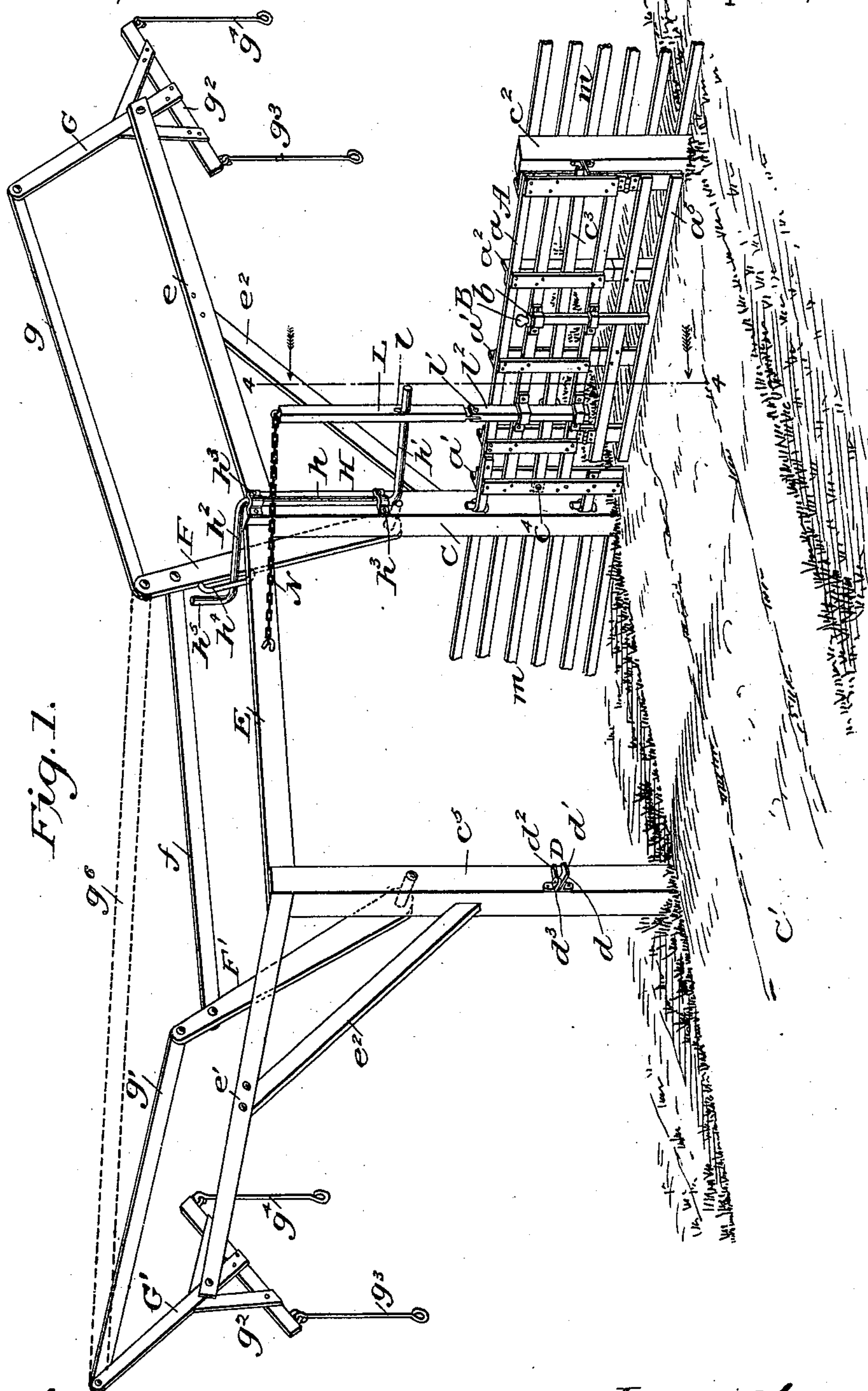


3 Sheets—Sheet 1.

MEANS FOR OPERATING SWINGING GATES.

Patented Sept. 3, 1895.



