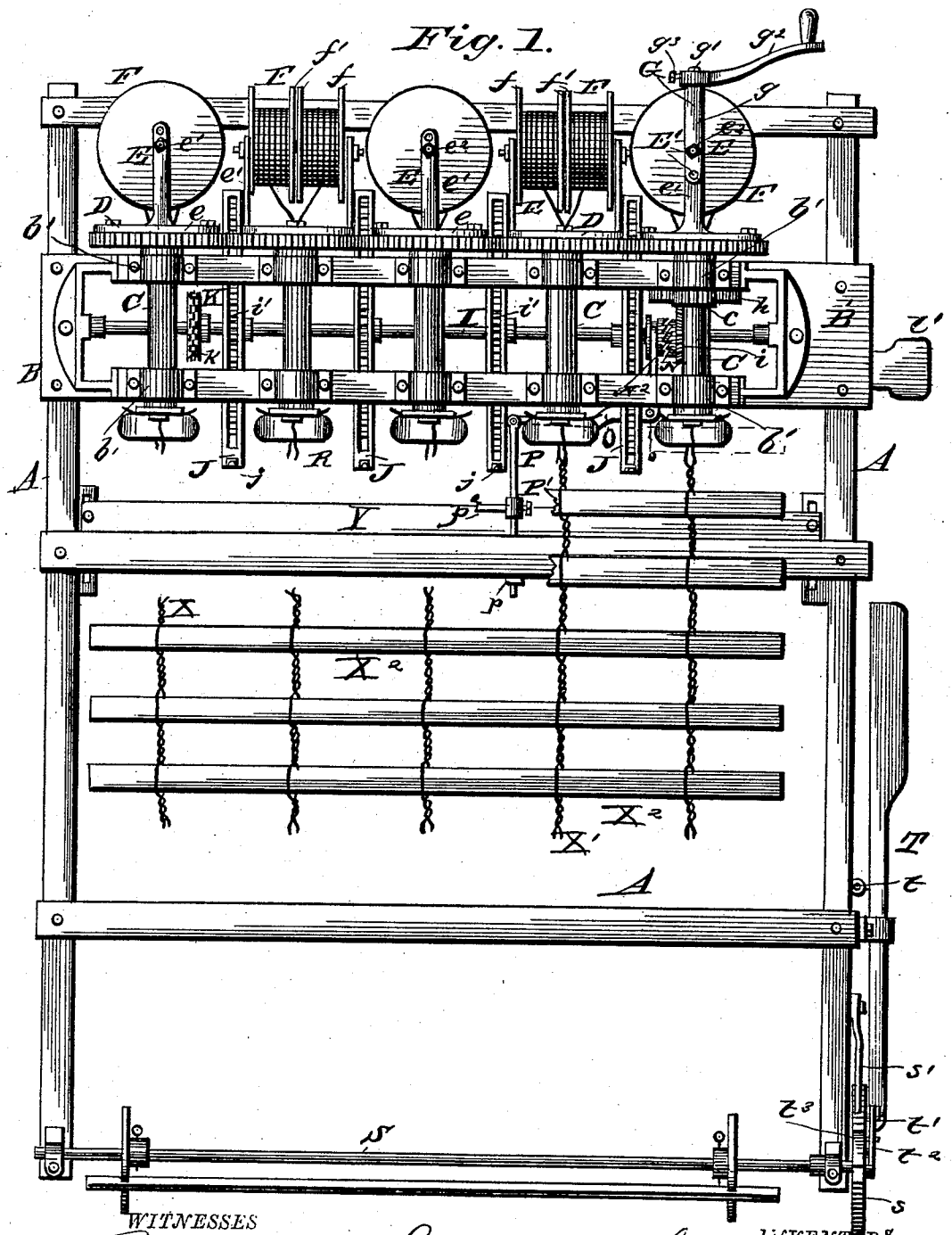
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L. W. & J. A. FILLEBROWN.

MACHINE FOR MAKING WIRE FENCES.

No. 322,096. Patented July 14, 1885.

Fig. 1.



