(No Model.) 2 Sheets—Sheet 1.

W. T. HARRIS.

GATE.

No. 484,198. Patented Oct. 11, 1892.

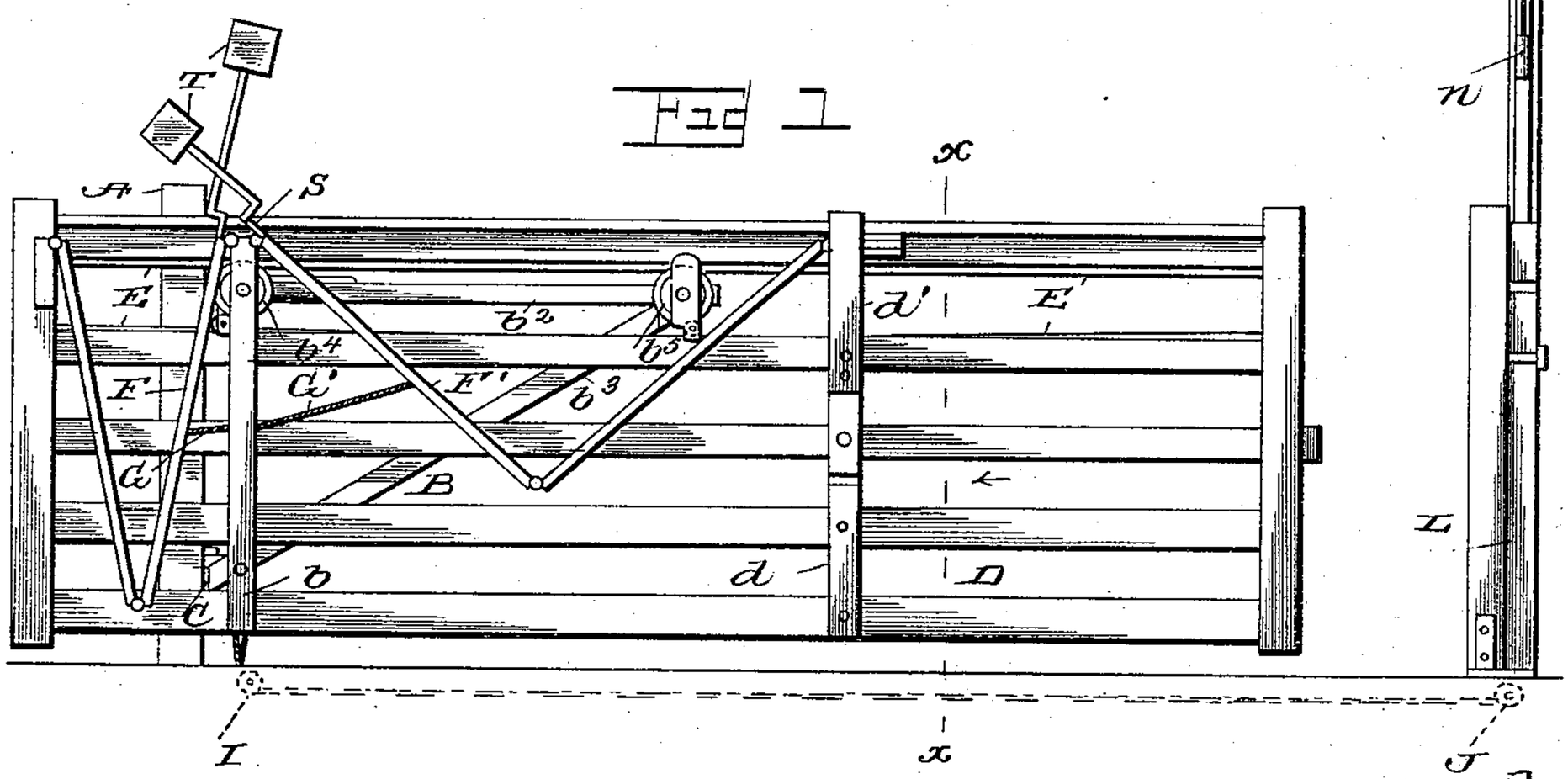


FIG 1

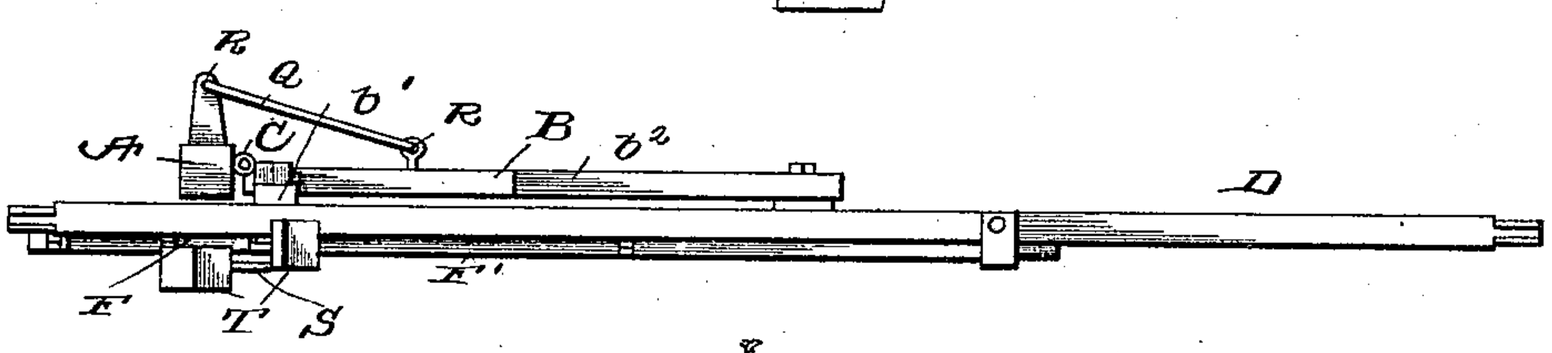
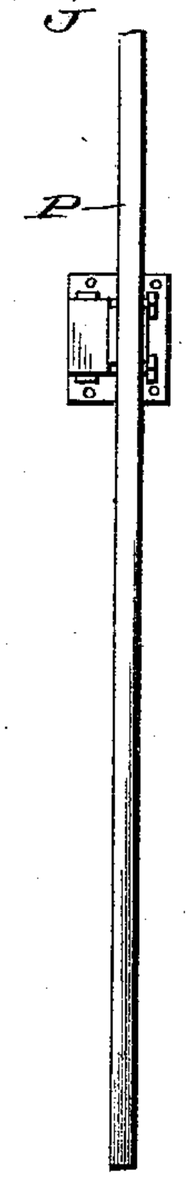


FIG 2



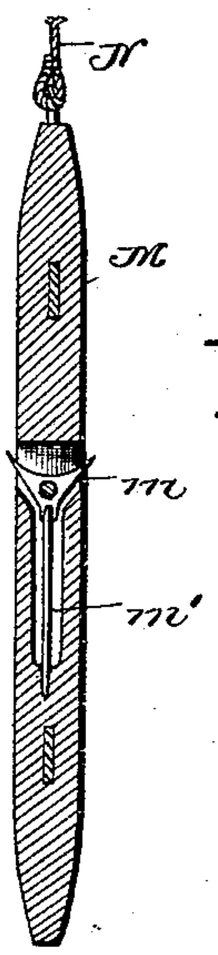


FIG 6

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(No Model.) 2 Sheets—Sheet 2.

W. T. HARRIS.

GATE.

No. 484,198. Patented Oct. 11, 1892.

