

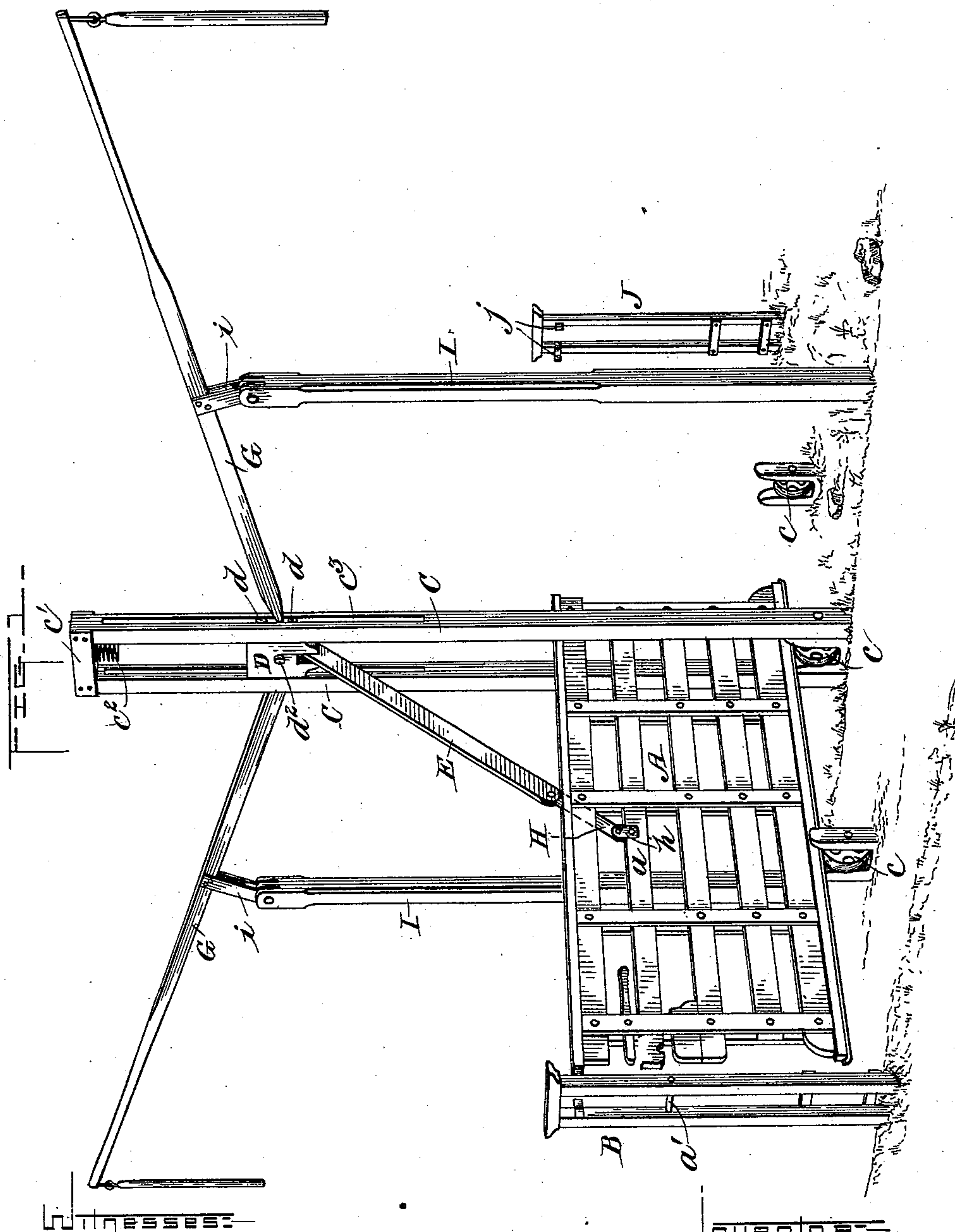
(No Model.)

4 Sheets—Sheet 1.

M. D. JOHNSON.
GATE.

No. 465,323.

Patented Dec. 15, 1891.



