

920,344.

3 SHEETS--SHEET 1.

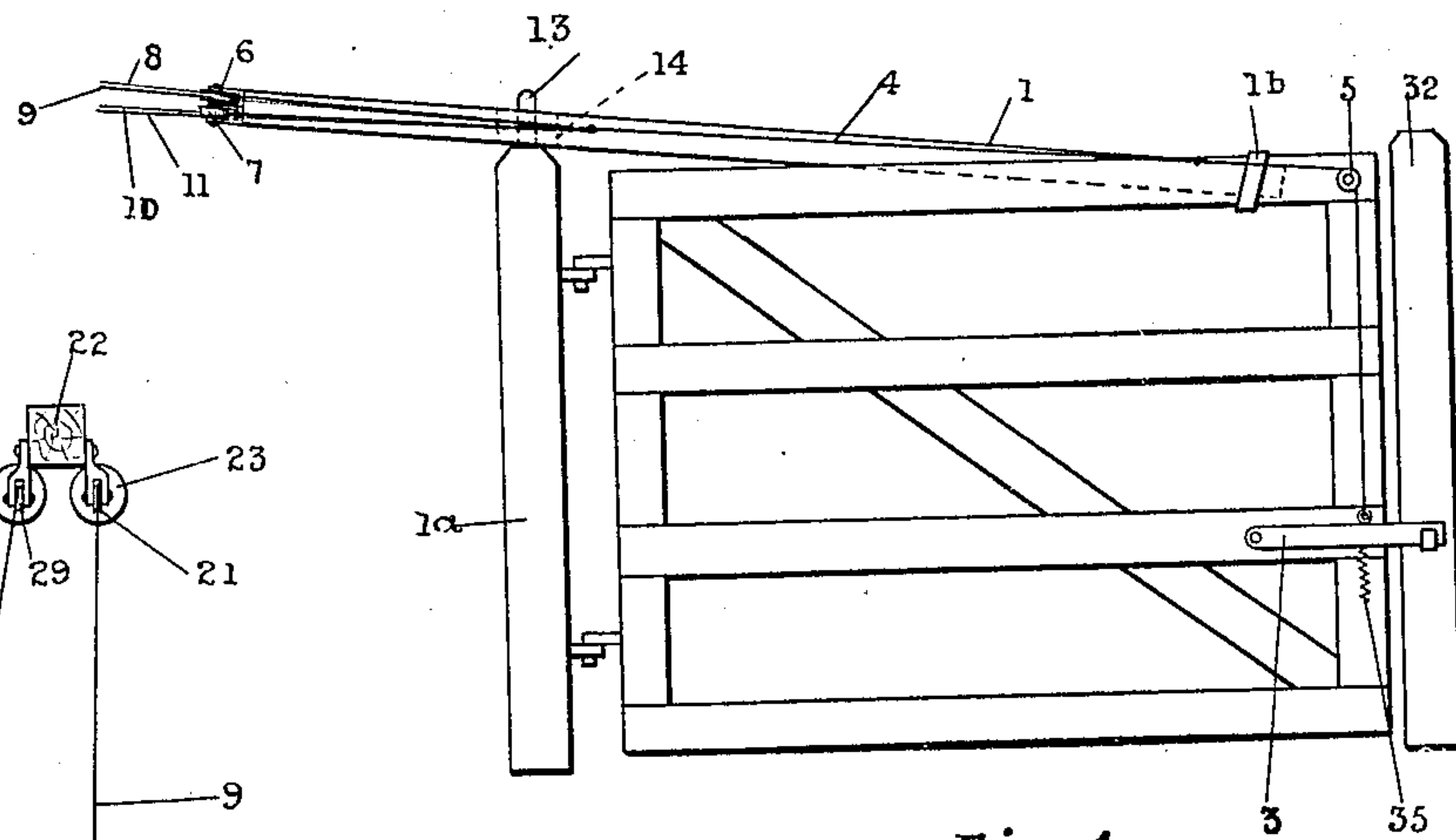


Fig. 1.

