(No Model.)

4 Sheets—Sheet 1.

J. ASH & J. FISK.

WIRE FENCE MACHINE.

No. 288,913. Patented Nov. 20, 1883.

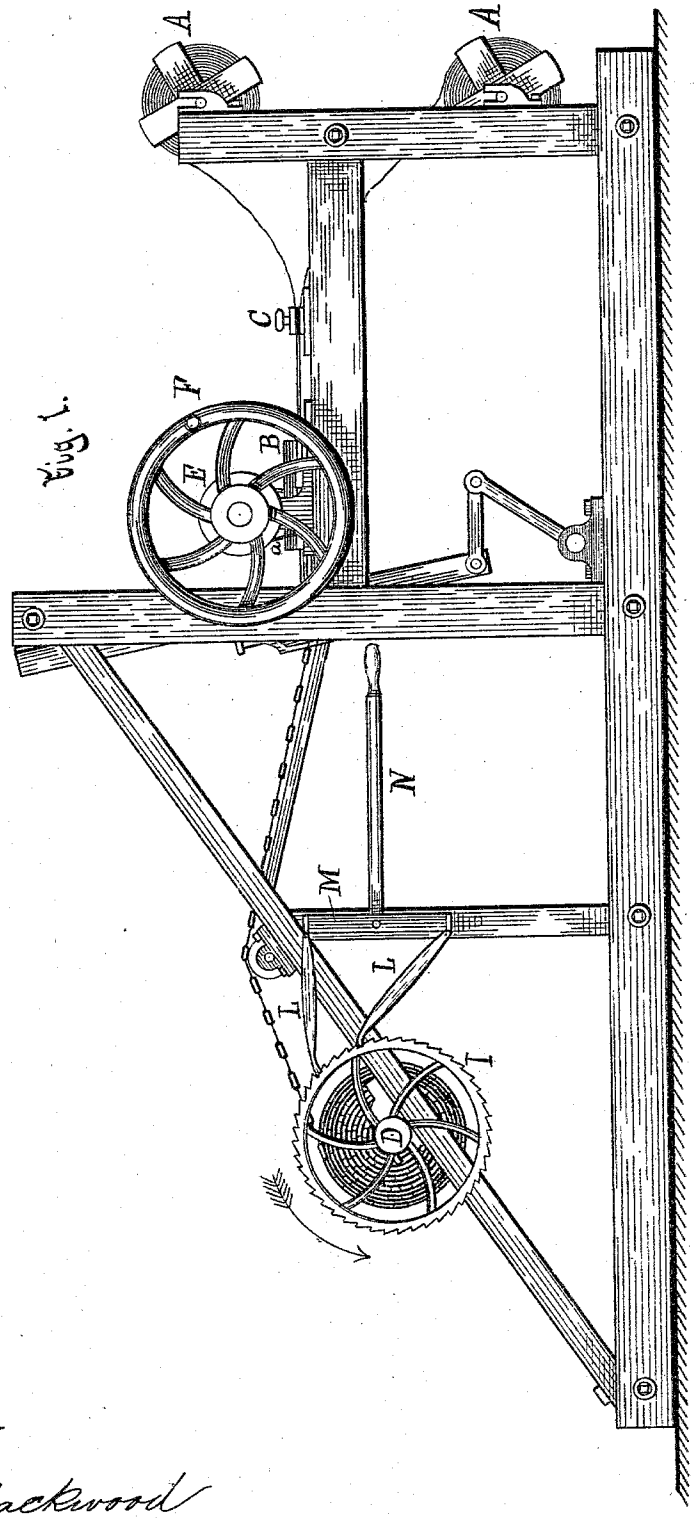


Fig. 1.

Witnesses.
H. C. Lane.
J. M. Blackwood

Inventors
Joseph Ash
James Fisk
by M. M. Woolridge
Atty

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

4 Sheets—Sheet 2.

J. ASH & J. FISK.

WIRE FENCE MACHINE.

No. 288,913. Patented Nov. 20, 1883.

Fig. 2.

