

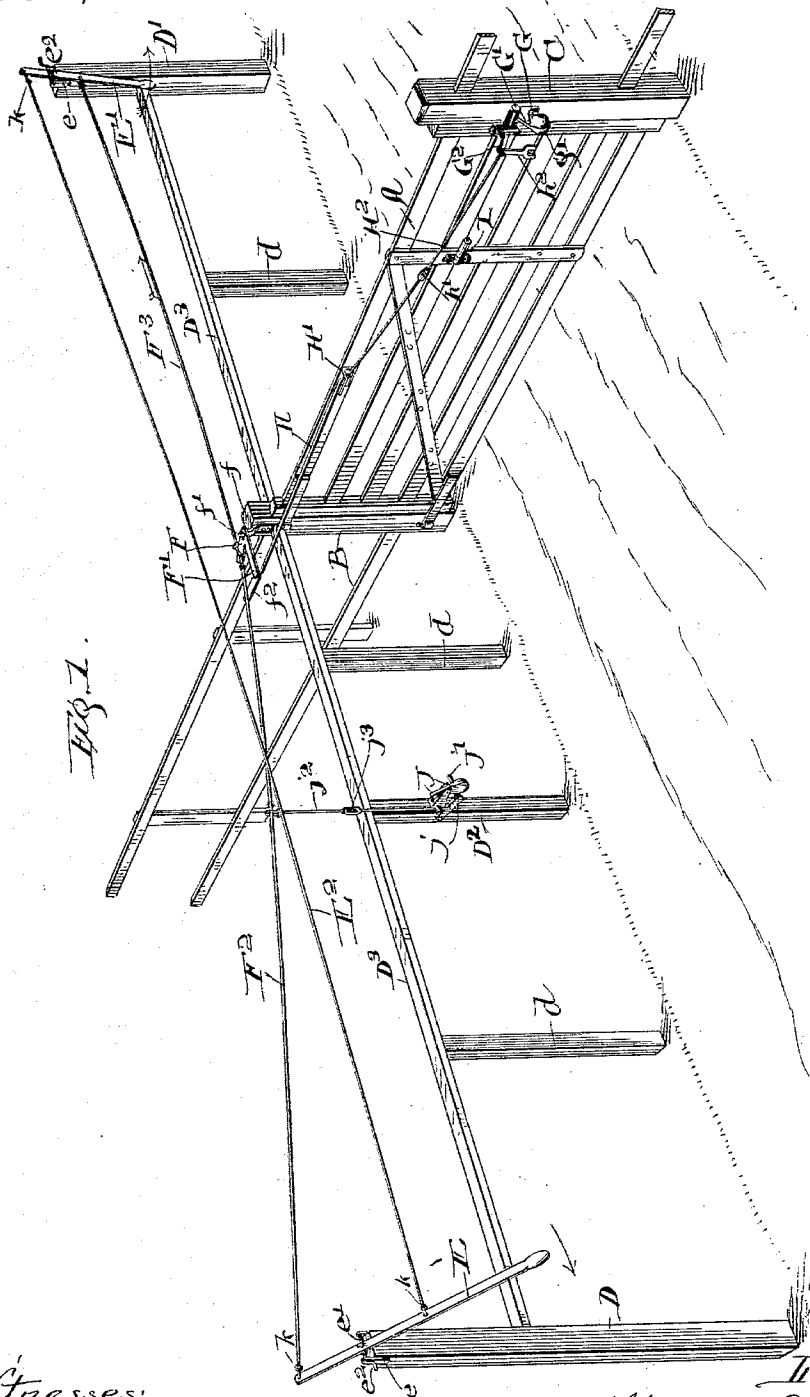
(No Model.)

2 Sheets—Sheet 1.

T. SMITH.
GATE LATCH AND OPERATING DEVICE.

No. 561,732.

Patented June 9, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

THEODORE SMITH, OF GEORGETOWN, ILLINOIS.

GATE LATCH AND OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 561,732, dated June 9, 1896.

Application filed January 16, 1896. Serial No. 575,767. (No model.)

To all whom it may concern:

Be it known that I, THEODORE SMITH, a citizen of the United States of America, residing at Georgetown, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Gate Latches and Operating Devices, of which the following is a specification.