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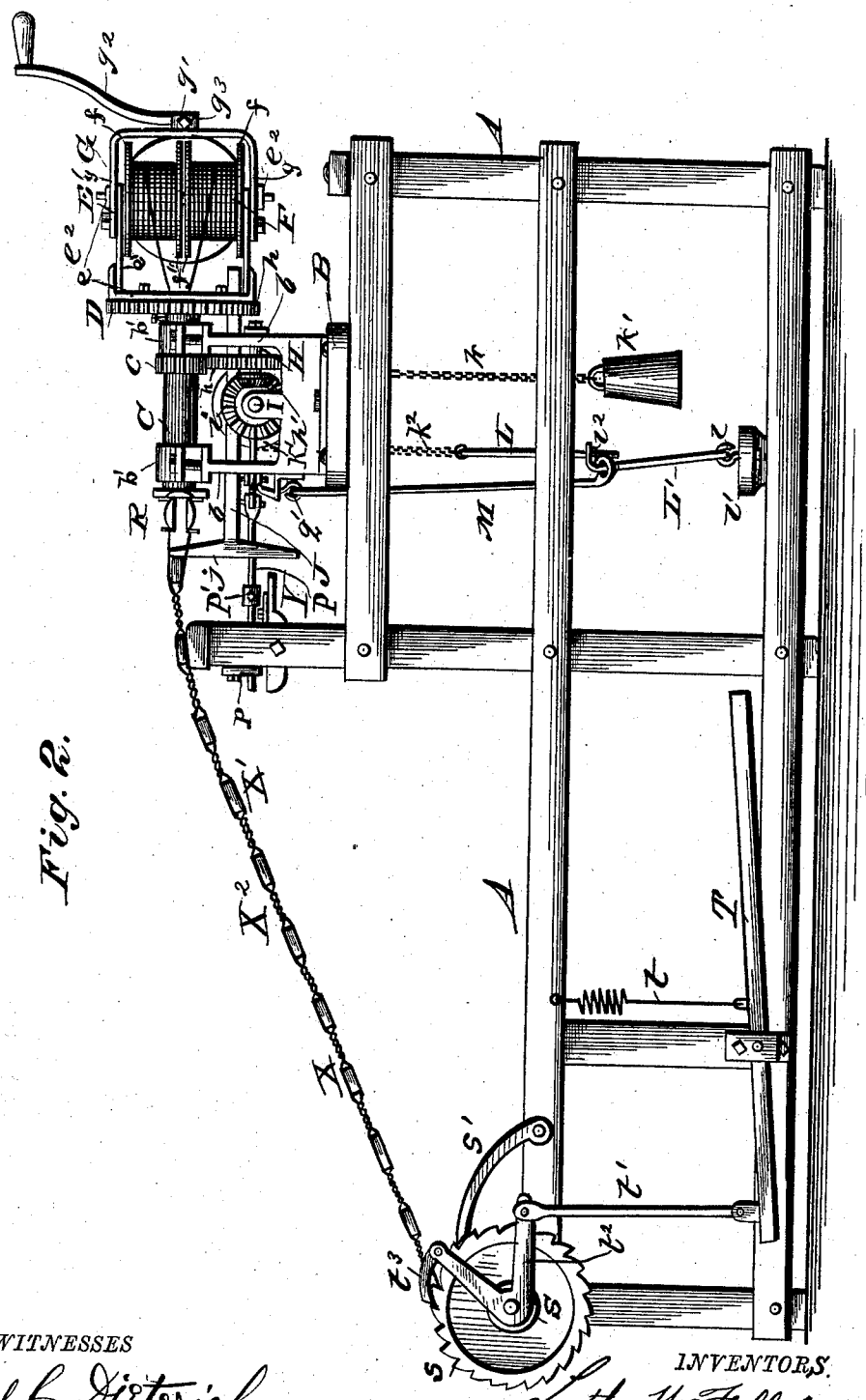


Fig. 2.

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Fig. 3.

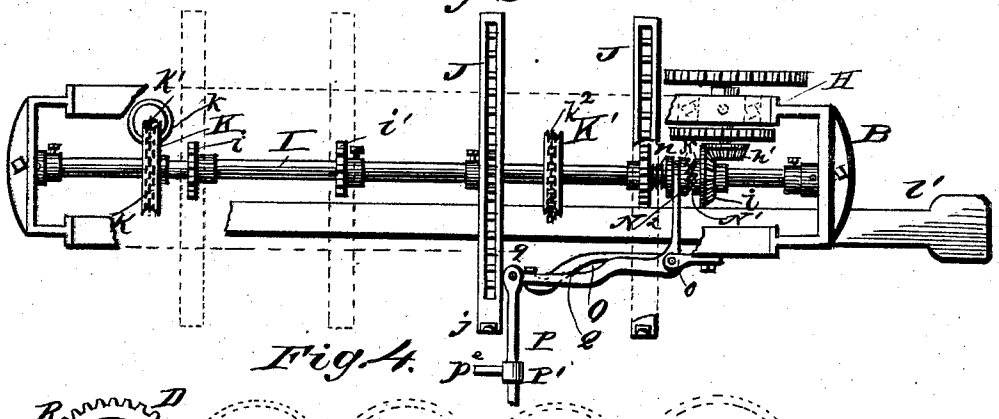


Fig. 4.