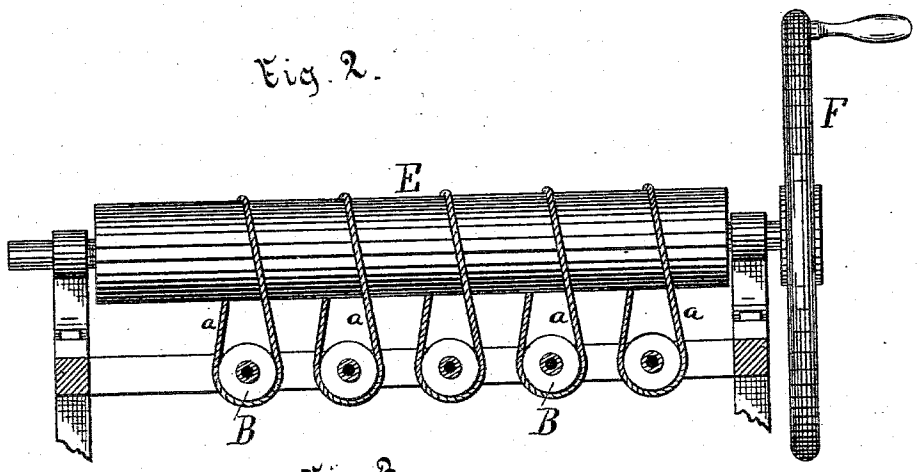
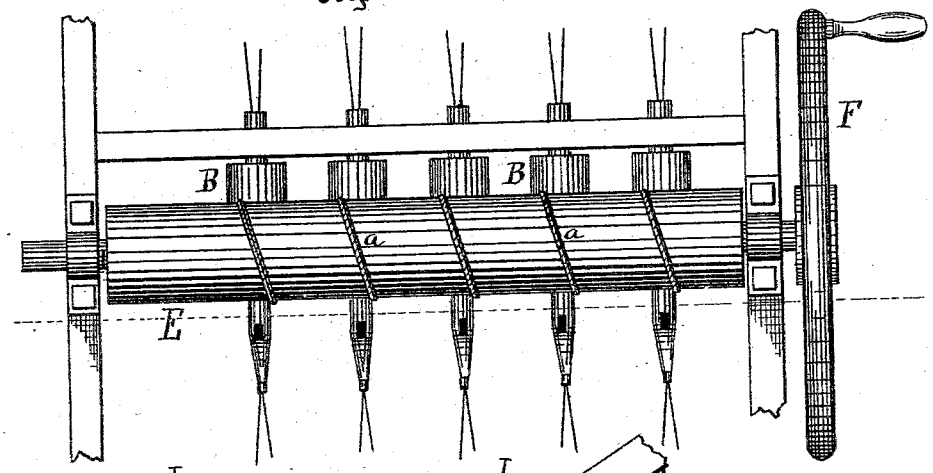


Fig. 3.



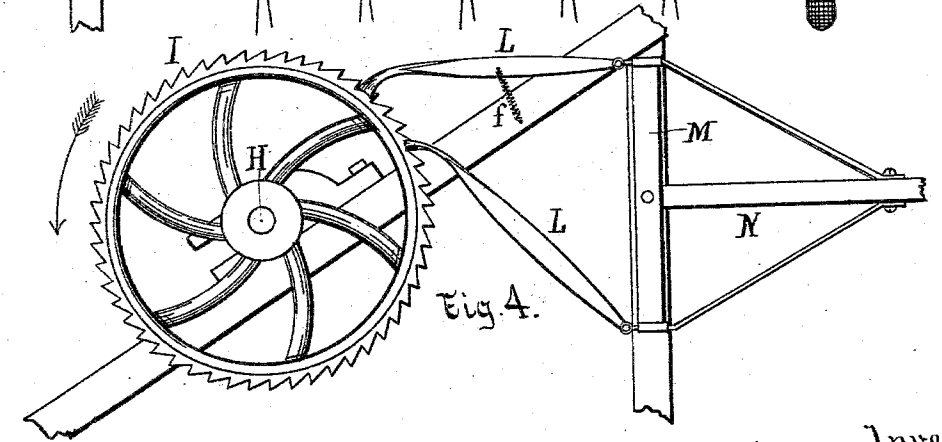


Fig. 4.

Witnesses.
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4 Sheets—Sheet 3.

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WIRE FENCE MACHINE.

No. 288,913. Patented Nov. 20, 1883.

Fig. 5.

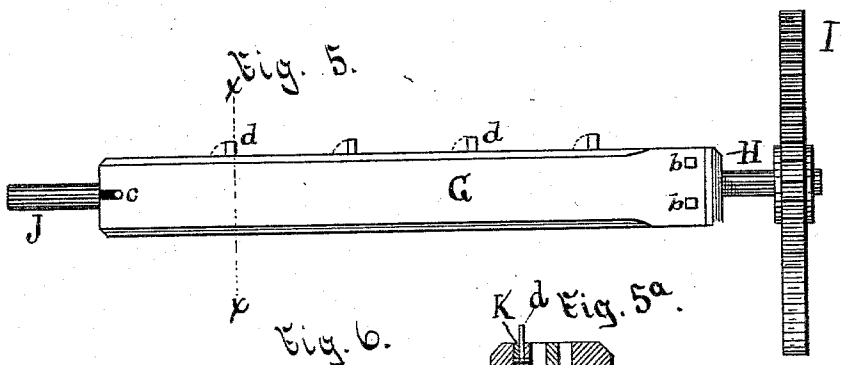


Fig. 6.