Inventor:

Frank J. Collinson

By W. B. Richards
attor

(No Model.)

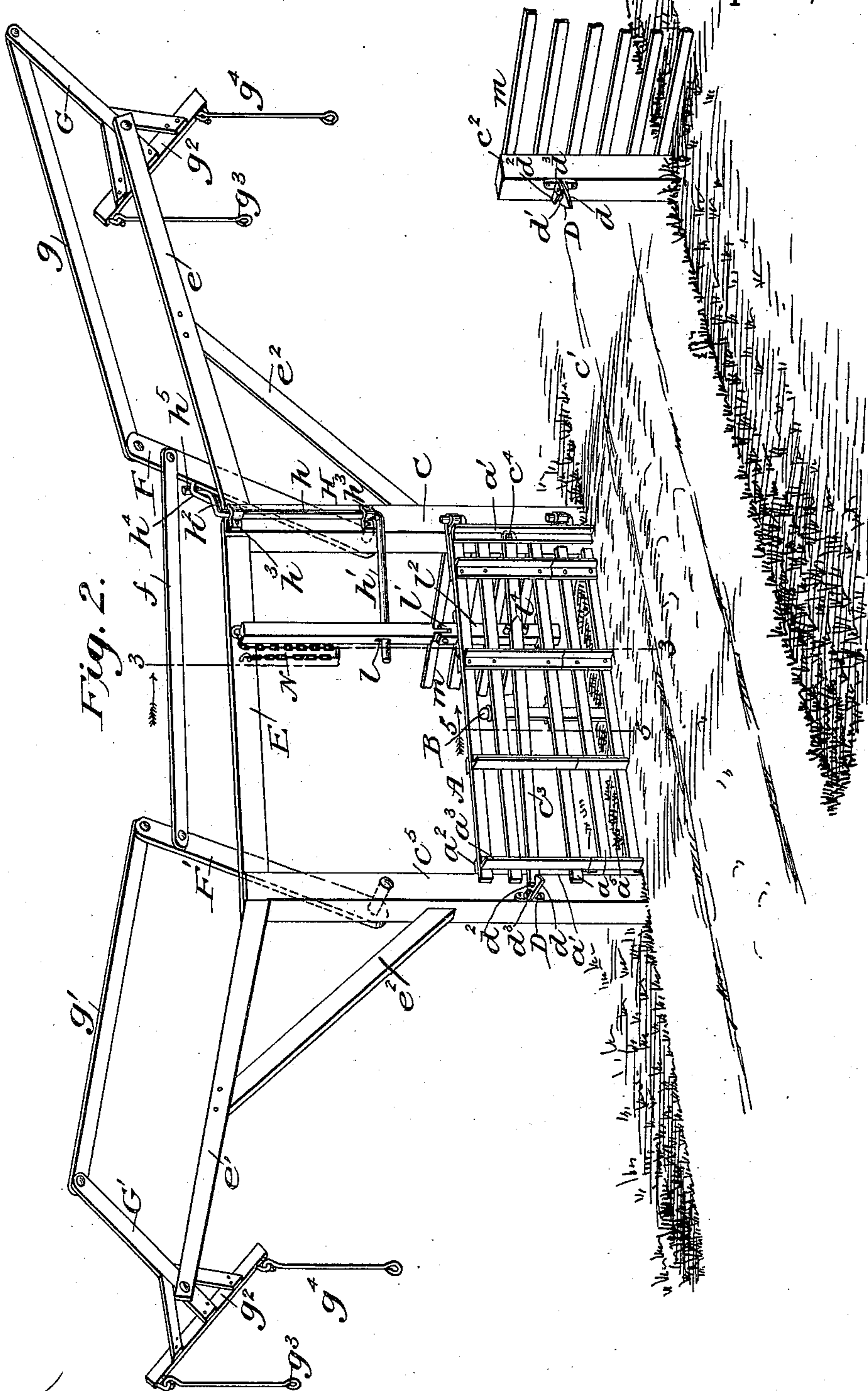
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F. J. COLLINSON.

MEANS FOR OPERATING SWINGING GATES.

No. 545,681.

