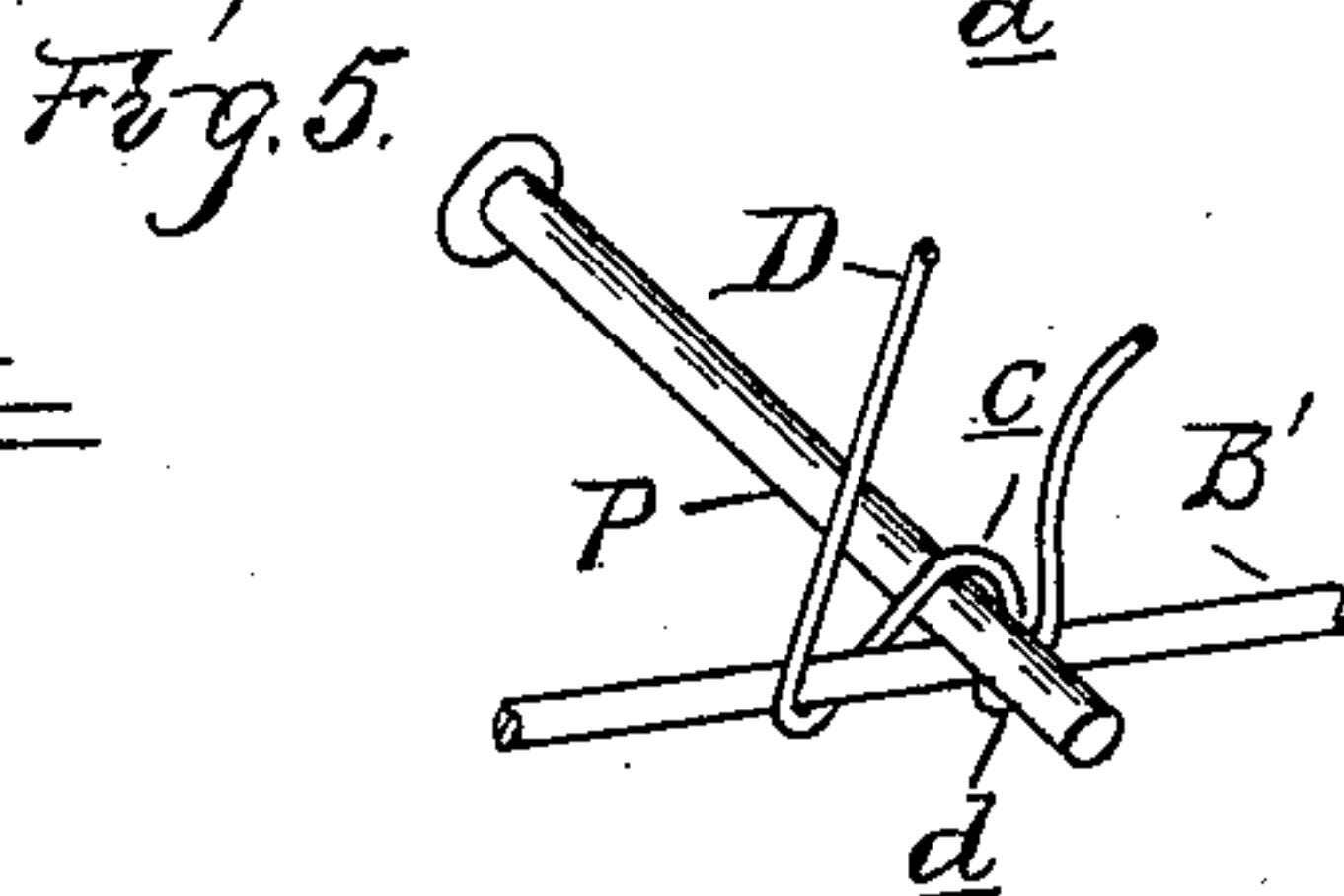