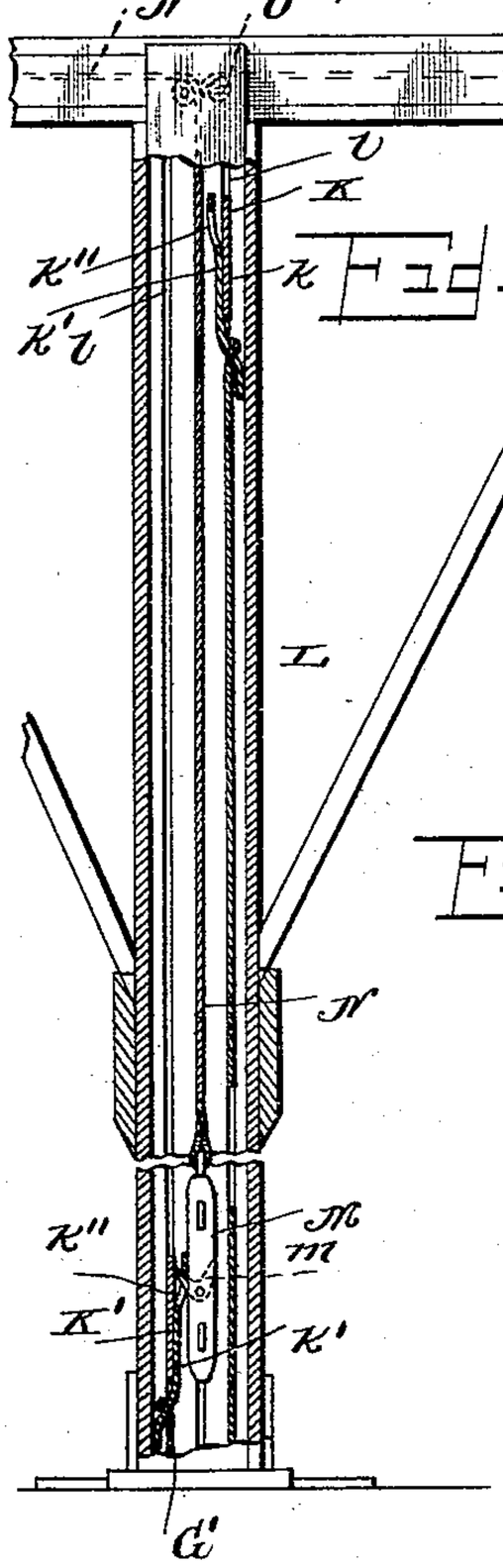


Fig 3.

