

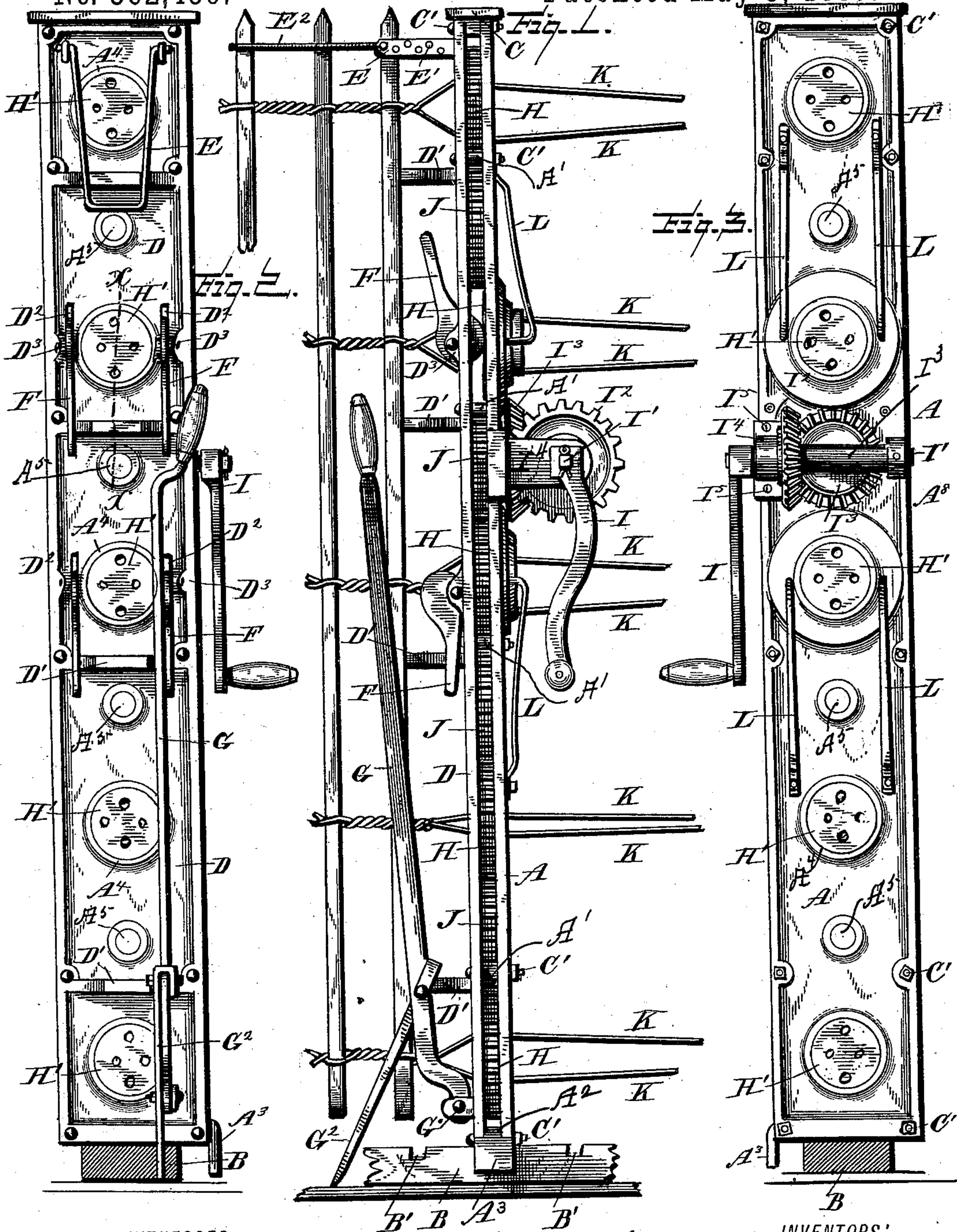
(No Model.)

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A. J. & G. W. FORSYTHE.
WIRE FENCE MACHINE.

No. 362,439.

Patented May 3, 1887.



WITNESSES:
L. H. Mills,
W. S. Dwyer

INVENTORS:
Andrew J. Forsythe and
George W. Forsythe,
by E. B. Stocking
ATTORNEY.