Patented Sept. 3, 1895.



Witnesses.

H. S. Bacon

G. A. Pennington

Inventor:

Frank J. Collinson

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(No Model.)

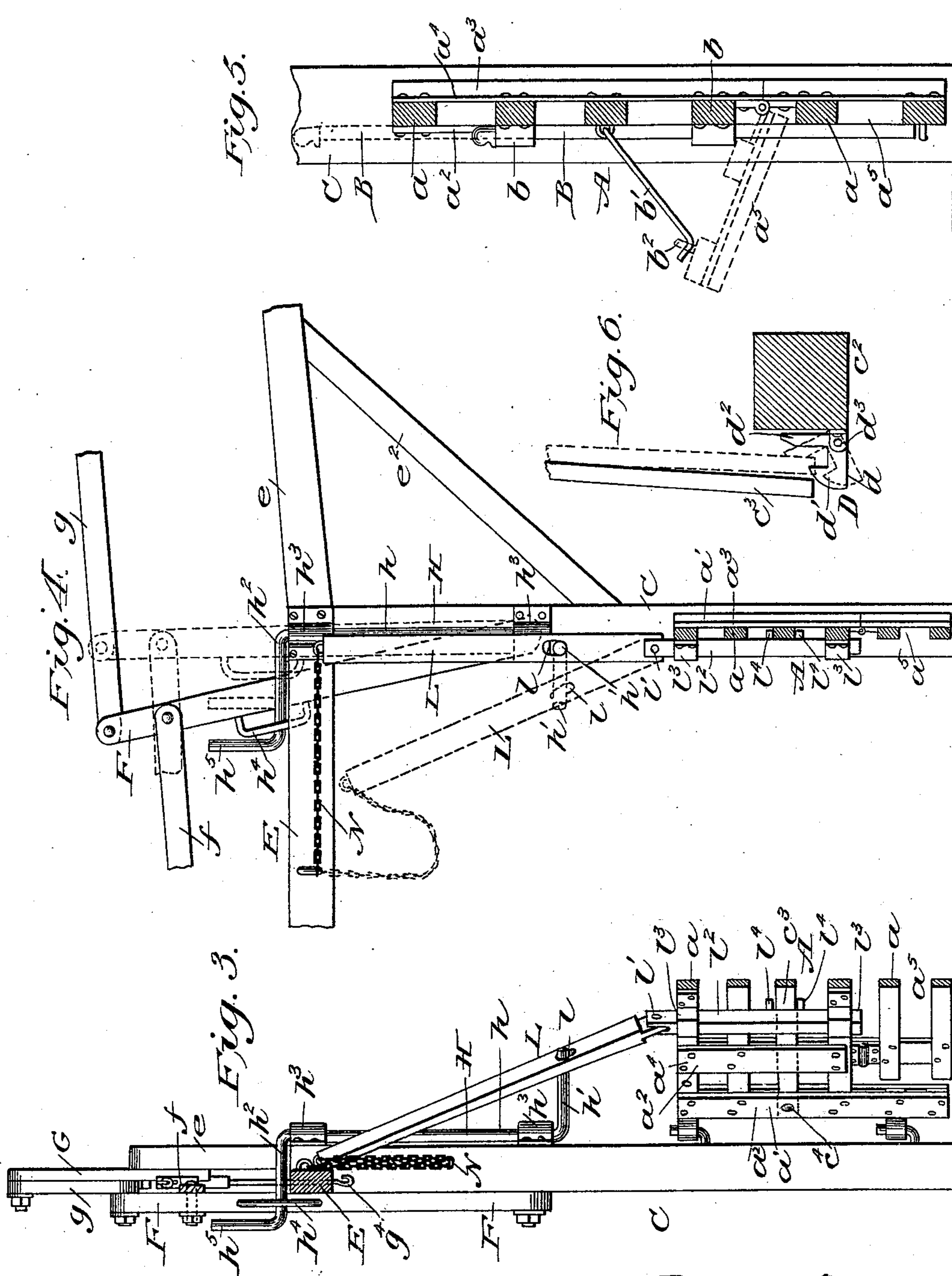
3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

FRANK J. COLLINSON, OF LYNN, ILLINOIS.