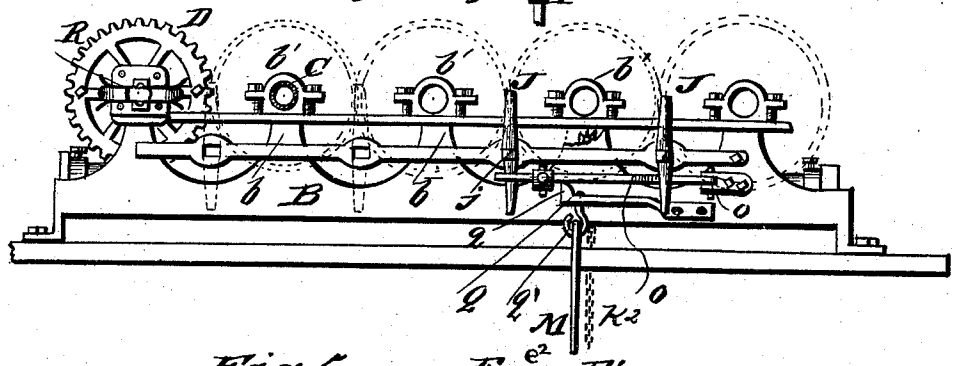


Fig. 5.

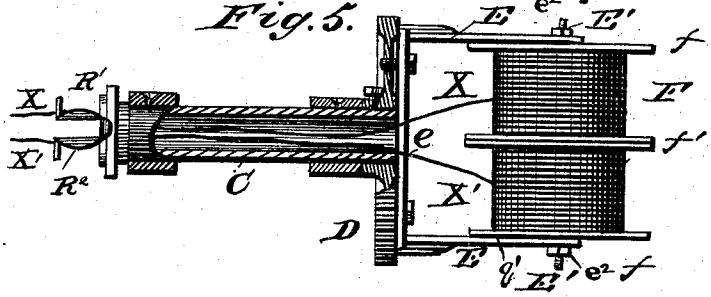


Fig. 6.

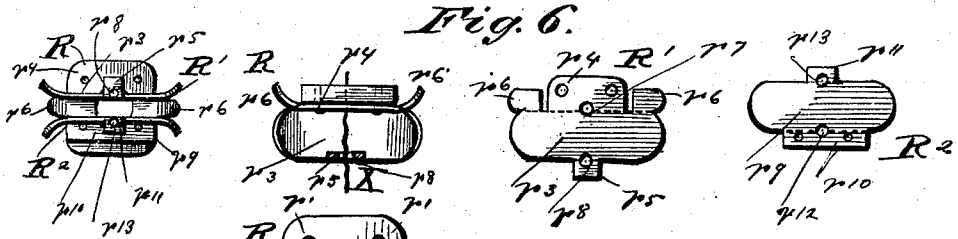
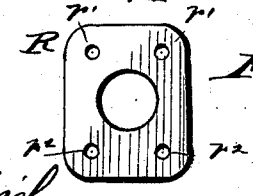


Fig. 7.



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Fig. 8.

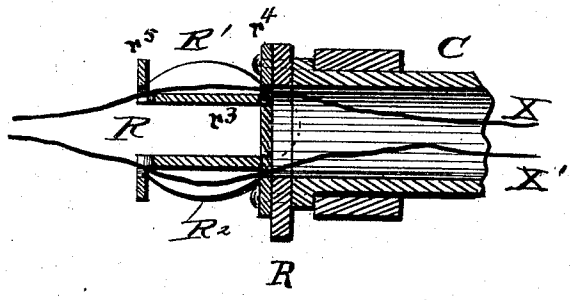
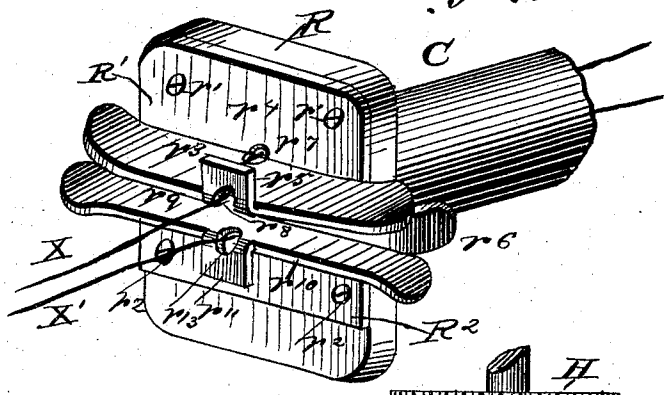


Fig. 9.



