(No Model.) 2 Sheets—Sheet 1.

M. C. HENLEY.

FENCE MACHINE.

No. 346,749. Patented Aug. 3, 1886.

Fig. 1.

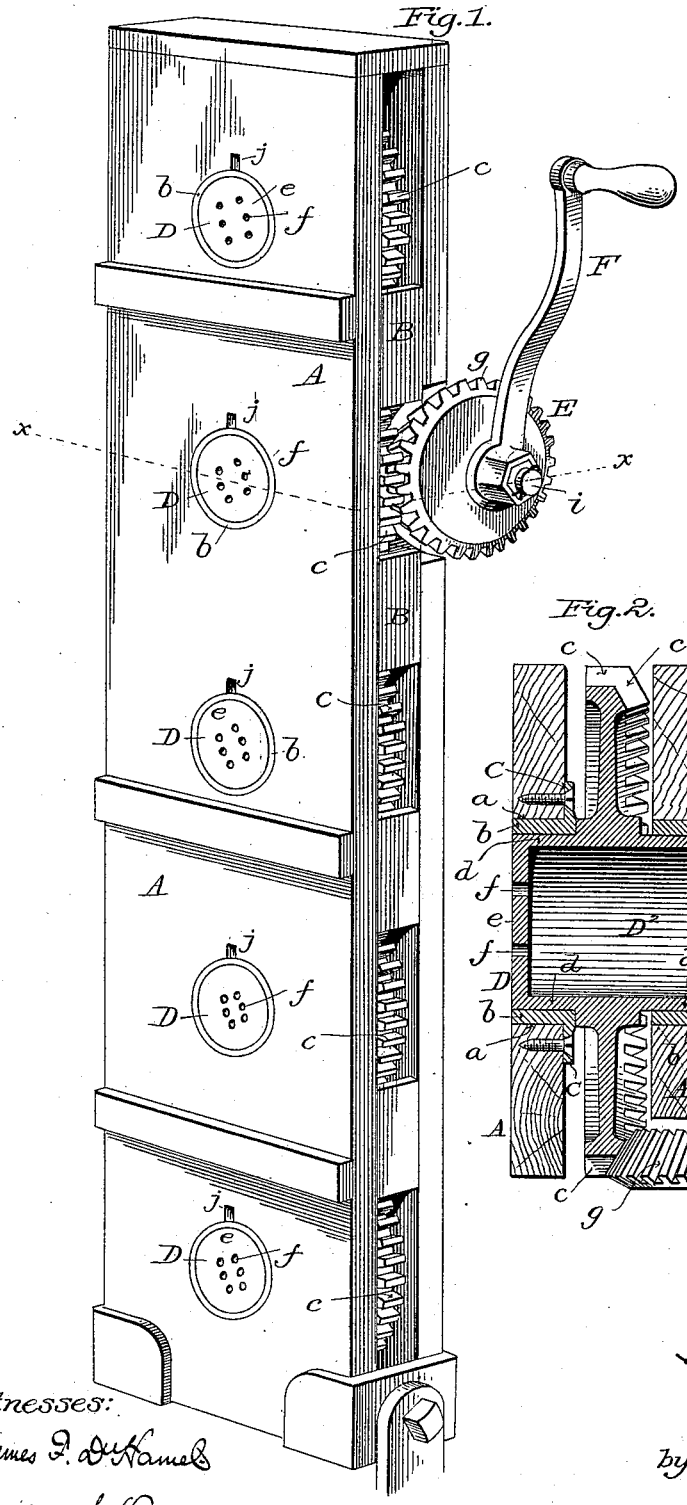
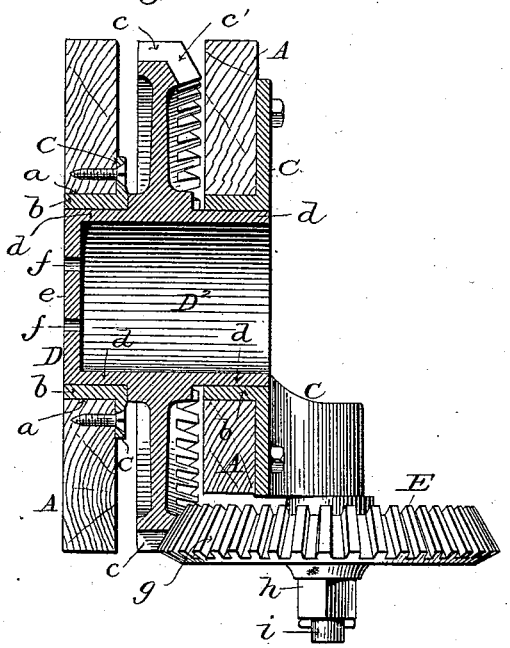


Fig. 2.



Witnesses:
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Walter S. Dodge

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(No Model.) 2 Sheets—Sheet 2.