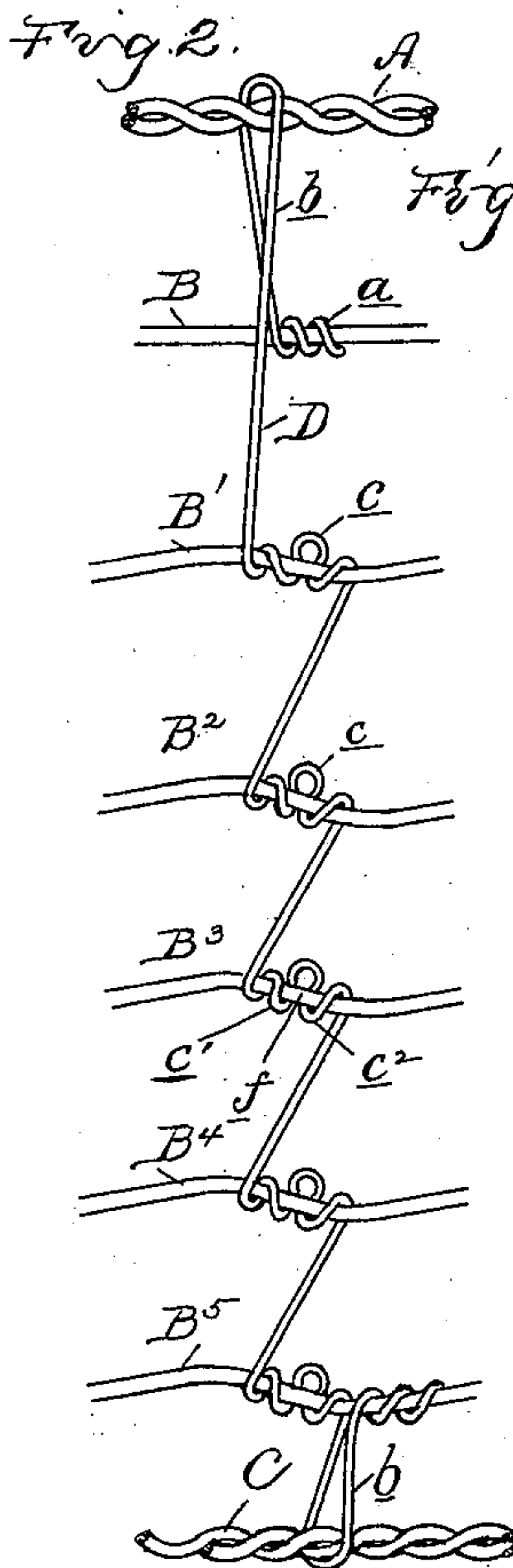