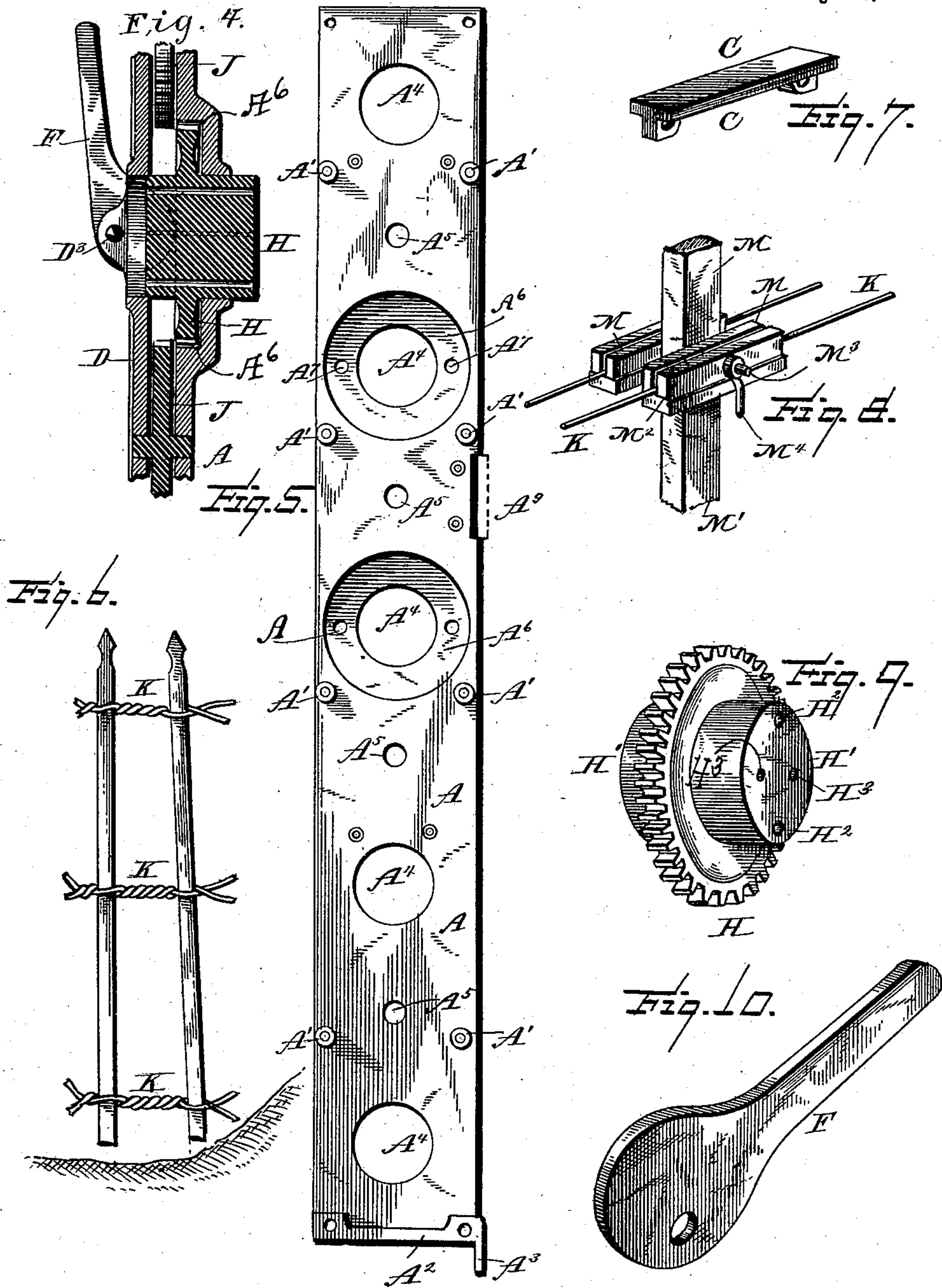
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UNITED STATES PATENT OFFICE.

ANDREW J. FORSYTHE AND GEORGE W. FORSYTHE, OF KOKOMO, INDIANA.

WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 362,439, dated May 3, 1887.

Application filed March 8, 1886. Serial No. 194,418. (No model.)

To all whom it may concern:

Be it known that we, ANDREW J. FORSYTHE and GEORGE W. FORSYTHE, citizens of the United States, residing at Kokomo, in the county of Howard, State of Indiana, have invented certain new and useful Improvements in Wire-Fence Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to fence-machines of that class which are constructed and adapted for the purpose of twisting two or more wires forming the strands of the fence about pickets in order to secure them to the strands, and to do this at the place where the fence is intended to be and at the time that it is built; and the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a machine embodying our invention, a portion of the fence also being shown. Fig. 2 is a rear elevation, and Fig. 3 is a front elevation, of the machine. Fig. 4 is a vertical section on the line *xx* of Fig. 2. Fig. 5 is a rear elevation of the front plate of the frame-work of the machine. Fig. 6 is an illustration of a portion of a fence, some of the strands of which are provided with more coils in the twists thereof than others. Fig. 7 is a perspective of the cap-plate of the frame-work. Fig. 8 is a detail in perspective of the tension device, and Fig. 9 is a perspective of one of the twist-ers. Fig. 10 is a similar view of a cam-lever employed in the machine.

