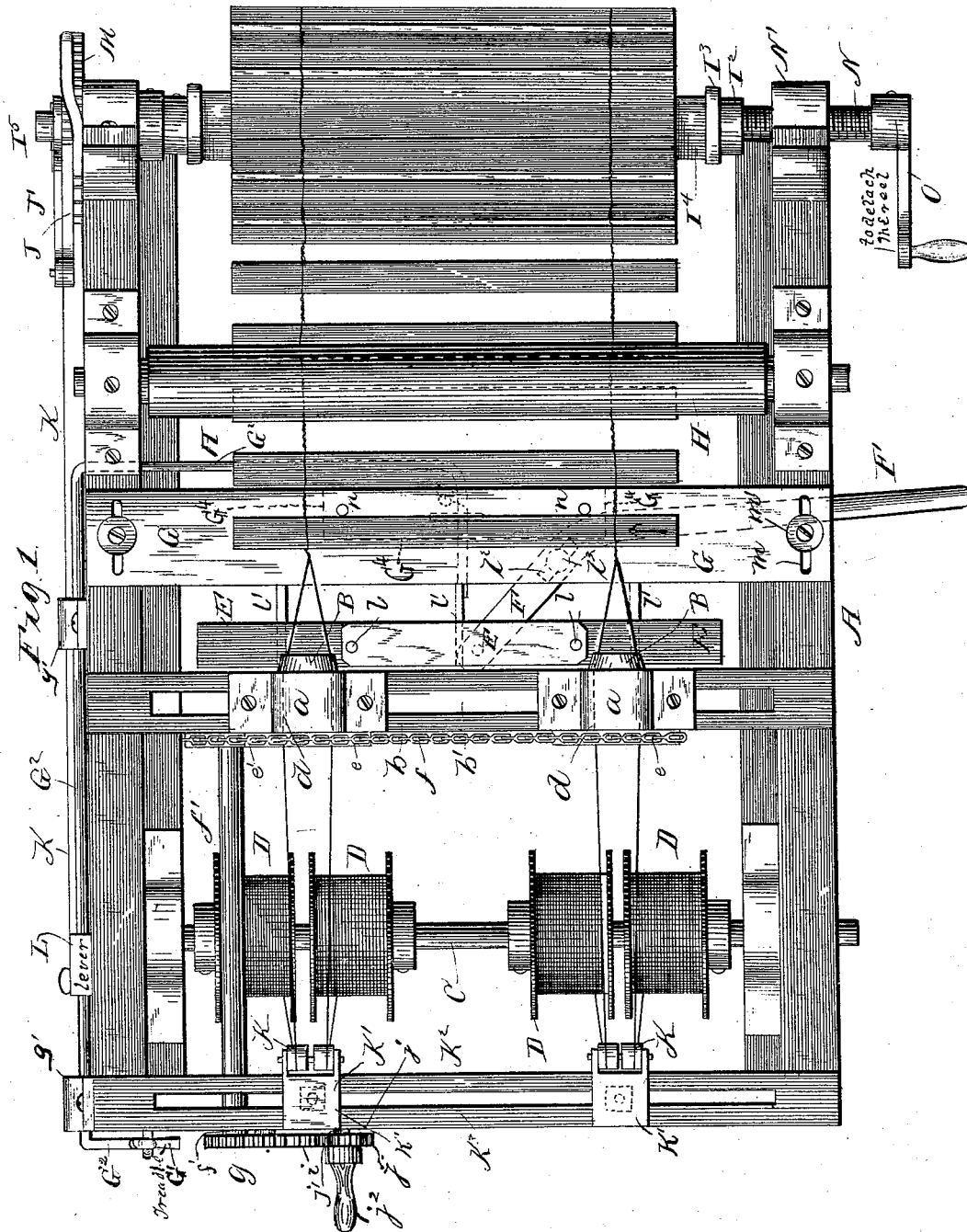


4 Sheets—Sheet 1.

No. 301,876.

Patented July 15, 1884.



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W. M. Shum.

Inventor:
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(No Model.)