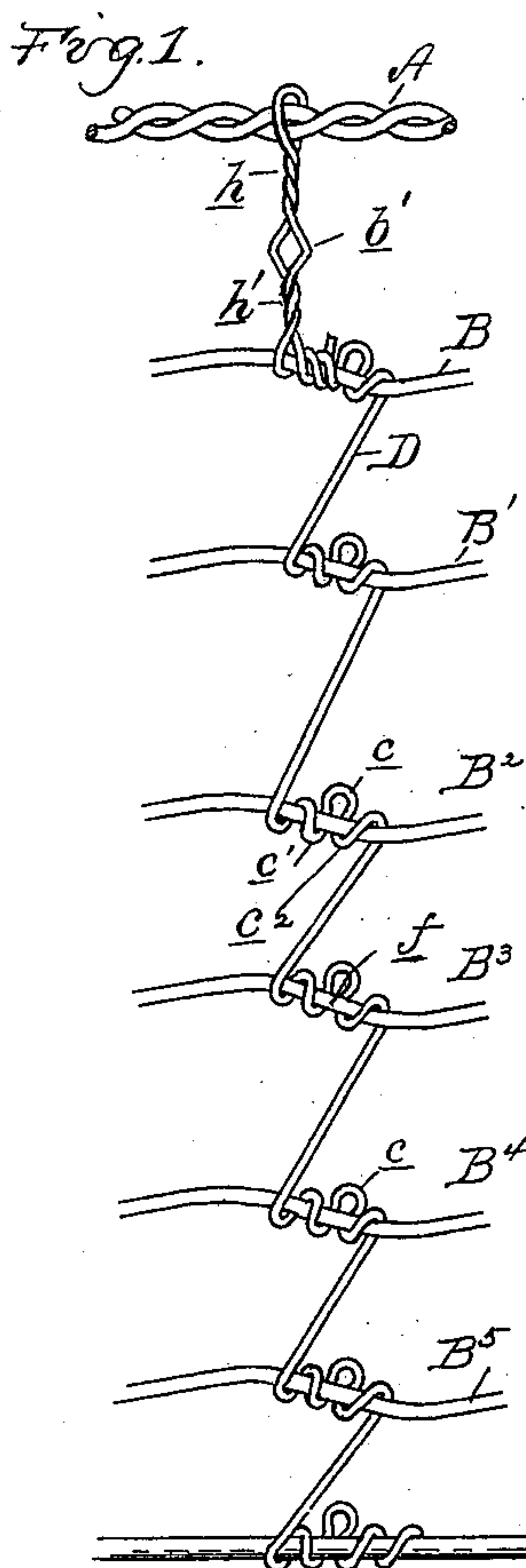
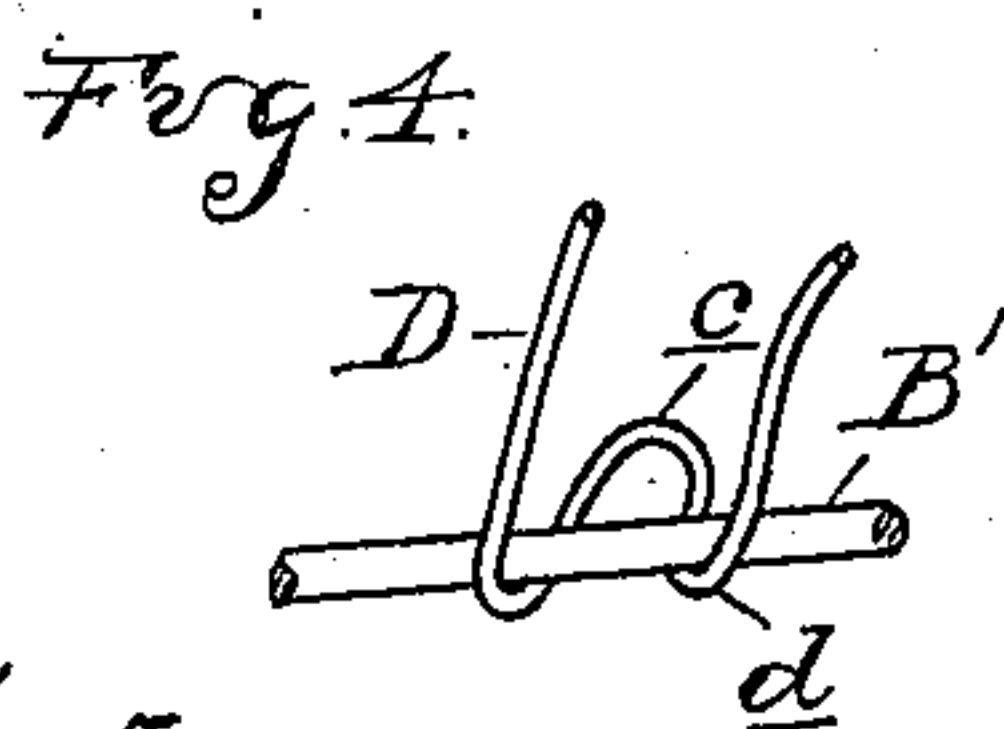