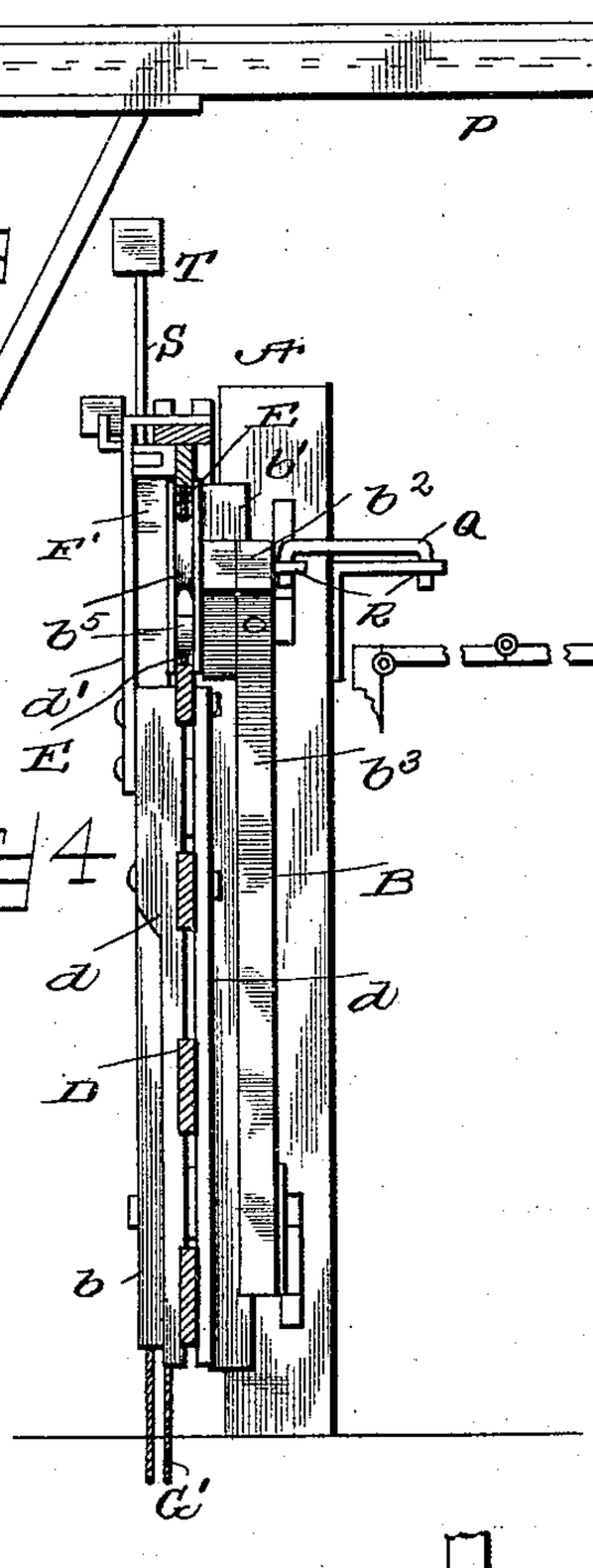
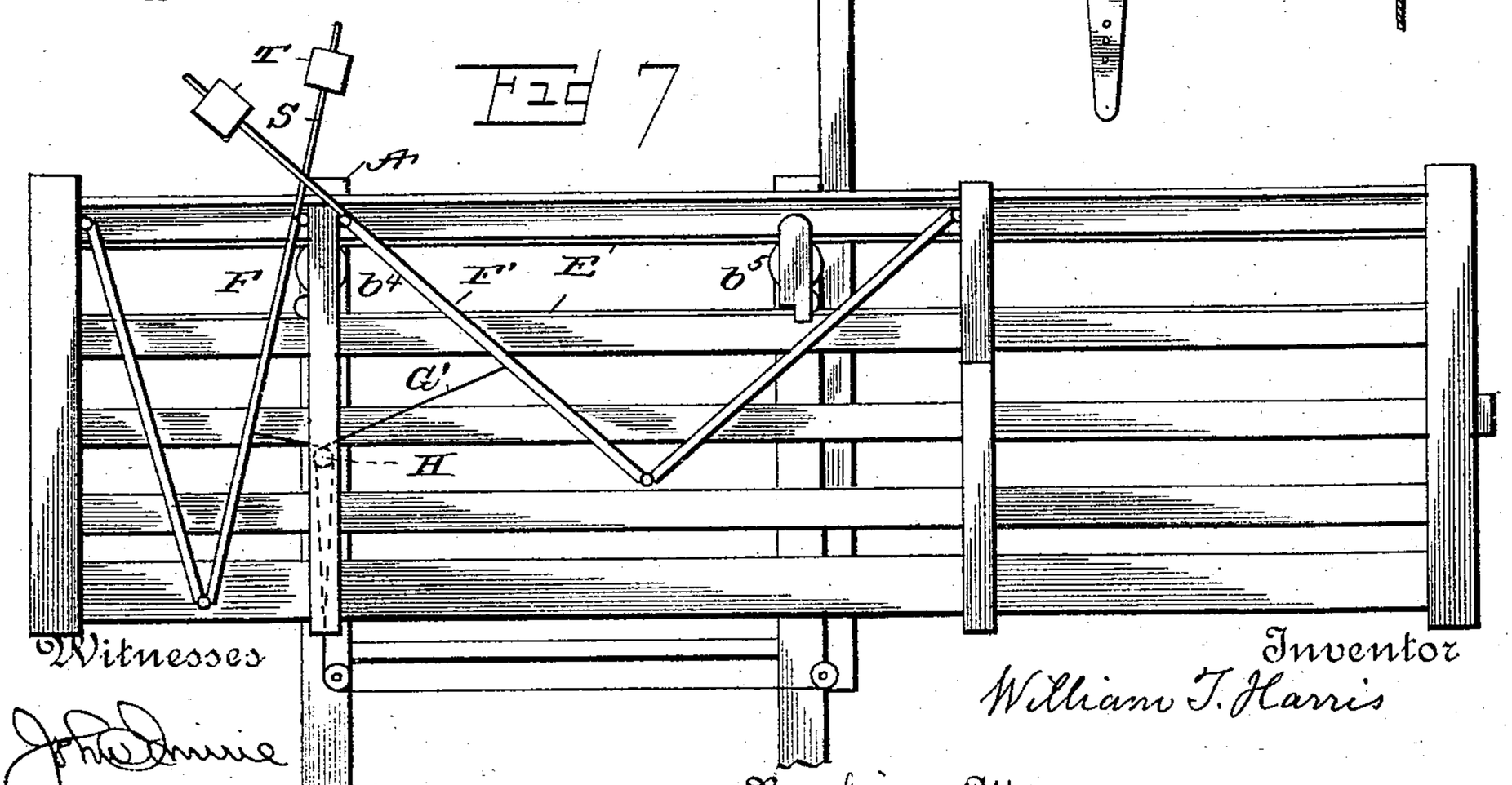


Fig 4.