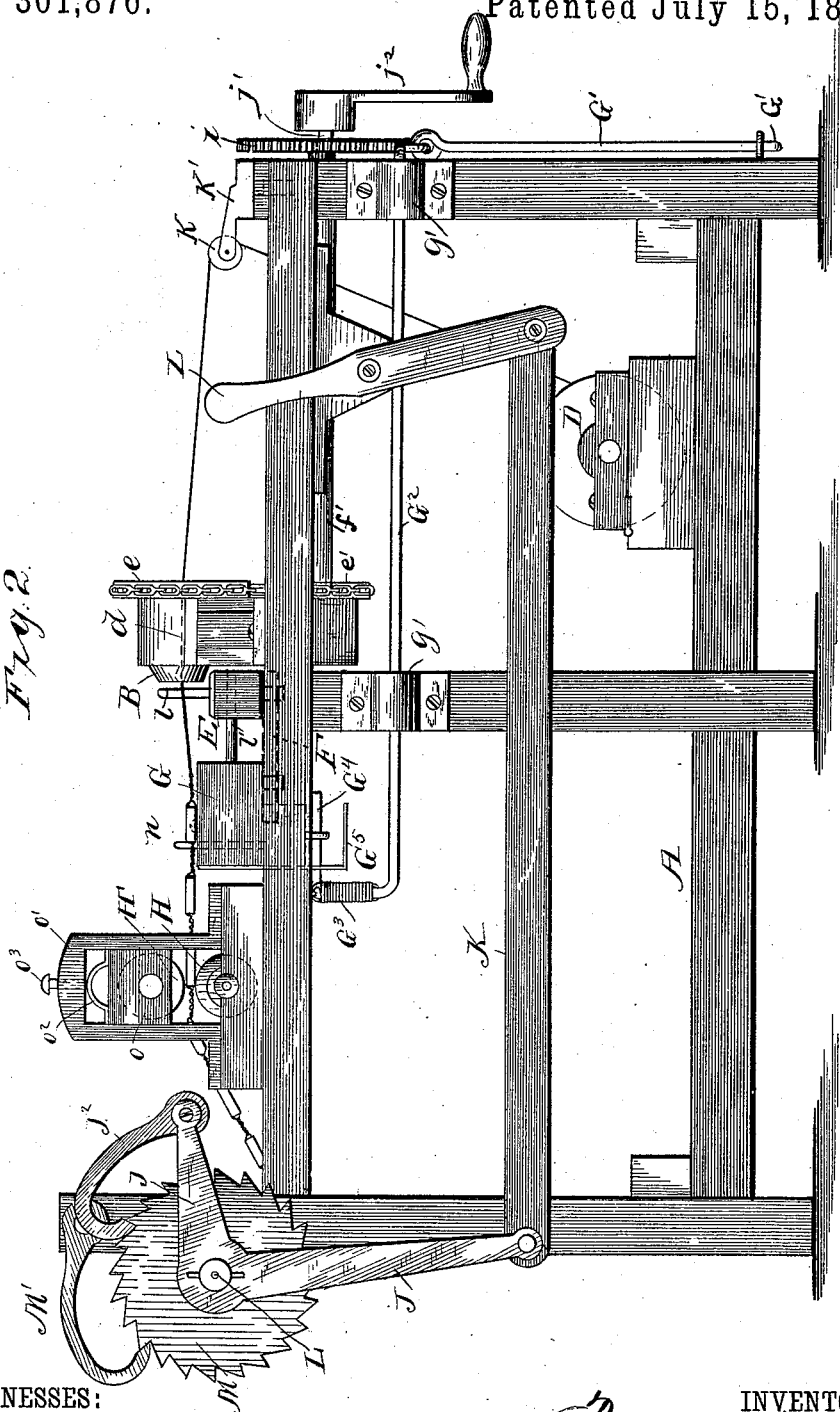
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B. L. FLETCHER.
MACHINE FOR MAKING FENCES.

No. 301,876.

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Fig. 2.