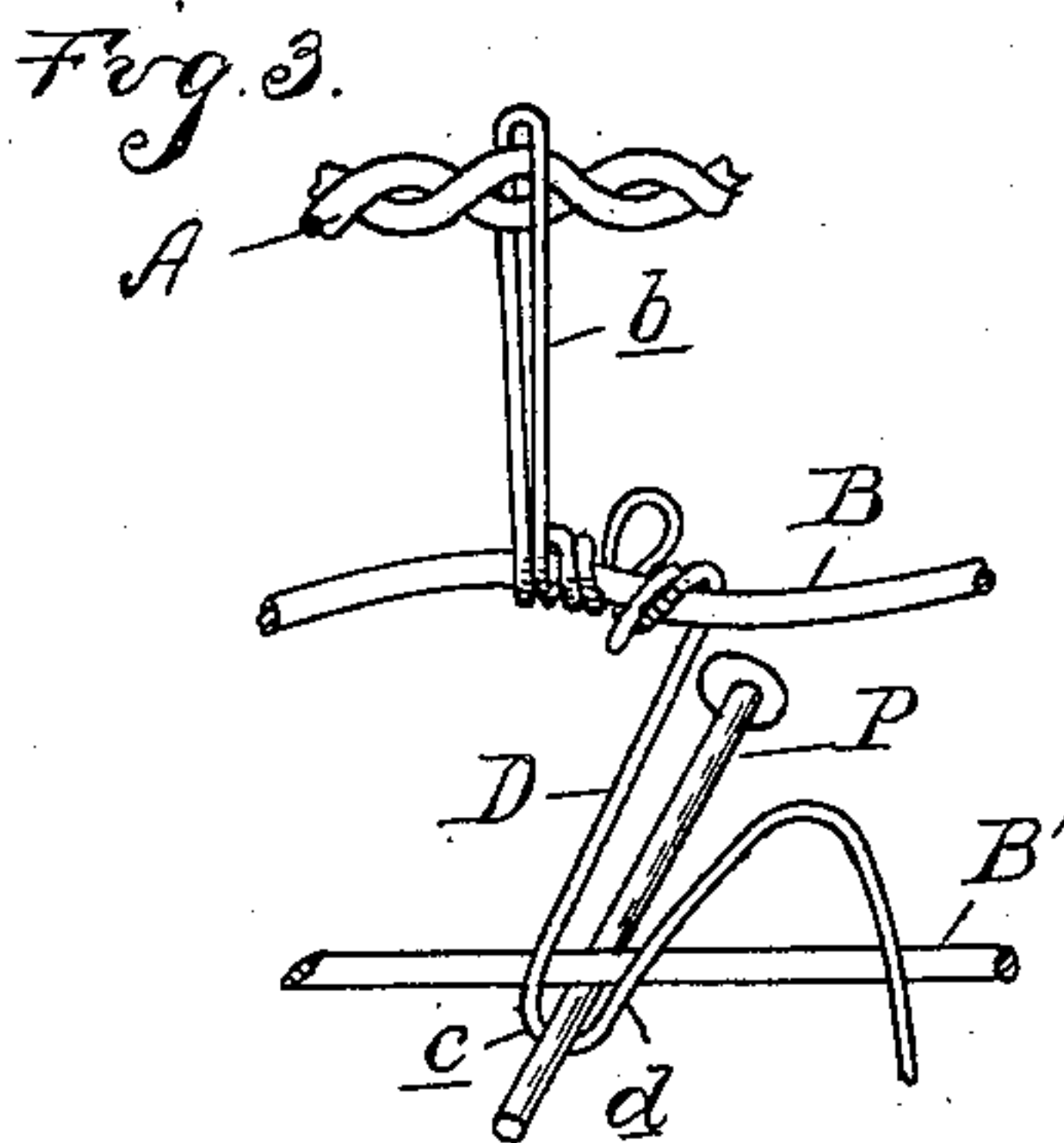
