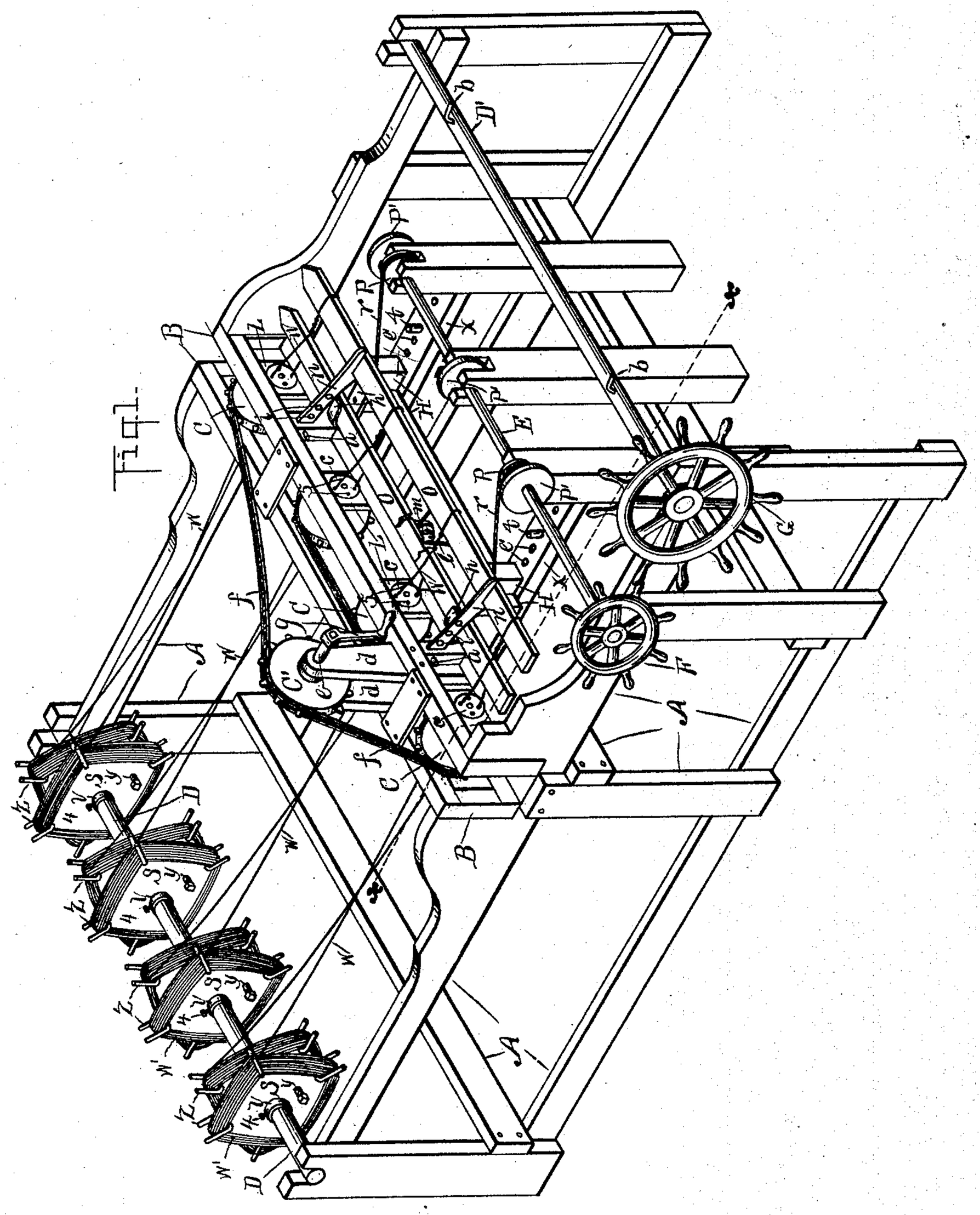
(No Model.) 2 Sheets—Sheet 1.