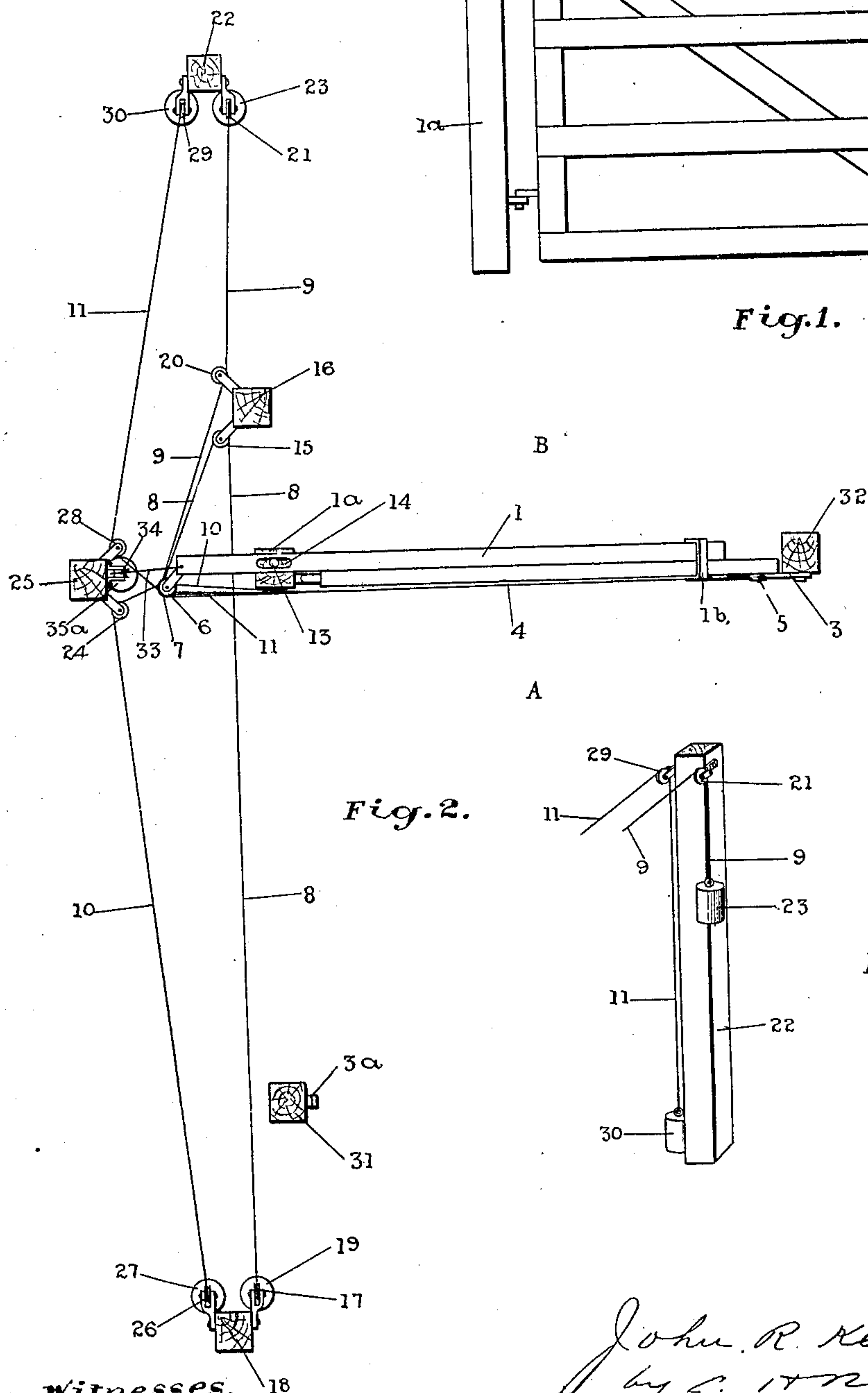


Fig. 2.