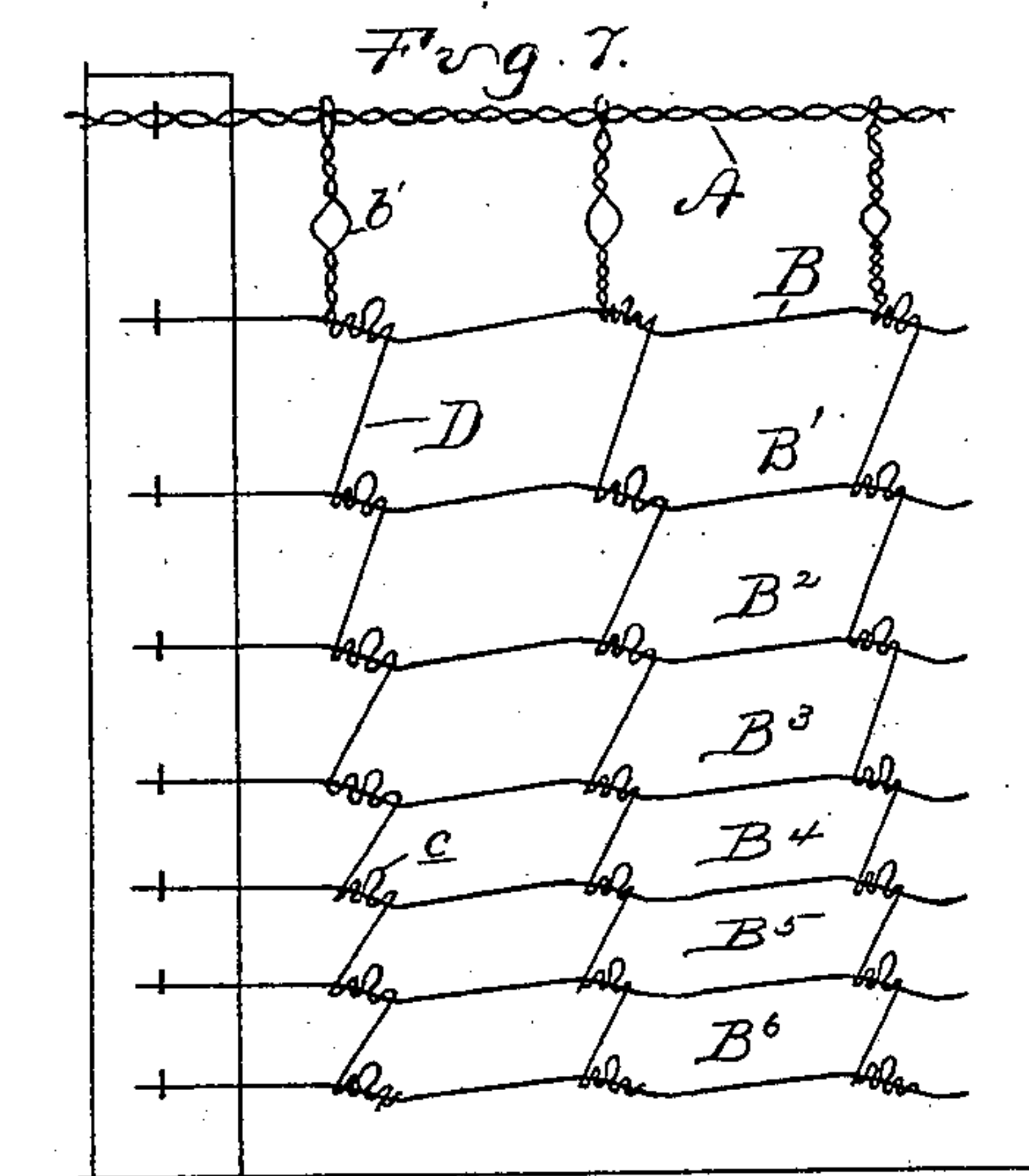