# L. T. CURTIS.

## FENCE MAKING MACHINE.

No. 388,400 Patented Aug. 28, 1888.

Fig 1.



Attest.
B. F. Wheeler,
J. D. McPherson.

Inventor.
Lyman T. Curtis,
By
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Atty.

(No Model.) 2 Sheets—Sheet 2.

# L. T. CURTIS.

## FENCE MAKING MACHINE.

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Fig. 2.

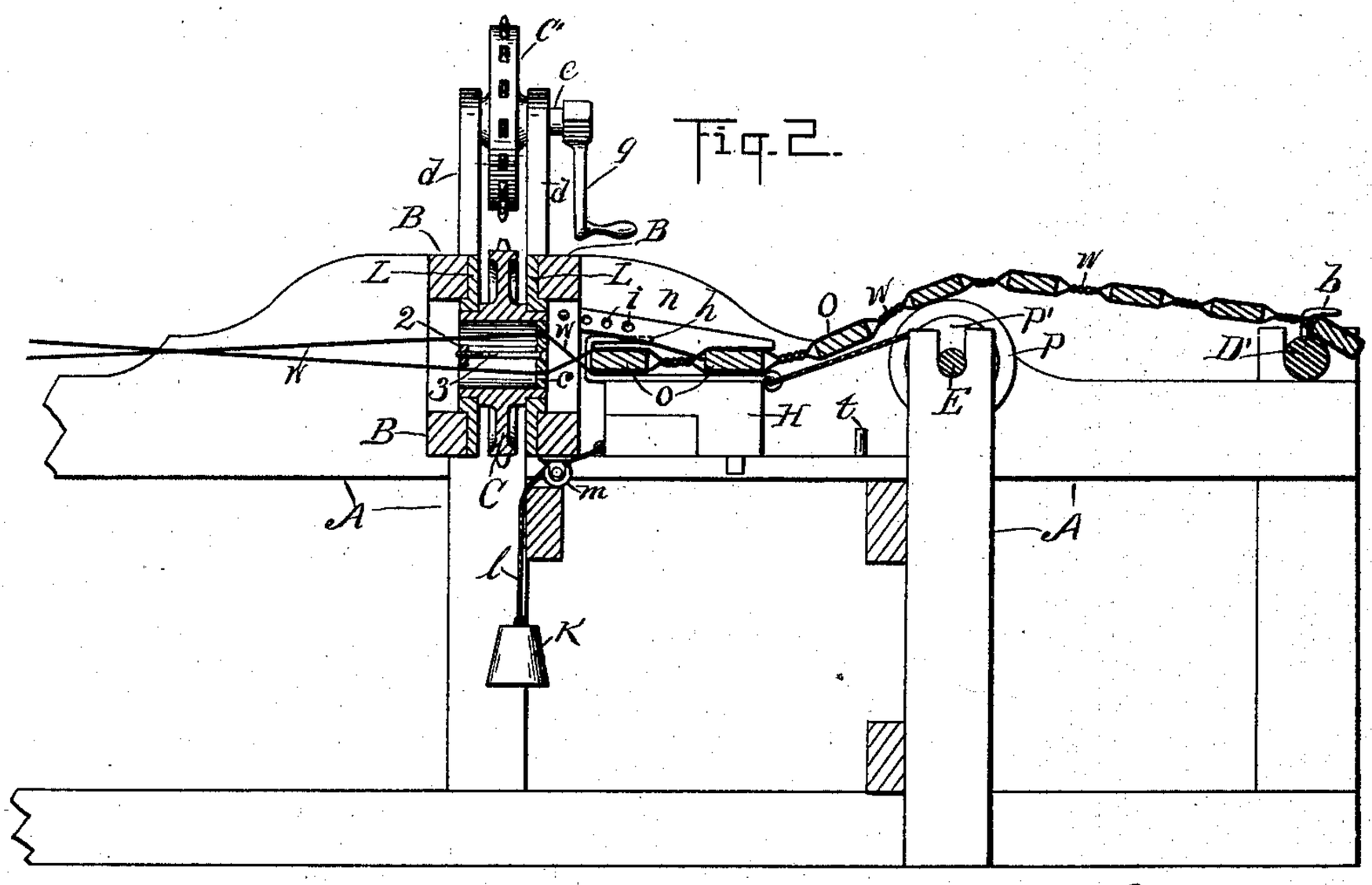



Fig. 3.

