

A. C. CONNER & J. M. WESTCOTT.

WIRE AND SLAT FENCE MACHINE.

No. 346,428.

Patented July 27, 1886.

Fig. 1.

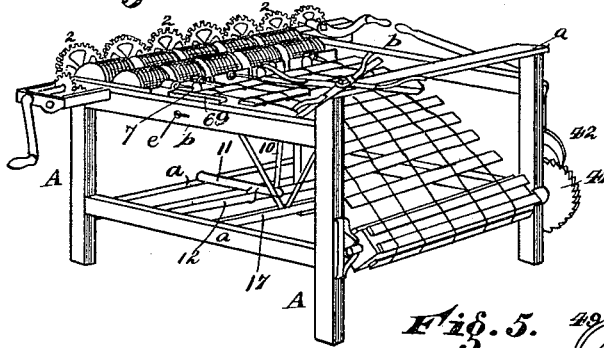


Fig. 5.

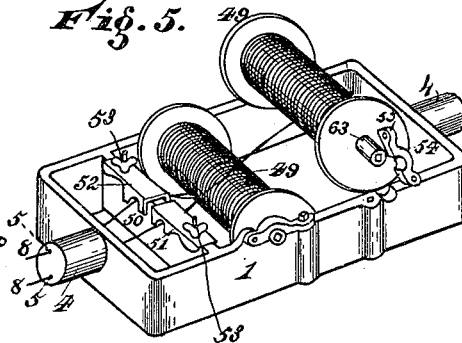


Fig. 3.

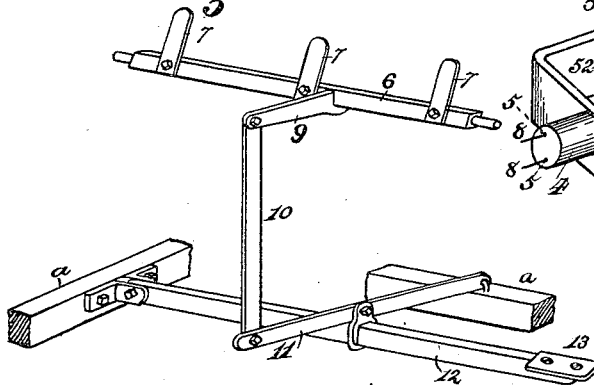


Fig. 4.

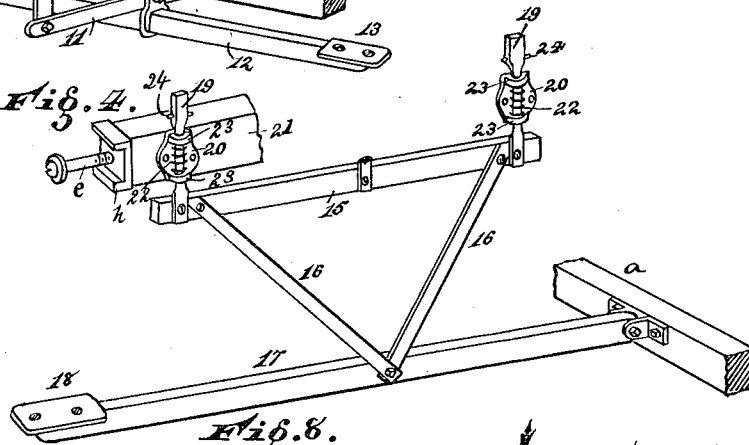
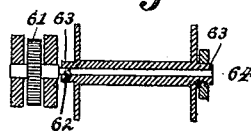


Fig. 6.



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Fig. 2.