Witnesses:

Goverance.
J. M. Copenhaver

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by his atty
W. A. Bell & Co.
E. T. Fenwick Associate

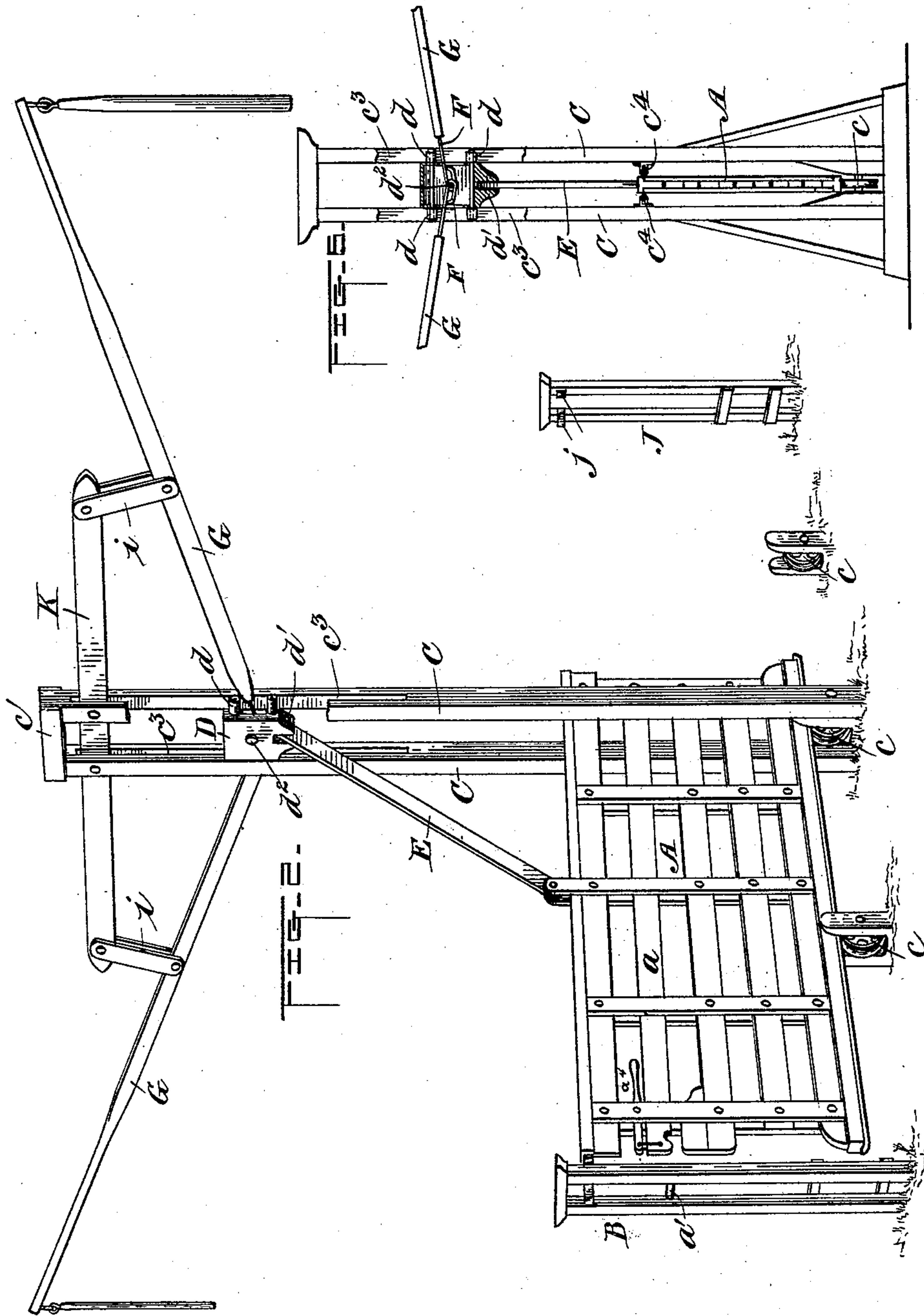
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