

(No Model.)

E. E. & O. COLE.

MACHINE FOR ATTACHING VERTICAL WIRES IN WIRE FENCES.

No. 480,710.

Patented Aug. 16, 1892.

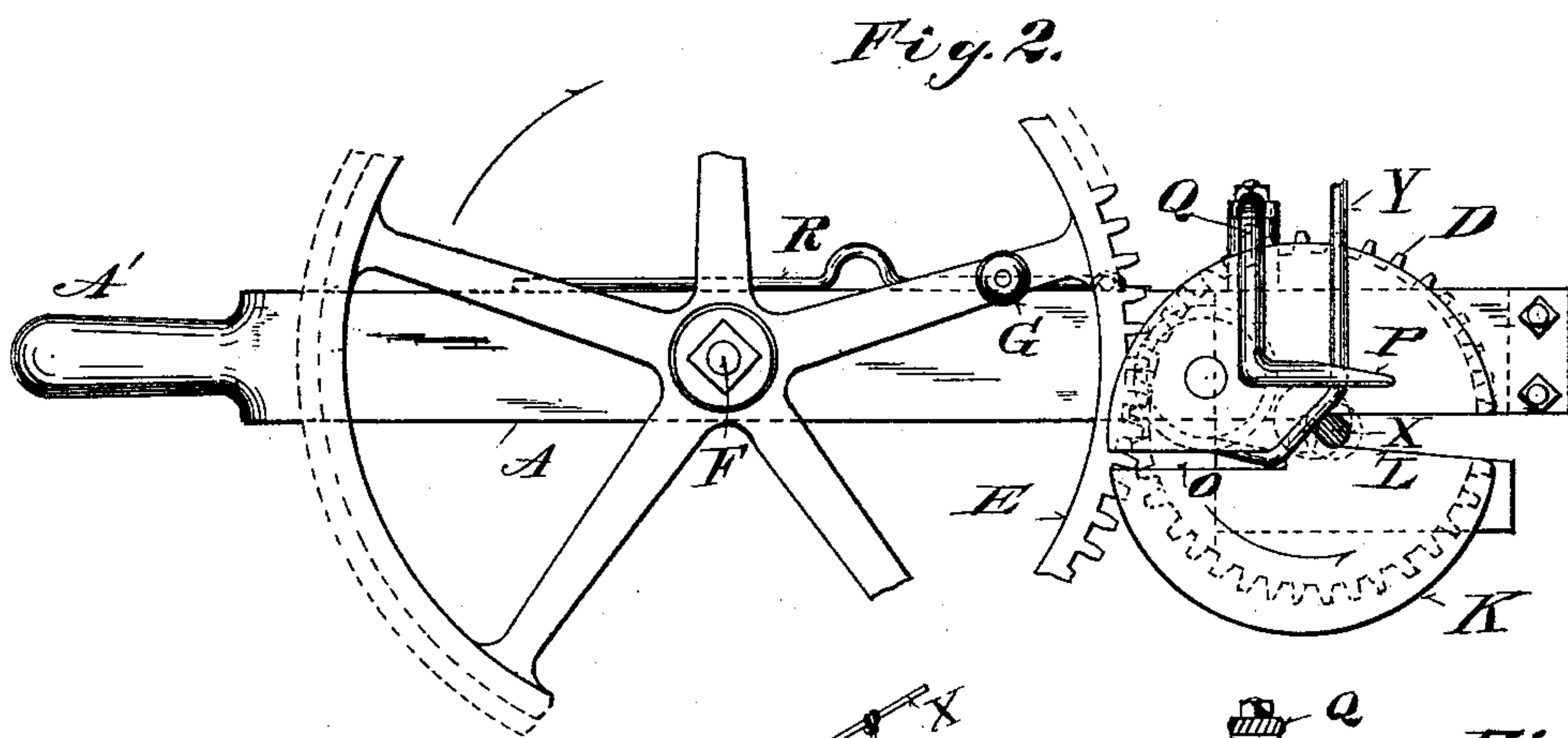
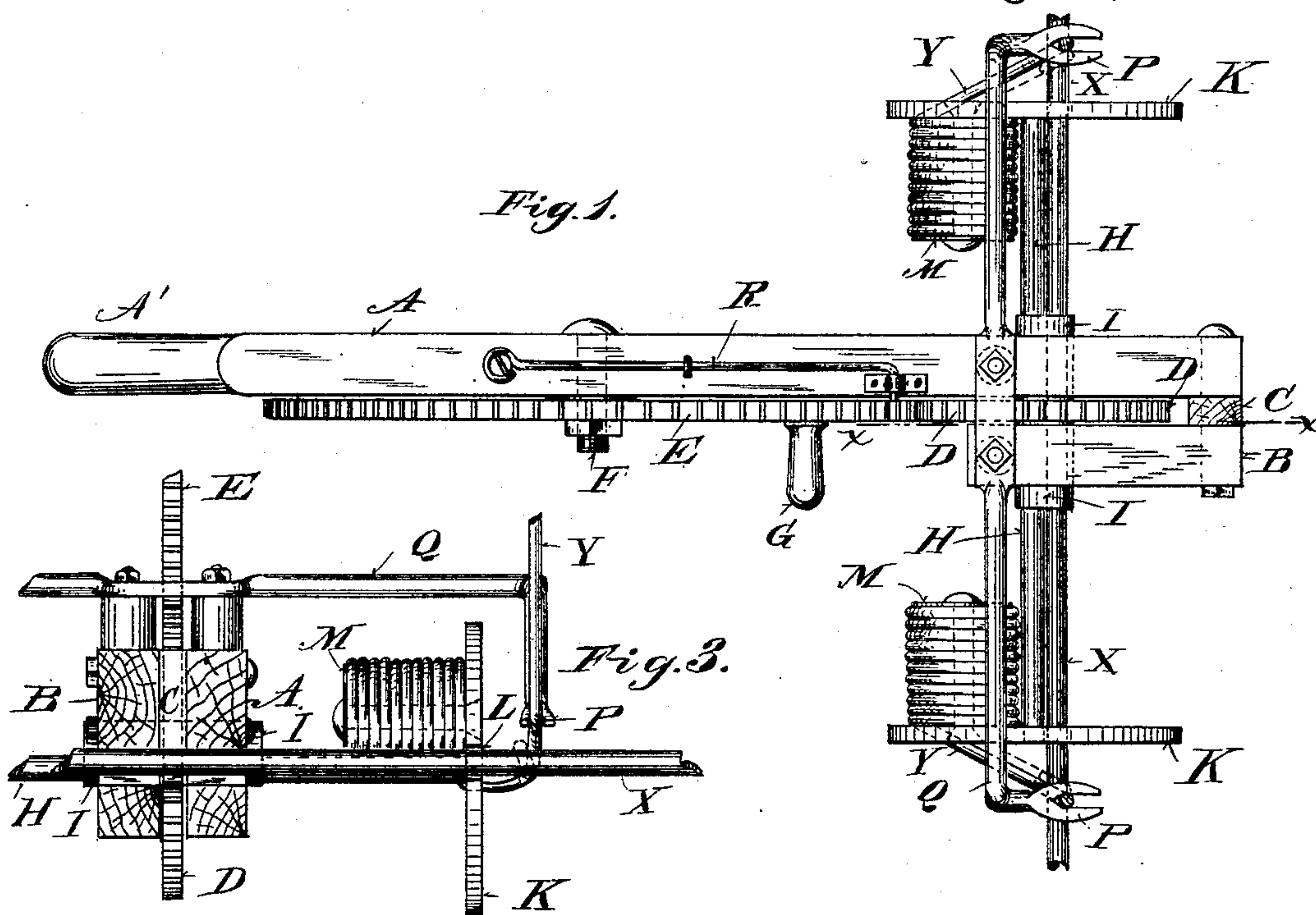
