(No Model.) 2 Sheets—Sheet 1.

S. H. D. FREED.

GATE.

No. 590,517. Patented Sept. 21, 1897.

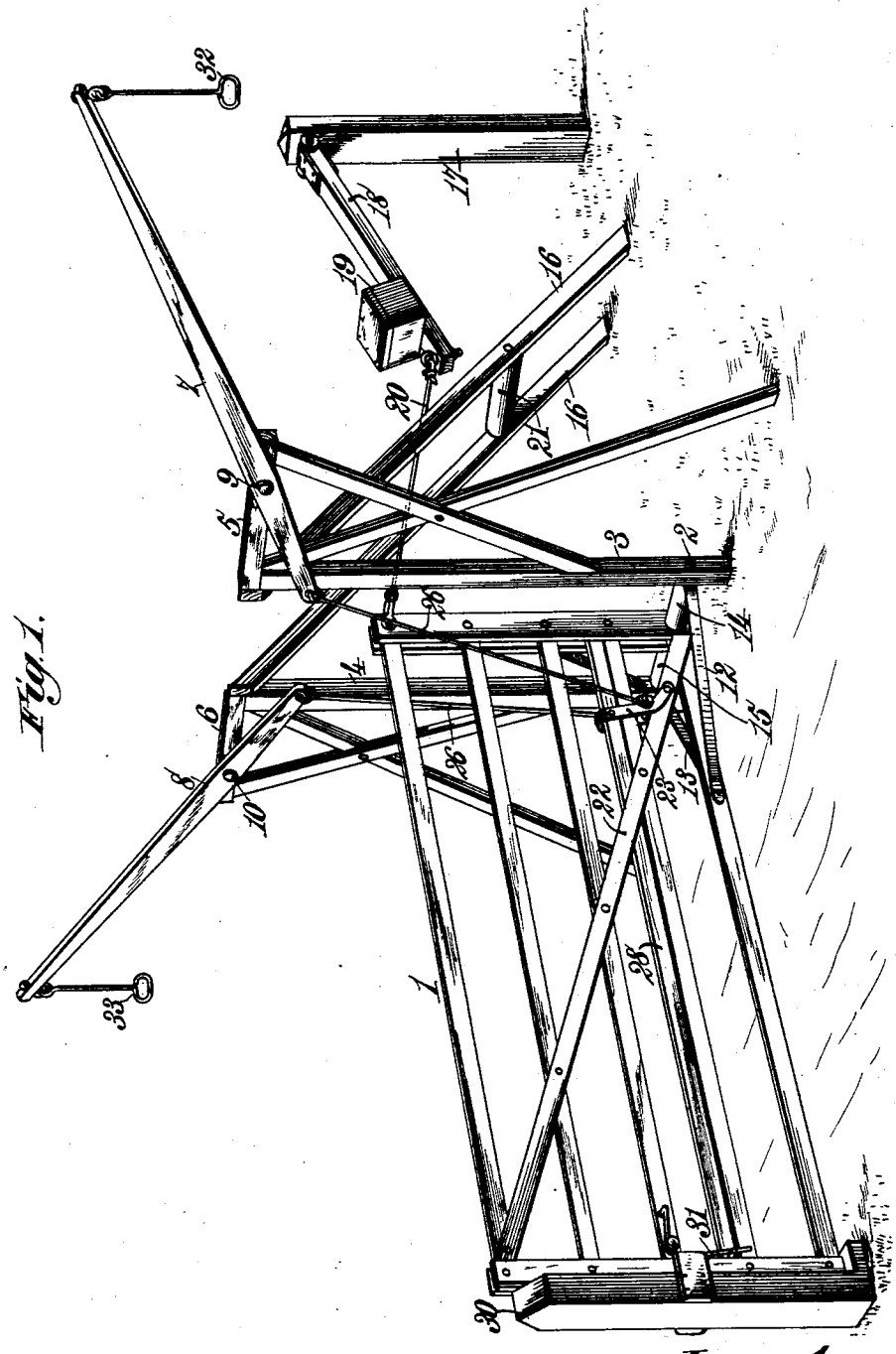

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

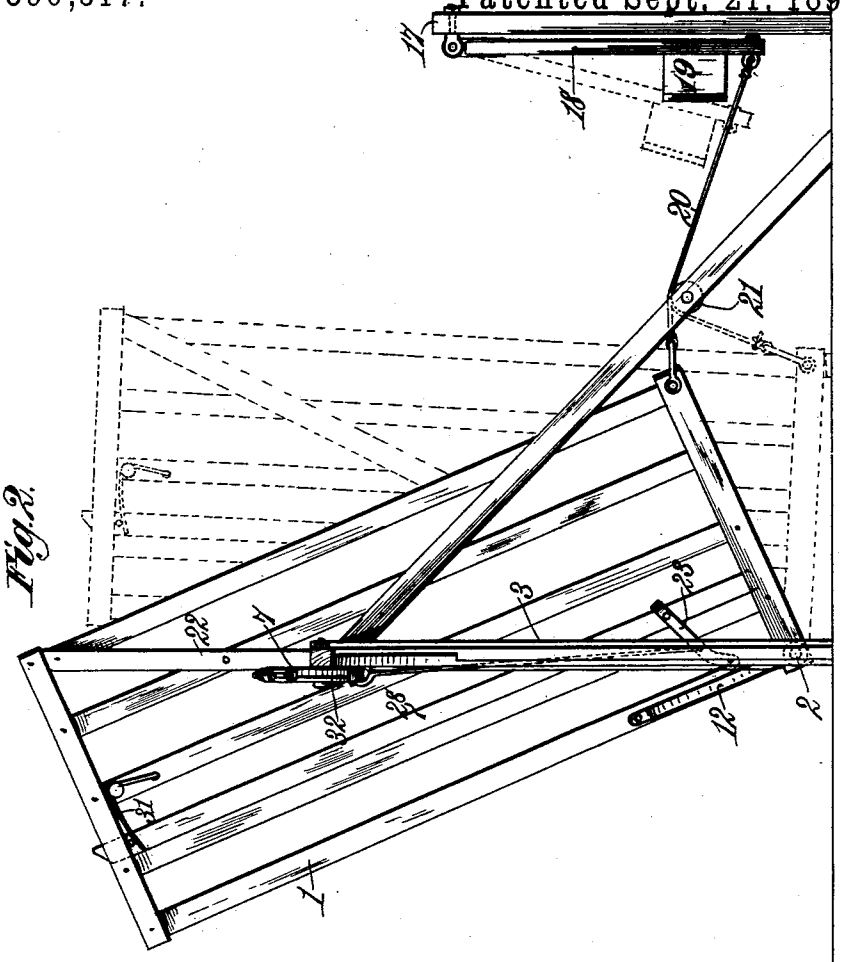
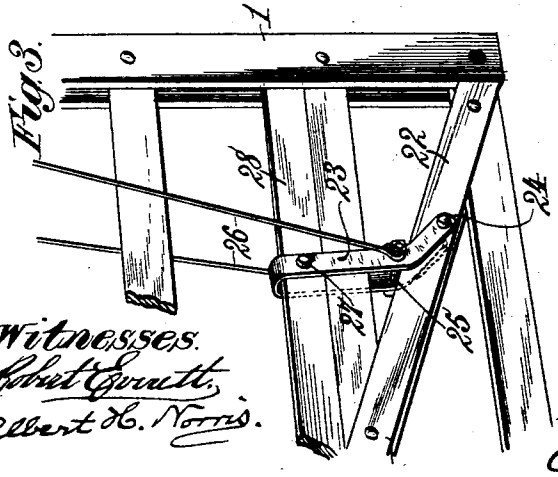


Fig. 3.





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UNITED STATES PATENT OFFICE.

STUART H. D. FREED, OF FISHERSVILLE, VIRGINIA.

GATE.

SPECIFICATION forming part of Letters Patent No. 590,517, dated September 21, 1897.

Application filed January 7, 1897. Serial No. 618,300. (No model.)