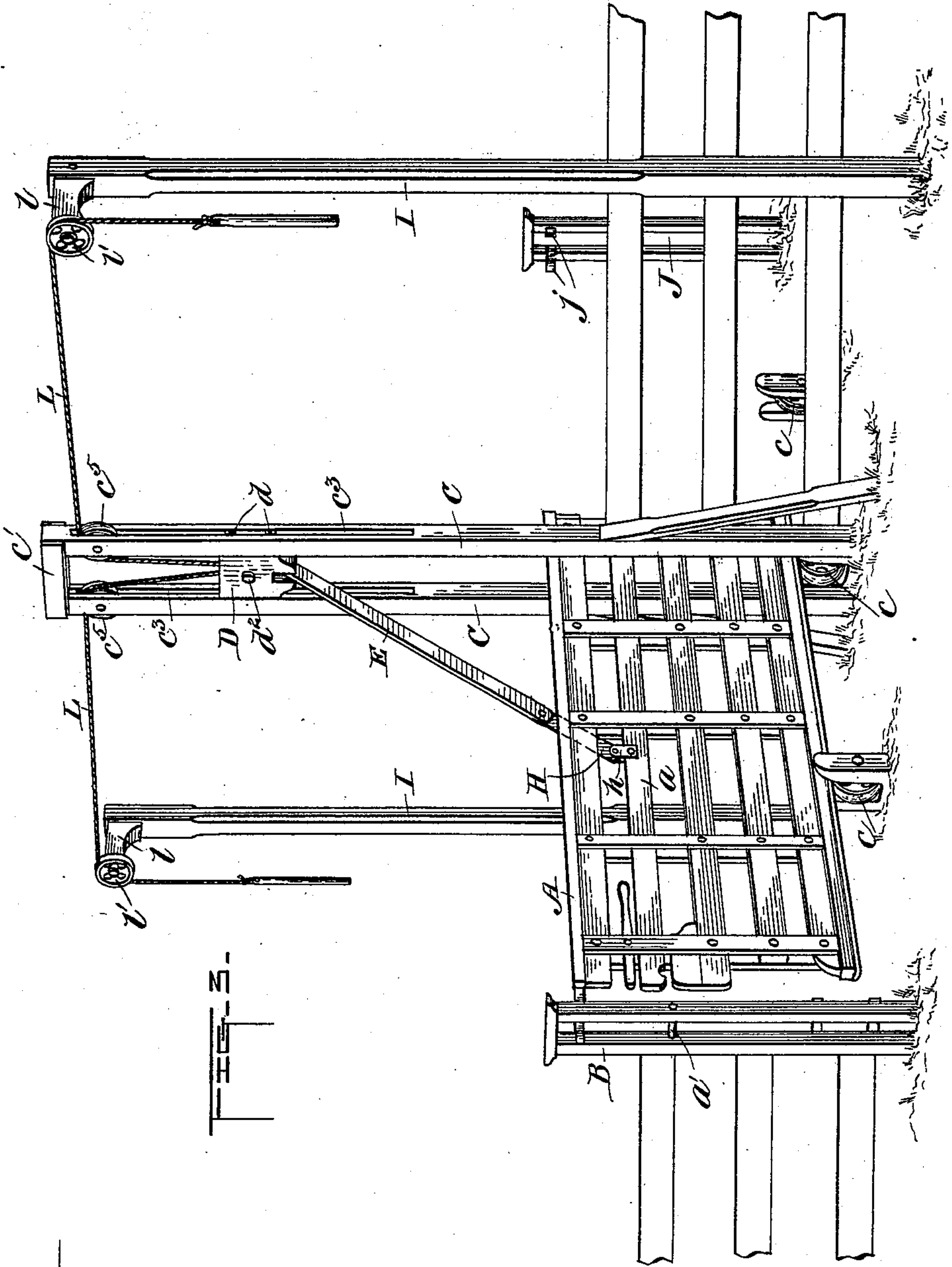
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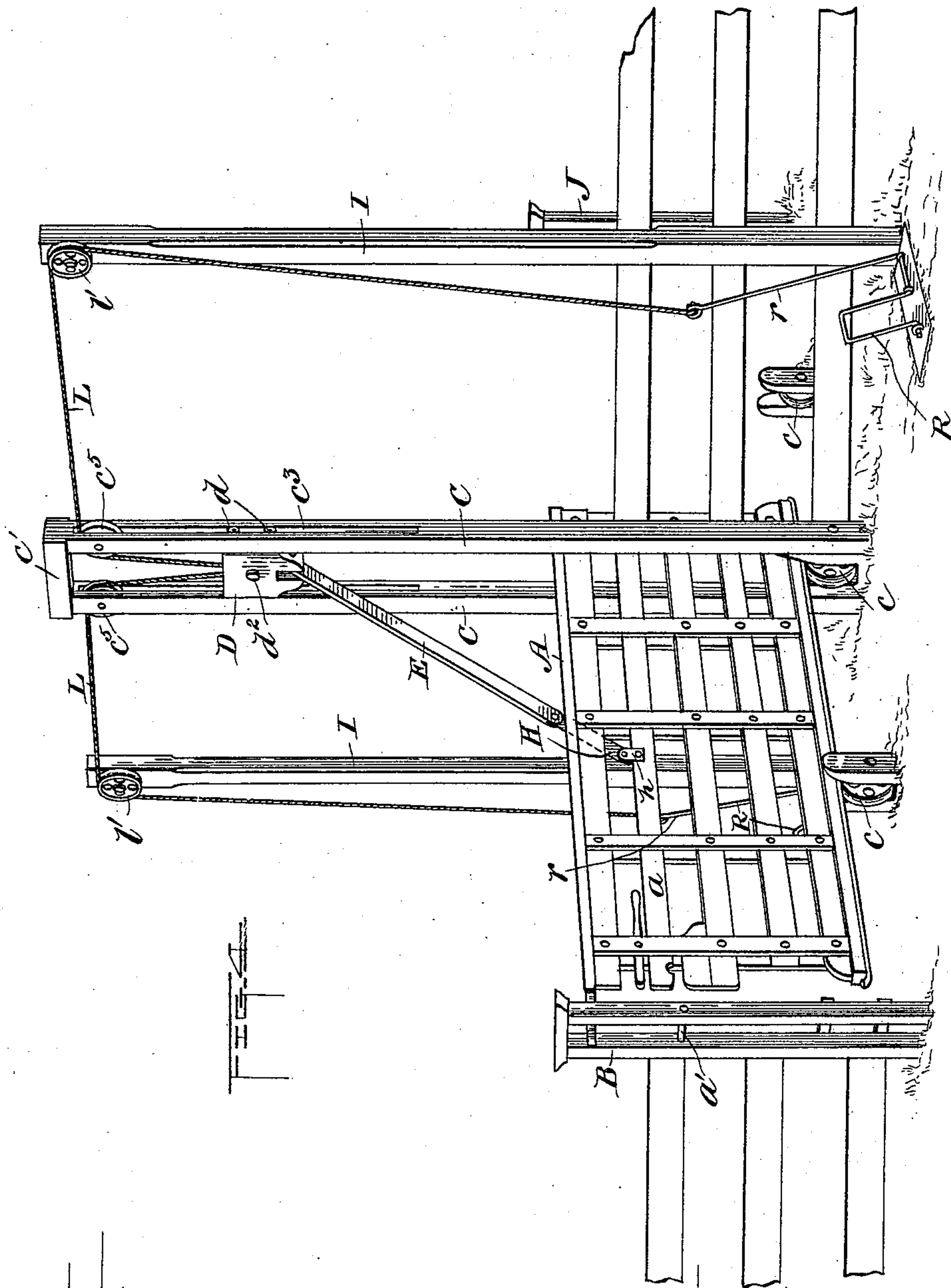
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UNITED STATES PATENT OFFICE.