M. C. HENLEY.

FENCE MACHINE.

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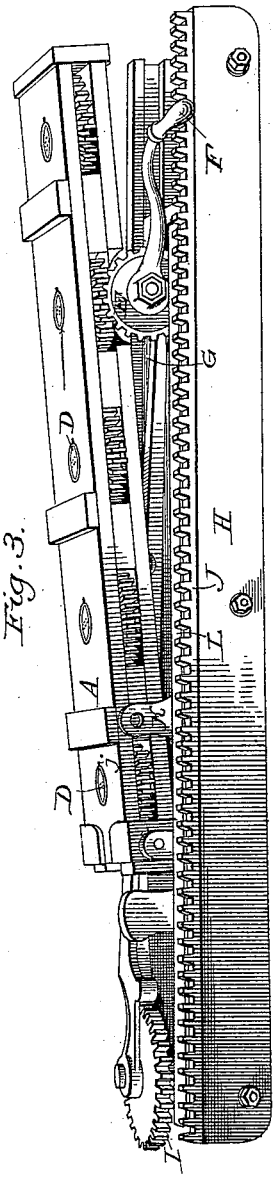

Fig. 3.

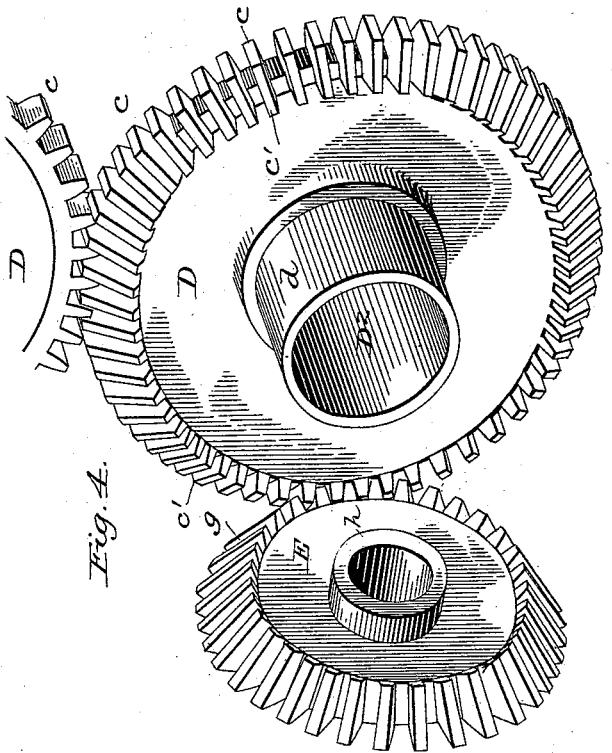

Fig. 4.

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UNITED STATES PATENT OFFICE.

MICAJAH C. HENLEY, OF RICHMOND, INDIANA.

FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 346,749, dated August 3, 1886.

Application filed March 27, 1886. Serial No. 196,841. (No model.)

To all whom it may concern:

Be it known that I, MICAJAH C. HENLEY, of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Fence-Machines, of which the following is a specification.

My invention relates to machines for weaving or twisting wires between pickets or palings in the manufacture of fencing; and the improvements consists in a novel form of gearing, whereby I am enabled to render the machinery more compact and simple than that heretofore constructed. It will of course be understood that the usual accompaniments may be, and ordinarily will be, used with this apparatus—such, for instance, as tension devices, spacing apparatus, mechanism for moving the twisting-frame, &c.; but as my invention does not concern any of these parts, and as they are common and well known, I shall describe and illustrate only the twisting mechanism.

In the accompanying drawings, Figure 1 is a perspective view of my twisting apparatus; Fig. 2, a horizontal section on the line *x x* of Fig. 1; Fig. 3, a perspective view of the machine folded; Fig. 4, a perspective view of the twisting-head.

In many machines of this class as construced for use in the field the crank or winch by which the twisting heads or disks are rotated is arranged to swing in a plane at right angles to the direction of the fence-line—an arrangement which causes the frame of the machine to sway and swing from side to side and brings the fence-wires in the way of the winch. This difficulty I obviate by forming one of the twisting heads or disks with a bevel-gear upon it, to which motion is imparted by a bevel-pinion turned by the winch, which, under such arrangement, may be arranged to turn in a plane parallel with the fence-line.

It is proper to state that a machine has been patented in which a series of twisting-heads, each formed with a sprocket-wheel, are connected by a chain, and one of the twisting-heads is formed with a bevel-gear which receives motion from a bevel-pinion rotated by a winch or crank. Such construction I do not claim.

