(No Model.)

2 Sheets—Sheet 1.

I. E. MARSHALL.

VAULTING GATE.

No. 598,227. Patented Feb. 1, 1898.

Fig. 2.

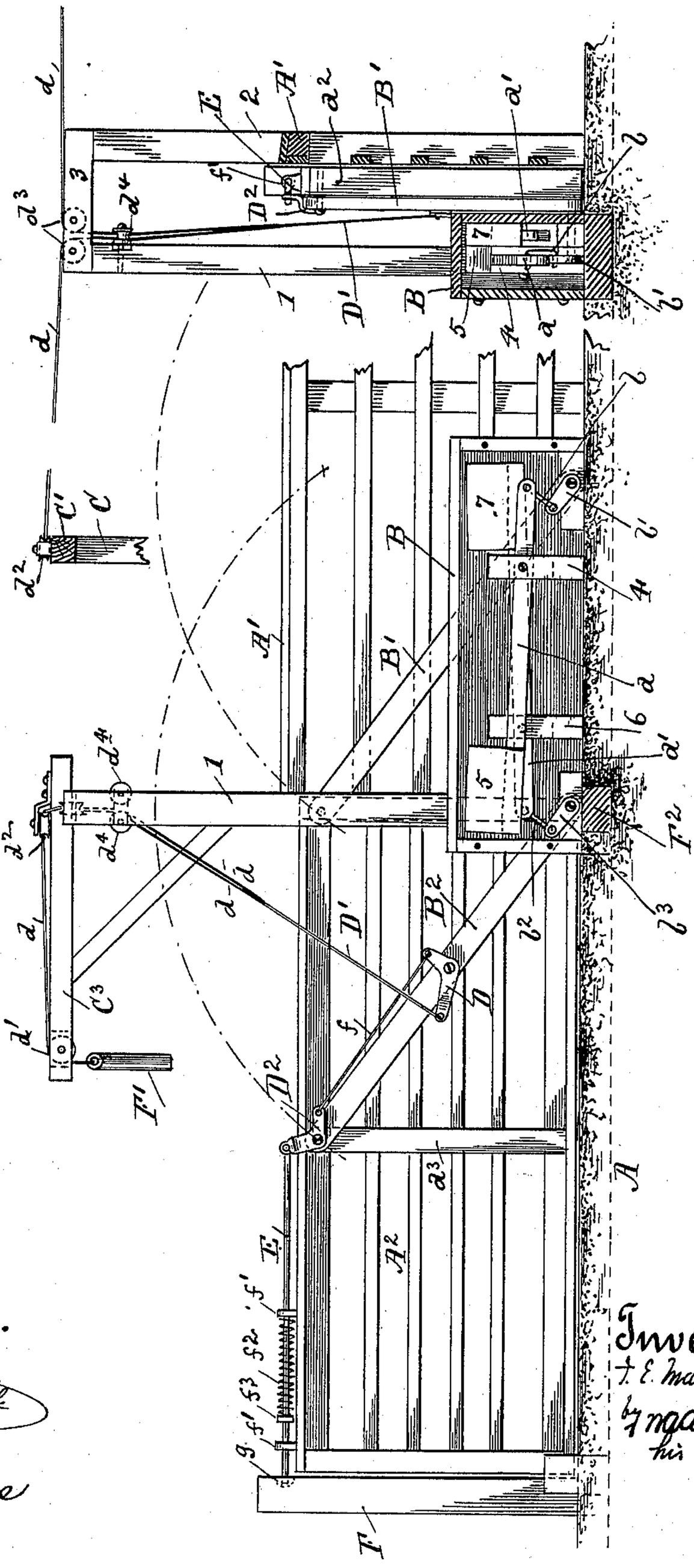

Fig. 1.

Witnesses.

F. Montevercle

Elmer Wickes

Inventor
I. E. Marshall
by Wackerhagen
his atty.

(No Model.)