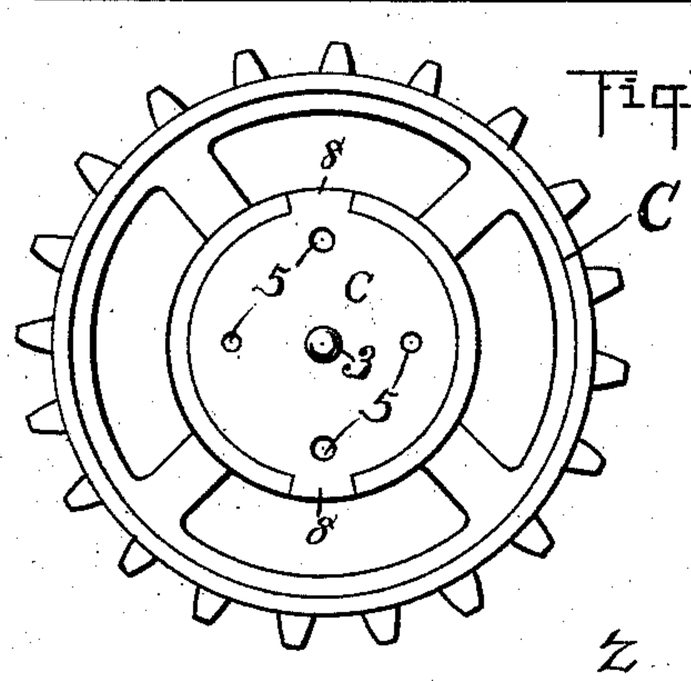



Fig. 4.

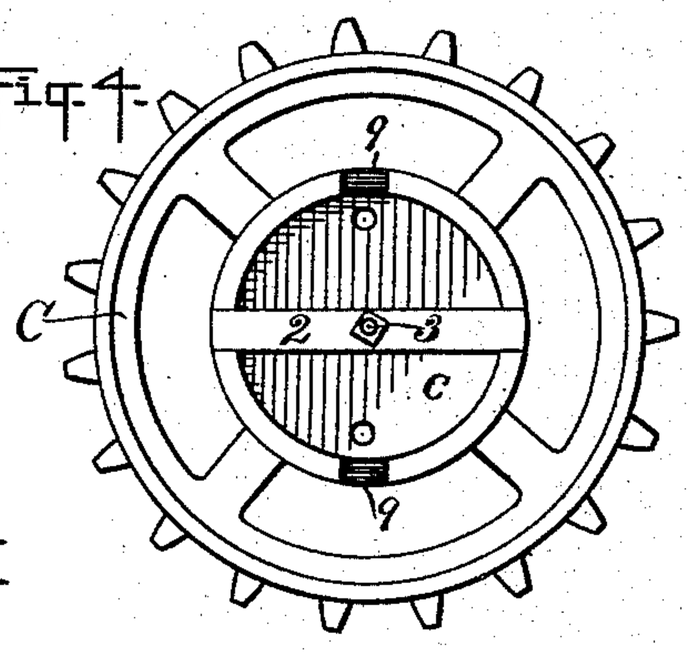



Fig. 5.