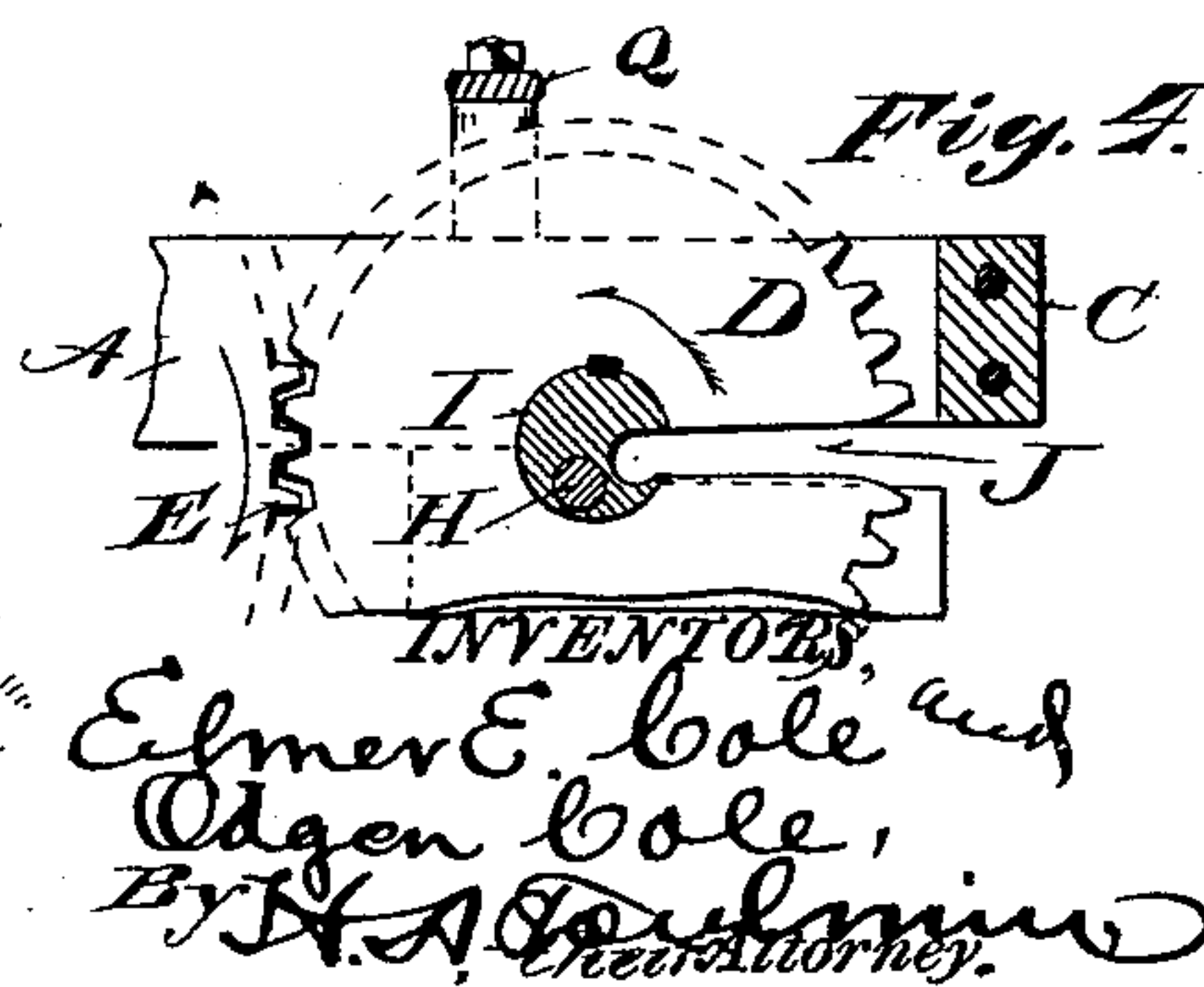
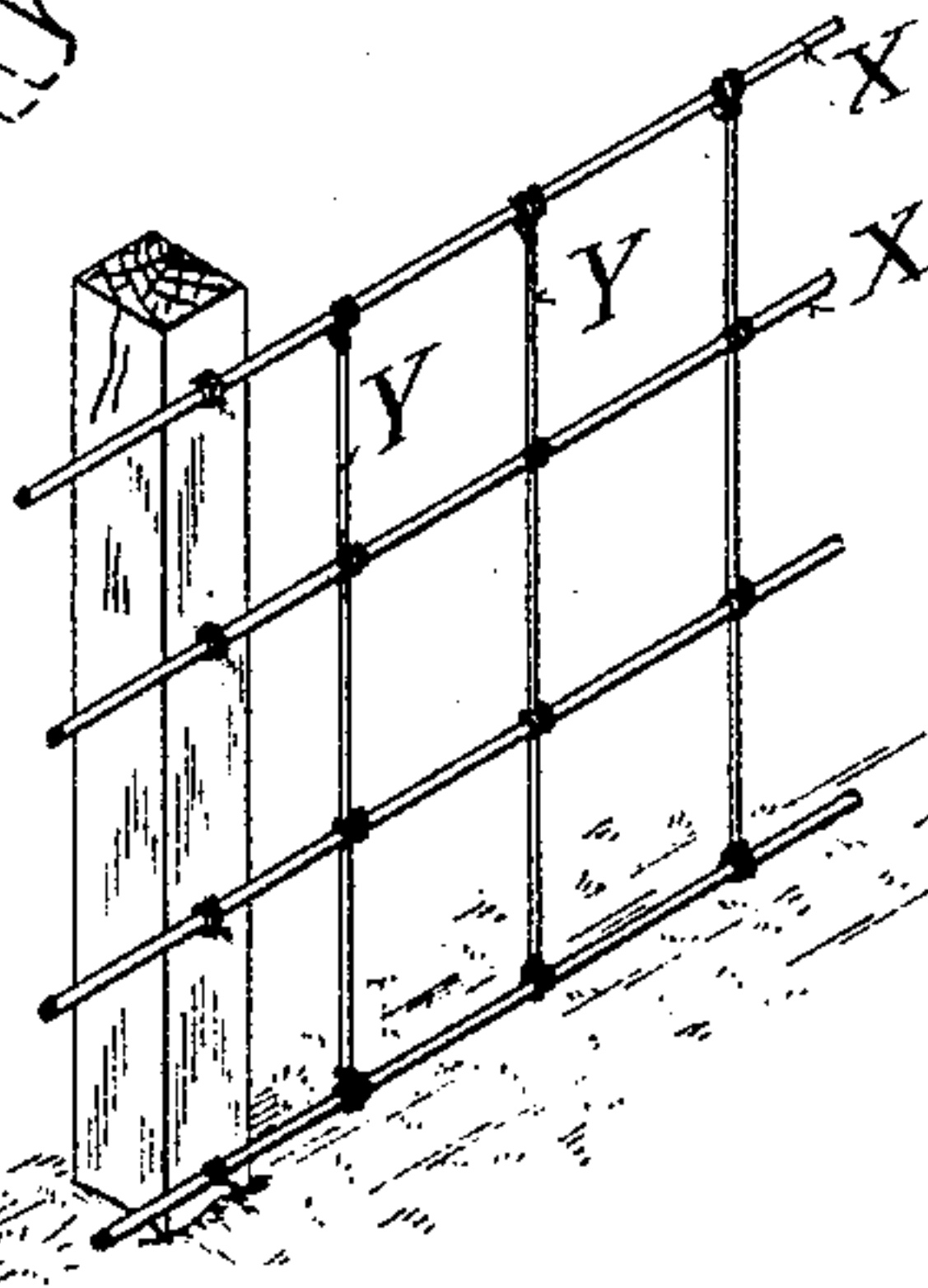