2 Sheets—Sheet 2.

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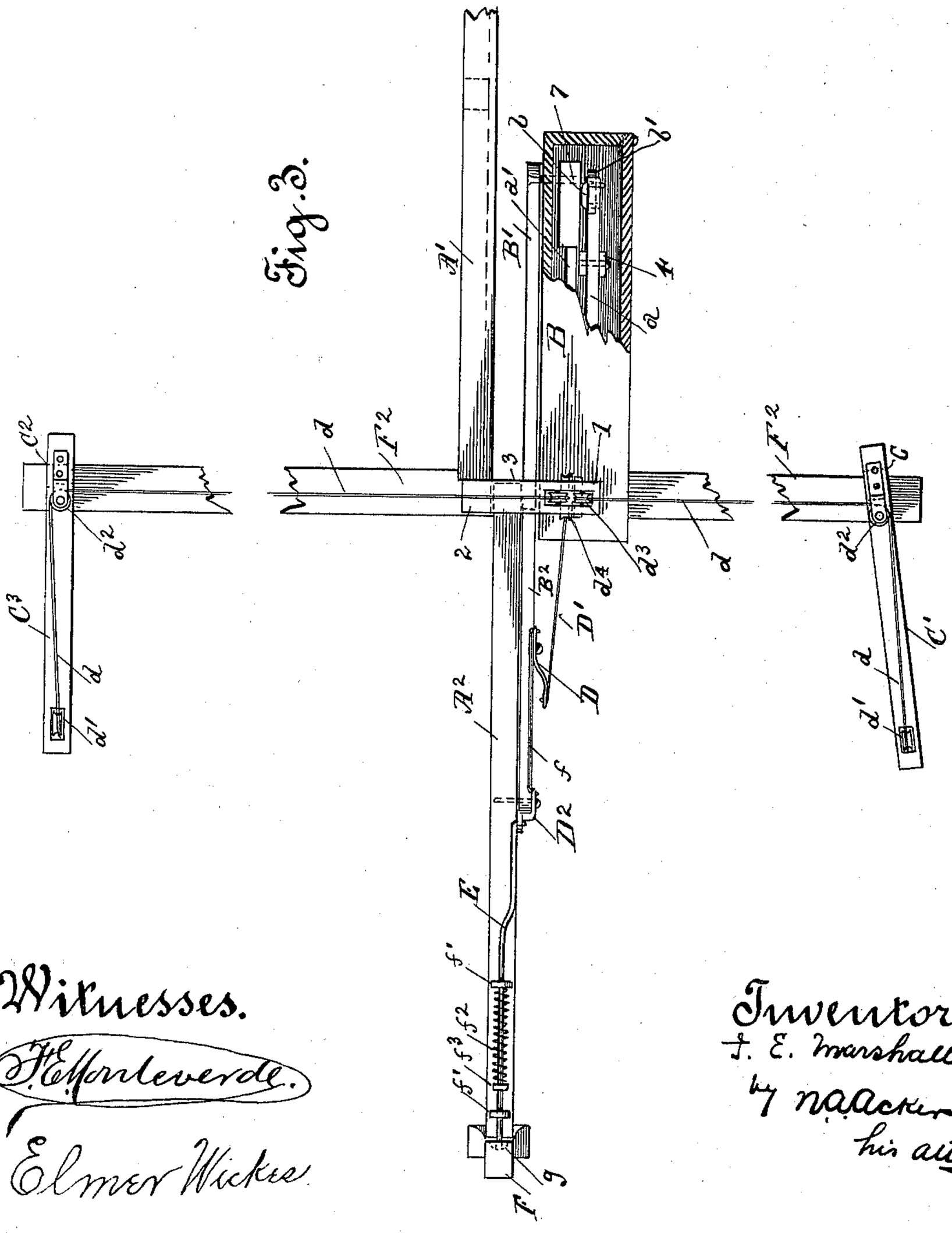
Fig. 3.



Witnesses.

F. H. Manleverde.

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Inventor.

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UNITED STATES PATENT OFFICE.

IANTHUS E. MARSHALL, OF MARTINEZ, CALIFORNIA.