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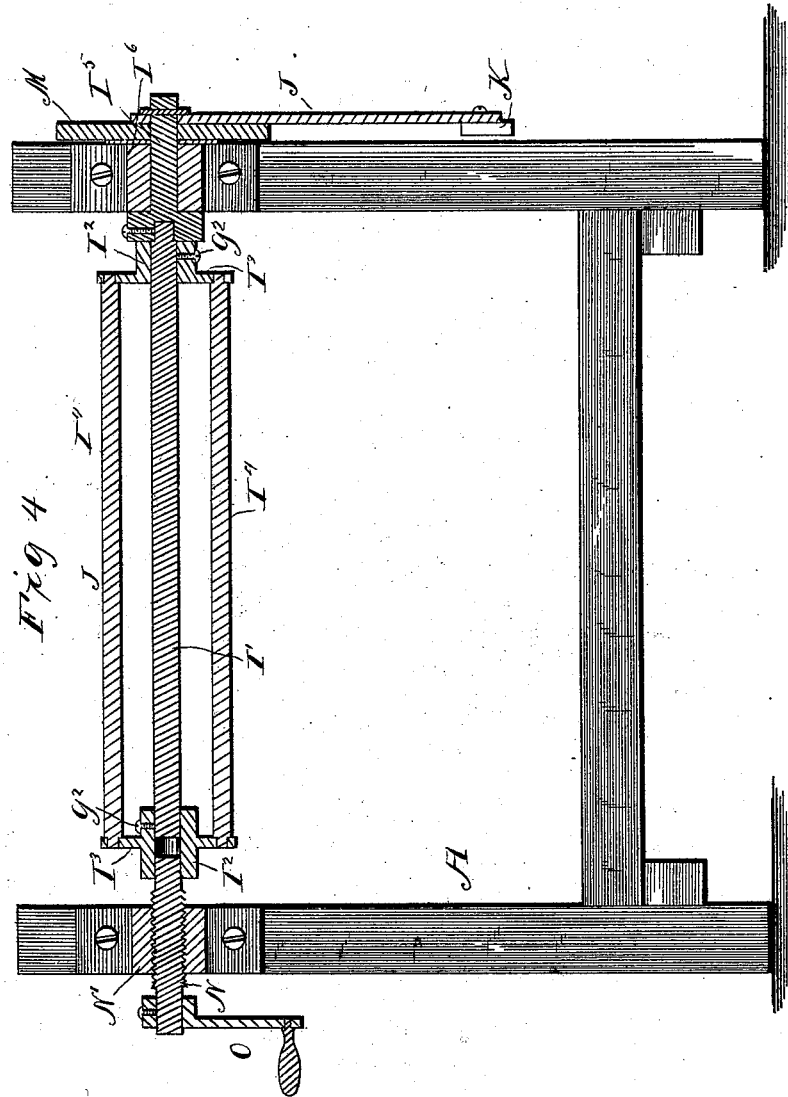
(No Model.)

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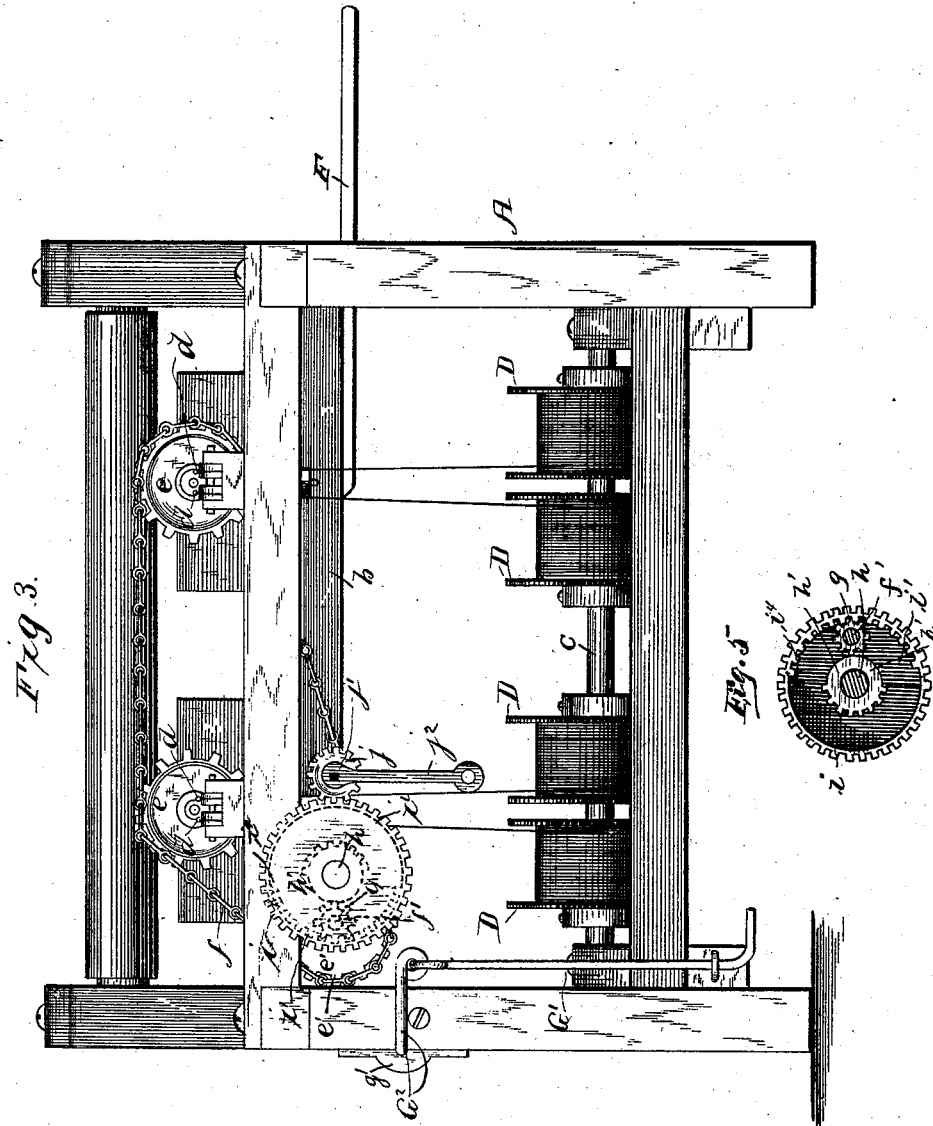
(No Model.)