To all whom it may concern:

Be it known that I, STUART H. D. FREED, a citizen of the United States, residing at Fishersville, in the county of Augusta and State of Virginia, have invented new and useful Improvements in Gates, of which the following is a specification.

This invention relates to that class of balanced gates which are pivoted at the lower corner of one end and are suitably connected with overhead levers and weights by which the gates can be swung in a vertical plane conveniently to open and close the same.

The chief object of my present invention is to provide novel weight mechanism for equilibrating the motions of the gate, relieving it from shock incident to striking the ground when swung to a perpendicular position, and avoiding concussion or shock when the gate is closed.

The invention also has for its object to provide a novel balance-weight mechanism which enables the weight to be placed comparatively low down and renders the action of the weight such that its descending motion, which aids in opening the gate, is changed to an ascending motion to resist the gate as the latter reaches a nearly perpendicular position for the purpose of avoiding the shock which would otherwise occur by violent striking of one end of the gate against the ground or against a base-frame if the gate is erected on a base-frame.

To accomplish these objects, my invention involves the features of construction, the combination or arrangement of parts, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view of a gate and gate-operating mechanism embodying my invention. Fig. 2 is a side elevation showing by full lines the gate nearly open and the weight in its lowest position and indicating by dotted lines the gate fully open and the manner in which the descending motion of the weight has been changed to an ascending motion to avoid concussion or shock when the pivoted end of the gate strikes the ground or base-frame, and Fig. 3 is a detail perspective view on a scale larger than the other figures for the purpose of clearly illustrating the rocking yoke by which the latch-bar of the gate is operated when it is desired to open the gate.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein the numeral 1 indicates a gate, which is mounted at the lower corner of one end upon a horizontal shaft 2, supported at its ends in suitable bearings at the lower ends of two opposite gate-posts 3 and 4, which are suitably braced through the medium of struts or braces in any suitable manner. The upper ends of the gate-posts are provided with horizontal members 5 and 6, to which levers 7 and 8 are pivoted between their extremities, as at 9 and 10, in such manner that the levers comprise long and short arms. The gate-posts are of such height that they rise considerably above the gate when the latter is closed, so that the levers become overhead levers and are susceptible of being operated, as will hereinafter appear, by persons riding in vehicles or on horses.

The end portions of the shaft 2 are connected by brace-rods 12 and 13 with the bottom rail or lower edge portion of the gate, and between the ends of the braces, which are mounted on the shaft, and the pivoted end of the gate are arranged suitable sleeves 14 and 15 for the purpose of securing a strong and substantial pivotal mounting of the gate, which will effectually prevent it from lateral displacement and preserve it in such position that it is susceptible of always swinging in a vertical plane.

The upper ends of the gate-posts 3 and 4 are braced through the medium of inclined brace-rods 16, which extend into the ground or to a base-frame on which the gate is erected if it be found desirable to place the gate upon a base-frame buried in or resting upon the ground.

At a short distance from the pivoted end of the gate and in a plane coincident with the same is arranged a post 17, to the upper end of which is pivoted one extremity of an arm 18, having at or near its other extremity a suitable weight 19, which is preferably constructed in the form of a box adapted to con-

tain removable and replaceable weights, so that more or less weight can be added to suit the conditions required for the purpose of equilibrating the motions of the gate and to assist largely in opening and closing the same, as will hereinafter appear.

The end of the arm 18 which carries the weight 19 is connected by a cable 20 with the upper extremity of the pivoted end of the gate, and upon the inclined brace-rods 16, at a greater or less height from the ground, is arranged a cable-arresting device composed, preferably, of a cylinder or roller 21, the purpose of which is to arrest and support the cable 20, so that the descending motion of the weight 19 can be changed to an ascending motion, as will be hereinafter fully explained.