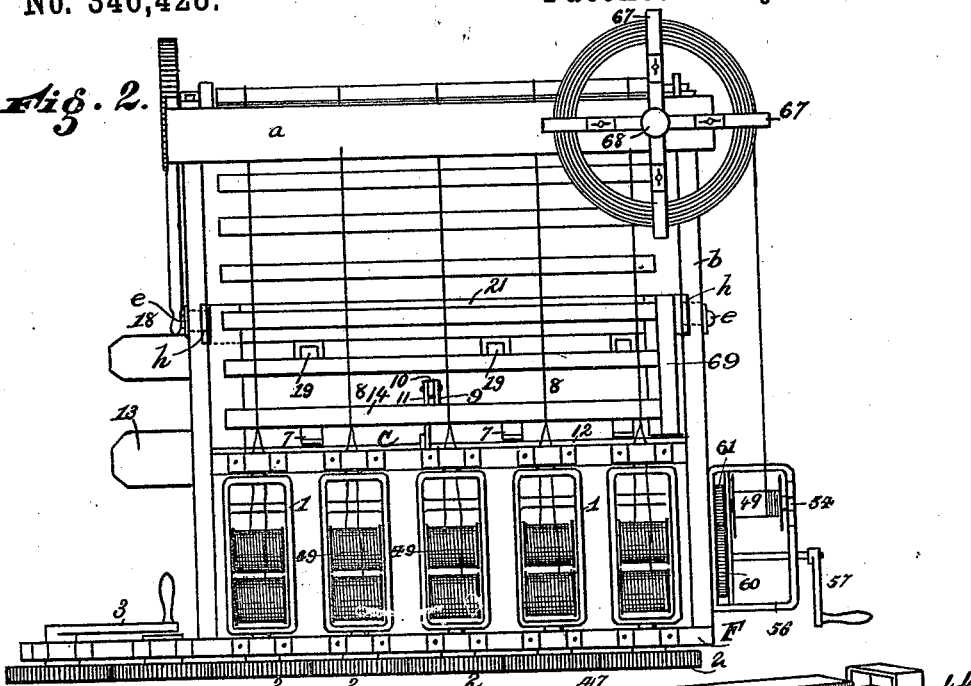


Fig. 6.

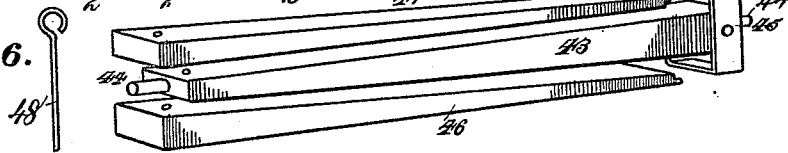
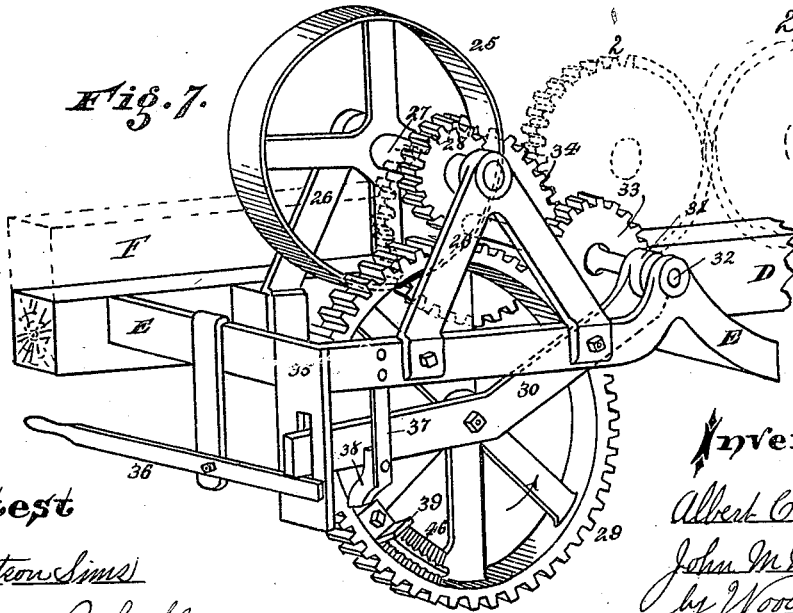


Fig. 7.



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# UNITED STATES PATENT OFFICE.

ALBERT C. CONNER AND JOHN M. WESTCOTT, OF RICHMOND, INDIANA,  
ASSIGNORS TO THE HOSIER DRILL COMPANY, OF SAME PLACE.

## WIRE-AND-SLAT-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 346,428, dated July 27, 1886.

Application filed May 3, 1886. Serial No. 200,983. (No model.)

*To all whom it may concern:*

Be it known that we, ALBERT C. CONNER and JOHN M. WESTCOTT, residents of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Wire-and-Slat-Fencing Machines, of which the following is a specification.

Our invention relates to wire-and-slat-fencing machines, and more particularly to that class known as "horizontal" machines.

One of the objects of our invention is to provide a machine which can be operated by hand or by power, with devices for automatically stopping the power as soon as the wires have been twisted to hold the slat.

Another object of our invention is to provide a suitable reeling-frame.