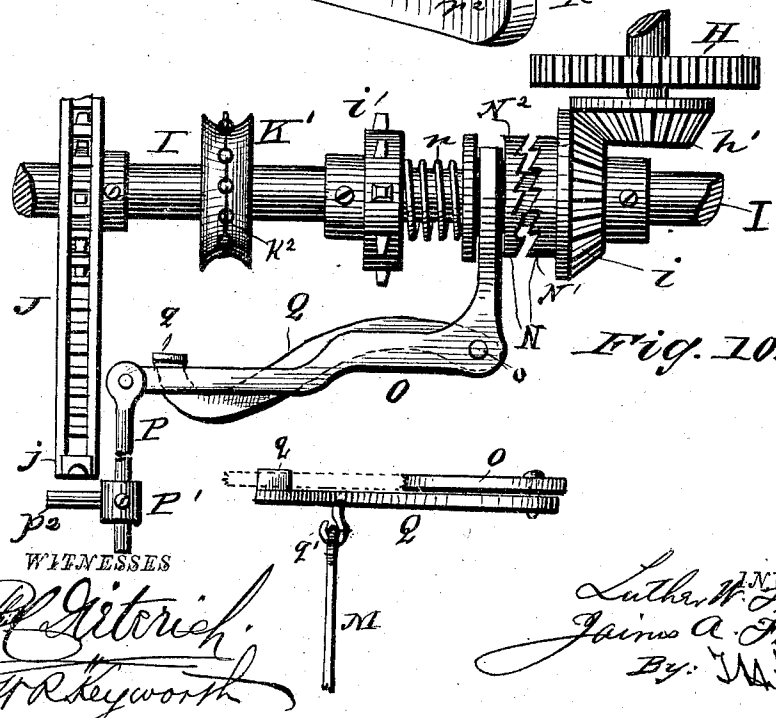


Fig. 10.

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UNITED STATES PATENT OFFICE.

LUTHER W. FILLEBROWN AND JAIRUS A. FILLEBROWN, OF PIQUA, OHIO.

MACHINE FOR MAKING WIRE FENCES.

SPECIFICATION forming part of Letters Patent No. 322,096, dated July 14, 1885.

Application filed April 25, 1885. (No model.)

To all whom it may concern:

Be it known that we, LUTHER W. FILLEBROWN and JAIRUS A. FILLEBROWN, of Piqua, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Machines for Weaving Wire Fences; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

Figure 1 is a top plan view of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view of a frame partly broken away. Fig. 4 is a similar view of the front thereof. Fig. 5 is a plan view, partly in section, of the twisting arrangement. Figs. 6 and 7 are detail views of the twister-heads. Fig. 8 is an enlarged sectional view of the same. Fig. 9 is a perspective view of the twisting-head. Fig. 10 is an enlarged plan view of the clutch mechanism.

The invention relates to mechanism for making fences composed of parallel slats, preferably of wood, and wires uniting the said slats and twisted between the same; and it consists in the construction and novel arrangement of parts hereinafter described, and pointed out in the appended claims.

In the drawings, A designates the frame-work of the machine, of general rectangular form and of suitable size and proportions.

B is a transverse frame bolted to the upper part of the frame-work A, and having secured to uprights *b*, rising from its upper surface, the bearings *b' b'*, in which the hollow shafts C C are journaled, as shown. The shafts C have on their outer ends in front of their journals the gear-wheels D D, all of equal size, and intermeshing, so that the adjacent shafts C, when actuated by the gear-wheels, will rotate in opposite directions. Each gear-wheel D has bolted to its outer face the ring *e* of a tension-frame, E, the arms *e'* of which stand outward, and have passing through threaded openings in their ends a transverse bolt, E', upon which the spools F rotate, adjacent frames E rotating in opposite directions, as is evident from the wheels D gearing together. The spools F are made double, having the end flanges, *f f*, and the central flange, *f'*, and the wires are wrapped on the two sections of each spool on each side of the central flange.