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

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MACHINE FOR ATTACHING VERTICAL WIRES IN WIRE FENCES.

SPECIFICATION forming part of Letters Patent No. 480,710, dated August 16, 1892.

Application filed January 23, 1892. Serial No. 418,981. (No model.)

To all whom it may concern:

Be it known that we, ELMER E. COLE and OGDEN COLE, citizens of the United States, residing at Hudson, in the county of Lenawee and State of Michigan, 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.

Our invention has reference to certain new and useful improvements in wire-fence machines, the same being designed as an improvement in the invention set forth in our Letters Patent No. 450,791, dated April 21, 1891. These improvements have reference to a rotatable needle provided with an open eye or slot for the cross-wire or woof; have reference to double slots in said needle adapted, respectively, to receive the longitudinal wire or warp and the transverse wire; have reference to mounting a plurality of double-slotted needles on a needle-shaft in order to attach simultaneously a plurality of cross-wires constituting the pickets of the fence; have reference to projections or reels for carrying the cross-wire adjacent to said needle-eye and rotating along with the needle, and have reference to other points hereinafter described and claimed.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a plan view of our machine, a portion of a longitudinal wire being engaged thereby; Fig. 2, a side view of the same; Fig. 3, a front view of the right-hand end of Fig. 1; Fig. 4, a sectional view on the line *xx* of Fig. 1, showing the slotted pinion; and Fig. 5, a perspective view of a portion of a wire fence and a supporting-post.

This machine is especially adapted to be used in the construction of wire fences of the class which are built on the ground in the position they are to occupy as distinguished from the fences which are completed at the factory and rolled up in bundles ready to be attached to the posts or otherwise set up in position. In this former style of fences the longitudinal wires are attached to the posts about a foot apart vertically, and the pickets are formed by transverse wires attached to said longitudinal wires at predetermined dis-

tances apart by this machine now to be described.

The preferred form of our machine is as herein illustrated, the same being adapted to attach a plurality of cross-wires to the longitudinal wires simultaneously; but it may be otherwise constructed, if so desired. This duplex arrangement and attachment of the pickets facilitates the building of the fence, however, and our improvements, as will be presently described, secure an easy working of the operative parts not previously obtained.

The letter A designates the main part of the frame, having a handle A' for the left hand of the operator. The forward end of the frame is provided with an auxiliary piece B, separated from the main part by a block C and leaving an open space in which is mounted a pinion D, meshing with a wheel E, mounted on the axle F and rotated by means of a handle G through the right hand of the operator. The ratio of the said wheel and pinion to each other is about three to one, whereby one rotation of the wheel will effect three rotations of the pinion and the needle-shaft H, rotated by said pinion. This shaft is eccentric to the center of the pinion, a boss I being provided as a journal for said shaft, on which boss the pinion D is directly mounted. A slot J is formed in said pinion, as shown in Fig. 4, to admit a longitudinal wire X, the said boss being also grooved longitudinally to admit the wire nearly to the center axis thereof. The forward end of the frame overhangs the lower portion thereof and is bifurcated to correspond with said slot J, as shown in Fig. 2. This admits of resting the end of the frame on the horizontal wire or warp of the fence and readily sliding the frame forward till the wire is at the inner end of the slot, as shown in Fig. 2.

The needles are mounted on the extension ends of the needle-shaft H and consist of pieces K, of disk-like or other form, rigidly secured to said shaft, as shown in Fig. 1, and provided with a recess or slot L, corresponding to the slot J in the said pinion, both in position and arrangement, to admit said wire X simultaneously to the pinion and needles. A rotation of the wheel E by the operator in the direction of the arrow, Fig. 2, will rotate