Like letters indicate like parts in all the figures of the drawings.

In this class of machines suitable pickets, or it may be ordinary laths, are secured between the strands of the fence, which usually consist each of two wires, by twisting said strands together between the pickets, the twisting being made in opposite directions between succeeding pickets, the object being to remove the coiling or twisting of the strands in front of the machine, which are produced as the work progresses.

As illustrated herein, the machine is adapted to twist five strands, each of the twist-ers consisting of a gear-wheel the hub of which is provided with apertures through which the wires are passed, and the series of such twist-ers are

connected together by intermediate gears, one of which is miter-gear to a similar gear upon the driving-shaft of the machine, so that when said shaft is revolved all of the twist-ers are revolved, in order to secure the pickets in the strands, as above mentioned.

The frame-work consists of a main plate, A, (see Figs. 1, 3, and 5,) which is provided with spacing-studs A', and a base-block, A², which also serves as a spacing-block, and is provided with a prong, A³, the latter serving to prevent lateral displacement of the machine from the usually-employed transversely-grooved ground-beam B, the grooves B' thereof acting to receive the lower edge of the frame-work of the machine. The plate A is also formed with bearings A⁴ for the twist-ers, and with other intermediate bearings, A⁵, for the intermediate gears. The said plate is also provided with annular recesses A⁶ around two successive twister-bearings, A⁴, and the bottom of each recess is perforated, as at A⁷, for a purpose hereinafter described. The said plate A is also provided with an integral bracket, A⁸, which serves as a bearing for the power or driving shaft of the machine, and at its opposite edge it is recessed, as at A⁹, Fig. 5, for the more rigid attachment of an opposite driving-shaft bearing, I¹.

It will be seen from the description given that the plate A may be conveniently formed or cast in a single piece of iron, and that all of the bearings therein can in a like manner be finished by machine tools, and that the apertures through the spacing-lugs A' may be conveniently drilled.

The back plate of the machine is upon its inner face substantially plain throughout, so that when placed upon the spacing-lugs and when the cap-piece C, (see Fig. 7,) which may also be cast as a part of either the front or back plate, is arranged between them, suitable bolts, C', passing through both plates, serve to bind the frame-work firmly in operative position, with the twist-ers and intermediate gears properly supported for operation therein.

The rear face of the rear plate, D, is provided with integral picket-spacing lugs D', which are plain or otherwise finished, so that their faces are in a true line with each other, whereby, when each succeeding picket to be secured in the strand is placed against the

same, parallelism of the pickets is secured, unless otherwise intentionally prevented, as hereinafter described.

At the top of the rear plate there are cast integral, or they may be formed separately and secured thereto, a pair of brackets, E, having a series of holes, E', to receive the picket staple or bail F, which serves the purpose of spacing the pickets, in that by swinging said bail over previously-secured pickets the distance of the machine from the first pickets secured in the strands is determined, and this distance may be determined and varied by inserting the bail in different holes in the brackets E. The rear plate is also provided with similar bearings to that of the front plate, and at points to register therewith and opposite the recesses Δ^6 of the front plate the said rear plate, D, is provided with slots D², and in said slots are supported cam-levers F, pivoted in lugs D³, formed on the plate D.

A lever, G, pivoted as at G', near the bottom of the rear plate, D, and provided with a lifting-pawl, G², serves the purpose of lifting and intermittently moving the frame-work as the building of the fence progresses.

The twistors consist of gears H, the hubs H' of which are adapted to fit the bearings A¹, and are provided with pairs of perforations H² H³, the former being wider apart and of larger diameter than the latter, in order to adapt the former to receive and twist coarser wires constituting the fence-strand, and the latter to receive and twist finer wires.

I represents the crank for turning the driving or power shaft I' of the machine, upon which is mounted a bevel-gear, I², which meshes with a companion, I³, mounted on an intermediate gear, J, of the series of twistors and other intermediate gears J. A removable bracket, I⁴, serves as one of the bearings for the driving-shaft I³, and is secured by bolts, I⁵, passing into the front plate, A, the base of the bracket entering the slot A⁹ therein.