My invention relates to certain improvements in gate latches and operating devices for opening and closing gates; and to such end it consists in constructing a device which shall be extremely simple and effective and shall be capable of being attached to any gate. The invention is illustrated in the drawings presented herewith, in which—

Figure 1 is a perspective view of a gate with my attachments secured thereon and showing the gate in a closed position. Fig. 2 is a detail front view of the gate-latch. Fig. 3 is a detail section in line 3 3 of Fig. 2. Fig. 4 is a vertical cross-section in line 4 4 of Fig. 2. Fig. 5 is a horizontal section in line 5 5 of Fig. 2. Fig. 6 is a side elevation of an adjusting device for taking up the slack in certain portions of the device. Fig. 7 is a detail perspective view of a guide. Fig. 8 is a top plan of a bell-crank lever used in the operation of the gate, and Fig. 9 is a detail perspective of a loop at the end of one of the operating-wires.

Looking at Fig. 1 the gate is seen at A, hinged upon a suitable supporting-post B and latched to the post C. A post D is located in a line at right angles to the gate-line. A second post D' is located in a line with the posts B D and at a distance from the post B approximately equal to the length of the gate A or probably a little longer. The post D is located at such a distance from the post B that a person driving toward the gate from the left may operate the handle E and swing the gate open without its striking the horses. When driving toward the gate from the opposite direction, the operating-lever E' is drawn toward the operator to open the gate, which swings away from him. Thus the post D' can be placed nearer the post B than the post D.

The operating-levers are seen at E E' and are alike. On the top of the post D are bolted two strips *e e*, (see Fig. 6,) and these strips form bearings for the adjusting-screw *e'*. This screw extends beyond one of the strips

e and is bent to form a crank *e*², and upon the adjusting-screw is a block *e*³, having a pin *e*⁴, upon which the operating-lever E is pivoted. This forms a swivel connection between the operating-lever E and the post D, so that the lever may be swung in a plane at right angles to the adjusting-screw and also parallel therewith.

Upon the top of the post B is secured a bracket *f*, (see Figs. 1 and 8,) having a pin *f*¹, upon which is pivoted a bell-crank lever F F'. The short arm F is connected with the upper end of the operating-lever E by a wire F², and to the lever E' by a wire F³ at a point below the pivot *e'* equal to the distance from the short end of the operating-lever to the pivot. A wire E² connects the short end of the lever E' with the lever E at a point below the pivot equal to the distance from the pivot to the short end of the lever. This wire E² causes both the operating-levers to be oscillated when one of them is operated. I have shown an arm *f*², extending at right angles to the arm F' of the bell-crank lever, which is intended to support the wire F² and prevent the same from falling below the bell-crank lever, as that would seriously impair the successful opening and closing of the gate.

The latch is shown at G, and is best seen in Figs. 2, 3, 4, and 5. Upon the post C is secured a forked bracket *g*, in which is pivoted a weighted latch *g*¹. A pin *g*² is secured in the forked portion of the bracket and the latch is provided with a slot adapted to swing about the pin *g*². The pin *g*² forms a stop for the latch and the slot limits the oscillation of the same. Upon the gate is secured a bracket *g*³, provided with a stud *g*⁴, upon which is journaled a roller G', and this roller is prevented from sliding off the stud, preferably, by means of a split pin. I have shown the bracket *g*³ as vertically adjustable, and, as shown, this adjustment is made by securing a plate *g*¹² to the gate, which has overhanging edges forming tongues *g*⁵, (see Fig. 5,) adapted to fit in suitable grooves upon the edges of the bracket *g*³. The upper end of the plate *g*¹² is bent at right angles thereto to form a horizontal portion *g*⁶, in which is seated an adjusting-screw *g*⁷, which passes through the bracket *g*³. The bracket is slipped upon the tongues *g*⁵ of the plate *g*¹² from the bottom

and then an end piece g^8 is secured to the plate g^{12} , said end piece serving to assist in guiding the lower portion of the adjusting-screw. The plate g^{12} is secured to the gate 5 in any suitable manner, preferably by means of screws, and one of the screws which secures the plate to the gate may serve in holding the piece g^8 to the plate. I have shown a jam-nut g^9 , which prevents the screw from 10 being lifted up by any cause. To adjust the bracket, the jam-nut g^9 is loosened and the adjusting-screw rotated, so as to raise or lower the bracket g^3 to the proper position and the jam-nut again adjusted to place.