Where chains are employed to transmit motion from one twisting-head to another, there is inevitably more or less lost motion, and as a consequence the heads will stand in different positions at the end of each twisting operation—that is to say, instead of the two holes of each twisting-head standing in the same horizontal plane, as they should do to permit the ready insertion of a picket between the two strands or wires of each double strand, they will stand at various relations. It is therefore important to employ heads which mesh directly with each other, and to dispense with intermediate gearing of any and every kind.

Proceeding now to describe my construction, its advantages will be duly pointed out.

A indicates an upright frame, which may be conveniently formed of two boards bolted or screwed together, with spacing-blocks B interposed to effect and preserve the required separation. The boards of frame A are provided at regular intervals in their length with circular openings *a*, which are bushed by metal collars *b* of plates C, preferably secured to the inner faces of the boards, in which position the plates serve also as a bearing-plates for the rotary twisting-heads D, preventing said plates from wearing away or cutting the faces of the boards, and thus producing end-play. Each twisting-head D consists of a circular plate or gear-wheel having teeth *c* on its periphery adapted to mesh with the teeth of the next wheel or plate and to give motion thereto, each plate being formed with a large tubular hub or shaft, D^2, which, projecting outward beyond each face of the wheel, constitutes journals *d*, on which the twisting-head as a whole rotates. One end of the tubular shaft or hub is closed by a disk, *e*, provided with a series of perforations, *f*, at different distances from and on opposite sides of the center. These holes are intended to receive and separate the strands or wire, and by providing a series of such holes at different distances from the center I am enabled to separate the standards more or less, as desired, and to twist a number of wires simultaneously, from one to three, on each side of the palings. The gear wheel or plate of one of the twisting-heads D is formed with a second series of teeth, *c'*, integral with and forming a continuation of the teeth *c*, but arranged obliquely thereto, as shown in Fig. 2, thus producing a compound straight and bevel gear-wheel. By making the teeth *c* and *c'* in-

tegral I am enabled to get a broad face for the bevel and for the straight teeth, while employing only a thin disk, and all the teeth are at the circumference of the disk, where the leverage is greatest, where the teeth may be most conveniently dressed or finished, if necessary, and where the bevel-gear for giving motion to the wheel may be conveniently arranged to engage with and operate said wheel without being in the way of the wires, or necessitating the use of a small hub and twisting-disk. These are points of considerable practical value, added to which is the fact that the thickness of the wheel as a whole is but very slightly increased. The teeth *g* of the pinion E, by which the twisting-head D is rotated, have a bearing not only on the teeth *c'*, but also extend partially across the teeth *c*, thus getting a larger bearing-surface, and giving certainty of action, with slight wear. Pinion E is formed with a hollow hub, *h*, which fits and turns upon a fixed stud or axle, *i*, cast upon a plate, C, secured to the outer face of frame A, and serving as a bushing for the opening *a*, in which the hub or journal of the twisting-head D is seated. The hub *h* is made polygonal to receive a crank or winch, F, by which to turn the pinion. The several wheels are of like diameter, and gear directly with each other, so that each disk is rotated in a reverse direction from the next, as is desirable in this class of machines. If desired, all the wheels may be made with the teeth *c'*, though I prefer to thus provide only one.

Above each collar or sleeve *b*, in which the hubs D rotate, is formed a notch or recess, *j*, to permit the tube or nose of an oil-can to be inserted to deliver oil to an oil-hole in the collar at that point.

The upright frame is pivoted at its lower end to a frame or bed, G, which slides longitudinally in a sled or drag, H, in which it is moved by a gear wheel or pinion, I, engaging with a rack, J, on the sled or drag; but as all these parts are of ordinary construction, and constitute no part of the present invention, further description is unnecessary.

Fig. 3 shows the machine folded up for transportation or storage, the pinion I and its operating-lever being shown detached from the supporting-standard K and laid upon the sled or drag, and the brace-rods L being likewise shown folded thereon.

By the foregoing construction I am enabled to render the machine extremely compact and simple, to avoid the necessity of chains or other intermediate connections between the disks, and to generally simplify and cheapen the machine.

Having thus described my invention, what I claim is—

1. The herein-described machine for twisting fence-wires, consisting of a frame, a series of twisting-heads mounted in said frame and provided with peripheral teeth, the teeth of each meshing with those of the next, and a bevel-pinion arranged in a plane at right angles to the twisting-heads and meshing with teeth formed integral with and as a continuation of the peripheral teeth of the twisting heads, substantially as described and shown.

2. In combination with frame A, plate C, provided with stud *i*, twisting-heads D, geared directly together, and one of said heads provided with bevel-teeth *c'*, pinion E, mounted upon stud *i* and meshing with said teeth *c'*, and a crank or winch for imparting motion to said pinion.

3. A twisting-head, D, for fence-making machines, consisting of a plate or wheel having teeth *c c'*, tubular hub D^2, disk *e*, and two or more holes, *f f*, all substantially as shown and described.

MICAJAH C. HENLEY.

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