4 Sheets—Sheet 4.

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UNITED STATES PATENT OFFICE.

BENJAMIN L. FLETCHER, OF WICHITA, KANSAS, ASSIGNOR OF ONE-HALF
TO JOHN M. DUNKIN, OF SAME PLACE.

MACHINE FOR MAKING FENCES.

SPECIFICATION forming part of Letters Patent No. 301,876, dated July 15, 1884.

Application filed March 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN L. FLETCHER, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Machines for Making Fences, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has reference to wire-fence-making machines, being designed to secure fence pickets or panels by the connecting or suspending wires in the construction of fences; and it consists in the sundry combinations of parts and their construction, substantially as hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my machine. Fig. 2 is a side elevation. Fig. 3 is an end elevation of the same. Fig. 4 is a sectional elevation taken through the reel, and Fig. 5 is a detail view.

In the organization of my invention I provide a suitable supporting-frame, A, upon which are mounted, a suitable distance from one end, twisting devices or cylinders B, bearing in boxes a, secured adjustably by screws upon a cross-piece, b, having a longitudinal slot, b', to permit of the disposition of the twisting devices or cylinders nearer together or farther apart, according to the length of the pickets or panels. These cylinders or twisting devices are each provided with two parallel apertures, d, extending through the same (see particularly Fig. 3) for the passage of the strands of wire. At one end of each of the axes of the cylinders or twisting devices is secured a rag or sprocket wheel, e, which wheels are encompassed by a chain belt, f, also encompassing and driven by a similar wheel, e', on a shaft, f', suitably hung in bearings secured to cross-pieces of frame A. At the opposite end of the shaft f' to that to which the wheel e' is secured is fastened a small cog-wheel or pinion, g, which gears with a segmental cog-wheel or pinion, h, somewhat larger than the pinion g, and having a smooth or blank segmental portion, h', said pinion h being secured, in common with two other cog-

wheels, i i', upon a short shaft mounted in bearings depending from the frame A. The cog-wheel i' is provided with a recess in its inner face, as more clearly shown in Fig. 5, wherein is located the segmental pinion h, and also pinion g, secured to shaft f', the teeth of the pinion g meshing with the inner periphery of the teeth of the wheel i'. The wheels i i' are either integral or adapted to revolve together, one being provided continuously around its periphery with teeth, and gearing with a small pinion, j, on a shaft, j', suitably journaled in bearings on a cross-piece of the frame A, and having a handle, j², for its operation. The other inside face or inner wheel, i', is provided with a segmental row of inwardly-projecting teeth, i², occupying about half of its circumference, (that half in an opposite plane to that occupied by the teeth of the pinion h,) said wheel i' being considerably greater in diameter than the pinion h, while its other half, i², is smooth or blank, whereby said wheel i' and pinion h will be adapted to alternately gear with the pinion g of the belt-wheel driving-shaft and impart an alternate opposite rotation to said shaft, which will similarly affect the twisting devices or cylinders B, to enable the changing of the direction of the twisting of the wires for each slat, panel, or picket without reversing the turning of the handled or operating shaft, allowing the continuous turning thereof in the same direction, which greatly expedites the operation and renders the same less arduous and fatiguing to the operator or attendant.