Now, it will be observed from the description heretofore given that when all of the twistors and intermediate gears are meshing with each other, and when the wires K, constituting the strands, are passing through the twistors, the turning of the crank I will give motion to the twistors so as to coil the strands K upon each other between the pickets, as well as in a manner and to a certain extent in front of the machine, as the work progresses. This coiling or twisting is uncoiled at a subsequent operation by turning the crank in an opposite direction. Now, when it is desired to change the direction of the fence in regard to a vertical plane—that is, to ascend or descend a hill, the former case being illustrated in Fig. 6—it is preferable to change the inclination of the pickets of the fence with relation to a vertical line, and this we accomplish, as before stated, by increasing the number of coils between the pickets in the lower strands only of the fence; and to change direction to descend

the number of coils between the pickets in the upper strands are increased. To provide for a change of this character in the operation of the machine, we throw out of mesh, and therefore out of operation, at a desired time, either the upper or the lower twistors of the machine, as desired, and we do this by the following mechanism: The cam-levers F—as, for example, the upper pair, as shown in Figs. 1 and 4—are elevated, so that the twistors II, against which they bear, are forced to the front and into the recesses Δ^6 , against the tension of a spring or springs, L, which are bent to pass through the openings Δ^7 in the bottoms of the recesses and to bear against the front face of the twister. In this manner the said twister is thrown out of mesh with the intermediate gear, J, so that the twistors depending upon the one thrown out of mesh for motion remain idle, while the remaining twistors in the series may be operated by the driving-shaft. As shown in Fig. 1, the upper pair of twistors are thrown out of operation, so that the lower three twistors may be operated to give an additional number of coils to the strands passing therethrough. In a like manner the twister next below the driving-shaft may be thrown out of operation while the one next above may be in mesh, so that an increased number of coils may be put between the pickets in the lower strands of the fence, whereby the upper ends of the pickets shall be separated farther from each other than their lower ends.

As usual in this class of machines, tension devices are used in advance of the machine, to control the delivery of the wire constituting the strands from the spools from which they are taken. In this instance we employ as a tension device guiding-blocks, M, secured to a post or posts, M', and having a sliding clamp, M², secured in the blocks M by means of a bolt, M³, and a hand-nut, M⁴, for the purpose of drawing the block M³ snugly against the wire K, so as to maintain sufficient tension thereon.

The operation of the machine will be understood from the description already given, and it is apparent that it can be used in constructing fences with five or any less number of strands, three being shown in Fig. 6.

We do not claim, broadly, the combination of a series of twistors with devices adapted to throw one or more of the twistors out of contact with the twister-operating mechanism.

Having thus fully described our invention and its operation, what we claim, and desire to secure by Letters Patent, is—

1. In a machine of the class described, a series of twistors and a lever arranged to remove and retain one of the twistors out of contact with the remaining twisting mechanism, plates for supporting the twistors and lever, and means for returning the removed twister into contact with an adjacent gear, substantially as specified.

2. In a machine of the class described, a

driving-shaft provided with a gear meshing with an intermediate gear of the twister series and adjacent twisters, and mechanism, substantially as described, for throwing either of
5 said adjacent twisters out of mesh, substantially as specified.

3. The combination of the front plate provided with integral apertured spacing-lugs A' A² and with bearings A⁴ A⁵, the back plate
10 provided with similar bearings and bolt-holes registering with the apertures of the spacing-lugs, a cap-piece, C, constructed to serve as a spacing-block, the spacing portion provided with bolt-holes, and connecting-bolts, substantially
15 as specified.

4. In a machine of the class described, the combination of the plate A, having the recess A⁶, provided with the bearing A⁴ and perforations A⁷, the plate D, having a similar bearing,
20 slots D², and lugs D³, the levers F, mounted in said lugs, the springs L, and a twister, H, substantially as specified.

5. In a machine of the class described, having a system of gearing comprising twisters,
25 an intermediate member of the system arranged to constantly mesh with a driving-gear, and two members of the system arranged adjacent to said intermediate member and mounted for movement out of mesh with the remaining
30 members of the system, whereby either portion of the system may be operated while the other remains inoperative, substantially as specified.

6. In a machine of the class described, having a system of gearing comprising twisters, an intermediate member of the system arranged
35 to constantly mesh with the driving-gear, and a twisting member of the system arranged above the driven gear and mounted for movement out of mesh with said driven gear, whereby only the lower members of the system may
40 be operated, substantially as specified.

7. The combination of the front plate provided with a recess for a twister and with springs arranged to bear upon the twister, with the back plate provided with cam-levers,
45 substantially as specified.

8. The combination of the front plate, recessed, as at A⁰, about the bearing A⁴, perforated, as at A⁷, in said bearing, and provided
50 with springs L, bent as described, and passing through said perforations, the twisters H H', the back plate, D, slotted, as at D², and provided with lugs D³, and the levers F, mounted in said slots, substantially as specified.

In testimony whereof we affix our signatures
55 in presence of two witnesses.

ANDREW J. ^{his} + FORSYTHE.
GEORGE W. ^{mark} FORSYTHE.

Witnesses:

J. C. BLACKLIDGE,
W. E. BLACKLIDGE.