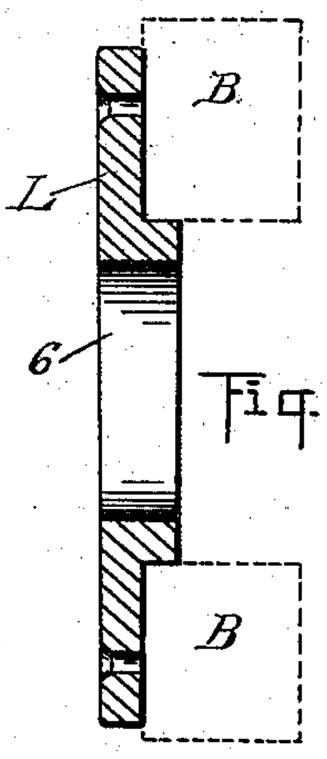



Fig. 6.

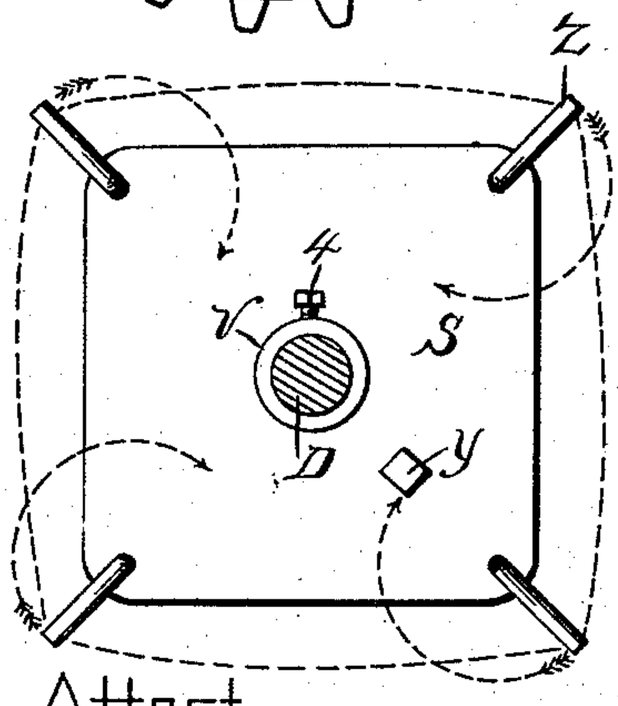
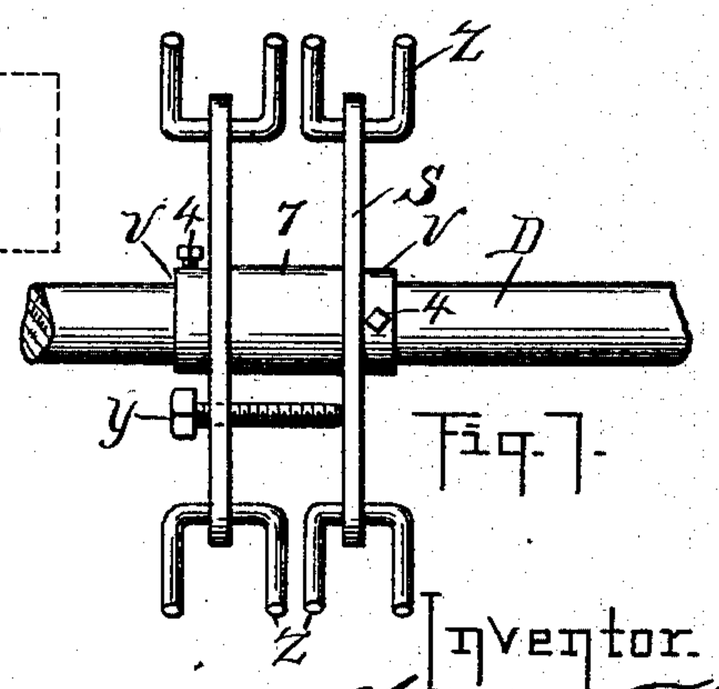



Fig. 7.




Attest.

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# UNITED STATES PATENT OFFICE.

LYMAN T. CURTIS, OF FLINT, MICHIGAN.