MEANS FOR OPERATING SWINGING-GATES.

SPECIFICATION forming part of Letters Patent No. 545,681, dated September 3, 1895.

Application filed February 16, 1895. Serial No. 538,710. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. COLLINSON, a citizen of the United States, residing at Lynn township, Knox county, Illinois, have invented certain new and useful Improvements in Means for Operating Swinging Gates, of which the following is a specification.

The gate to which the invention that is herein described pertains is of that class or type of swinging gates which can be opened by a person approaching the gate on horse-back or in a vehicle and can be closed by the same person as he passes away from the gate without dismounting from the horse or getting out of the vehicle, as the case may be.

A leading object of my invention is to provide gates of this class which will be easily operated and which cannot, by ordinary means, be raised or unlatched, when closed, nor when in its open latched position, except by means of the lever system for that purpose. In carrying out this leading object of my invention and other objects thereof, different improvements have been evolved, consisting in constructions, organizations, and combinations hereinafter described, and made the subject-matter of claims hereto appended.

Mechanism embodying the preferred constructive forms of and showing the mutual relationship and combination of the parts forming the subject-matter of my improvements embodied in the best form at present known to me is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective showing a gate embodying my improvements in a closed position; Fig. 2, a perspective showing the gate in an open position; Fig. 3, a sectional elevation in the line 3 3 in Fig. 2 and side elevation of other parts but showing the fragment of the gate moved toward its closed position from the position shown at Fig. 2; Fig. 4, a sectional elevation in the line 4 4 in Fig. 1; Fig. 5, a sectional elevation in the line 5 5 in Fig. 2; Fig. 6, a sectional plan of the latch-post in a plane closely above the catch for the latch, a part of which latch is also shown.

The gate A is preferably formed of slats a of boards, end rails a' , formed of flat metal plates a^2 on one side of the gate, and angular iron plates a^3 on its other side, and stiffening-rails a^4 , constructed substantially the same as

the rails a' of flat rails and angular iron rails. None of the flat rails extend down over the two lowermost slats a , except the one at the hinge side of the gate. The two lowermost slats a do not extend to the hinge-rail a' . The angular iron plates a^3 , which extend downwardly over the two lowermost slats a , are hinged between the second and third slats from the bottom of the gate to permit of turning the two lower slats or hinged section a^5 upwardly, as shown by dotted lines at Fig. 5, for the passage of small animals, such as hogs. A bolt B slides in loops b , which are fixed to slats above those that turn upwardly and can be slid down to the position shown in Fig. 1 to lock the hinged section a^5 down, as shown in the same figure and in Fig. 5. When the bolt B is drawn up, as shown by dotted lines, Fig. 5, the hinged section a^5 can be turned upwardly, as already stated, and is held in such elevated position by the hook b' , Fig. 5, which is hinged to one of the upper slats and engages with an eye b^2 on the hinged section.

The gate is hinged to swing on the high post C and close across the driveway c' on the lower post c^2 . The latch c^3 is pivoted at c^4 to the end rail at the hinge side of the gate, so that its distal end can rise and fall to an extent limited, as hereinafter described. The swinging catch D (seen in Fig. 6) is formed of an arm d , with a hook-catch d' projecting from one side thereof and an arm d^2 projecting from the same side thereof, but at its other end. This catch D is pivotally mounted on a bracket d^3 , which is fixed to the gate-post c^2 so that in closing the gate the catch will swing back to permit the latch c^3 to pass it, as shown by dotted lines in the same figure. After the latch c^3 passes the hook-catch d' it will strike the arm d^2 , and, forcing it back to its full-line position, will engage the hook-catch d' . The latch c^3 is disengaged from the catch D by raising the latch. The post c^5 is substantially the same height as the post C, and the gate swings against this post c^5 when it is in its open position. The post c^5 is provided with a catch D for the latch c^3 , which is a duplicate of the catch D on the post C and operates in the same manner as said catch. A bar E, Fig. 1, connects the upper ends of the posts C and c^5 . A bar e is fixed to and projects outwardly

