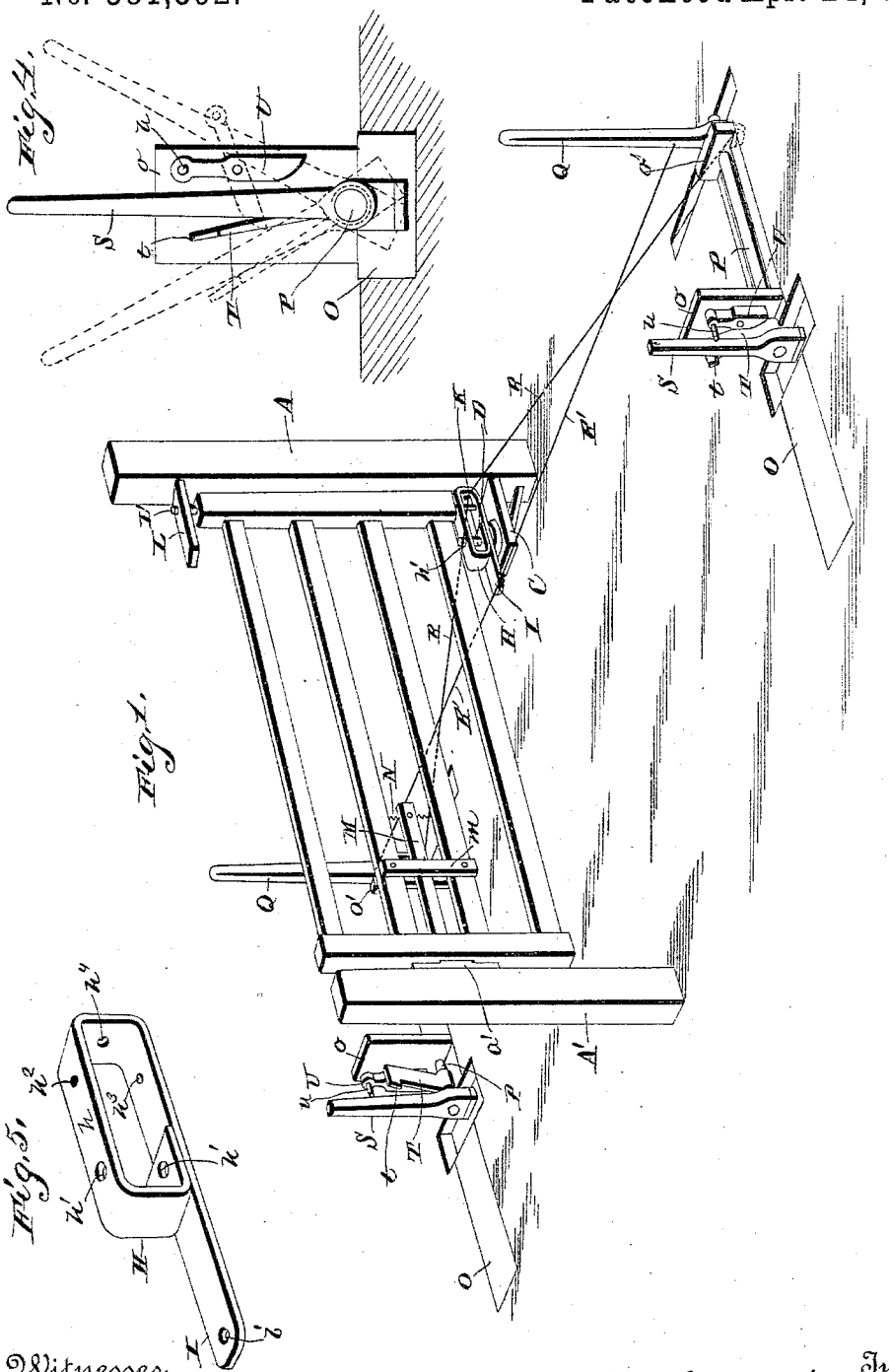
(No Model.) 2 Sheets—Sheet 1.

H. A. SPENCER.

GATE.

No. 381,592. Patented Apr. 24, 1888.



Witnesses.
C. D. Taylor.
C. E. Doyle.