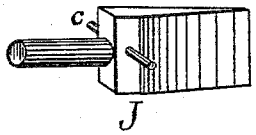


Fig. 5a.

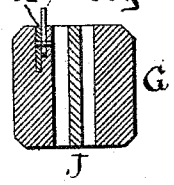


Fig. 7.

Fig. 8

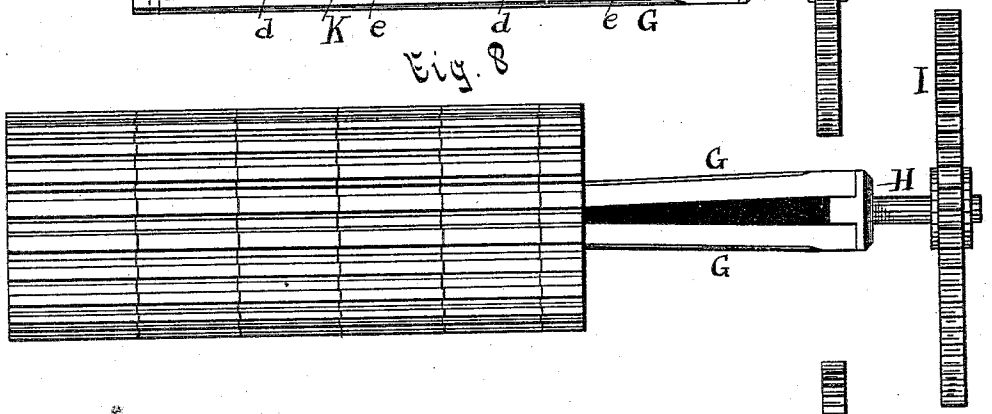
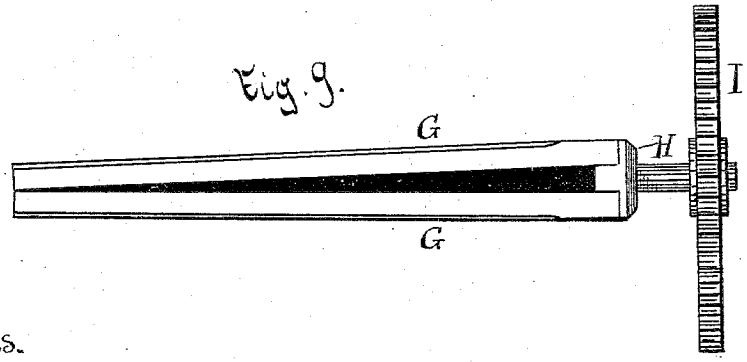


Fig. 9.



Witnesses.
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(No Model.) 4 Sheets—Sheet 4.

J. ASH & J. FISK.

WIRE FENCE MACHINE.

No. 288,913. Patented Nov. 20, 1883.

Fig. 10.

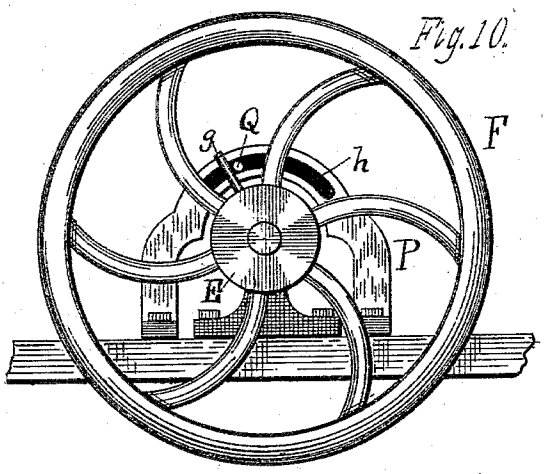


Fig. 11.

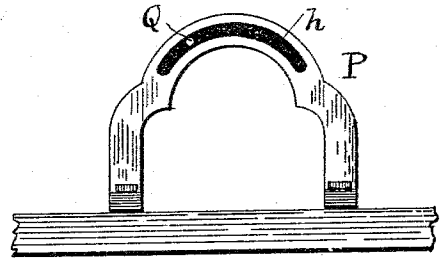


Fig. 12.

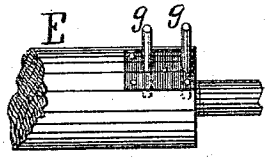


Fig. 13.