and upwardly from the post C, and a similar bar e' is fixed to and projects upwardly and outwardly from the post c^5 in an opposite direction to the bar e . These bars e e' and the posts C c^5 form the supports for the system of elevated levers hereinafter described. Braces e^2 stay the bars e e' . A lever F is pivotally mounted at its lower end on the post C , and a similar lever F' is pivotally mounted on the post c^5 . The levers F F' are pivotally connected by a link-rod f , so as to swing or oscillate in unison on their centers of motion at their lower ends. A lever G is pivotally mounted on the outer end of the bar e , and a similar lever G' is pivotally mounted on the outer end of the bar e' . The upper end of the lever G is pivotally connected with the upper end of the lever F by a link-rod g , and the upper end of the lever G' is similarly connected with the lever F' by a link-rod g' . The levers G G' have each a bar g^2 fixed at its mid-length to the lower end thereof. From the ends of the bars g^2 are suspended rods g^3 g^4 .

The multicrank-shaft H between the levers and the gate consists of a vertical central part or shaft h with a crank-arm h' projecting laterally from its lower end and a crank-arm h^2 projecting laterally from its upper end in a direction nearly opposite to the crank-arm h' . The part or shaft h is journaled in bearings h^3 to the upper end of the post C , and the crank-arm h^2 projects between a loop or staple h^4 and the lever F , to which said loop or staple is fixed. The outer end h^5 of said crank-arm is turned up, or it may be simply lengthened, to prevent its withdrawal from the loop h^4 . The lower crank-arm h' projects through a slot l in a bar L , the lower end of which is pivotally connected at l' with the upper end of a latch-lifting bar l^2 , which is slidable endlong of itself through guide-loops l^3 , that are fixed to the gate-slats. Two pins l^4 project from the bar l^2 across the latch c^3 , the one closely above and the other closely below said latch. Portions of fence extending from the gate-posts are shown by fence-boards m .

While I have described preferred material for parts of the gate I desire it understood that I do not limit my claims to the use of any particular material.

As shown in Fig. 1, the gate is in its closed position across the driveway and the bar L in a substantially vertical position. The crank-arm h' , resting against the lower end or wall of the slot l , will, by means of the bars L l^2 and the pins l^4 , lock and hold the latch c^3 and also hold the gate, from upward movement, without which the latch cannot be disengaged from the catch D . A person now approaching the gate from either side thereof by pulling on the pendent rod g^4 , whichever side of the gate he may be approaching it from, will tilt or swing the system of levers G G' and F F' through the instrumentality of the connecting-rods g and g' . By this movement the lever F will be swung toward the right-hand side of the gate, as seen in the drawings.

This movement of the lever F will act on and oscillate the multicrank-shaft H . As the crank-arm h' swings it will first draw the bar L over to the dotted-line position shown in Fig. 4, and thereby bring the crank-arm h' upwardly to the upper end of the slot l , as shown by dotted lines, so that the further swinging of said crank-arm will raise the bar L and with it the latch-lifter l^2 and free the latch c^3 from the catch d , and the further swinging of the crank-arm h' will now force the gate to its fully-open position. (Shown in Fig. 2.) As the gate nearly reaches its fully-open position the upper end of the bar L will come in contact with the bar E and the bar L then becomes a lever acted on by the crank-arm h' , whereby greater force can be exerted in fully opening the gate to the post c^5 , as may be required by resisting wind. When the gate reaches its fully-open position described, the latch c^3 will, by contact with the catch D , swing said catch and be engaged therewith, as hereinbefore described, and the crank-arm h' will rest in the lower end of the slot l , Fig. 2, to hold the latch down in the catch d' in same manner as when the gate is in its closed position, as hereinbefore described. When the person operating the gate has passed through to the other side, he then, by drawing down on the rod g^3 , will swing the levers F F' G G' and the multicranks H in a reverse direction to that last described, and thereby, by first inclining the bar L , bring the slot l into such relation to the crank-arm h' that the bar L and latch-lifter l^2 , with the latch c^3 , will be raised, so that further movement of the system of levers and the multicrank-shaft will close the gate.