MANVILLE D. JOHNSON, OF WEBSTER, IOWA.

GATE.

SPECIFICATION forming part of Letters Patent No. 465,323, dated December 15, 1891.

Application filed June 17, 1891. Serial No. 396,602. (No model.)

To all whom it may concern:

Be it known that I, MANVILLE D. JOHNSON, a citizen of the United States, residing at Webster, in the county of Keokuk and State of Iowa, have invented certain new and useful Improvements in Gates; and I 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.

My invention relates to certain new and useful improvements in horizontally-sliding gates adapted to be operated at a point a suitable distance from the gate, either by hand or by the wheel of an approaching vehicle; and it consists, first, in the combination, with said gate, of a vertically-sliding weight or plunger actuated by suitable levers or cords on either side of the gate, whereby the gate is opened and closed; and it consists, second, in a vibrating connecting-bar secured at its upper end to the weight or plunger and having at its lower end a pivoted link connecting the gate with the connecting-bar, whereby the latch-bar of the gate can be raised and the gate slide open or closed; and it consists, third, in means for automatically opening and closing the gate after the connecting-bar has left a vertical position and assumed an inclined position; and it finally consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved sliding gate, showing the same in a slightly-opened position. Figs. 2, 3, and 4 are perspective views of the gate, showing slight modifications in the means for operating the same; and Fig. 5 is an end view of the gate and vertical standards, the weight or plunger being shown in section.