Fig 5.

Fig 8.

Fig 7.



Witnesses

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W. E. Clendenell.

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UNITED STATES PATENT OFFICE.

WILLIAM T. HARRIS, OF DEFIANCE, OHIO, ASSIGNOR TO BENJAMIN F. SOUTHWORTH, OF SAME PLACE.

GATE.

SPECIFICATION forming part of Letters Patent No. 484,198, dated October 11, 1892.

Application filed April 19, 1892. Serial No. 429,782. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. HARRIS, a citizen of the United States, residing at Defiance, in the county of Defiance and State of Ohio, have invented certain new and useful Improvements in Gates, of which the following is a specification, reference being had therein to the accompanying drawings.

This improvement relates to that class of gates which are designed to allow a person in a vehicle to slide the gate sidewise without descending from said vehicle, and yet when required may be made to swing so as to open the full width to allow the passage of vehicles or machines that will not go through the opening left by sliding the gate; and the invention consists in the peculiar arrangement, construction, and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings, Figure 1 is an elevation of my gate partly open. Fig. 2 is a plan of the same. Fig. 3 is an end elevation showing a post with parts broken away. Fig. 4 is a vertical section on the line *x x*, Fig. 1. Fig. 5 is a detail of part of the gate, on a larger scale. Fig. 6 is a detail of a shuttle-dog used for operating the gate, on a larger scale. Fig. 7 is a modification in which the gate does not swing. Fig. 8 is a detail of a spring-shuttle used in connection with the shuttle-dog on a larger scale.

Referring now to the details of construction by letters, A represents the supporting-post, to which a crane B is connected by hinges C. The crane is formed of two vertical bars *b b'*, a horizontal bar b^2, and a diagonal brace-bar b^3, and carries two sets of guiding-rollers b^4 and b^5, the former being mounted between bars *b* and *b'* and the latter at the junction of the horizontal and diagonal bars. Each set consists of two rollers—an upper one, which is the larger, as it has to carry the weight of the gate, and a smaller one, which simply acts as a guide-roller.

D is the gate, which may be of any suitable material; but for cheapness I prefer it to be of the ordinary well-known form, except as hereinafter provided. The inner battens *d d* terminate a little below the top of the second rail and the near one is connected to the top rail by the bridge *d'*, as shown in Fig. 4. Set into the under side of the top rail and top of the second rail are steel tracks E E for the rollers b^4 and b^5 to relieve friction and prevent clogging by the accumulation of ice. As the battens *d d* are shorter than the end battens, they form no hinderance to the rollers running between the top and second rails.

To the bar *b* are hinged one of the ends of each of two toggle-levers F F', the opposite ends of said levers being pivotally connected to the end bar of the gate and the top rail of the same. To the bars F F' are connected cords G G', which pass over pulleys H, set in the bar *b*, and down through said bar (which is made hollow for this purpose, as shown in Fig. 5) to and under pulleys I and along under the surface beneath the gate to pulleys J, and thence up to the spring-shuttles K K'. (See Figs. 5 and 8.) Each of these spring-shuttles is preferably formed of two pieces, one of which pieces *k* runs in grooves *l*, formed in the hollow post L, while the lower end of the other piece *k'* bears against the side wall of the said hollow post. The upper end of spring *k'* has an aperture *k''*, whose object will be hereinafter explained. Between these spring-shuttles runs a shuttle-dog M, which dog also runs in grooves in the post L and is provided with a double-acting spring-catch *m*, which is held in a central position by a spring *m'*. This shuttle is provided with two operating-cords N N, which run up the post L and over pulleys O in opposite directions through the hollow cross-bar P and are provided with weighted handles *n n*.

