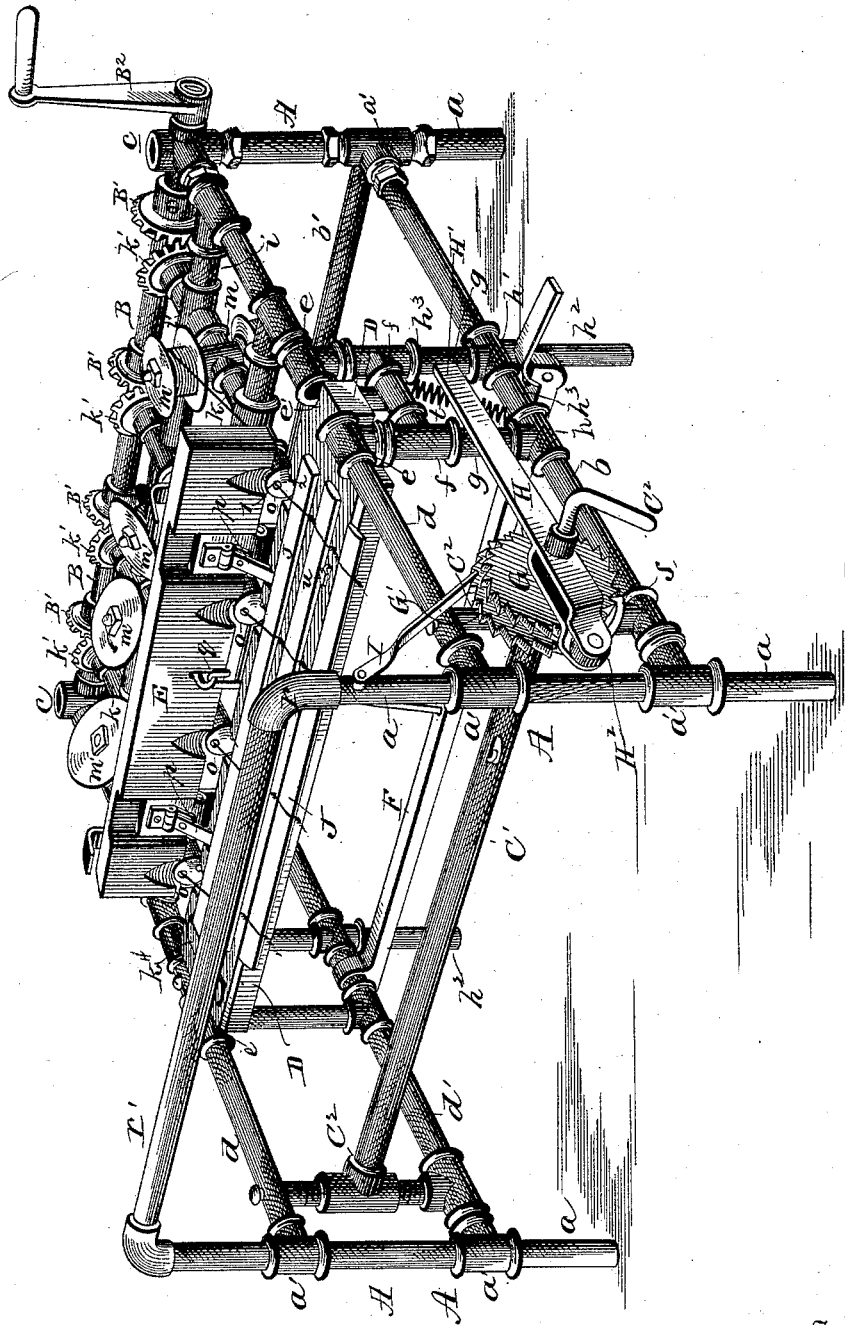


(No Model.)

W. SMITH & J. H. WILSON.
FENCE MACHINE.

No. 423,395.

Patented Mar. 11, 1890.



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UNITED STATES PATENT OFFICE.

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FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 423,395, dated March 11, 1890.

Application filed November 9, 1889. Serial No. 329,756. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM SMITH and JAMES HENRY WILSON, of Clarinda, in the county of Page and State of Iowa, have invented certain new and useful Improvements in Fence-Machines; and we do hereby 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.

Our invention relates to an improvement in fence-making machines, and more particularly to a type in which the fence is composed of pickets that are secured at spaced intervals on twisted-wire cables.

The primary objects of our present invention are to produce a machine of the character named which will be of simple compact construction, easy and convenient to operate, and which will produce superior work in a rapid and reliable manner.

A further object is to provide a picket-fence machine with a light strong frame for the support of the working parts, which is constructed of tubing and the usual fittings that are employed to put gas, steam, or water pipes together.

With the mentioned objects in view our invention consists in certain features of construction and combinations of parts, that will be hereinafter described, and indicated in the claims.

The accompanying drawing represents a perspective view of the machine complete with a section of finished fence in place thereon.