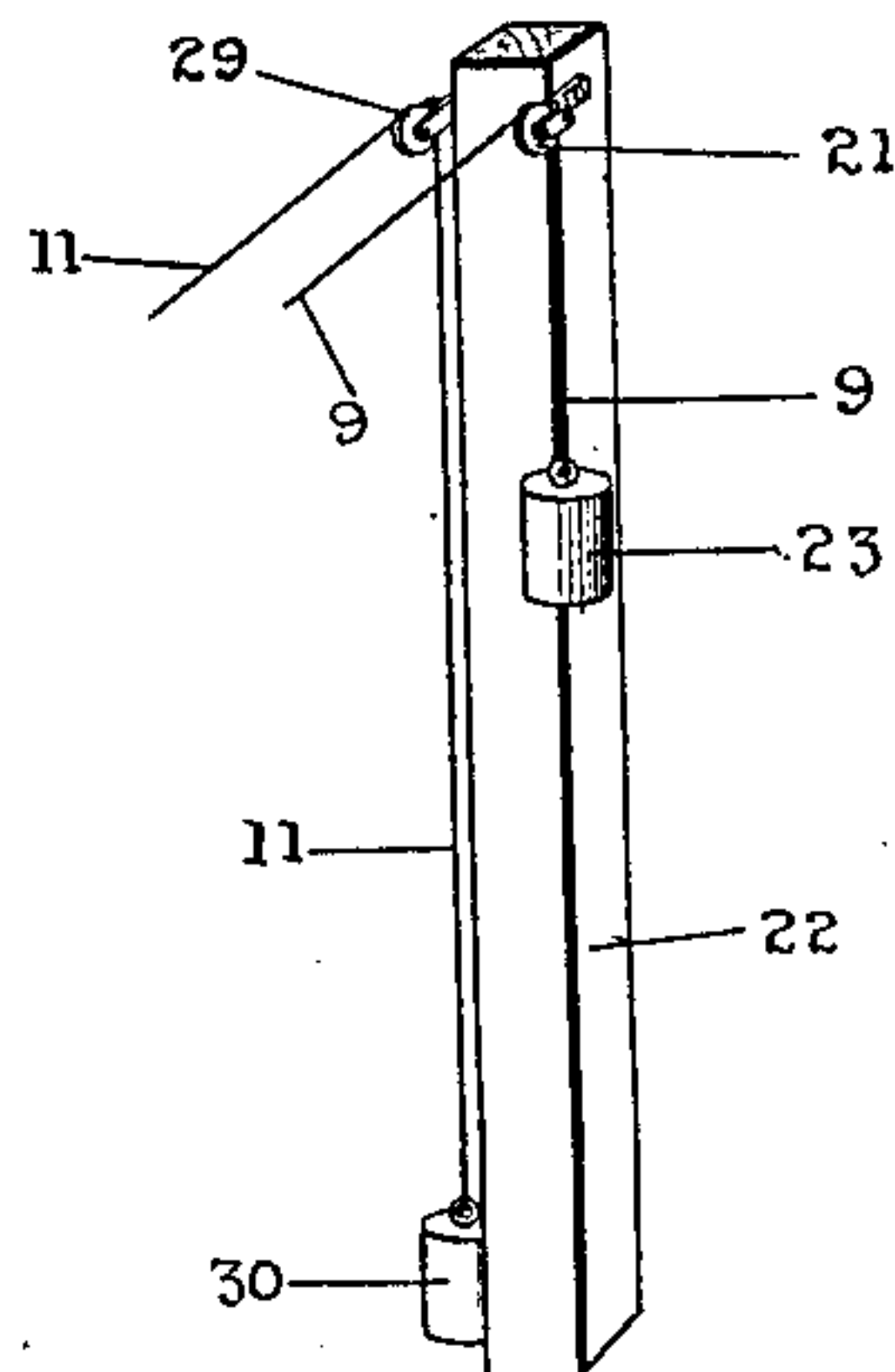


Fig. A.

Witnesses. 18
H. C. Trimble.
Oliver Salenman

Inventor:
John R. Kerr
by C. H. Nichols
his attorney.