## FENCE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 388,400, dated August 28, 1888.

Application filed February 27, 1888. Serial No. 265,395. (No model.)

*To all whom it may concern:*

Be it known that I, LYMAN T. CURTIS, a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Fence-Making Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a machine for making wire-bound picket fencing.

The object of my invention is to construct a machine for twisting wires about the pickets or palings of fencing in such manner as to form a continuous fabric, and in which the means employed for holding the supply of wire will be such as to enable the using of the original bale or coils in which the wire is manufactured, as practiced in machines of this class, and also to construct the frame-work of the machine in such manner as to enable that portion carrying the twisting mechanism to be detached from the body of the machine, to be utilized as an upright portable field-machine when desirous of constructing such fencing at given points or places in the field.

The invention consists of a suitable frame-work carrying at one end a shaft, on which the coils of supply-wire are secured, and extending centrally across the main frame is a detachable frame-work, in which is journaled a series of twisting-heads, which are driven by means of a sprocket-wheel and chain belt. The pickets or palings of the fencing are received and held in position between the wires when being twisted by means of a sliding carriage carrying dogging mechanism, which is operated by a shaft carrying pulleys with connecting cords or cables, the fencing being wound as fast as made upon a shaft having engaging-hooks and suitable hand-wheel, by which it is revolved, as will be hereinafter more fully set forth, and the essential features pointed out particularly in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is an isometrical view of my invention as in operation. Fig. 2 is a vertical section, partly broken away, taken on dotted line *x x* of Fig. 1. Figs. 3, 4, and 5 are enlarged details of the twisting mechanism embodying my invention. Figs. 6 and 7 are enlarged details of the reels for carrying the supply of wire, embodying also my invention.

In the drawings, A represents the main frame-work of the machine, which may be of any convenient form.

B shows a detachable or auxiliary frame, which extends centrally across the main frame, being let into the side rails thereof, as shown in Fig. 1.

C represents a series of sprocket-wheels having cylindrical hubs, which project slightly on both sides of said wheels and enter the openings 6 of the plates L, secured to the side rails of the frame B. Said plates form journal-bearings for the sprocket-wheels, whereby they are secured within the frame B and form the twisting devices.

*c* shows a circular metal plate, having on its periphery the ears 8, which enter the recesses formed in the edges of the hubs of the sprocket-wheels C, and 3 shows a bolt passing centrally through said plate and hub, having engagement at its rear or screw-threaded end with a metal truss or strap, 2, which crosses the opening 6 on the opposite side of the hub and at its ends enters recesses, as 9, formed in the edges of said hub, whereby the plate *c* is securely held in position within the end of the hub of the sprocket-wheel C. Said plates *c* are also provided with a series of holes, as 5, through which the twisting wires pass, as shown in Figs. 1 and 2, thereby forming the twisting-heads.

Journaled in the uprights *d d* of the frame B is a shaft, *e*, carrying the sprocket drive-wheel C′ and crank-arm *g*, with chain belt *f*, passing over said wheel C′ and around the series of sprocket-wheels C, which constitute the twisting-heads, and by said crank-arm the twisting-heads are driven. (See Figs. 1 and 2.)

D shows a shaft journaled in uprights at the end of the main frame A, which shaft receives and supports the reels S, carrying the supply of wire *w′*. Said reels consist of flat wood or metal plates, preferably of the form shown in Fig. 6, and are provided in each corner with a U-shaped link, Z, which is adapted to be swung in, as shown by dotted

lines and arrows in Fig. 6, to enable a coil or bale of wire, *w'*, to be passed over the reel, and to then be swung out to receive and secure said bale or coil in position upon the reel, as shown clearly in Figs. 1 and 6. The reels thus equipped are received by the shaft D, but not rigidly, being secured thereto by pairs, and are prevented from shifting on said shaft by means of the sleeve 7 and collars V, having set-screws 4, by which said collars are secured rigidly to the shaft, as shown in Figs. 6 and 7.