Inventor.
H. A. Spencer.
By his Attorneys.
Crowell & Co.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

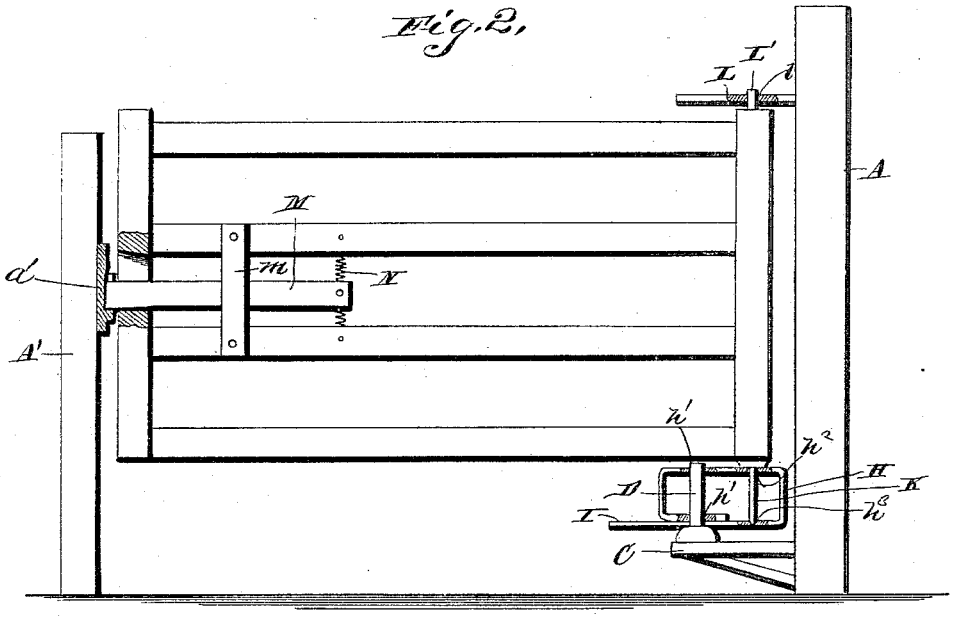
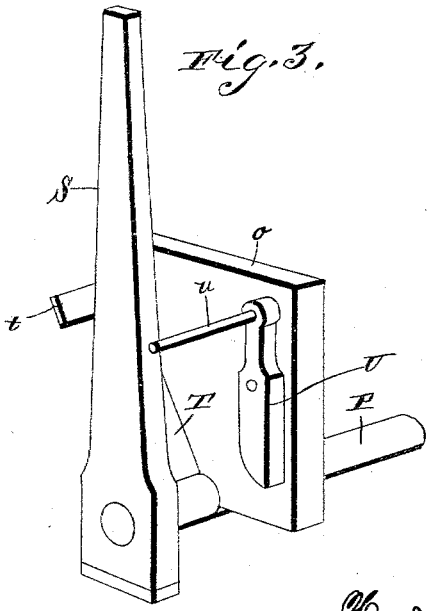


Fig. 3.



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C. L. Taylor.
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Inventor.
H. A. Spencer.
By his Attorneys.
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

HIRAM A. SPENCER, OF VALLEY MILLS, TEXAS.

GATE.

SPECIFICATION forming part of Letters Patent No. 381,592, dated April 24, 1888.

Application filed September 27, 1887. Serial No. 250,846. (No model.)

To all whom it may concern:

Be it known that I, HIRAM A. SPENCER, a citizen of the United States, residing at Valley Mills, in the county of Bosque and State of Texas, have invented new and useful Improvements in Gates, of which the following is a specification.

My invention relates to improvements in gates; and it consists in a certain novel construction and arrangement of parts, fully set forth hereinafter, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the gate, showing it in the closed position. Fig. 2 is a front view of the same, partly in section to show the manner of connecting the hinge thereto. Fig. 3 is a detail perspective view of the levers for operating the gate. Fig. 4 is an end view of the same, showing the operation of the levers in dotted lines. Fig. 5 is a detail perspective view of the hinge.

Referring by letter to the drawings, A designates the hinge-post, and A′ the latch-post, secured in the ground at the proper distance apart, the latch-post being provided on the inner side with the catch *a′*.

C designates a shelf or ledge secured to the hinge-post near the bottom, on the upper side of which, at its outer end, is arranged the vertical spindle D, for a purpose to be described.

H is a hinge comprising a rectangular box, *h*, provided at the inner end, in the upper and lower sides, with the aligned openings *h′ h′*, adapted to receive the vertical spindle D, which is on the ledge C. The hinge is further provided with the inwardly-extending lever-arm I, which is secured to the inner end of the box *h*, and is provided at its inner end with the perforation *i*, for a purpose to be described. The upper side of the box *h* is provided at the outer end with an opening or bearing, h^2, and the lower side of the box is provided with a socket, h^3, which is aligned with the bearing h^2. The outer end of the body of the hinge is provided with a perforation, h^4.