At Q is shown a metal stay, the ends of which are turned into hooks R, one of which is fast in the post A and the other in the crane.

Attached to the one end of each of the toggle-levers is a bar S, having on its end a weight T, which serves to straighten the toggle-levers, and thus lock the gate open or shut, as the case may be, because when the levers are straightened out the gate cannot be moved until the toggle-lever has been slightly low-

ered at the center. The bars S should, of course, be so bent in opposite directions as not to interfere with each other.

The operation is as follows: Supposing the gate is shut and a person in a vehicle wants to pass through, by a pull on either of the cords N by its handle *n* the shuttle-dog M is raised and the point of its catch *m* engages with the spring-shuttle K′ and raises it. This shuttle pulls on the cord G′, which in its turn pulls down the lever F′, and thus slides the gate open. The driver, with his vehicle, now passes through the gate, and as he lets go of the handle the weighted shuttle-dog descends and raises the handles *n*, leaving the spring-shuttle K′ at the point to which it had been raised, it being held there by the spring *k′*, the friction of which against the inside of the post prevents its descending with the shuttle-dog. As soon as the driver reaches the other handle *n* he pulls that, and thus causes the shuttle-dog again to rise, carrying with it the other spring-shuttle K, which as it rises pulls on the toggle-lever F, and thus closes the gate. As the gate closes the toggle-lever F′ is straightened and the cord G is pulled by the lever, which thus causes the spring-shuttle K′ to descend, passing the shuttle-dog as the latter rises. Owing to the catch *m* being pulled to one side by the draft of the spring-shuttle K, the other shuttle K′ is not caught by shuttle-dog and descends without interference. The operation is precisely the same when the vehicle approaches in either direction.

If it becomes necessary to open the gate to the full width, as when it is desired to allow a harvester-binder to pass through, by unhitching the stay Q the crane and gate can both swing together, thus opening the gate to its full width.

In places where only ordinary vehicles are likely to pass the crane may be dispensed with, in which case I mount the rollers on two posts, as shown in Fig. 7, and secure the hollow post L to the post nearest the roadway. The operation to slide the gate open and closed is precisely the same as before described.

I have referred to the use of cords for operating, but do not limit myself to cords, as chains, wire, or any other equivalent flexible article may be used, and where I use the word "cord" in the following claims I mean to be understood as covering any known equivalent therefor.

What I claim as new is—

1. The combination, with a sliding gate and means for supporting the same, of two pairs of toggle-levers connected to said gate and supports and cords connected to said two pairs of toggle-levers, one for opening and the other for closing the same, substantially as described.

2. The combination, with a sliding gate and means for supporting the same, of two pairs of toggle-levers connected to said gate and supports, cords for closing said levers, and weights for straightening said levers to lock the gate either in an open or closed position at will, substantially as described.

3. The combination, with a sliding gate, a crane on which it is supported, a post carrying operating-cords, of two pairs of toggle-levers connected to the crane and gate, and cords passing over pulleys on the crane, and the carrying-post for operating said toggle-levers, whereby said gate may be slid open by a driver in a vehicle or swung open to its full width, substantially as described.

4. The combination, with a sliding gate, of a crane on which it is supported, two sets of toggle-levers connected to the crane and gate, two cords attached to the levers, and operating mechanism alternately engaging with each of said cords, substantially as described.

5. The combination, with a sliding gate, of a crane supporting the same, having a hollow bar, two pairs of toggle-levers attached to said crane and gate, cords passing through said hollow bar and each having one end connected to a pair of the levers, a shuttle attached to the other end of each cord, and a shuttle-dog constructed to engage alternately with said shuttles, substantially as described.

6. In combination with a sliding gate, supports for the same, two sets of toggle-levers connected to said supports and gate, two cords, each connected at one end to a set of said levers, a spring-shuttle attached to the free end of each of said cords, the weighted shuttle-dog having the double-pointed catch pivoted therein, and the cords N N, attached to said shuttle-dog, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of April, 1892.

WILLIAM T. HARRIS.

Witnesses
R. H. GLEASON,
H. G. BAKER.