VAULTING GATE.

SPECIFICATION forming part of Letters Patent No. 598,227, dated February 1, 1898.

Application filed January 2, 1897. Serial No. 617,827. (No model.)

To all whom it may concern:

Be it known that I, IANTHUS E. MARSHALL, a citizen of the United States, residing at Martinez, in the county of Contra Costa and State of California, have invented certain new and useful Improvements in Vaulting Gates; and I do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to certain new and useful improvements in road or farm gates, and more especially to that class of gates generally known as "vaulting" gates; and it consists in the arrangement of parts and details of construction as will be hereinafter fully set forth in the drawings and described and pointed out in the specification.

The object of the invention is to provide a gate simple and inexpensive and which will be so constructed that very little power shall be required to throw the gate from side to side in order to open or close the gate, the weight of the gate being approximately overcome by means of counterbalance-weights, so that the only power required to throw the gate is the difference existing between the weight of the gate and the counterbalance-weight, which difference is reduced to a minimum.

In order to fully understand the invention, reference must be had to the accompanying sheets of drawings, forming a part of this application, wherein—.

Figure 1 is a front view in elevation, showing the gate closed and showing the casing for the counterbalance-weights open. Fig. 2 is an end view in elevation, partly broken away; and Fig. 3 is a broken top plan view of the devices illustrated by Fig. 1.

In the drawings the letter A is used to indicate a roadway or opening of the fence A′, and A^2 the gate for closing said roadway or opening of the fence. To one side of the roadway or gate opening are located the vertical guides or uprights 1 2, which are united at their top or upper ends by the top or cross plate 3. Between these guides or uprights slides or works the gate A^2 as thrown inward or outward in order to open or close the roadway.

At the same side of the roadway or fence opening as the vertical guide or uprights 1 2 is located the casing or housing B, within which are secured the levers *a a′*. The lever *a* is fulcrumed near one end to the standard 4 within the casing or housing, while upon the opposite or free end of the said lever is adjustably secured the weight 5, the lever *a′* being fulcrumed near one end to the standard 6 and its free end carrying the adjustable weight 7. These counterbalance-weights are located at opposite points within the casing or housing B. To the fulcrumed end of the lever *a* is connected by link *b* the crank-arm *b′*, while the fulcrumed end of the lever *a′* is connected by link b^2 to the crank-arm b^3. These crank-arms are secured to rock-shafts extending through the housing or casing B near its bottom, and to the rock-shaft to which the crank-arm *b′* is secured is rigidly secured the lower end of the lever B′, its upper end being fulcrumed to the vertical stay a^2 of the gate, while to the rock-shaft of the crank-arm b^3 is rigidly secured the lower end of the lever B^2, its upper end being fulcrumed to the vertical stay a^3 of the gate. These levers B′ B^2 are arranged at an incline to the rails of the gate, so that as they turn on the rock-shafts as fulcrums from the oblique toward the vertical the gate will move upward in order to clear the ground.

To one side of the guide or upright *l*, at any suitable distance—as, for instance, twenty, (20,) thirty, (30,) forty, (40,) or fifty (50) feet—is placed the upright C, to the top of which is secured the arm C′, which arm projects at a right angle to the upright C. An equal distance beyond the guide or upright 2 is located the upright C^2, which upright has secured to its top the outwardly-extending arm C^3. Through the outer end portion of each arm C′ C^3 is passed the cord or chain *d*, which cord or chain is run over the pulley *d′*, secured to said arms, near the outer end thereof, through the sheaves d^2, secured to the top near the inner end of said arms, thence at right angles to the arms and downward through the cross-plate 3, over pulleys d^3, and between the sheaves d^4, secured to the inner face of the guide or upright *l*, said cords or chains being fastened either to one of the arms of the bell-crank lever D direct or to a rod D′, upwardly extending from said lever. This bell-crank lever is fulcrumed to the lever B^2 near its center, and its free arm is con-

nected to one arm of the bell-crank lever D_2 by the rod, chain, or cord *f*. This bell-crank lever is fulcrumed to the gate at any suitable point, and its free end has connected thereto the inner end of the lock-rod E, which rod passes through ears *f'*, secured to the gate. Upon this lock-rod is located the spring f^2, which spring is held between the collar f^3, secured upon the lock-rod, and the inner ear, through which the lock-rod works. The outer end of the lock-rod projects beyond the gate and engages with the catch-opening *g* in the face of the gate-post F, located at the opposite side of the road or gate opening, in order to hold the gate locked when closed.