A in the drawings, Fig. 1, represents my improved sliding gate, which is provided with suitable top and bottom bars and with intermediate bars. One of the intermediate bars *a* is pivoted at its rear end between the vertical bar-straps of the gate, while its forward or outer end is beveled and notched to per-

mit it to slide over and fit upon a latch-rod *a'* of the gate-post B, thus forming the latch for the gate. When the beveled end of the latch-bar *a* comes in contact with the rod *a'*, it automatically rises and rides over the rod and by its gravity falls down behind the rod the notched portion of the latch-bar receiving the rod and holding the gate in its latched condition.

C C are upright posts located on the opposite side of the road to that on which the gate-post B is placed, but on the same horizontal line with the post. These upright posts C C are placed at a suitable distance apart to permit the gate to pass conveniently between the same and are provided at their lower ends with a small delivery-wheel *c*, while their upper ends are united by a head-block *c'*, provided with an elastic cushion *c''*, preferably in the form of a coil or spiral spring, for a purpose hereinafter described. The upright posts are also slotted at their upper ends to a considerable distance downward.

D is a vertically-sliding weight or plunger, which moves up and down in the slots or guides *c''* of the upright posts C C. This weight D consists, preferably, of a nearly rectangular piece of metal bifurcated at its lower end to receive a connecting-bar E and with side passages for the introduction of hooks F on the ends of draft-levers G, as will be more fully described. The weight may be provided with side friction-rollers *d*, which move in the guides *c''*; but instead of the rollers projecting pins may be used. I contemplate using upright posts which are not grooved or bifurcated, and in that case I would provide the plunger with front and rear guide-plates, which would move up and down on the upright posts. By the use of any of these guiding means the weight will be kept from binding and be properly guided. Through the bifurcated lower end of the weight D a fulcrum-pin *d'* is passed, to which is secured the upper end of the connecting-bar E. The lower end of this connecting-bar is slit to receive a link H, the link being secured to the bar by a fulcrum-pin, thereby allowing the link to have a free vibrating movement. The lower end of the link is se-

cured to the latch-bar *a* by means of a hook and eye, or, as is shown in the drawings, by a clevis-like fastening *h*; but any suitable fastening means may be adopted.

5 The weight or plunger *D* is provided about midway of its length and width with a fulcrum-pin *d*², to which are attached the hooking-links *F* of the draft-levers *G*, as clearly shown in Fig. 6. The hooking-links are made
10 oblong in form, so as to allow sufficient movement to the levers and the vertically-sliding weight when the gate is opened and closed.

The draft-levers *G* *G* are provided with pendent handles to be grasped by a person
15 in operating the gate.

I *I* are supporting-posts for the draft-levers *G*, which are provided with short links *i*, which latter are journaled at their lower ends to the top of the supporting-posts, while their
20 upper ends are pivoted to the draft-levers for accommodating the movement of the draft-levers and the weight.

The supporting-posts *I* *I* are set at equal distances from the upright posts *C* *C* and in
25 range with the same, or they may be placed at any angle more convenient to the position of the gate.

By providing the head-block of the upright posts *C* *C* with the coiled or spiral spring
30 cushion the gate, when being opened or closed, is prevented from stopping on a dead-center when the weight *D* is at its highest point and the connecting-bar *E* is in a vertical position, as the yielding bumper or cushion will allow
35 the connecting-rod *E* to pass by the center and assist the rod, by reason of the spring-pressure, to assume a slightly oblique or slanting position, whereupon the automatic dropping of the weight or plunger *D* continues the
40 movement of the gate either to open or close the same. If the spring-cushion were not provided and the plunger permitted to slide all the way to the head-block, great difficulty would be
45 experienced when it was attempted to bring the rod from a vertical to an inclined position; but by the use of the cushion and the upright posts being extended slightly higher the plunger does not come to a dead standstill when
50 at its highest elevated position and the rod is allowed to pass gently and gradually from a vertical to an inclined position. I have shown this spring or cushion only in Fig. 1; but it is obvious that it could also be similarly applied for the same purpose and with
55 the same beneficial results in the constructions shown in Figs. 1, 2, 3, and 4. By also providing the upright posts *C* *C* on their inner surfaces with friction-rollers *c*—say on a line with the top bar of the gate, as shown in
60 Fig. 6—the gate is kept from rocking from one side to the other while being opened or closed, which gives a steady motion to the gate and also removes a great deal of the strain from the same.

65 The operation of opening and closing the gate is greatly facilitated by means of the

small journaled grooved wheels *c c c*. The uprights or posts in which these wheels work are provided with beveled edges and serve as a guard to the wheels and prevent the gate
70 getting out of place in case of heavy mud or snow.