At the lower corner of the gate, at the hinge end thereof, is placed the depending spindle K, adapted to be journaled in the bearing h^2 and be seated at its lower end in the socket h^3, to prevent the lower edge of the gate from coming down far enough to bear on the upper side of the hinge.

L designates an arm projecting from the upper end of the hinge-post and extending over the hinge end of the gate, and the said arm is provided with a bearing, and the upper corner of the hinge end of the gate is provided with an upwardly-extending spindle, L′, adapted to be journaled in said bearing. It will thus be seen that the gate is hinged to the post at the lower end by the hinge H and at the upper end by the spindle L′, operating in the bearing in the horizontal arm L.

M designates a latch passing between the vertical guide-bars *m m*, and held in the horizontal position by the slot in the end of the gate, through which the engaging end thereof projects. The rear end of the latch is secured to the center of the spiral spring N, which is attached at the ends to horizontal rails of the gate. The outer end of the latch may be moved vertically or the entire latch may be moved longitudinally to disengage the latch from the catch *a′*, but the spring N will return it to the engaging position. Further, when the gate is swung into the closed position, the front end of the latch will be pushed back by the beveled edge or face of the catch, so that it will engage in the notch therein and hold the said gate in the closed position.

It will now be seen that if the outer end of the hinge H is drawn laterally the free or latch end of the gate will necessarily be raised slightly, and therefore the end of the latch will be lifted out of the catch. Further, when the hinge H is thus turned upon its pivot, the hinge end of the gate is inclined laterally, and therefore when the latch becomes disengaged from the catch the gate will swing open, as will be readily understood.

To close the gate it is only necessary to turn the hinge H in the opposite direction upon its pivot, and, the hinge end of the gate being inclined in the opposite direction, it will necessarily close and latch.

I will now describe my method of operating the hinge H to open and close the gate.

O O designate sills set in the ground at convenient distances from the gate on each side, and at the upper side of the same are ar-

ranged the vertical supports *o o'*, the supports *o* being in about the center of the road in which the gate is placed.

P P represent horizontal shafts journaled in the said supports, and to the ends of the said shafts corresponding to the hinge end of the gate are secured the levers Q Q, weighted at the lower ends to hold them in a vertical position. The lower ends of each of these levers are attached to the outer end of the hinge H by cords or light chains R R, so that when the upper end of one of the levers is inclined toward the gate the outer end of the hinge H will be drawn toward the lever being operated, and the gate, after its latch has been disengaged, will swing away from the said lever.

The inner end of the hinge H is attached by cords or light chains R' R' to the levers Q Q above the shaft P, so that when one of the levers is drawn at the upper end away from the gate the inner end of the hinge H will be drawn toward the said lever and the gate will be closed and latched.

S designates a lever attached to the opposite end of the shaft P from the lever Q, and it is also provided on the lower end with a weight to hold it in the vertical position.

T represents a crank-arm secured on the shaft P close to the lever S, and having a laterally-extending arm, *t*, adapted to be engaged by the lever S when the latter is swung toward the gate.

U desigates a small lever-arm pivoted on the standard or support *o* above the shaft P, and it is also provided at the upper end with a laterally-extending arm, *u*, adapted to be engaged by the lever S when the latter is swung away from the gate. When the upper end of the small lever U is swung away from the gate the lower end thereof, obviously, is moved toward the gate, and it is adapted to press against the crank-arm T to press it in the same direction—namely, toward the gate.

It will be understood that the lever Q is rigidly secured to the shaft P, as also is the crank-arm T, while the lever or swinging arm S is merely pivoted on the said shaft and adapted to be moved in either direction without affecting the shaft.

The crank-arm T is adapted to be swung toward the gate whenever it is operated upon directly by the swinging arm S, as when the latter is moved toward the gate it acts upon the crank-arm to move it in the same direction, and when the arm S is swung away from the gate it operates upon the lever U, which operates at the lower end upon the crank T and again presses it toward the gate.

The mechanism herein described as being arranged on one side of the gate will be understood to be duplicated on the other side, and, owing to the arrangement of the same, when the levers on one side of the gate are operated in a certain way, the levers on the other side are operated in exactly the opposite way. For instance, when the crank-arm T on one side of the gate is swung toward the gate, the crank-arm on the other side is swung away from the gate.