Another object of our invention is to provide revolving spool-frames with tension devices for feeding the wire through the twisting-spindles.

Another object of our invention is to provide suitable treadle mechanism to operate the stops for holding the slat firmly in position.

Another object of our invention is to provide suitable treadle mechanism for operating pressure-fingers to bring the slat into the position for twisting.

Another object of our invention is to provide a detachable reel, on which the coil of fence is wound, so that it can be detached without unwinding the fence-bale.

The various features of our invention will be fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of our improvement. Fig. 2 is a top plan view of the same. Fig. 3 is a detail view of the treadle and finger-pressing mechanism. Fig. 4 is a detail view of the treadle and stop mechanism. Fig. 5 is a detail view of the revolving reel-frame. Fig. 6 is a detail view of the detachable reel or windlass on which the bale is wound. Fig. 7 is a perspective view of the power attachment. Fig. 8 is a sectional view of the detachable spool on the winding-frame.

A represents the posts of the loom; *a*, cross-rails; *b*, the top supporting-rails.

1 represents a series of revolving spool-frames mounted upon the top and at the rear side of the frame.

2 represents a series of driving-gears.

3 represents a crank attached to the outer-most gear for driving the reels.

In the drawings we have represented five revolving spool-frames.

4 represents a boss, which forms a journal for the front end of the spool-frame and has its bearing in the cross-rail *c*.

5 represents holes pierced in the boss, through which the wires are fed to the slat.

6 represents a rock-bar journaled upon the rail *b* of the machine. It is provided with fingers 7, which project up between the wires 8.

9 represents a stud-arm. 10 a link hinged to the arm 9 and connecting-rod 11, which is in turn hinged to the treadle 12 and to the stationary cross-beam *a* of the frame.

13 represents a foot-piece.

When the operator desires to press the slat up against the twisted wires, he presses the foot-piece 13 and rocks the shaft 6 forward, bringing the fingers 7 against the slat and crowding it up against the twisted portion of the wires.

In order to furnish a suitable mechanism for spacing and holding the slat which is to be wound, and determining the distance between it and the next slat to be wound in the series, we have provided the following: 15 represents a bar, which is attached to a cross-bar, 21, adjustably attached to the top rail, *b*, by screw-bolt *e* passing through slots in rails *b* and screwing into ears *h*. 16 represents a link hinged at one end to reciprocating-bar 15, and the other end to treadle 17, which is hinged at its rear end to siderail, *a*. 18 represents a foot-piece on the treadle 17. 19 represents stops, which are formed of studs rigidly connected to cross-beam 15. 20 represents journal-plates secured to the cross-rail 21. The shank of stud 19 passes through bearings in the journal-plates 20. 22 represents coiled springs wound around the shank of stops 19 between the ears

23, one end of which spring is attached to the shank of the stop, so that as treadle 18 is depressed it brings down the stops 19 and coils the spring 22, so that when treadle 18 is released the stops will be thrown back into place. 24 represents pins passed through the stops 19 to arrest their descent.

In order that the spool-frames may be driven by power, we have provided the following attachment, to be substituted in place of the two outside driving-gears and crank 3, as shown in Fig. 2. This bar attachment is composed of a frame, D E, which is attached to the front rail, F, the crank 3 and the two gears 2 nearest the same being removed, and the power attachment applied by placing the beam D beneath rail F and fastening it in place, as shown in Fig. 7. Upon this frame is mounted a driving-pulley, 25, suitably journaled in brackets 26. Upon the shaft 27 of the driving-wheel is a transmitting-gear, 28. 29 represents the automatic stopping-gear, which is journaled upon the oscillating frame 30. This arm is hinged by a boss, 31, on shaft 32, which is suitably journaled in frame E E. On shaft 32 is keyed a gear, 33, which meshes with and receives its power from the gear 29. 34 represents another gear keyed upon said shaft 32, which meshes in with the twisting-gear 2 of the series of gears which are severally keyed upon the revolving spool-frames. Thus power is transmitted to the gears 2 of the spool-frames from driving-pulley 25, gear 28 29 33 34.