G is a rectangular frame, the parallel arms *g g* of which have openings in their ends, which lie outside of the threaded openings in the arms *e'* of the frame E, and have the bolts E' passing through them.

g' is a lug on the transverse bar of the frame G, on which lug a crank-handle, g^2, is fitted, and held in place by a set-screw, g^3, as shown. By means of the crank-handle g^2 the connecting gear-wheel D is rotated, and actuates all of the gear-wheels D, as described.

By means of the nuts e^2 e^2 on the bolts E' the tension-frames E may be made to bind upon the spools F, and will, by the accompanying friction, regulate the tension with which the wires leave the spools.

The shaft C, adjacent to the right side of the frame of the machine, has on it to the inner side of the front bearing, *b'*, a pinion, *c*, which meshes with a gear-wheel, *h*, secured to a short shaft, H, having bearings in the frame B below the said shaft C.

h' is a beveled pinion on the end of the shaft H, inside of its rear bearing, as shown. The pinion *h'* meshes with a beveled gear-wheel, *i*, secured to a transverse shaft, I, having end bearings in the frame B.

J J are similar horizontal sprocket rack-bars sliding longitudinally in proper openings in the frame B and situated between the hollow shafts C. The rack-bars J are provided with the vertical cross-heads *j j*. The said sprocket-bars are actuated by the sprocket-wheels *i'*, secured to the shaft I, and rotating therewith. K is a pulley secured to the shaft I toward its left end, and having attached the chain *k* and depending weight *k'*.

K' is a pulley similar to the pulley K, but secured on the shaft I toward the right end of the same. The pulley K' has attached to it a chain, k^2, which descends from it on the side opposite to that in which the chain *k* descends from the pulley K, so that the two chains oppose each other in action.

L is a link-rod descending from the lower end of the chain k^2, and having its lower end passing through an opening in the horizontally-bent upper end of the link-rod L', the lower end of which is hook-formed and en-

gages a staple, *l*, on the treadle *l'*, which is pivoted to the base of the frame-work A. The lower end of the link-rod L is threaded, and has upon it an adjusting-nut, l^2, which prevents it rising from the link-rod L', but does not prevent it from descending.

M is a link-rod having the upper end of the link-rod L' passing through an opening in its horizontally-bent lower end, and with its upper end formed to engage a staple on a hook, hereinafter described.

N is a clutch formed of the two toothed collars N' and N^2, the former of which is secured to the bevel-gear *i* and turns loosely therewith on the shaft I, and the latter splined to the shaft and moved laterally thereon by means of the lever O, pivoted at its angle *o* to a bracket on the main frame, and having its fork resting in a circumferential groove in the collar N^2.

n is a coiled spring acting against the side of the adjacent sprocket-wheel *i'* to force the collars N' and N^2 into engagement.

P is a rod pivoted at its front end to the end of the transverse arm of the lever O, and passing through a bearing, *p*, secured to the frame A, as shown in Fig. 2.

P' is a collar made adjustable on said rod P by means of a set-screw, and bearing a lateral pin or arm, p^2, for a purpose hereinafter explained.

Q is a spring having one end bolted to the main frame and its free end turned up vertically at *q*, and adapted to rest against the front edge of the transverse arm of the lever O and prevent the clutch from engaging. *q'* is a hook on the under surface of said spring, formed to engage with the looped upper end of the link-rod M.

By depressing the treadle *l'* the spring Q is also depressed, so as to release from it the lever O, and the clutch is forced to engage by the spring *n*, as described. Depressing the treadle also, by means of the connecting-chain and link-rods, rotates the shaft I, and causes the sprocket rack-bars to slide longitudinally in their bearings, as described. Upon taking the foot from the treadle the weight *k'* will cause the sprocket rack-bars to return to their first position.

R is one of the twister-heads and guide-blocks for the wires secured to the rear end of one of the hollow shafts C.

R' R^2 are guide-plates for the slats, bolted to the rear face of the block R by means of the openings $r'r'$ and r^2r^2, respectively. The plate R is composed of the body portion r^3, which stands out at right angles from the block, the part r^4, bent at right angles to the body portion and secured to the block, the ear r^5, bent parallel to the part r^4 from the front edge of the plate, and the ears r^6 r^6, bent at right angles inward from the body portion, so as to lie against the block and form a support for the edge of a slat to rest on.

r^7 and r^8 are holes through which the upper wire, X, from one side of the double spool passes above the plate R'.