The swinging arm S is made of such a length that when in the upright or normal position it will be engaged by the front axle of a carriage or wagon passing. Therefore, as a carriage drives up to the gate its front axle will engage the swinging arm S and press it toward the gate, the crank T will be swung toward the gate, thus operating the shaft P and the lever Q, the outer end of the hinge H will be drawn laterally toward the side on which the carriage is, the latch on the free end of the gate will be disengaged from the catch, and the gate will be swung open away from the carriage, which may then pass through. As the carriage passes over the swinging arm S on the opposite side of the gate, its front axle will engage the same and swing it away from the gate, the lever U will be operated, the crank-arm T will be swung toward the gate, the lever Q will be operated, the outer end of the hinge H will be swung laterally in the opposite direction, and the gate will consequently be closed and latched, as before described. It will therefore be observed that the operation of the gate is automatic. As the carriage approaches the gate it will open, and as the carriage passes beyond the same it will close.

When a horseman wishes to pass through the gate, he opens the same by drawing the upper end of the lever Q toward the gate as he approaches it, and after passing through he draws the upper end of the other lever backward or toward the gate, thus closing it, as will be readily understood.

The construction of this device, as will be seen, is very simple, and it will be found very durable and effective.

The gate always swings away from the carriage or horseman approaching it, and thus there is no danger of frightening the horse; and, further, there is no chance of being obliged to back the team before the gate can be opened.

Having thus described my invention, I claim—

1. The combination, with a gate, of the latch M, projecting at its outer end beyond the free end thereof, and the vertical coiled spring N, attached at its ends to the gate and at its center to the inner end of the latch, substantially as specified.

2. The combination, with a gate having vertical end bars and horizontal rails, of the latch disposed between two of the horizontal rails and projecting at its outer end through a vertical slot in one of the vertical bars, the vertical coiled spring attached at its ends to the rails above and below the latch and connected at an intermediate point to the inner end of the latch, and the vertical guide-bars secured to the gate on opposite sides of the latch, substantially as specified.

3. The combination, with the gate, of the horizontal shaft P, having a lever on the end

connected to the gate, and the vertical arm S, connected to the shaft P and adapted to be engaged by the axle of a passing vehicle to turn the shaft, the lower end of the arm being weighted to cause it to automatically assume a vertical position, substantially as specified.

4. In a gate, the combination of the post A, having the ledge C at the lower end, provided on the upper side with the spindle D, the hinge H, comprising the box or body *h*, provided at the inner end with the aligned vertical openings *h' h'* to receive the spindle D, and also with the bearing h^2 in the upper side at the outer end and the socket h^3 in the lower side aligned therewith, and the arm I, secured to the inner end of the said body, the gate hinged at the top to the post A and provided at the bottom with the depending spindle K, journaled in the bearing h^2 and seated at the lower end in the socket h^3, and the lever Q, pivoted to a suitable standard and connected by cords or other suitable means at the lower end to the outer end of the body *h* and at a point above the pivot to the inner end of the arm I, substantially as and for the purpose specified.

5. The combination, with a gate-post, A, hinge H, pivoted at its center to a ledge on the inner side thereof, and the gate hinged at the top to the post and at the lower end to the inner end of the said hinge H, of the horizontal shaft P, the lever Q, secured to one end thereof and connected by cords R R' to the outer and inner ends of the hinge H, the crank T, secured to the other end of the shaft P, and the swinging arm S, journaled on the shaft and adapted to be engaged by the front axle of a vehicle passing over the same to rotate the hinge and swing the gate open or shut, substantially as and for the purpose specified.

6. In a gate, the combination, with the post A, having a ledge at the lower end, hinge H, pivoted at the center to the said ledge, and the gate hinged at the top to the post and at the bottom to the rear or outer end of the hinge H, of the standards *o o'* on each side of the gate, shafts P, journaled in bearings in the standards, cranks T, secured to the inner ends of the shafts and having arms *t* thereon, swinging weighted arms S, journaled on the shafts and adapted to engage the arms *t*, the levers U, pivoted to the standards *o* and having the lateral arms *u*, to be engaged by the arms S, the lower ends of the said levers U being adapted to bear against the upper ends of the cranks to operate them, and the levers Q, secured to the outer ends of the shafts P and connected at the lower and upper ends, respectively, to the outer and inner ends of the hinge H, substantially as and for the purpose specified.

7. The combination, with the gate, of the shafts P, journaled in standards on opposite sides of the gate, the swinging weighted arms S, journaled on the said shafts, cranks T T, secured to the shafts and adapted to be engaged by the swinging arms, and the levers U, pivoted above the cranks and adapted to be engaged by the swinging levers, the said levers being adapted, when operated, to operate the cranks T, the shafts P being connected, substantially as described, with the gate, whereby when the same are rotated the gate is either opened or closed, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HIRAM A. SPENCER.

Witnesses:
C. M. PATTILLO,
H. S. SADLER.