The frame A of the machine consists of four uprights *a*, that are preferably made of metal pipe or tubing, these constituting the corner-posts of a rectangular skeleton frame made entirely of the tubing and proper fittings that furnish a ready and cheap means for securing the pieces of the frame together.

At *a'* proper-sized T's are introduced in the uprights *a*, thus affording lateral connections for the side pieces *b* and end piece *b'* of the frame. At the top of the uprights *a* the fittings *c* are attached thereto, these latter affording secure means for the threaded attachment of the side portions *d* of the frame.

Near the center of the side pieces *d* the T's *e* are inserted, a space *e'*, intervening between their adjacent ends. Short nipples extend downwardly from these T's on one side, and other T's *f* are connected to the depending ends of the nipples. Other nipples *g* are inserted in the lower ends of the threaded T's *f*, one of which nipples *g* engages a T *h*, while the other nipple is inserted in the four-way *h'*, a leg *h²* being inserted in the lower outlet of this four-way, while a nipple *h³* is inserted in the adjacent outlets of the T-fitting *h* and four-way *h'*, thus producing a stable connection between the portions of the side piece *d* of the frame A.

In the fittings *c*, at the top corners of the front legs of the frame A, lateral orifices are formed that afford boxes for the journaled support of a horizontal shaft B, on which are mounted the bevel-pinions B', these being secured at spaced intervals thereon, and at the rear of this shaft a series of connected nipples *i* and four-ways *i'* are located. These extend across the frame parallel to the shaft B. The four-ways *i'*, just mentioned, are spaced apart in such relative positions with regard to the bevel-pinions on the shaft B that the spindles *k*, which are supported to revolve in orifices of these four-ways *i'* and on which the bevel-pinions *k'* are fastened, will permit the meshed engagement of the bevel-pinions *k'* with the series of pinions B', as shown.

The spindles *k* have four-ways *m* formed in them to afford revoluble support for other shafts which carry the spools *m'*, a pair of said spools being affixed to the ends of each shaft, which are located in the four-ways, as stated, and project at right angles to the shafts *k*, so that the spools *m'* are supported in proper position to be revolved around the shafts *k*, as well as upon the shafts on which they are mounted and loosely secured.

On the rear ends of the hollow shafts *k* sealing-caps *o* are placed, and two perforations 12 are made in each cap end at opposite points near the peripheral edge of the caps, said perforations being provided for the reception of the strands of wire that have been wound upon the spools *m'* and led rearwardly to enter these holes, from whence they are extended to

engage a transverse reel C, as will be more fully explained.

Across the frame of the machine and immediately below the T-fittings *e* the table D is located, one of its ends resting on the nipple *h*³, while the opposite end is in connection with the other side of the frame, the table being firmly supported in a horizontal position. On the table D two bracket-arms *p* are fastened by their feet, the arms being projected diagonally upward and forward, so that their upper ends may be hinged to the brake-bar E.

It is necessary to furnish a means for controlling the revolution of the spindles *k*; hence the provision of a convenient arresting device is made, of which the brake-bar E is a main feature. Said bar is hinged, as before explained, so that its lower edge, which is properly notched out to fit the spindles *k*, may be vibrated upwardly or be forced down upon the spindles to restrain them. About the center of length of the brake-bar E a link-bar *q* is shackled to the lower edge of the bar, which link is downwardly extended to loosely engage the horizontal treadle F, the end of which projects outside of the machine on one side convenient to the crank B², that is secured on the projecting end of the shaft B. The legs on the rear end of the frame are upwardly extended higher than the top side bars of the frame A and terminate in L-fittings *r* a proper distance above said side pieces *d* of the frame, a cross-bar *r'* joining the L's and thus strengthening the rear end of the frame, while proper vertical space is afforded for the reel C and a bundle of completed fence material that may be rolled upon the reel.

To render the reel C effective, it must be provided with a means for its revolution, and a locking device must also be furnished to hold the reel at any desired point of its revoluble adjustment. To this end the reel consists of a cross-shaft C', which is journaled in boxes C² on the frame side pieces *d*, said shaft projecting beyond the frame on the same side as the treadle F, and a crank C² is formed on this end of the shaft by which to revolve it.

On the projecting end of the shaft C', between the crank C² and the outside of the frame A, the ratchet-wheels G G' are placed and secured, and outside of these wheels the hand-lever H is loosely mounted, it being perforated laterally at a proper point to allow one end H' that is extended forwardly to be manipulated by hand, while the rear terminal end H² is provided with a spring-actuated pawl *s*, which is in engagement with the teeth of the outer ratchet-wheel G, the vibration of the lever giving the shaft C' a partial rotation at each vertical reciprocation of the lever. The inner wheel G' is cut with teeth that slope in the same direction as that of the wheel G, and an arm I, which is pivoted by its upper end to the upright of the frame A, has engagement with the teeth of said

wheel G' by its lower end, it being properly shaped to adapt it for such an engagement and to produce a detent-pawl which will hold the reel from unwinding while the arm I is in locked contact with the teeth of the wheel G'.