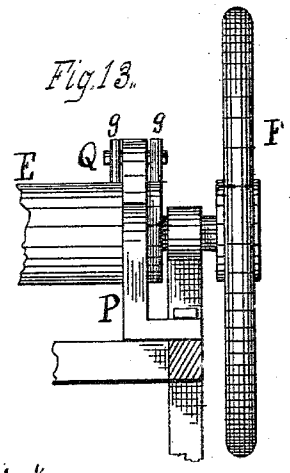


Fig. 14.

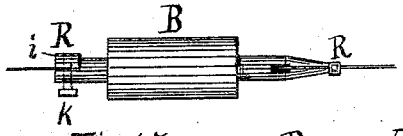


Fig. 15.

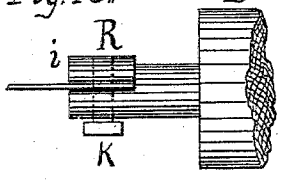


Fig. 17.

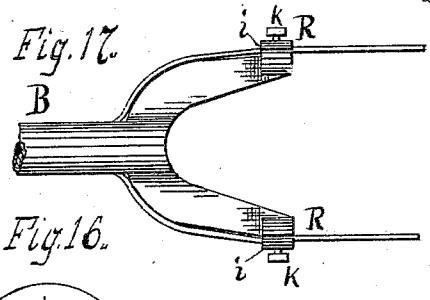
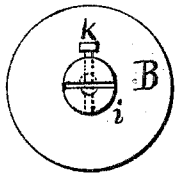


Fig. 16.



Witnesses.
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N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH ASH AND JAMES FISK, OF QUINCY, ILLINOIS, ASSIGNORS TO THE AMERICAN FENCE MACHINE COMPANY, OF SAME PLACE.

WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,913, dated November 20, 1883.

Application filed July 13, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH ASH and JAMES FISK, citizens of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Wire-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 consists in certain improvements upon the wire-fence machine described in Letters Patent No. 266,072, granted to Joseph Ash October 17, 1882.

In the accompanying drawings, which illustrate our invention and form part of this specification, Figure 1 is a side view of the entire machine embodying our improvements. Fig. 2 is an elevation of the spindle-rotating device. Fig. 3 is a plan view of the same. Fig. 4 is a side view of the ratchet device for rotating the wire-fencing core or drum. Fig. 5 is a view of the core or drum extended, upon which the wire fencing is coiled. Fig. 5ª is a section of the coiling core or drum in the line *x x*, Fig. 5. Fig. 6 is a view of the wedge for keeping the drum extended. Fig. 7 is a similar view to Fig. 5, taken at a position at right angles to that from which Fig. 5 is taken. Fig. 8 is a view of the drum collapsed while being withdrawn from the coil of wire fencing. Fig. 9 is a view of the drum collapsed. Fig. 10 is an end view of the spindle-rotating shaft, showing the means adopted for limiting the rotation of the shaft in either direction. Fig. 11 is a side view of the arch striding the rotating shaft. Fig. 12 is a side view of one end of the rotating shaft. Fig. 13 is a side view of the mechanisms shown in Fig. 10. Fig. 14 is a side view of one of the spindles, showing the application of the tension device. Fig. 15 is an enlarged view of the rear end of the spindle, showing the tension device applied at that end. Fig. 16 is a rear view of the spindle, and Fig. 17 is a view of the forked end of the spindle, showing the tension device applied thereto.

Like letters designate corresponding parts in all the figures.

The wire is fed from coils A A, preferably of the kind shown, to the twisting-spindles B B, similar to those described in the patent of Ash, above referred to. Tension devices C C and a shuttle mechanism (not shown) are employed similar to those shown in the patent of Ash. The fencing, when completed, is wound upon a rotating drum, D. The spindles B B are rotated by means of a rotating shaft, E, rotating at right angles with the spindles, the motion from the shaft being communicated to the spindles by the cords *a a*, or their equivalent, such as bands, belts, &c. Rotary motion is given to the shaft E by a crank flywheel, F, or by other suitable means. The rotation of the shaft in either direction will rotate the spindles, thus twisting the wire. The drum D, upon which the wire fencing is wound, is made collapsible, so that the coiled fencing may be easily removed. The drum D is composed of two pieces, G G, joined at one end by bolts *b b* to a gudgeon, H, upon which is mounted a wheel, I, for rotating the drum. The pieces G G are held apart in an extended position by a wedge, J, which is held in position between the pieces G G by the bolt or pin *c*. One of the pieces G is provided with a strip of metal, K, to which are pivoted several ears, *d d*, four—the number shown—being a proper number. These ears serve to attach the fencing to the drum. When it is desired to remove the fencing from the drum, the wedge J is withdrawn and the fencing pulled off, or the drum pulled out, the pivoted ears *d d* dropping out of the way into cavities *e e*, provided for that purpose, the ears dropping in the direction indicated by dotted lines in Fig. 5.