It will be understood from the foregoing that in starting the gate from its open position to close it the bar L operates in the same manner as in starting the gate to open from its closed position across the roadway. When the gate is closing, the bar L will be inclined forwardly of the gate and its upper end will be arrested in its movement by the chain N , which is fixed to the bar E at one end and to the upper end of the bar L at its other end before the gate is entirely closed, and the bar L will become a lever to aid in forcing the gate against resisting wind, to its closed position, the chain thus having the same function in the operation of closing the gate as does the bar E in opening the gate.

An ordinary catch may be used by lengthening the slot l to permit the latch to rise in an ordinary manner to engage with the catch as it engages therewith.

The lever F' and rod f may be dispensed with, if preferred, by lengthening the link-rod g' and pivotally connecting it with the lever F , as indicated by the dotted lines g^6 at Fig. 1.

It will be readily seen that the crank-arm h' may be connected with the gate in various ways to swing and operate it with or without raising the latch. Hence I claim, broadly, as

hereinafter expressed, a combination which includes a swinging gate, a system of elevated levers, and a multicrank-shaft intermediate the gate and the system of levers.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination, a swinging gate, means for actuating the gate comprising two elevated
10 systems of operating levers, a connection such as bar *f* between the levers of the systems, a multicrank between the gate and systems of operating levers, and a sliding connection between one end of the crank and the gate actu-
15 ating means, substantially as described.

2. In combination, a gate, a system of elevated operating levers, a multicrank shaft between the gate and the system of operating levers, means for connecting one of the crank
20 arms of the multicrank shaft with the operating levers, and a bar pivoted at one end to a gate latch lifting bar and pivotally connected with the other crank arm of the multicrank shaft, substantially as described.

25 3. In combination, a gate, a system of elevated operating levers, a multicrank shaft between the gate and the system of operating levers, means for connecting one of the crank arms of the multicrank shaft with the operat-
30 ing levers, an oscillating gate latch, a latch lifting bar, and a bar hinged at one end to said latch lifting bar, and provided with a slot through which the other crank arm passes, whereby it will raise the latch, swing the gate,
35 and lock the latch and gate, substantially as described.

4. In combination, a gate, a system of elevated operating levers, a multicrank shaft between the gate and the system of operating
40 levers, means for connecting one of the crank arms of the multicrank shaft with the operating levers, an oscillating gate latch, a latch lifting bar, a bar hinged at one end to said

latch lifting bar and provided with a slot through which the other crank arm passes, 45 and a bar or stop with which the upper end of said hinged bar engages when the gate is swung nearly to its open position, substantially as described.

5. In combination, a swinging gate having 50 an oscillating or rising and falling latch, a swinging catch, a latch lifting bar, a bar hinged to the upper end of the latch lifting bar and provided with a slot, and a multicrank shaft, one crank arm of which rests in 55 said slot, substantially as described.

6. In combination, a swinging gate having an oscillating or rising and falling latch, a latch lifting bar, a bar hinged to the upper end of the latch lifting bar and provided with 60 a slot, a multicrank shaft, one crank arm of which rests in said slot, and posts, as *c*² and *c*⁵, each provided with a catch, substantially as and for the purpose specified.

7. In combination, the gate A, having a 65 swinging latch *c*⁸, the bar *l*², the bar L hinged to the bar *l*² and provided with a slot *l*, the post C, the multicrank shaft H, with an arm *h*¹ seated in the slot *l*, and having an arm *h*, and the lever F loosely hinged to the arm *h*, 70 substantially as and for the purpose specified.

8. In combination, a swinging gate having a latch, a latch operating bar, a bar hinged to the latch operating bar, a multicrank shaft, one crank arm of which operates said bar 75 hinged to the latch operating bar, and a lever connected with another crank arm of the multicrank shaft for operating it, substantially as described.

In testimony whereof I affix my signature 80 in presence of two witnesses.

FRANK J. COLLINSON.

Witnesses:

CHAS. HULTGREN,
H. M. RICHARDS.