The guide-plate R^2 is composed of the body portion r^9, corresponding to the part r^3 of the guide-plate R', and the parts r^{10} and r^{11}, respectively corresponding to the parts r^4 and r^5; also the holes r^{12} and r^{13}, corresponding to the holes r^7 and r^8, and which direct the wire X' from the opposite side of the spool below the guide-plate R^2. The tension-frames E are preferably secured to the gear-wheels D in such manner that the rod or shaft E' of any one will be at right angles to the shafts E' of adjacent frames E, as shown in Fig. 1.

X^2 represents the slats of a fence being formed by the machine, and X X' represent the upper and lower wires of the same.

S is a transverse roller, journaled in bearings in the rear end of the main frame. Upon this roller the fence is wound as it is made. *s* is a ratchet-wheel on the end of the roller outside of its bearing, and *s'* is a pawl pivoted on the main frame and controlling the ratchet-wheel.

T is a treadle pivoted to the main frame, and *t* is a coiled spring lifting the front arm of the treadle.

t' is a link-rod connecting the rear arm of the treadle with the lateral arm of a bell-crank, t^2, having its angle fixed upon the end of the shaft of the roller S.

The upper arm of the bell-crank carries a pawl, t^3, which engages the teeth of the ratchet-wheel and moves the latter around so as to wind the fence on the roller S when the treadle T is vibrated with the foot. The pawl *s'* prevents the ratchet-wheel from escaping when its teeth are not engaged by the pawl t^3.

The operation of the machine is as follows: The wires being in position, a slat is placed transversely so as to lie between the guide-plates R' and R^2, all the meeting edges of which plates are rounded out, as shown, to allow the slat to move easily into position. The treadle *l'* is then depressed by the foot, so as to partially rotate the shaft I. This motion moves the sprocket-bars J rearward, and their cross-heads *j* drive the slat out from between the plates R' and R^2 with a wire both above and below it. The depression of the treadle also releases the lever O from the point *q* of the spring Q, so that the spring *n* causes the clutch N to engage and further rotate the shaft I. This causes a further travel of the bars J, and while they are so traveling the proper twist is given to the wires by means of the handle g^2, frame G, and tension-frames E. When the proper sprocket-bar has moved far enough to impinge on the pin p^2, it will thereby move the lever O sufficiently to allow the point of the spring Q to engage against the front edge of said lever and to hold the clutch open till the treadle *l'* is again actuated and the process repeated. The weight *k'* draws the sprocket-bars back to their normal position.

If desired, a fixed bar, Y, may be secured

transversely to the main frame, and will prevent all of the sprocket-bars from traveling too far; but such a stop-bar is not essentially necessary and need not be used.

The slack of the fence is kept up by the treadle T and roller S.

Having described our invention, what we claim as new is—

1. The combination, with the main frame and transverse frame B, bolted thereto, of the hollow shafts C, journaled in the frame B, the gear-wheels D on the ends of said shafts intermeshing, and thereby rotating adjacent shafts in opposite directions, the frames attached to the outer sides of the gear-wheels D, the double spools supported by and turning on said frames, and the blocks R, having secured thereto the guide and twister plates R′ and R², substantially as specified.

2. The combination, with the rotating block R, of the plate R′, provided with the projections or ears r^4 r^5 r^6 r^9 and the openings r^7 r^8, and the plate R², provided with the ears r^{10} r^{11} and openings r^{12} r^{13}, the said plates being adapted to receive a slat between them and wires above and below the same from any proper source of supply, substantially as specified.

3. The combination, with the frame B, shaft C, gear-wheels D, and tension-frame E, of the bolt E′, nuts e^2, spools F, retaining-frame G, and crank-handle g^2, substantially as specified.

4. The combination of the shaft I, provided with the sprocket-wheels i' and pulleys K K′, the sprocket rack-bars J, and weight k', attached by a chain to the pulley K, with the spring n, lever O, spring Q, rod P, provided with the pin p^2, treadle l', link-rods L L′ M, and chains k k^2, substantially as specified.

5. The combination, with the sprocket rack-bars J, actuated by wheels on the shaft I, the clutch N, springs n and Q, and lever O, of a pin so connected with the lever O that one of the rack-bars will impinge upon it, and thereby open the clutch and cause the spring Q to prevent the same closing, substantially as specified.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

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JAIRUS A. FILLEBROWN.

Witnesses:
CHAS. N. THOMAS,
JAMES H. HATCH.