C is a shaft journaled in the lower part of the frame A, and having a number of wire paying-off or holding drums, D, arranged in pairs, and upon which the wire is wound. From these drums the wires are passed over frictional rolls K, arranged upon the upper part of the frame, in rear of the drums, the wires of a pair of drums passing over two adjoining rolls, to enable the passing of the wires properly to the twisting cylinders or devices, as clearly seen in Fig. 1. These rolls are supported in blocks or bearings K', adjustably disposed upon a bar, K², of the frame, said bar having a longitudinal slot, K³, to ef-

fect their alignment with the adjustment of the twisting cylinders or devices as occasion may require.

Disposed directly in front of the twisting-cylinders B is a sliding bar, E, which has two upright stout pins, *l*, arranged thereon, inside of the wires. Said bar is mounted to move upon and be guided by rods *l' l'*, fixed in the frame A, transversely to the length of said bar or slide, and is actuated by the bent hand-lever F, pivoted at its inner end to said slide or bar, and guided in its movement so as to move the slide parallel to the transverse axes of the frame A, by a pin or stud, *l''*, fitting in an oblique slot, *l''*, in the under side of the picket or slat support, (said stud and slot being seen in dotted lines in Fig. 1,) while the handle of said lever extends a suitable distance from the frame A for its convenient manipulation. The function of the pins *l* of the slide or bar E will appear farther on.

G is the support or table upon which the slat or picket, preparatory to weaving, is placed, and which is connected adjustably to the frame A by transverse slots *m* thereon at its ends, and set-screws *m'*. Through said table pass two upright stout pins, *n*, secured to a bar below the table (presently referred to) and arranged about in line with the pins *l* of the slide E. The slat is inserted between the strands of the intertwisted wire, and is there held on one side by the pins *l* of the slide E, the latter being adjusted by its lever to effect that end.

The pins *n n*, in order to permit the slat or picket, after having been fastened, to pass, are capable of retraction or being depressed below the upper surface of the table G, by means of the foot-lever G', connected to a second right-angled lever, G'', pivoted in bracket *g'*, secured to the frame A, the inner end of said latter lever being extended, inclined upwardly, and having rigidly secured thereto the spring G³, and thence extended again horizontally inwardly and at right angles to the latter inwardly-projecting portion, and is finally connected to a bar, G⁴, having the pins *n n*. The action of the spring G³ is to project the pins *n* automatically above the table G.

G⁵ is a bracket or stop depending from the table G, with its horizontal portion extending a short distance below and under the bar G⁴, to limit its downward movement when the pins *n* are retracted or depressed.

H H' are two rolls arranged upon the frame A, contiguously to the support or table G, one being supported in pillow-blocks or bearings secured to the frame, while the other is disposed adjustably above its fellow in sliding bearings *o*, fitted in upright frames *o'*, fastened to said blocks or lower roll-bearings, said sliding bearings being acted upon by springs *o''*, having adjusting-screws *o'''* passing through the upper part of said frames. The pickets, after having been secured to the wires, (or the wires thereto,) pass between the aforesaid rolls

as the woven portion of the fence thus formed is fed forward, as presently described, and thus straighten out kinks that may happen to be in the looped wire embracing the panels, slats, or pickets, and also serve to guide the same to their destination—to the reel.

I is the reel upon which the fence, as fast as it is woven, is wound, as will be explained, and which consists of a central shaft, I', held detachably in the tubular portions or boxes I² of end disks or plates, I³, by set-screws *g''*, and of peripheral bars I⁴, let into the disks or plates I³. One end of the central shaft, I', is secured removably by a set-screw in a box or hub formed with or fixed to a short shaft, I⁵, bearing in a bracket, I⁶, secured to an upright of the frame A.