In order to stop at any given time the transmission of power to the train of gear-wheels 2, we have provided the following instrumentalities: The oscillating arm 30 projects through a slot in the bracket 35 and normally rests upon the bottom of said slot, the gear 29 being out of mesh with gear 28. When it is desired to bring these gears into mesh, to start the operation of the train of spool-frames, the lever 36 is depressed, raising the oscillating journal-arm 30 and bringing gear 29 in mesh with gear 28. 37 represents a spring-arm carrying a catch, 38. As soon as the journal-arm 30 is raised by the lever 36, the spring-arm 37 brings the catch 38 under the lower edge of said arm 30 and holds the parts in mesh. 39 represents a catch attached to the rim of gear 29. It is placed in relation to the catch 38, so that when it comes around opposite it strikes same, carrying the spring-arm 37 back and releasing the catch 38. The inner edge of the catch 38 is beveled off, so as to allow it to move out under the operation of the releasing-catch 39. In order to allow this unshipping to be adjusted so as to regulate the wires and have them stand perpendicular when thrown out of gear, so as to admit the next slat, the unshipping-catch 39 is provided with serrations, which engage with serrations 40 on the face of the gear-wheel, so that it may be adjusted forward or backward to release the catch 38 and unship the gear at varying positions, as may

be required. The number of twists in the wire can also be regulated by having more stops on wheel 29, or by using cog-wheels in place of 28, with a greater or less number of cogs. By means of this power attachment the operator can work the treadles 13 18, and feed the slats without giving his attention to the driving parts, except to start the same by bearing down on the lever 36 when the slat has been inserted.

41 represents a ratchet-wheel driven by a pawl, 42, which pawl is operated by a lever in the usual manner for winding up the fence as it is woven.

It is desirable that the bale may be readily taken off of the windlass. This we accomplish by making the said windlass-beam of three pieces. 43 represents a wedge-shaped carrying portion, which is provided with a journal, 44, at one end, and a journal head, 45, carrying a similar stud at the other end of the windlass. Upon each side of the beam 43 in the head 45 are formed two sockets to receive the detachable portion of the windlass 46 47, which are inserted into these sockets and held by the head 45 at one end. 48 represents a pin passing through holes pierced in the beams 43 46 47, pinning the rear ends together.

When the bale has been wound and it is desired to take the same off, the entire beam is lifted out of the frame, the journal-studs 44 lifting out of the boxes, pin 48 is pulled out, and then the parts 46 47 may be moved from one end of the bale, and the part 45 pulled out from the other end of the bale, and the parts put together and placed in position for the second bale.

In order to regulate the tension of the wires 8, which are fed from the reels 49, we have provided the following instrumentalities: 51 represents a cross-piece in front of the spool 49 at the front end of the reel-frame 1. 50 represents saddle-pieces, which rest upon the top of the cross-rail 51. They are each provided with a groove to fit over the wires 8. 52 represents ears upon the saddles 50, which straddle the cross-rail 51. 53 represents a thumb-screw bolt passing through the saddle and through the cross-rail 51. As this bolt is tightened, the saddle 50 presses the wire 8 down upon the cross-rail 51, creating a friction which retards the feeding of the wire. Any desired amount of frictional tension can thus be imparted to the wires 8 as they are fed off from the reels.

In order that the wire may be quickly and easily wound upon the spools, we have provided the following instrumentalities: 54 represents a journal cap-plate hinged upon the spool-frame 1. 55 represents a thumb-screw bolt for holding this cap-plate down. When it is desired to move one of the spools 49 for winding wire upon it, the bolt 55 is released, the spool 49 is removed and inserted into the reeling device upon the opposite side of the

chine, as shown in Fig. 2. 56 represents the reeling-frame; 57, a crank for driving it mounted upon shaft 59, and driving-gear 60, keyed thereon, and meshing with the gear 61, keyed upon an independent stud or shaft. The gear 61 is provided with a square boss, 62, which fits a similar-shaped hole in the journal-stud 63 of the spool 49. 64 represents a square shaft passing through this spool 49, and engaging with a similar-shaped hole in the boss 62 of the gear 61. The spool-frame 56 is provided with a similar journal-cap, 54, as that shown in detail in Fig. 5 for the spool-frame 1, so that the spool 49 can be readily attached to or disconnected from the gear-wheel 61. 67 represents reel-arms which are rigidly connected to the boss 68, which journals on a stud inserted in the top of the frame. A coil of wire is placed on these reel-arms 67 and wound around the spool 49 sufficient to hold it against the strain of the crank 57, when the winding may be completed by the turning of said crank.

When the spool is filled, the wire is cut off, and it is placed back into the spool-frame 1.