At a point in proximity to the shaft 2, on which the gate is mounted, the brace 22 of the gate is provided with a rocking yoke-shaped frame 23, composed, preferably, of a piece of metal bent or fashioned into U-shaped form to provide two members which embrace the brace 22 and are pivoted thereto through the medium of a transverse bolt 24. The yoke or frame 23 is also provided with a transverse bolt 25, to the ends of which are secured cables, links, or rods 26, which extend to and are connected with the short arms of the levers 7 and 8. The yoke or frame is also provided above the bolt 25 with a transverse bolt 27, which serves for the attachment of the rear end portion of a latch-bar 28, extending along and preferably resting upon the upper edge of one of the gate-rails. The front end of the latch-bar is constructed to engage a suitable catch 29, provided on a latch-post 30, in such manner that when the latch-bar is moved longitudinally in one direction the front end thereof will be disengaged from the catch 29, so that the gate can be opened. The latch-bar 28 is acted upon by a suitable spring 31, preferably arranged at the front end of the gate, for the purpose of moving the latch-bar longitudinally in the direction necessary to engage it automatically with the catch 29 when the gate is closed. The latch-bar is moved rearward, or in the direction necessary to unlatch the gate, by the rocking motion of the yoke or frame 23 when the long arms of the levers 7 and 8 are drawn downward for the purpose of opening the gate, as will more fully hereinafter appear.

The long arms of the levers 7 and 8 are provided with suspended handles 32 and 33, the lower ends of which are within convenient reach of pedestrians or of persons riding in vehicles or on horses.

When the gate is to be opened, it is only necessary to pull downward upon one of the suspended handles 32 or 33 with power sufficient to rock the yoke or frame 23, release the latch and start the gate to its open position, whereupon the gravitating weight 19 contributes its power and the gate is conveniently and easily thrown to its open position. When either of the levers 7 and 8 are operated to open the gate, the connection of the lever with the yoke or frame 23 causes the latter to swing rearward or toward the pivoted end of the gate, thereby withdrawing the latch-bar 28 from engagement with the catch 29.

When the gate reaches nearly a perpendicular position and the weight 19 is descending, the cable connection 20 between the gate and the weight is arrested by the cylinder or roller 21, and the momentum which has been imparted to the gate causes it to swing completely open to a perpendicular position, so that the end of the cable attached to the gate is then drawn downward and the descending motion of the weight is changed into an ascending motion, which effectually prevents concussion or shock, which would otherwise occur by violent striking of the end of the gate against the ground or against a base-frame if the gate is erected on a base-frame.

After the gate reaches a perpendicular position the weight 19 is held suspended, and when one of the levers is operated to close the gate the cylinder or roller 21 supports the cable 20 in such manner that the weight will descend and aid in the starting motion of the gate until the cable lies in a right line between the gate and the weight, when the weight of the gate elevates the weight and the latter balances the closing motion of the gate, so that undue concussion or shock is avoided when the latter reaches the limit of its down motion. As the gate reaches its closed position the latch-post 30 acts to press the latch-bar 28 rearward until the front end of the latch-bar registers with the catch 29, whereupon the spring 31 will automatically throw the latch-bar forward and cause it to engage the catch.

Instead of connecting the cables, links, or rods 26 with the rocking yoke or frame 23 through the medium of a transverse bolt 25 other means of connection may be employed between these parts, but the bolt is simple and efficient for the purpose.

The bolt 27 serves as a pivotal connection between the yoke or frame and the latch-bar, so that the necessary motions are permitted when the gate is opened or closed.

The weight 19 and weight-carrying arm 18 approximately balance the weight of the gate, and consequently the latter can be conveniently opened and closed by comparatively little manual power applied through the pivoted overhead levers.

The cable 20 may be an ordinary textile or wire rope, or it may be a chain or flexible band of any suitable material, and the same remarks apply to the cables, links, or rods 26.

Having thus described my invention, what I claim is—

The combination with a gate pivoted at the lower corner of one end, and pivoted overhead levers connected with the gate in prox-

imity to the pivoted end thereof, of a post having an arm pivoted at one end thereto and provided at the other end portion with a balance-weight, a cable connecting the weight-carrying arm with the upper portion of the pivoted end of the gate, and a cable-support which deflects the cable when the gate is swung open and serves to change the descending motion of the weight into an ascending motion, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STUART H. D. FREED.

Witnesses:
SETH M. TIMBERLAKE,
G. A. GULLEY.