J. R. KERR.
GATE OPENING AND CLOSING DEVICE.
APPLICATION FILED OCT. 3, 1907.

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Patented May 4, 1909.
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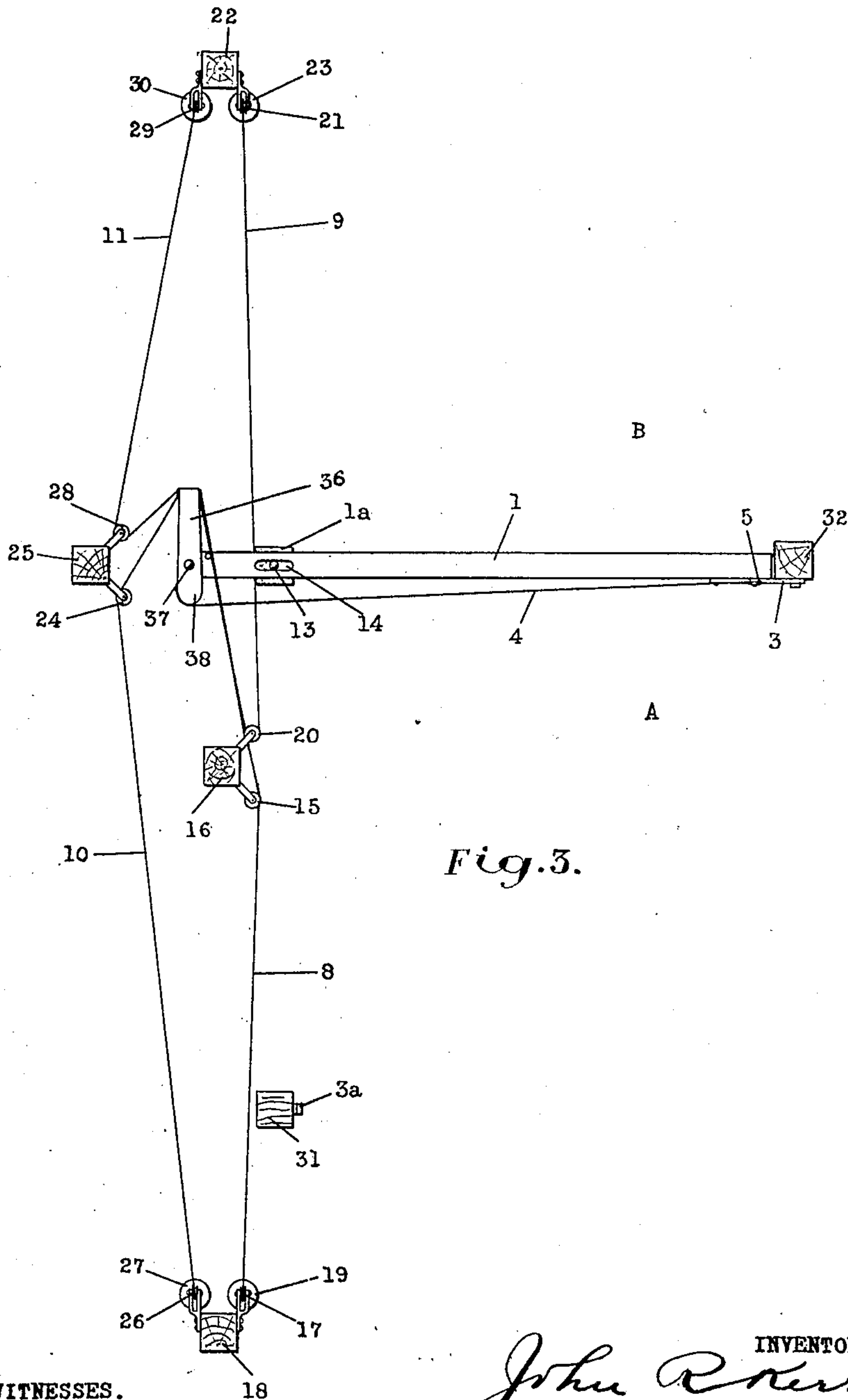


Fig. 3.