The spools being wound and mounted and the spool-frames being placed in the machine, with their journals 4 in the boxes in the rails F and c, a suitable length of wire is drawn off each spool, and the ends thereof being fastened or twisted, the first slat is introduced, the twist or fastening of the wires being brought to such a point that the slat lies against or near the same, with the fingers 7 on the bar 6 resting against the opposite side. The point to which the slat is introduced is controlled by the gage-piece 69, Fig. 2, whereby the ends of the slats are correctly aligned. The operator now steps upon treadle 13, thereby throwing the fingers 7 over and forcing the slat against the fastened ends of the wires, or driving it snugly up into the twist of said wires, as the case may be. The driving-gears 2 are now operated, and the wires twisted on the other side of the slat, the fingers being meantime retained in the position described. After the required number of twists have been made, the slat thus secured is advanced until it rests against the stops 19, the forward movement of the slat being effected usually by the revolution of the reel, although in case of the initial slat and those immediately following it may be effected by hand until the reel is reached and the web fastened to it. The slat being held firmly against the stop 19, a second slat is introduced between the wires in front of the fingers 7, which have previously moved back toward the bar c, and the operator, again actuating the treadle 13, forces the slat up into the twist and holds it until the spool-frames have been again revolved to form a twist upon the opposite side of the slat. The stops 19 are now drawn down, by means of the treadle 18, and are held down until the slat which rested against them has moved past them, when they are released

and allowed to rise to intercept the succeeding slat as the web moves forward. As the next slat reaches them the reel is stopped, a third slat is introduced, the fingers 7 are actuated, the gears 2 are set in motion, and the twist formed securing said slat. The succeeding operations are merely repetitions of what has been already described.

Having described our invention, what we claim is—

1. The combination, with the treadle 17, of the beam 15, pivotally connected thereto, stops 19, journals 20, and adjustable beam 21, substantially as described. 80
2. The combination, with the slotted side rails, b, of the adjustable beam 21, end pieces having ears h, bolts e, journals 20, stops 19, and treadle 17, connected to said stops by rods 16 and bar 15, substantially as described. 85
3. In a wire-and-slat-fencing machine, the combination, with the treadle 17, of the beam 15, pivotally connected thereto, stops 19, attached to said beam, and journals 20, substantially as described. 90
4. The combination, with the spool-frame 1, having twisting-spindles 4, of the spools 49, the tension-saddles 50, mounted on cross-rail 51, the spring-actuated stops 19, adjustable beam 21, bar 15, connecting-rods 16, and treadle 17, substantially as described. 95
5. In a wire-and-slat-fencing machine, the reel for supporting the bale, composed of the rectangular wedge-shaped pieces 43 46 47, the rectangular journal-head 45, bolted to the larger end of the part 43, the pin 48, and bearing 44, substantially as described. 100
6. In a wire-and-slat fencing machine, the combination, with the spool-frames and their twisting spindles, of a power attachment consisting of a power-shaft, a gear carried thereby, a gear, 29, meshing with said gear, an oscillating arm, 30, carrying the gear 29, a spring, 37, carrying the catch 38, the catch 39, and gears transmitting the action of the gear 29 to the gears of the twisting-spindles, substantially as described. 105
7. In a wire-and-slat-fencing machine, the combination, with the spool-frames, their twisting spindles, and the gears actuating said frames, of a detachable power device composed of a driving-pulley, a gear on the driving-shaft, and a train of gears from that gear to the gears of the twisting spindles, a pivoted journal-arm carrying one of the latter gear-wheels, and an automatic device for unshipping that gear-wheel, substantially as described. 115
8. In combination with the spool-frames and their twisting spindles, and the gears actuating said frames, the gear 28, mounted on a power-shaft, gears 33 and 34, the oscillating arm 30, carrying gear 29, the spring-catch supporting said arm, and the adjustable catch 39, carried by the gear, substantially as described. 125
9. The combination, with the spool-frames, their twisting-spindles and the gears actuating 130

said frames, of the transmitting-gear 29, a gear  
upon a power-shaft, communicating motion to  
the gear 29, and transmitting-gears imparting  
such motion to the gears of the twisting-  
5 spindles, the oscillating arm 30, spring-catch  
38, and shipping-lever 36, substantially as de-  
scribed.

In testimony whereof we have hereunto set  
our hands.

ALBERT C. CONNER.  
JOHN M. WESTCOTT.

Witnesses:

F. A. WILKE,  
OMAR HOLLINGSWORTH.