J is an outer gate-post, which receives the rear end of the gate when the same is slid open, the flaring pieces *j* serving to guide the
75 gate between the two upright posts of the post.

In Fig. 2 I have shown the upright posts *C* *C*, provided at their upper ends with a cross-bar *K*, at the outer ends of which are provided the connecting-links *i i*, the latter at
80 their lower ends being pivotally secured to the draft-levers *G*. By this construction and arrangement of the cross supporting-bar *K* and the links *i i* the gate will be operated on
85 the same principle as in Fig. 1, but without the use of the supporting-posts *I* *I*.

In Fig. 3 I have shown the gate operated by means of ropes secured to the weight or plunger *D* and passing up over pulleys *c*⁵,
90 journaled in the upper ends of the upright posts *C* *C*, and then passed over small wheels *f'*, secured in the bracket-arms *l* at the upper end of the supporting-posts *I* *I*, and finally continued downward a suitable distance and
95 terminating in hand-holds to be conveniently grasped by a person desiring to open or close the gate. It is obvious that the operation of the gate would be the same as that shown in
100 Figs. 1 and 2, the rope *L* operating substantially the same as the draft-levers *G*.

In Fig. 4 the construction and operation of the gate are precisely like that shown in Fig. 3, except that wheels *l* are secured directly to the supporting-posts *I* *I* and that the gate
105 is operated by the wheel of a vehicle coming in contact with the trip *R*, connected by the trip-lever *r* to the rope *L*.

The operation of opening and closing the gate is as follows: In opening the gate the
110 operator takes hold of the hand-hold and draws down on the draft-levers until the weight or plunger has been drawn up high enough to allow the connecting-bar to pass a
115 vertical position and move slightly past a dead-center, when the weight by its own gravity falls to its normal lowered position, thereby automatically completing the operation of opening the gate. In this operation the latch-bar is lifted by means of the accommodating-
120 link and connecting-bar in conjunction with the draft-levers. When it is desired to close the gate, the operation is the same as in opening it. When it is desired to open or close the gate by means of the trip *R*, the fore wheel
125 of a vehicle is driven against the same and the trip lowered to a horizontal position and the gate simultaneously opened in the same manner as heretofore described. When the wheel of the vehicle has passed over the trip,
130 the trip will automatically return to its normal vertical position by reason of the descend-

ing weight. When the vehicle has passed through the gate, it is simply necessary to run one of the wheels of the vehicle against the trip on the other side of the gate, and thereby close the same.

It is obvious that the gate may be operated by a pedestrian by simply lifting the latch-bar and sliding the gate backward by hand, and, after passing through, sliding the gate closed.

In Fig. 2 I have shown the short lever-handle α^4 pivoted between two upright side straps of the gate and its outer end secured by a link or other fastening to the outer end of the latch-bar α , by means of which the latch-bar can be raised by bearing down on the handle end of the said lever-handle bar. I have also shown in Fig. 2 two of the vertical side straps extended a short distance above the top of the gate and the lower end of the connecting-bar E pivotally secured between the said strap-bars. By beveling the edges of notch in the latch-bar the gate can be slid open and closed without the use of the connecting-link H, as the connecting-bar E, by being drawn backward, will cause the beveled edges of the notch in the latch-bar to ride over the rod in the gate-post and permit the gate to slide open.

What I claim as my invention is—

1. In a horizontally-sliding gate, the combination of the vertically-sliding plunger and means for operating the same, and the con-

necting-bar E, connecting the weight or plunger with a movable latching-bar forming a part of the gate, whereby when the plunger is raised the movable bar is operated and the gate unlatched, and by continuing the upward movement of the plunger the gate is partly opened, and when the connecting-bar passes beyond a right-angular position with respect to the gate, the pull on the weight ceasing, the complete opening of the gate by the automatic descent of the weight is effected, substantially as described.

2. The combination of the horizontally-sliding gate A, having movable latching-bar α , the connecting-bar E, provided with link H, upright posts C C, sliding plunger D, levers G, links i , and supports for said links, substantially as described.

3. The combination of the horizontally-sliding gate A, having a movable latching-bar α , the sliding plunger D, having said bar connected to it, the upright posts C C, in which the plunger slides, levers G G, linked pivotally to the plunger, connecting-links i , and supports for said links, substantially as described.

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

MANVILLE D. JOHNSON.

Witnesses:

WM. A. BELL,

D. W. HAMILTON.