the pinion and needles in the opposite direction, as indicated in the same figure, and cause the needle-shaft, on account of the eccentricity of its mounting, to travel around the longitudinal wire engaged by the slots J and L in the pinion and needles, respectively. The transverse wires Y, which constitutes the pickets of the fence in this form, are carried by projections or reels M, mounted on their respective needle pieces or disks, and a suitable length of wire is wound on each projection, as shown in Fig. 1. The eye of the needle consists of a slot O, extending transversely to the needle and toward the center thereof, and being open at one point to allow of slipping the cross-wire sidewise into said slot to thus thread the needle. The advantage of this method of threading is obvious, facilitating, as it does, the operation of the machine, while the form of the eye gives a larger bearing-surface to the wheel inserted therein, giving a greater durability to the eye and allowing a larger size of the opening, whereby a rougher wire than ordinarily used can be employed. The projection M being adjacent to the said eye, the wire is passed directly therefrom, as seen in Fig. 2, without a necessarily-sharp turn, and thus allow of using a harder grade of wire and rendering the operation of the machine comparatively easy. The needle at each end being threaded, the end of each wire is engaged with a clip or perforated piece P on the end of the extended arm Q, secured to the frame-pieces A and B and assisting to brace the same. The machine is then engaged with the longitudinal wire of the fence, which, being inserted in the inner end of the said slots in the pinion and needles, will be retained therein when the shaft is rotated by the operation of the wheel E. This rotation of the shaft will carry the needles and the projections M, on which are mounted the cross-wires, about the longitudinal wires in the direction of the arrow, Fig. 2, as above mentioned, and draw out from the coils on said projections sufficient wire to wrap three times (more or less) about the longitudinal wire. A spring-catch R, carried by the frame-piece A, is adapted to engage with the wheel by a notch or otherwise and check the rotation of the same when it has made one revolution, in order to stop the slots of the pinion and needles opposite the bifurcated end of the frame and allow the withdrawal of the longitudinal wire therefrom. The machine is then placed on the next wire and another rotation of the hand-wheel fixes the transverse wires to the longitudinal wires, and so on to the bottom of the fence. Two pickets are thus formed simultaneously, and the same operation is repeated after refilling the projections M with cross-wire and threading the needles.

The advantage of the disk form of needle is that it gives a smooth broad surface for the thread or cross-wire to wind against, and thus avoids the danger of winding the same about the end of the needle-shaft. The clips P are

used only at the top wire of the fence, where the picket is begun, the cross-wires being drawn from their coiled-up state on the said projections M as the machine is dropped from wire to wire successively to the bottom of the fence. The size of these projections may be such as to allow of winding thereon sufficient wire to make two or more pickets each, if so desired. The cross-wires are straightened from their coiled-up condition as they pass through the slot and about the longitudinal wire of the fence.

While we have shown and described the preferred form of our machine, we do not wish to limit ourselves to the exact construction herein shown and described, but may depart therefrom as long as the principles and operation hereinbefore set forth are carried out.

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

1. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of such extensions, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wires, and means to rotate such needle-shaft to attach the woof-wires to said horizontal wire.

2. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of such extensions, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wires, clips for holding such woof-wires in starting to wind them, and means to rotate such needle-shaft.

3. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the ends of such extensions and provided each with two slots, one for the admission of the horizontal fence-wire and the other for the passage of the vertical or woof wire, clips to hold such woof-wire in starting to wind, and means to rotate such needle-shaft.

4. In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-pieces mounted at or near the outer ends of such extensions, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided each with a slot for the vertical or woof wires, a projection or reel adjacent to the eye of each needle and adapted to deliver the transverse wire thereto, and means to ro-

tate the needle-shaft and needles to wind the transverse wires on the horizontal wire.

5 In a wire-fence machine, the combination, with a frame and a needle-shaft mounted therein having lateral extensions eccentric to the part mounted in the frame, of needle-
10 pieces mounted at or near the outer ends of each extension, adapted to allow of placing the needle-shaft in close proximity to the horizontal wire of the fence, and provided
15 each with a slot for the vertical or woof wire to constitute the eye therefor, projections or reels, each mounted on said needle-pieces adjacent to the eye thereof to deliver
20 the transverse wire thereto, clips carried by the frame adjacent to said needles and adapted to engage the free ends of the transverse wires to draw them through the needle-eyes in starting to wind said wires, and means
to rotate such needle-shaft.

6. In a wire-fence machine for constructing

wire fences, the combination, with a supporting-frame, a needle-shaft, and means to rotate it, of a plurality of double-slotted needles, said slots being adapted to receive the
25 transverse and longitudinal wires, respectively, and open to admit of placing the respective wires sidewise therein, clips for the free ends of the transverse wires from said
30 needles and carried by said frame, and projections or reels carried by said needles adjacent to the eyes, adapted to carry and deliver suitable coils of transverse wire to form
the pickets for said fence.

In testimony whereof we affix our signatures 35
in presence of two witnesses.

ELMER E. COLE.
OGDEN COLE.

Witnesses:

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