To the outer end of the shaft I⁵ is connected, so as to revolve it to cause the intermittent rotation of the reel, a lever, J, connected by a rod, K, to a hand-lever, L, hung or fulcrumed at or near the opposite or feeding end of the frame or machine, within easy grasp of the attendant, said lever J having an arm, J', carrying a gravity-pawl, J², engaging with a ratchet, M, secured upon the shaft I⁵. A second gravity-pawl, M', engages said ratchet to prevent back or reverse movement of the reel, said pawl hung or pivoted upon an upright of the frame A. A screw-shaft, N, screwed into a screw-threaded box or bracket, N', secured to an upright of the frame A, enters one of the boxes of the disks I³ and forms a bearing therefor. This shaft has a handle, O, to enable the convenient unscrewing or withdrawal of said shaft from the reel-disk box I³ when it is desired to remove the reel, which becomes necessary when its holding capacity has been exhausted, the wires, of course, having been previously severed from the other portion of the works. In operating the machine, two men having dissimilar duties are employed, of whom one is stationed at the rear or twisting end thereof, and operates crank *j''* and the treadle G', and the other at the diagonally-opposite corner therefrom, at the picket-feed and reel, whose duties appertain to the mechanism of that part of the machine.

In operation, the wires, after passage from each of the lower drums D over the frictional rolls or pulleys K, and through the twisting devices or cylinders, are suitably secured to the reel. Then one of the operators places a picket, panel, or slat upon the table G, between the wires, and back of and against pins *n n*; and then, after securing the same in place by moving the slide E until its pins *l* strike the rear edge of the slat and press it against the pins *n n*, the twisting of the wires is commenced by turning the handle *j''*, which operates the small pinion *j*, the latter gearing with the large pinion *i* of the wheels *i'*, the wheel *i'* gearing with the small pinion *g* of the shaft *f'*, which will continue rotating the shaft *f'* in the same direction until the

blank segmental portion of the wheel z' is opposed to the pinion g , when the intertwisting of the slat, picket, or panel is completed. The operator then depresses the pins n below the table G by means of the foot-lever G' , to allow the picket or panel just woven to pass over said pins n , which latter operation is produced by operating the hand-lever L , which lever operates the reel I , and then the pickets, after having been secured to the wires, (or the wires thereto,) pass between the rolls H and H' as the woven portion of the fence thus formed is fed forward, and thus is straightened out the intertwined wire around the slat, picket, or panel.

The operator having charge of the rear or twisting end of the machine having performed the duties appertaining to that end thereof and released his foot from the foot-lever G' , the operator having charge of the diagonally-opposite corner of the machine places another slat, picket, or panel on the table G , between the wires, and after securing the same in place by means of the slide E , as aforementioned, the operator having charge of the rear or twisting end of the machine then twists the wires in a reverse direction by operating the crank j^2 , thus causing the pinion g to gear with the larger pinion h , which in turn causes the reverse rotation of the shaft f' . Said operation is continued, as above described, until the desired quantity of the fence fabric has been woven or constructed, and the same is fed forward as it accumulates, and is wound upon the reel I .

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the twisting devices and the paying-off drums, of the intermediate rolls, H H' , one of them disposed in sliding bearings o and frames o' , and springs o^2 , having adjusting-screws o^3 , substantially as shown, and for the purpose described.

2. The combination of the twisting devices, the paying-off drums, the mechanism for operating the two devices, and the rolls, substantially as shown and described.

3. The combination of the sliding bar having the slat-holding pins, bent lever having one end connected to said bar, and a stud or pin fitting in an oblique groove in the under side of the panel or picket table, substantially as shown, and for the purpose set forth.

4. The combination of the slat-holding table, provided with the slots m , and adjustable by means of set-screws m' , bar G^4 , having pins n , bent hand-lever F , bracket G^5 , and spring G^3 , actuated by the foot-lever G' , substantially as shown, and for the purpose described.

5. The combination of the slide E , having pins l and adjustable on rods l' , hand-lever F , and pin or stud l'' in oblique slot l^2 , substantially as shown, and for the purpose described.

6. The twisting-device driving-shaft f' , having a pinion, g , in combination with the segmental pinion h , and the toothed wheels i i' , integral or fixed one on the other, the wheel i gearing with the pinion j and actuated by a crank-handle, j^2 , substantially as shown, and for the purpose set forth.

7. In a fence-making machine, the combination of the reel I , having a central shaft, I' , detachably secured in tubular boxes I^2 of end disks, I^3 , by means of set-screws g^2 , peripheral bars I^4 , secured in disks I^3 , and screw-shaft N , actuated by a crank, O , substantially as shown and described.

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

BENJAMIN L. FLETCHER.

Witnesses:

J. NOTA MCGILL,
H. N. HALL.