WITNESSES.
H. L. Trimble.
Olive Bateman

INVENTOR.
John R. Kerr
by Chas. H. Reicher
his Attorney

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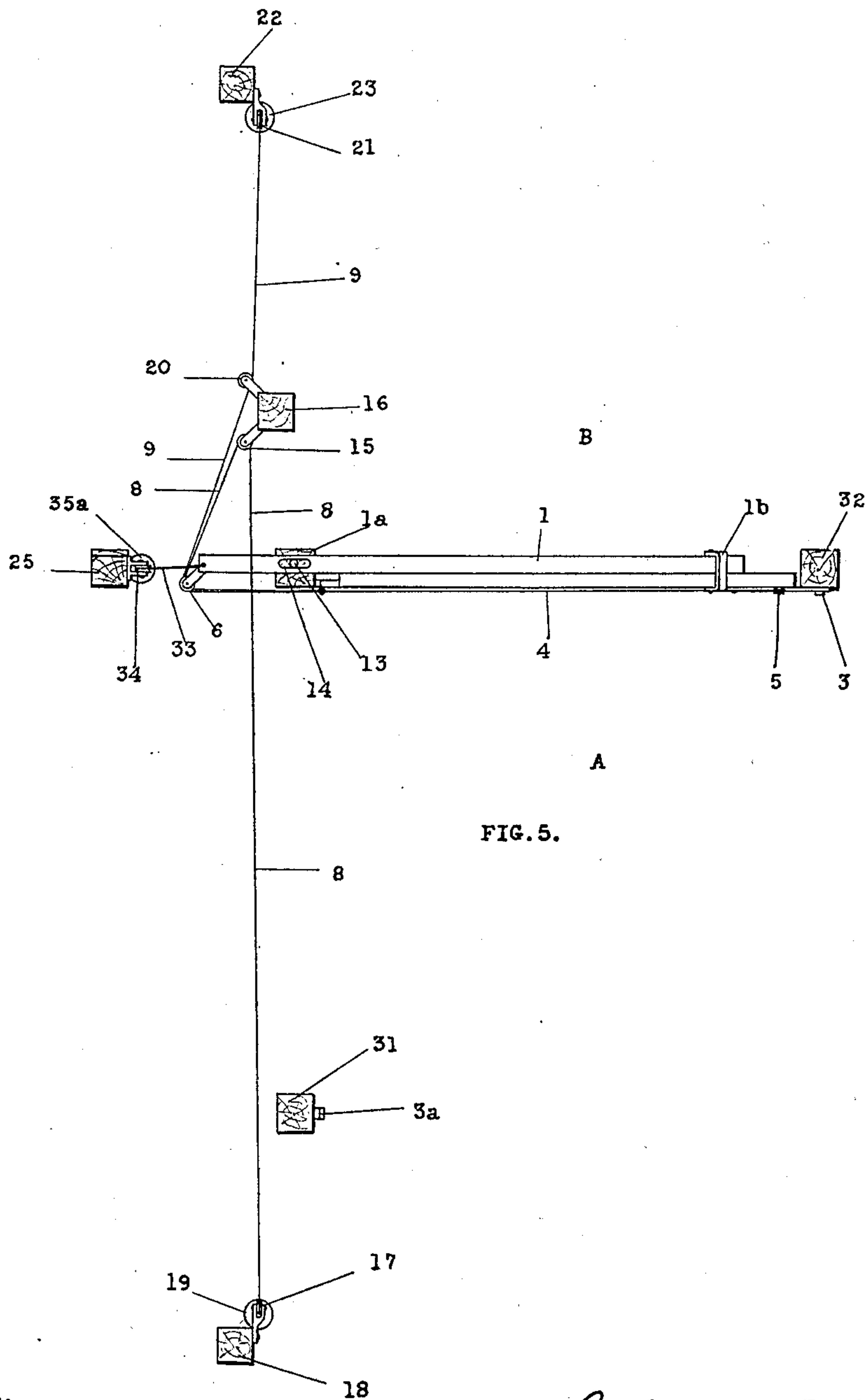


FIG. 5.

Witnesses.

A. L. Trimble.
H. R. Robertson.

Inventor.

John R. Kerr
by C. H. Kunkler
his attorney

UNITED STATES PATENT OFFICE.

JOHN R. KERR, OF BRANTFORD, ONTARIO, CANADA.

GATE OPENING AND CLOSING DEVICE.

No. 920,344.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed October 3, 1907. Serial No. 395,765.

To all whom it may concern:

Be it known that I, JOHN R. KERR, of the city of Brantford, in the county of Brant and Province of Ontario, Canada, have invented certain new and useful Improvements in Gate Opening and Closing Devices; and I hereby declare that the following is a full, clear, and exact description of the same.

The present invention relates to an operable means by which a gate can be opened and closed, and it consists of a means comprising two gate opening cords and two gate closing cords connected to the gate and arranged in sets extending beyond the opposite sides of the latter and passing over suitably positioned guide pulleys whereby the cords at each side can be employed to respectively open and close the gate. In the case of very light gates an automatic closing device is provided.

For an understanding of the invention reference is to be had to the following description and to the accompanying drawings in which:—

Figure 1, is an elevation of the gate showing the attachment of the gate opening and closing cords. Fig. 2, is a plan view showing the arrangement of the gate opening and closing cords respectively. Fig. 3, is a similar view to Fig. 2, showing a modification of the construction shown in Fig. 2. Fig. 4, is a perspective view of one of the posts shown in Figs. 2, 3, and 5. Fig. 5, is a plan view of a device for effecting the automatic closing of light gates.

Like characters of reference refer to like parts throughout the specification and drawings.