(No Model.)

G. D. LOCKWOOD.
WIRE FENCE.

No. 594,207.

Patented Nov. 23, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE D. LOCKWOOD, OF YPSILANTI, MICHIGAN.

WIRE FENCE.

SPECIFICATION forming part of Letters Patent No. 594,207, dated November 23, 1897.

Application filed June 25, 1897. Serial No. 642,333. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. LOCKWOOD, a citizen of the United States, residing at Ypsilanti, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Wire Fences, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of wire fences in which a series of horizontal line-wires are connected together at intervals by vertical or substantially vertical stay-wires. In the construction of this class of fences it is the general practice to use a cable for the top line in preference to a single wire which is used for the other lines on account of the unusual strain which the top wire has to bear on account of people climbing over or on account of the habit of horses or other stock to bear down upon the top wire. For the same reason a cable is often used for the bottom wire where small stock is confined within the fence, especially hogs, which have a habit of trying to push their way underneath the fence. The use of such cables for the purpose, in combination with single line-wires, however, makes a fence which in time becomes very unsightly, for the reason that as the cables under the circumstances naturally will be stretched more than the intermediate wires the fence cannot be tightened if constructed in the usual manner without throwing the stay-wires all out of line.

35 The object of my invention is to overcome this condition and provide means for tightening the cables of such fences independently of the other wires; and to this end my invention consists in constructing the fence in such manner that the stay-wires loosely engage upon the cables and freely pass through eyes formed thereon, all as more fully hereinafter described, and shown in the drawings, in which—

45 Figures 1 and 2 are elevations of short sections of fence embodying my invention in slightly-different forms of construction. Figs. 3, 4, 5, and 6 are diagrams illustrating the *modus operandi* of applying the stays, and Fig. 7 is a diagram of a completed section of fence.

A indicates a cable forming the top line-wire.

B B' B², &c., are the single line-wires, and C in Fig. 2 is a cable forming the bottom line-wire. 55

D are the vertical stay-wires, which, as usual, are of smaller gage than the line-wires.

In building the fence the line-wires are first strung on the posts as in the usual manner 60 and the desired distances apart. Then the stay-wires are applied thereto in the following manner: In constructing a stay the operator takes the free end of the stay-wire and, passing it over the top of cable A, fastens it by means of a few turns *a* to the line-wire B next below the cable. In this manner he forms the loop *b* over the cable A, as more particularly shown in Figs. 2 and 3. The operator then proceeds to secure the stay-wire successively to every one of the single line-wires, beginning from the top down, or as shown in the modification in Fig. 2, omitting the first line-wire B. This may be accomplished in any of the various known 75 ways, but preferably I accomplish it in the following manner: The operator, being provided with a pin, as P, holds the same in position below the line-wire and engages it with a loop *c*, formed in the stay-wire, as shown 80 in Fig. 3, and then by a half-turn with the pin P wraps the same around the line-wire, thereby obtaining the half-wrap shown in Fig. 4. Then the operator removes his pin and reinserts it again into the loop, as shown 85 in Fig. 5, and making with it a full turn. By a peculiar use of the pin P, I obtain a very effective and secure connection between the line and stay wires, and to this end I hold the pin P during this last operation in such 90 a manner that its free end, after passing through the loop *c*, bears against the coiled portion *d* of the loop as the fulcrum, thereby firmly nipping the same against the line-wire during the entire operation of completing the 95 wrap, which then consists of the loop *c* with the adjacent coils *c'* *c*², as shown in Fig. 6. The new result is that the additional wire, which is taken up in the completion of the wrap, cannot be drawn from the loose or un- 100 secured ends of the stay, (from which it would actually be drawn if it were not held fast be-

tween the tool and the line-wire,) but is drawn from the portion of stay already secured, and the consequence is that the portion of stay between the previously and the last completed wrap is not only tensioned to its limit, but is also shortened to such an extent that it puts a bend into the main line-wire, and in the completed fence every line-wire at its intersection with the stay will thus have the portion *f*, upon which the wrap is located, bent out of line, and this bend prevents the lateral displacement of the stay upon the line-wire, while the bends in the main line give it a chance to contract in cold weather.

In previous constructions of similar fences kinks or bends have been made in the line-wires by means of a tool previous to applying the stays. In my construction I not only do away with the extra operation and thereby save time, but the bends I produce are of an entirely different nature, as they are not such permanent deflections of the wire as they naturally are when formed with pliers or in like manner, but they are elastic deflections or bends, as shown by the different appearance of the line-wires, and as a consequence the stays are under constant tension and remain always tightly interlocked with the line-wires and serve as the medium for equalizing the tension through the length and width of the whole fabric, thus increasing the lasting quality and appearance of the fence. After the stay is thus secured to each single line the loop *b* is then preferably twisted by inserting the tool into it midway between the cable and the line-wire B next below it and turning it until the loop is contracted to a loop *b'*, as shown in Fig. 1, the rest of the loop being formed thereby into the reversely-twisted portions *h h'*.