In operation the two strands of wire which are wound on the spools *m'* are rearwardly extended and fastened to the shaft C', the wires being drawn taut by the action of the crank on the reel C and the brake-bar E, which latter presses on the wire to prevent the spools from unwinding, it being understood that the brake-bar is held down by the foot of the operator engaging the treadle F, which latter is held up by a spiral spring *t*, so as to relieve the brake-bar of its weight and allow the spindles *k* to be readily revolved when the treadle is not purposely depressed. It will be seen that the holes in the sealing-caps of the spindle ends are all adjusted in parallel planes, so that if one set is held vertical to spread the wires and permit a picket J to be inserted through the space *e'* and between the two nearest wires the picket may be readily entered between the several sets of wires, which are spaced to engage the picket at proper points throughout its length. When a picket has been fully inserted to align its end with a gage-bar *k*⁴ that is fastened on the table D, the crank-shaft B is revolved sufficiently to twist the wires, said wires having been previously twisted or otherwise united to hold the first picket fast. After one picket is secured the lever H is vibrated to revolve the reel C sufficiently to about the rear edge of said picket against the studs *u*, that project from the top surface of the table D near its rear edge. This will so gage the next picket inserted through the feed-opening in the frame that all the pickets successively attached to the wire cable, as already explained, will be evenly separated and a neat substantial fence produced in continuous lengths, limited only by the containing capacity of the reel C. It is evident that the studs *u* may be changed in position on the table D, so that the pickets can be affixed at any desired distance apart within the capacity of the machine.

When the reel C is filled with completed fence material in a continuous roll, said roll may be readily removed by withdrawing the shaft C' of the reel, the ends of the wire having been so secured to the shaft that the latter will slip out of the bundle endwise and permit said bundle of fence stuff to drop away from the machine, when the parts may be replaced and wire connections again made with the reel-shaft in a few moments to resume the fence-making operation.

Many slight changes might be made in the construction of some of the minor details of this fence-machine without departure from the spirit or exceeding the scope of our invention; hence we do not wish to limit ourselves to the exact forms shown; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a fence-machine, the combination, 5
with a frame, of a series of spindles that each carry spools on opposite sides thereof, means for revolving the spindles, a brake-bar located in close proximity to and adapted to engage the several spindles, a device to depress the brake-bar, and a revoluble reel 10
adapted to be rotated and held at any point of revoluble adjustment, substantially as set forth.

2. In a fence-machine, the combination, 15
with a frame and a reel journaled on the frame and adapted to be adjustably secured at any point of revoluble adjustment with regard to the frame, of a series of spindles, a pair of spools oppositely mounted on each of 20
these spindles, a device to rotate all the spindles at the same time, a brake-bar located in close proximity to and adapted to engage the several spindles, and a means for depressing the brake-bar, substantially as set forth.

3. In a fence-machine, the combination, 25
with a frame, a crank-shaft mounted to revolve on the frame, bevel-pinions secured on this shaft, and a crank, of a series of spindles supported to rotate on the frame, a pair of revoluble spools mounted at opposite points 30
on each spindle, and bevel-pinions secured on the spindles that mesh with the pinions on the crank-shaft, substantially as set forth.

4. In a fence-machine, the combination, 35
with a frame made up of tubular sections, a reel journaled on the frame, and a device that is adapted to rotate the reel and hold it at any point of revoluble adjustment, of a set of spaced spindles, a pair of wire-holding 40
spools loosely and oppositely mounted on each spindle, a means to revolve the spindles, a brake-bar located in close proximity to and

adapted to engage the several spindles, a treadle connected to the brake-bar, and hinged brackets that are secured to a table 45
and also to the brake-bar to permit the brake-bar to swing upwardly, substantially as set forth.

5. In a fence machine, the combination, 50
with a frame, a crank-shaft journaled on the frame, a crank, and bevel-pinions fixed at spaced intervals on the crank-shaft, of a set of spindles journaled in the frame in the same horizontal plane and parallel to each other, two wire-holding spools loosely and 55
oppositely mounted on each spindle, a hinged brake-bar that has contact with the spindles when depressed, a treadle, and a device to connect the treadle with the brake-bar, substantially as set forth. 60

6. In a fence-machine, the combination, 65
with a frame, a crank-shaft journaled in the frame, a crank, and bevel-pinions secured on the crank-shaft at spaced intervals, of a series of spindles journaled on the frame, each spindle provided with a pair of revolubly-mounted 70
wire-holding spools that are held at opposite points on the spindle equidistant from its center, a hinged brake-bar located in close proximity to and adapted to engage the several spindles, a table on which the brake-bar 75
is hinged, gage-studs projected from the table, a reel, and means to revolve the reel and hold it adjusted at any point of its revoluble movement, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

WILLIAM SMITH.
JAMES HENRY WILSON.

Witnesses:

L. W. WARD,
C. L. SHOEMAKER.