To the free end of each chain or cord *d* is attached the handle F', which is held sufficiently high to be within convenient reach of the driver of a team.

In order to secure a solid foundation for the uprights 1, 2, C, and C', a suitable sill F^2 is placed within the ground and to this sill the said uprights are secured.

The weights adjustably located upon the fulcrumed levers within the casing or housing B are sufficient to approximately counterbalance the weight of the gate in order that very little power will be required to throw the gate. If the gate weighs one hundred (100) pounds, the weights will be such and so adjusted as to counterbalance or compensate for ninety-five (95) or more pounds thereof, if desired, thus requiring the exercise of a five (5) pound pull or less upon the handle F' in order to throw the weight.

It will thus be observed that the gate may be so nearly counterbalanced as to require only a very light pull to throw the same.

As a team approaches the gate it is only necessary that the driver thereof exert a slight downward pull upon the handle F' in order to open the gate. The downward pull upon this handle draws the cord *d* therewith and causes the fulcrumed bell-crank lever D to turn. As the arm of this lever to which the end of the cord *d* is attached is moved upward the opposite arm is thrown downward, which arm being attached to the lock mechanism of the gate through the medium of the bell-crank lever D^2 the downward movement thereof releases the lock mechanism, so as to permit the gate to move to one side. During the movement of the gate the same is gradually raised clear of the ground as the levers B' and B^2 assume a vertical position, the throw of the gate being illustrated by dotted lines in Fig. 1 of the drawings. The moment the gate has been carried past its center the weight of the gate, being slightly greater than that of the counterbalance-weights, will cause the gate to move downward by gravity. As the team passes beyond the gate it is only necessary to close the same that the driver exert a slight downward pull upon the second handle, which will cause the gate to rise and move in an opposite direction to that just described. During the movement of the gate in either direction the counterbalance-weight approximately overcoming the weight of the gate renders it only necessary that little power be expended to throw the gate.

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

1. The combination with a vaulting gate, and suitable means for operating and throwing the same, of a counterbalance for the gate comprising weighted levers arranged side by side with the weighted end of one lever next the fulcrumed end of the next lever, and connections from the levers to the gate-throwing means, substantially as described.

2. The combination with a vaulting gate, of parallel levers for throwing the gate, a suitably-mounted rock-shaft to which one of said levers is secured, a crank-arm on said rock-shaft a pivoted weighted lever, a link connecting said crank-arm and weighted lever, and operating means for the gate, substantially as described.

3. The combination with a vaulting gate, a housing, oppositely-arranged weighted levers within said housing, rock-shafts journaled in said housing, parallel levers secured one to each rock-shaft and pivoted to the gate, connections between said rock-shafts and weighted levers, and operating means for the gate, substantially as described.

4. The combination with a vaulting gate, of the guides or uprights between which the gate works, the casing or housing, the levers fulcrumed within said casing or housing, the weights, which approximately counterbalance the gate, adjustably secured upon the free ends of the fulcrumed levers, the crank-arms connected to the opposite ends of the fulcrumed levers, the gate-levers fulcrumed at one end to the gate and rigidly secured at their lower ends to the crank-arms, the chains or cords connected to the gate and running over pulleys to any suitable point, and of a handle secured to the free end of the chains or cords so as to be within convenient reach of teamsters.

In testimony whereof I affix my signature, in presence of two witnesses, this 21st day of November, 1896.

IANTHUS E. MARSHALL.

Witnesses:
WM. G. WELLS,
C. S. COUSINS.