In order to obtain the object of my invention, the twisting, however, is not carried far enough to cause the eye *b'* to bind the cable to such an extent that the latter cannot slip through the eye, but far enough to tension the stay-wire between the cable and the line-wire.

By having a fence constructed in this manner it will be seen that if the cable A should become stretched more than the other line-wires, which is almost invariably the result of the greater strain and wear to which it is exposed, as set forth above, it can be tightened independently of the other line-wires without disturbing the fence, as the cable freely slides through the eyes *b'* of the stays, and the latter, therefore, are not pulled out of line. It will also be seen that the portion of stay between the cable A and the next line-wire below is so arranged in vertical line, and thus it cannot let the other stay-wires sag down as long as the cable remains properly tightened.

As shown in Figs. 1 and 3, the upper ends of the stay-wires—that is, the coils *a*—are in the subsequent construction of the stays bound in with the portions of the stays

wrapped around the line-wire B, and thus it is more difficult to loosen or remove the stays.

In the modification shown in Fig. 2 the stay is only secured to the line-wire B by the coil *a*. However, if the loop *b* be twisted, as shown in Fig. 1, the stay will become mediately secured to this line-wire. I have also shown in this figure a bottom cable C, around which I have also formed a loop *b*, as described, for the top cable and which therefore permits the bottom cable to be stretched independently of the other line-wires. This loop *b* is also preferably twisted in the manner described and shown in Fig. 1.

What I claim as my invention is—

1. In a wire fence, the combination of a series of parallel line-wires and of a marginal line-wire, and wire stays intersecting said line-wires and secured at the point of intersection with each line-wire except the marginal wire with a locking-loop formed of the wire of the stay and coiled upon said line-wire and at the point of its intersection with the marginal wire with an open loop through which said marginal wire can pass freely.

2. In a wire fence, the combination of a series of parallel line-wires and of a twisted-wire cable forming one of the marginal line-wires of the fence, and wire stays intersecting said line-wires and secured at the point of intersection with each line-wire with a locking-loop formed of the wire of the stay and coiled upon said line-wire, each stay-wire having the portion between the cable and the next adjacent line formed with a twisted loop terminating in an eye loosely embracing the cable.

3. In a wire fence the combination of a series of parallel line-wires composed of single wires and of a twisted-wire cable forming the top line-wire of the fence, and stay-wires intersecting said line-wires, each connected thereto at its points of intersection with the single line-wires by a locking-loop formed of the wire of the stay and coiled around the line-wire and with the cable by a loop formed by looping the stay from the next adjacent line-wire over the cable, said loop being reversely twisted and forming an eye for the cable through which the same passes loosely.

4. In a wire fence, the combination of a series of parallel line-wires composed of single wires and of twisted-wire cables forming the top and bottom line-wires of the fence, and stay-wires intersecting said line-wires, each stay-wire being firmly interlocked with the single line-wires at their point of intersection therewith by having a portion of the stay-wire twisted about the line-wire and engaging with the cable-wires by means of eyes formed in the ends of the stay-wires through which the cables pass loosely, said eyes being formed by looping each stay-wire from the line-wires next adjacent to the cables around said cables and twisting said loops.

5. In a wire fence composed of a series of parallel line-wires, a marginal wire and inter-

secting stay-wires loosely engaging the marginal wire of locking-loops formed of the wire of the stays and securing the stay-wires to the line-wires at their point of intersection, and elastic bends formed in the line-wires at such point of intersection with the stay-wires by means of tensioning each stay-wire between the locking-loops upon the line-wires,

said locking-loops being formed with locking-coils *c c'* under tension.

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

GEORGE D. LOCKWOOD.

Witnesses:

M. B. O'DOGHERTY,
OTTO F. BARTHEL.