*y* shows a screw-threaded bolt, which passes through one of the reels S, its inner end pressing against the inner face of the other reel of the pair, whereby tension is applied to the reels to prevent them from revolving too freely in paying out the wire, and also to give each reel an independent movement, as should one reel contain more wire than the other, the one having the less amount of wire would necessarily be compelled to travel faster than the other, and by this arrangement they are enabled to do so.

H shows a sliding carriage, which travels on slideways X X, having the engaging-hooks *h* attached to the upper faces of its side rails.

E represents a shaft, which is journaled in uprights of the main frame A, and carries the pulleys P, with disks P' and hand-wheel F, by which said shaft is revolved. Extending from the front of said carriage H to the pulleys P of the shaft E are cords or chains *r*, and attached to the rear of said carriage is a like chain or cord, *l*, passing around the pulley *m* and carrying at its lower end the weight K. By this arrangement, when a picket, *o*, has been inserted and the wires *w* twisted about it, the hand-wheel F is revolved, drawing the carriage forward, while the hooks *h* carry also forward the picket *o*, and when advanced sufficiently the engaging-arms *n*, pivoted at *a* to the uprights of the frame B, will engage with said picket and retain it in such position, when the carriage H, by the weight and cord, will be drawn back to its normal position, as in Figs. 1 and 2; and when a sufficient amount of fencing has been made the end picket is attached to the shaft D' by means of the swiveled hooks *b*, and is then wound as fast as made upon said shaft by revolving the hand-wheel G, attached to the end of the shaft.

The disks P' are for the purpose of carrying the fencing over the pulleys P. (See Fig. 2.) These disks are employed in a former patent of mine, issued December 20, 1887, No. 375,266.

*e' e'* show a series of holes in the slideways X X of the frame A, which receive the pins *t*, to form a stop for the sliding carriage to limit the distance apart of the pickets when woven between the wires, as shown in my former patent. *i* shows like holes in the arms *n* of the frame B, for the reception of the pin *a* to be set, as in adjusting the pins *t* of the slideways to form the desired distance between the pickets.

It will be observed that by the arrangement of the dogging mechanism of the carriage, when the shaft E is revolved, the fencing, by the hooks *h*, will be drawn forward, and as it advances, the picket *o*, held by the hooks *h*, coming in contact with the under face of the arms *n*, will cause said arms to rise until the picket has advanced sufficiently, when the free or notched end of said arms will drop down and engage with the rear edge of said picket *o*, thus preventing the fencing from drawing back toward the twisting-heads while the wires are being twisted about the next picket. The motion of the crank-arm *g* after the insertion of each alternate picket is reversed, and the wires twisted in an opposite direction, in order to avoid the twisting and tangling of the wires between the reels and twisting-heads.

It will be observed that by constructing the twisting mechanism as described and locating it in the main frame when desired said frame, carrying the twisting mechanism, may be detached from the main frame and used in connection with a suitable stretching device as an upright field-machine, whereby the fencing may be made at any desired place or places in the field.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an organized fence-making machine, the combination of the main frame, the shaft journaled therein, said shaft having the series of reels journaled thereon, said reels having the U-shaped links pivoted thereto, and means for producing friction between said reels, the frame B, the series of twisting-heads attached thereto, and mechanism for driving said twisting-heads, as and for the purposes specified.

2. In a fence-weaving machine, the combination of the main frame, the frame B, having the series of twisting-heads, the mechanism for driving said twisting-heads, the carriage mounted on the main frame, the hooks *h*, made fast to said carriage, the engaging-arms *n*, adjustably pivoted at one end, the shaft and cords for advancing said carriage, and the cord and weight for returning said carriage, as and for the purposes specified.

3. In a fence-weaving machine, the reel having the U-shaped links pivoted thereon, as and for the purposes specified.

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

LYMAN T. CURTIS.

Witnesses:
JOHN L. JENNINGS,
GEO. F. BROWN.