Referring to Figs. 1 to 3 of the drawings, 1 is a lever fulcrumed to the guide post 1^a, upon which the gate is swung. The lever 1, when the device is attached to gates already in use, may consist of a bar or pole having a slot 14 to receive the fulcrum 13, on the gate post 1^a. One end of the lever is attached to the latch end of the gate and this is conveniently effected as shown in Fig. 2, by passing the end loosely through a loop or staple 1^b, the clearance between the lever and the staple being sufficient to compensate for any variation in the movement of the gate. The other end of the lever 1, is provided with pulleys 6 and 7, or their mechanical equivalents for the purpose hereinafter described. The length of the lever arms on either side of the fulcrum pin is propor-

tioned according to the weight of the gate. A pulley 5, is provided on the gate and over this pulley passes a cord 4, attached at one end to the latch 3, of the gate which is shown as a drop latch but may be of any desired construction. The cord 4, is attached at its other end to four other cords 8, 9, 10 and 11, of which 8 and 9 are the "opening cords" and 10 and 11 are the "closing cords." These opening and closing cords are disposed as follows:—In Fig. 2, the cord 8, is shown to pass over the pulley 6 to the pulley 15 on a post 16, situated so that the end of the lever 1, will come opposite, and a few inches away from it when the gate is fully opened. The cord 8, passes from the pulley 15, to a pulley 17, on a post 18, situated from 20 to 30 feet from the gate on the opposite side of the post 1^a to the post 16, and a weight 19, is attached to the end of the cord 8 to keep it continually taut. The cord 9 passes over a pulley 20 on the post 16 and thence to a pulley 21 on the post 22, on the same side of the gate post 1^a as the post 16, and placed in a similar position relatively to the gate post 1^a as the post 18. If desired the cord 9, can be led directly from the pulley 6 to the pulley 21. A weight 23 is provided for the cord for the same purpose as the cord 19. The cord 10 passes over the pulley 7, to a pulley 24 on a post 25 situated in rear of and approximately in line with the gate post 1^a, and from there to a pulley 26 on the post 18, and to the cord 10 is attached a weight 27. The cord 11 passes over the pulley 7 to a pulley 28 on the post 25, and from there to a pulley 29 on the post 22 and to the cord 11 is attached a weight 30. The post 31 similar to the gate post 32 is provided to engage and hold the gate in its open position. The catch 3 is either weighted to counterbalance the weights 19, 23, 27, 30, or is provided with a spring 35 for that purpose.

In the modification shown in Fig. 3, the pulleys 6 and 7 are dispensed with and replaced by a longitudinal lever arm 36, pivoted to the lever 1, near the rear end of the latter. The lever arm 36 has a curved end 38 to the rear side of which is attached the latch cord 4 which passes to the latch 3. The gate opening and closing cords 8, 9, 10, and 11, are each attached to the other end of the lever arm 36, and are disposed over the pulleys 15, 20, 24, and 28, respectively and over the various posts in the manner

above described with reference to Fig. 2. When it is desired to open the gate either the cord 8 or the cord 9 is pulled, whereby the gate then being in its closed position, the lever arm is rocked about its pivot 37 to pull the latch cord 4 and raise the latch. The continued pull now opens the gate. The closing of the gate is effected in an exactly similar manner with the exception that the cord 10 or the cord 11 is operated. The pivot 37 of the lever 36 is preferably placed toward the end 38 thereof, so that the pull upon the cord 4 is increased by the leverage of the arm 36. One of the advantages of this modification consists in the fact that the pulls on either side of the lever 36 are approximately balanced when no cord is being operated, and the latch cord 4 is under very little strain. For iron, wire or very light gates, the closing cords may be dispensed with, and a cord 33, may be attached to the end of the lever 1, and led over a pulley 34 on the post 25 (Fig. 5.) The weight 35^a, is attached to this cord, said weight being sufficient by its pull on the lever 1 to close the gate. With this device it is only necessary to open the gate by pulling on the cord 8, on one side, and after passing through, to pull on the opening cord 9 sufficiently to raise the latch 3 engaging the post 31, whereupon the weight 35^a will close the gate.

The operation of the device shown in Figs. 1, 2, and 3 is as follows:—Suppose a driver wishes to pass through the gate from A to B, he pulls on the cord 8, and the pull being communicated to the cord 4, first raises the latch 3, and then effects the opening of the gate. When the gate is fully opened, the latch engages with the post 31, and the gate cannot close until the driver, after passing through, pulls the cord 11 which first raises the latch 3, and then closes the gate. A post with its weight and cords is shown in Fig. 4. When passing from B to A exactly the same procedure is followed except that the cord 9 is pulled to open the gate, and the cord 11 to close it.

