

Jas. A. Wood,
Inpts. in Mechanism for Operating Gates.

PATENTED JUN 27 1871

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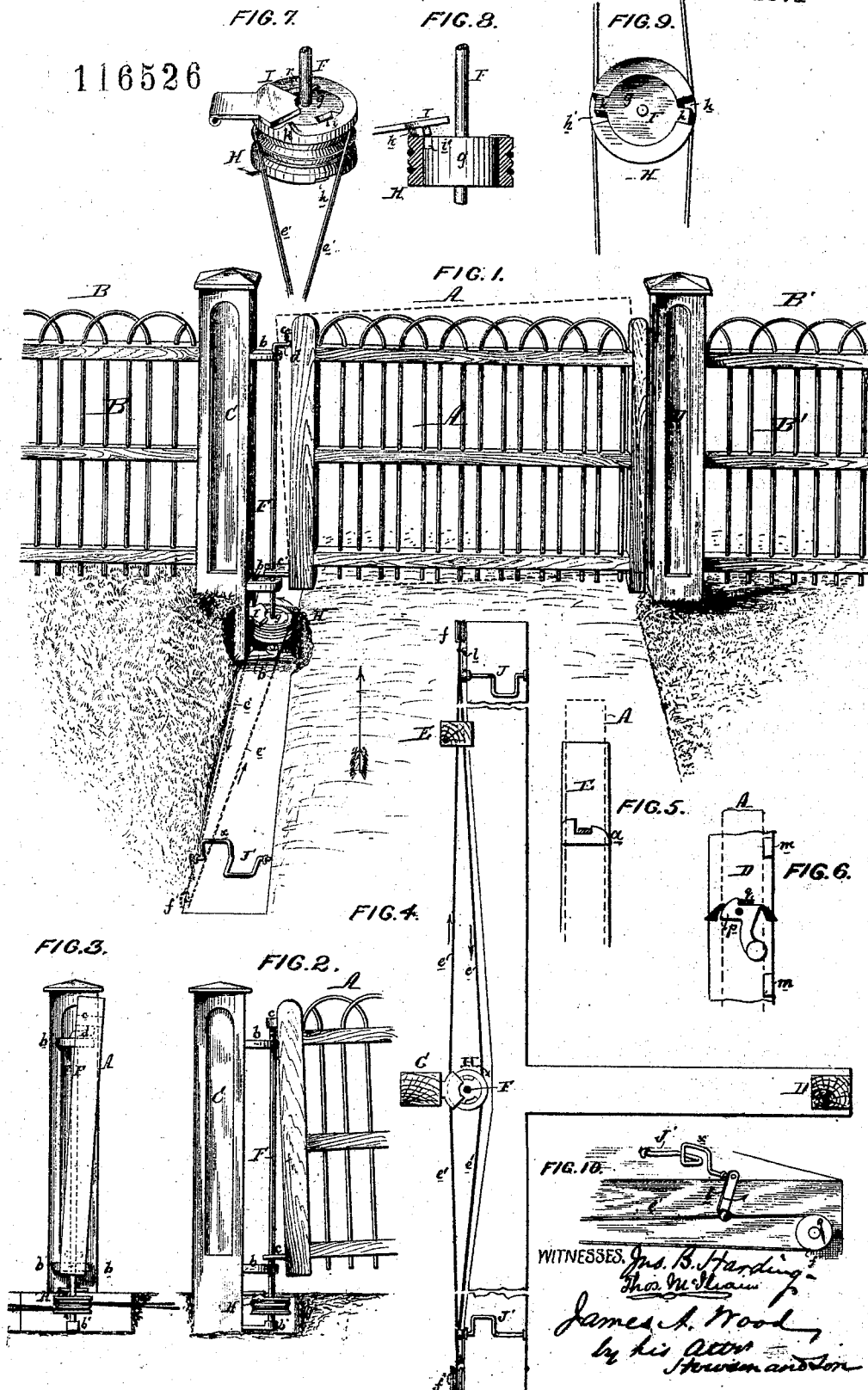


FIG. 10.

WITNESSES.

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JAMES AGIN WOOD, OF CROSSWICKS, NEW JERSEY.

IMPROVEMENT IN GATES.

Specification forming part of Letters Patent No. 116,526, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JAMES AGIN WOOD, of Crosswicks, county of Burlington, State of New Jersey, have invented certain Improvements in Mechanism for Operating Gates, of which the following is a specification:

My invention consists in mechanism for operating and closing gates, too fully described hereafter to need preliminary explanation.

Figure 1 is a perspective view of the gate and operating mechanism; Figs. 2 and 3, views of portions of the same; Fig. 4, a sectional plan view; and Figs. 5, 6, 7, 8, 9, and 10, detached views, representing portions of the invention.

A represents a farm or other gate; B and B', portions of the fence at either side of the same; C, the post to which the gate is hung; D, the post against which it is closed; and E, a post situated at a short distance from the fence, and having an inclined catch, *a*, Fig. 5, for retaining the gate when the latter is opened. The gate is not hung directly to the post C but to a vertical spindle, F, which turns in brackets *b b* and step *b'* projecting from the said post. A metal eye or socket, *c*, near the top of the gate, is adapted to and rests upon the upper cranked end *d* of the spindle F, and the lower portion of the gate is steadied by a plate, *c'*, which embraces the plain portion of the spindle. Close to the lower end of the spindle is a double-grooved pulley, H, to which are adapted two endless cords or chains, *e* and *e'*, the former extending in a direction at right angles or thereabouts to the gate, when the latter is closed, to a point beyond the post E, where it is passed around a pulley, *f*, while the other cord *e'* extends in the opposite direction at the other side of the fence, and is passed around a pulley, *f'*. (See Figs. 1 and 4.) The pulley H is not permanently secured to the spindle F, but is fitted to and has an independent movement on a cylinder, *g*, fixed to said spindle; this movement being limited by lugs *h h* on the cylinder, which are adapted to elongated recesses *h'* on the under edge of the pulley. (See Figs. 7, 8, and 9.) The cylinder *g*, and consequently the spindle, are, under the circumstances described hereafter, prevented from turning by means of a locking device, I, consisting of a plate hinged to the post C and having a pin, *i*, adapted to holes *i'* cut in the upper edges of the cylinder. This plate is arranged to be raised, so as to release the cylin-