15 Upon the bracket g^3 is a stud g^{10} , upon which is pivoted an unlocking-lever G^2 , which is adapted to swing the latch g' downward and allow the roller G' to freely pass by when either of the operating-levers is first swung 20 to open the gate. A finger g^{11} is provided upon the bracket g^3 , which extends across the lever and down the outer edge thereof (see Fig. 2) and assists in guiding the lever in a vertical plane. When the lever is swung 25 in the direction indicated by the arrow thereon, it depresses the latch g' and allows the roller to pass over the same.

The means for swinging the unlocking-lever G^2 is best seen in Figs. 1 and 7. A rod 30 H is hooked into the end of the long arm F' of the bell-crank lever and through a slot h in a bracket H' , secured upon the gate. A smaller rod H^2 is hooked into the downturned end h^3 of the rod H and fastened to the end 35 of the unlocking-lever G^2 . I have shown a turnbuckle h' upon the rod H^2 for varying the length of the same upon different-sized gates; also, a weight h^2 , hung from the end G^2 of the unlocking-lever, which assists in holding the 40 end G^3 in a raised position, so that the latch g' may stand in the path of the roller G' and prevent the opening of the gate, except when the operating-levers are swung. I have shown the weight h^2 as a wrench adapted to adjust 45 the lag-screws upon the different portions of the gate; but it is obvious that any sort of weight may be used.

When the gate is closed, the roller G' , besides forming the lock for the gate, rests upon 50 the bracket g and thus supports the free end of the gate. This roller is made long enough so that it will always rest upon the bracket g when the gate is closed, should the gate expand or contract from the effects of the 55 weather.

A device for holding the gate open is shown at I J, (see Fig. 1,) and the portion of the latch upon the gate is similar to the adjusting-bracket g^3 and roller G' , except that the 60 unlocking-lever G^2 is removed therefrom. A post D^2 is placed in a line with the posts B D in such a position that the latch herein-after described, which is supported by said post, will strike the roller I of the locking device and hold the gate open. The latch J is 65 similar to the latch G, and an unlocking-lever j is pivoted to the post D^2 and has a pin j' ,

lying underneath the weighted portion of the latch. A wire j^2 extends from the unlocking-lever j to the wire F^2 , which is considerably 70 slack. I have shown a turnbuckle j^3 upon the wire j^2 to adjust said wire if it is desired to lengthen or shorten the same to reach the wire F^2 .

I have shown a beam D^3 , resting upon the 75 post D^2 and connecting the posts B D; also, a similar beam connecting the posts B D' for bracing the same. Posts d may be interposed between the posts D D^2 B D' to support the beam. 80

Fig. 9 shows a means for forming a loop at the end of the wires where they are secured to any of the operating parts. A washer k , 85 having two holes k' k^2 , is slipped upon the end of the wire through the hole k' , the wire then passed through the hole in the part with which it is desired to connect it and then back through the hole k^2 , where it is given a bend to prevent its withdrawal. This forms a very 90 simple and substantial loop and is adapted for use upon any of the wires where they are connected with the operating portions of the device.

The operation of the device is as follows: When approaching the gate from the left, as 95 seen in Fig. 1, the operating-lever E is swung in the direction indicated by the arrow thereon, thus drawing the wire E^2 with it and causing the lever E' to swing in the direction indicated by the arrow thereon. This draws 100 the wire F^3 in the direction of the arrow thereon, rotating the bell-crank lever F F' upon its pivot. At the beginning of the stroke the rod H slides in the slot h and raises the weighted end of the unlocking-lever through the rod 105 H^2 , thus depressing the latch g' . When the hook h^3 strikes the end of the slot h , it draws the gate around until the roller I engages with the latch J, which holds it open. The operator now passes through the opening and 110 grasps the operating-lever E' , which has been swung toward the right by the opening of the gate, and draws it toward him, thus reversing the directions of the movements of the wires, first taking up the slack in the wire F^3 and 115 lifting the unlocking-lever j , which raises the latch J, thus releasing the roller I, then swinging the bell-crank lever in the opposite direction to that when swung in opening the gate and pushing the gate to a closed position 120 through the rod H, when the roller G' will pass over the latch g' and become locked.