For rotating the drum we prefer the ratchet device shown. Upon the gudgeon H is mounted a ratchet-wheel, I, which is operated by two pawls, L L, which are pivoted at their ends to a bar, M, which is pivoted at its center to the frame-work of the machine. The bar M is operated by the lever N, or in any other suitable manner. The upper pawl is held between the teeth of the ratchet-wheel by a spring, *f*. This arrangement of the pawls is such that a movement of the lever N in either direction will rotate the wheel I in the proper direction, as will be easily understood.

For limiting and determining the number of revolutions of the shaft E, and hence of the spindles B B, we employ the device shown in

Figs. 10 to 13, inclusive. Near one end of the shaft E two pins, *g g*, are fixed at a suitable distance apart along the length of the shaft. Striding the shaft between the pins *g g* is an arch, P, formed with a slot, *h*, in which slides a pin, Q. Any suitable means for preventing this pin from falling or working out of the slot, while allowing its free motion through the length of said slot, may be adopted. When the shaft E is rotated in one direction, it will rotate until the pins *g g* on said shaft strike the pin Q and carry it to the end of the slot in that direction. A slat being inserted between the wires, the shaft E is then rotated in the other direction until the pins *g g* strike the pin Q again and carry it to the other end of the slot. The relative diameters of the shaft E and the spindles B B, together with the length of the slot *h*, determine the number of twists given to the wire, and insure a uniform number of twists being given between the insertion of adjacent slats.

Instead of using a tension device, C, between the reels A and the spindles, as shown in Fig. 1, we may use instead, or in conjunction therewith, tension devices applied to the spindles themselves, as shown in Figs. 14 to 17, inclusive. The tension device R can be applied either to the rear end of the spindle, as shown in Fig. 15, in which case one device would serve for each spindle, or it can be applied to the forked end, as shown in Fig. 17, in which case two tension devices, one for each wire, would be required to each spindle. The tension device employed consists in a plate, *i*, which is held at any required distance to give the proper tension from the spindle by a thumb-screw, *k*.

What we claim as our invention is—

1. In a wire-fence machine, the combination of a set of forked wire-twisting spindles, B B, the shaft E, located above said spindles and at right angles to them, means for rotating the shaft first in one direction and then in the other, and connecting-cords *a a*, substantially as and for the purpose herein specified.

2. The combination of wire-twisting spindles, a rotating shaft, cords connecting said shaft with said spindles, and means, substantially as described, for limiting the number of the rotations of the spindles, substantially as set forth.

3. The combination of a spindle-rotating shaft provided with projecting pins, an arch striding said shaft between said pins, provided with a slot, and a pin adapted to slide longitudinally in said slot, substantially as set forth.

4. In a wire-fence machine, forked wire-twisting spindles, and means, substantially as described, for rotating said spindles, first in one direction and then in the other, in combination with tension devices placed on either end of said spindles, substantially as set forth.

5. In a wire-fence machine, the combination of a coiling-drum, D, composed, essentially, of two parts, G G, attached at one end to a gudgeon, H, and a wedge, J, adapted to be inserted between said parts G G, at their free ends, and hold them in an extended position, substantially as set forth.

6. In a wire-fence machine, the combination of a coiling-drum, D, composed, essentially, of two parts, G G, attached at one end to a gudgeon, H, a wedge, J, adapted to be inserted between the free ends of said parts G G, and hold them in an extended position, ears *d d*, pivoted to a metal strip, K, attached to one of said parts G G, and cavities *e e*, into which said ears are adapted to drop when the fencing is removed from the drum, substantially as set forth.

7. In a wire-fence machine, the combination of a coiling-drum, D, composed of two parts, G G, attached at one end to a gudgeon, H, a wedge, J, adapted to be inserted between the free ends of the parts G G and hold them in an extended position, a ratchet-wheel, I, mounted on said gudgeon, two pawls, L L, pivoted to a bar, M, which is pivoted to the frame-work of the machine, and an operating-lever, N, substantially as set forth.

In testimony whereof we affix our signatures in presence of witnesses.

JOSEPH ASH.
JAMES FISK.

Witnesses to signature of Joseph Ash:
THOS. F. GATTS,
SANFORD C. PITNEY.

Witnesses to signature of James Fisk:
FRANCIS A. EVERETT,
SANFORD C. PITNEY.