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

1. A gate opening and closing device comprising a gate post, a gate hinged thereto, a latch for the gate, a latch cord for the latch, a lever connected to the gate and fulcrumed on the gate post, a pulley post situated in a plane approximately at right angles to the plane of the gate when closed, pulleys on the pulley post, gate opening cords passing over the pulleys on the pulley post, and extending on either side of the gate, means for rendering the gate opening cords operable from a distance, a second pulley post, pulleys on the second mentioned pulley post, gate closing cords passing over the pulleys on

the second mentioned pulley post, and extending on either side of the gate, means for rendering said gate closing cords operable from a distance, and means connected to the lever for operatively connecting the gate opening cords and gate closing cords with the latch cord so that, upon any cord being pulled, the latch is released and the gate opened or closed.

2. A gate opening and closing device comprising a gate post, a gate hinged thereto, a latch for the gate, a lever connected to the gate, and fulcrumed on the gate post, pulleys on the lever, a pulley post situated approximately in a plane at right angles to the plane of the gate when closed, pulleys on the pulley post, gate opening cords connected to the latch passing over the pulleys on the lever and the pulley post, and extending on either side of the gate, means for rendering said gate opening cords operable from a distance, a second pulley post, pulleys on the second mentioned pulley post, gate closing cords connected to the latch passing over the pulleys of the lever and the second mentioned pulley post, and extending on either side of the gate, and means for rendering said gate closing cords operable from a distance.

3. A gate opening and closing device comprising a gate post, a gate hinged thereto, a latch for the gate, a lever connected to the gate and fulcrumed on the gate post, pulleys on the lever, a pulley post situated approximately in a plane at right angles to the plane of the gate when closed, pulleys on the pulley post, distance posts, pulleys on said distance posts gate opening cords connected to said latch and passing over the pulleys on the lever, pulley post, and distance posts, a second pulley post, pulleys on the second mentioned pulley post, and gate closing cords connected to the latch and passing over the pulleys of the lever, second mentioned pulley post, and distance posts.

4. A gate opening and closing device comprising a gate post, a gate hinged thereto, a latch for the gate, a lever connected to the gate and fulcrumed on the gate post, pulleys on said lever a pulley on the gate, a latch operating cord connected to the latch and passing over said last mentioned pulley, a pulley post situated approximately in a plane at right angles to the plane of the gate when closed, pulleys on the pulley post, distance posts, pulleys on the distance posts, gate opening cords connected to the latch operating cord and passing over the pulleys on the lever, pulley post, and distance posts, a second pulley post, pulleys on said second mentioned pulley post and gate closing cords connected to the latch operating cord and passing over the pulleys on said lever, second mentioned pulley post and distance posts.

5. A gate opening and closing device com-

prising a gate post, a gate hinged thereto, a latch for the gate, a lever connected to the gate and fulcrumed on the gate post, pulleys on the lever, a pulley on the gate, a latch operating cord connected to the latch and passing over said last mentioned pulley, a pulley post situated approximately in a plane at right angles to the plane of the gates when closed, pulleys on the pulley post, distance posts, pulleys on the distance posts, gate opening cords connected to the latch operating cord, and passing over the pulleys on the lever, pulley post, and distance posts, weights on the gate opening cords, a second pulley post, pulleys on said second mentioned pulley post, gate closing cords connected to the latch operating cord and passing over the pulleys on said lever, second mentioned pulley post and distance posts and weights on the gate closing cords.

6. A gate opening and closing device comprising a gate post, a gate hinged thereto, a latch for the gate, a lever connected to the gate and fulcrumed on the gate post, pulleys

on the lever, a pulley on the gate, a latch operating cord connected to the latch and passing over said last mentioned pulley, a pulley post situated approximately in a plane at right angles to the plane of the gate when closed, pulleys on the pulley post, distance posts, pulleys on the distance posts, gate opening cords connecting the latch operating cord and passing over the pulleys on the lever, pulley post, and distance posts, weights on the gate opening cords, a second pulley post, pulleys on said second mentioned pulley post, gate closing cords connected to the latch operating cord and passing over the pulleys on said lever, second mentioned pulley post, and distance posts, weights on the gate closing cords and means for engaging the latch in the open position of the gate.

Brantford, September 25th, 1907.

JOHN R. KERR.

Signed in the presence of—

KATHLEEN O'GRADY,

LAURA CHRYSLER.