The construction shown and described is extremely simple and effective and is capable of being attached to any gate. 125

I claim as new and desire to secure by Letters Patent—

1. A latch for gates comprising a bracket supported upon a suitable post, an oscillating latch pivoted in said bracket, a roller journaled upon the gate and resting upon the 130 bracket when in a closed position, an unlocking-lever adapted to depress the latch, in combination with an operating-lever E, and means

for connecting the unlocking-lever with the operating-lever.

2. A latch for gates comprising a supporting-bracket, an oscillating latch pivoted thereto, a roller journaled upon the gate, an unlocking-lever adapted to depress said latch in combination with means for operating the unlocking-lever.

3. A latch for gates comprising a bracket, a weighted latch pivoted upon said bracket, a roller adjustably secured to the gate, an unlocking-lever adapted to depress said latch, in combination with means for operating said unlocking-lever.

4. A latch for gates comprising a bracket, a weighted latch pivoted thereto, a roller resting upon said bracket when the gate is in a locked position, a bracket upon the end of the gate adjacent to the latch supporting said roller, an adjusting-screw supported upon the gate and adapted to raise and lower said bracket and an unlocking-lever pivoted upon said bracket and adapted to depress the latch and allow the roller to freely pass by.

5. In a latch for gates, the combination with a supporting-bracket, a weighted latch pivoted thereto, a roller resting upon the bracket upon the end of the gate adjacent to the latch when in a closed position, a bracket supporting said roller, a plate secured to the gate and having ears extending therefrom, an adjusting-screw loosely resting in said ears and connecting the bracket with said ears whereby said bracket may be adjusted vertically, an unlocking-lever pivoted upon the bracket and normally resting upon the latch, and means for oscillating the lever and depressing the latch; substantially as described.

6. In a device of the class described, the combination with a weighted latch pivoted to a suitable support and lying in the path of the locking-roller, a bracket having suitable dovetailed edges, a supporting-plate secured to the gate and having tongues fitting in said edges, an adjusting-screw connecting said plate with the bracket, a roller journaled upon said bracket, an unlocking-lever pivoted upon the bracket and adapted when oscillated in one direction to depress the latch and suitable means for operating said unlocking-lever; substantially as described.

7. In a device of the class described, the combination with a suitable latch having an unlocking-lever, of a bell-crank lever pivoted upon a suitable support, a guide located upon the gate and having a suitable slot, a rod se-

cured to the free end of one of the arms of the bell-crank lever and having its end bent downward and sliding in said slot, and a rod connecting said downturned end with the unlocking-lever; substantially as and for the purpose set forth.

8. In a device of the class described, the combination with a suitable latch having an unlocking-lever, of a bell-crank lever pivoted to a suitable support, a guide located upon the gate and having a suitable slot, a rod secured to the free end of one of the arms of the bell-crank lever and having its end bent downward and guided in said slot, a rod connecting the downturned end with the unlocking-lever, a suitable turnbuckle upon said rod for adjusting the length of the same, an operating-lever E and a wire connecting it to the free end of the other arm of the bell-crank lever; substantially as described.

9. In a device of the class described, the combination with a suitable operating-lever E, of a bell-crank lever pivoted upon a suitable support, a gate, a rod connecting the free end of one of the arms of the bell-crank lever with the gate, a rod F^2 connecting the other arm with the operating-lever E, a roller supported upon the gate, a latch J supported upon a suitable post and lying in the path of said roller, an unlocking-lever j adapted to actuate said latch and loosen the same when said unlocking-lever is raised, a rod j^3 connecting said unlocking-lever with the operating-rod F^2 , said rod having sufficient slack to allow the unlocking-lever to lie below the weighted end of said latch, but when said operating-rod is straightened to raise said lever and release the roller; substantially as described.

10. In a device of the class described, the combination with a swinging gate, of a suitable latch adapted to hold said gate in a closed position, a bell-crank lever suitable means for connecting the bell-crank lever with the latch, operating-levers and means connecting the operating-levers with the bell-crank lever, and adjusting devices for taking up the slack comprising substantially the screw-threaded rods, e' , having the cranks, e^2 , and swivels, e^3 , e^4 ; substantially as described.

In witness whereof I have hereunto set my hand this 4th day of January, A. D. 1896.

THEODORE SMITH.

Witnesses:

CHAS. O. SHERVEY,
M. L. SHEAHAN.