der and spindle, by means of a double-inclined lug, *k*, on the pulley H, which passes beneath the said plate during the above-mentioned independent movement of the pulley. The operating-cord *e* is attached close to the pulley *f*, and at a point beyond the post E to an arm, *l*, of a double-cranked spindle, J, which extends transversely onto the roadway, and is arranged, by means of its projecting cranks, to be turned by the wheels of vehicles which have passed or are about to pass through the gateway; and the cord *e'* is similarly attached to the arm *l* of a double-cranked spindle, J', arranged to be operated in the same way. (See Figs. 1 and 4.) When the gate is closed it is maintained in the horizontal position shown in Fig. 1 by the spindle F, and is prevented from swinging upon the said spindle by lugs *m* on the post D, and by a pivoted and weighted latch, *p*, on the latter, which engages with a projection, *q*, on the gate. (See Fig. 6.) The spindle F is also locked by the plate I when the gate is in this closed position, so that when the latter is opened, after turning down the latch *p* in order to permit the passage of a pedestrian, the said gate will, owing to the eccentricity of its connection with the spindle F, be gradually raised at its outer end and inclined inward at the top, toward the post D, as it is turned upon the said spindle in the act of opening. In consequence of this lifting and lateral tilting of the gate it will, when released, owing to its own gravity, close upon the post D and regain its former horizontal position upon the locked spindle.

The automatic operation of the gate by means of the cranked spindles J and J' and the devices connected therewith is as follows: When a vehicle approaches the closed gate in the direction of the arrow 1, Fig. 1, it is so driven that one of its wheels shall strike and turn down the crank *x* of the spindle J'. This will, through the medium of the arm *l*, have the effect of pulling upon and drawing the cord or wire *e'* in the direction of its arrows, Figs. 1 and 10, and of consequently turning the pulley *h* in the direction of its arrow. The said pulley will first turn independently of the cylinder *g*, so as to raise the plate I and unlock the latter, after which the said cylinder and the spindle F will be turned with the pulley, the upper cranked end *d* of the spindle being turned toward the post E, and to a position at right angles or thereabout to the closed

gate, so that the latter will necessarily be drawn inward toward the spindle at the top, and be raised at its outer end, as shown in Fig. 2 and by dotted lines in Fig. 1, and be also at the same time tilted over toward the post E, as shown in Fig. 3, the consequence being that the gate will immediately swing open and against the post E, where it will again be in line with the cranked end of the spindle and will assume its former horizontal position and be retained by the catch *a* of the post, as shown in Fig. 5. After the passage of the vehicle through the gateway, its wheels will strike and turn down one of the cranks of the spindle J, when the same operation will be repeated, except in a reverse direction, in order to effect the closing of the gate. The cord *e* will in this case be drawn in the direction of its arrows, Fig. 4, in order to turn the pulley H, as indicated, and restore the spindle F to its original position, the turning of the cranked end of the spindle away from the gate having the same effect as before, namely, to raise the outer end of the gate free from the catch of the post E, and to so tilt it as to cause it to close of itself upon the post D. A vehicle moving in the opposite direction would open the gate through the medium of the cranked spindle J, and afterward close it, by means of the spindle J', precisely as above described, the devices working freely in either direction.

One of the principal features of my invention is the operation of the cranked spindle F through the medium of endless cords, wires, rods, or chains arranged to be pulled instead of pushed in order to effect the required movement of the spindle. The usual plan is to employ metal rods as connections, which are pushed toward the spindle in order to operate the same, the consequence being that the rods are apt to yield or bend and become inoperative after a short period of use. With my arrangement of endless cords or their equivalents, however, a positive pulling motion is ob-

tained, and an effective operation of the parts insured. Another advantage arising from the use of the endless cords or their equivalents is that they can be conducted to any desired points adjacent to the gate, and even around corners, if desired, provided that additional guiding-pulleys be employed.

It will be seen that the arms *l* project downward instead of upward, as usual, and that they are not liable to the accidents which result to those arranged in the ordinary manner.

The double-cranked spindles J and J' form no portion of my invention, and are not absolutely essential, as levers or other devices may be substituted for the same.

The cords *e* and *e'* and all the operating parts beneath the gate should be so covered and protected as to prevent them from being affected by dirt or the influences of the weather.

I claim—

1. The pulley H, adapted to and having a limited independent movement upon the cylinder *g*, substantially as described.

2. The combination, with the pulley H operating a swinging gate, of the double crank-levers J J', their arms *l* projecting downward, the pulleys *f f'*, and continuous cords *e e'*, connected to said arms and passing around the said pulleys, as specified.

3. The combination of the pulley H with the cylinder *g* fixed to the spindle F, and with the locking device I adapted to recesses in the said cylinder, and controlled by a lug, *k*, on the pulley, all substantially as herein described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. WOOD.

Witnesses:

WM. A. STEEL,

FRANKLIN B. RICHARDS.