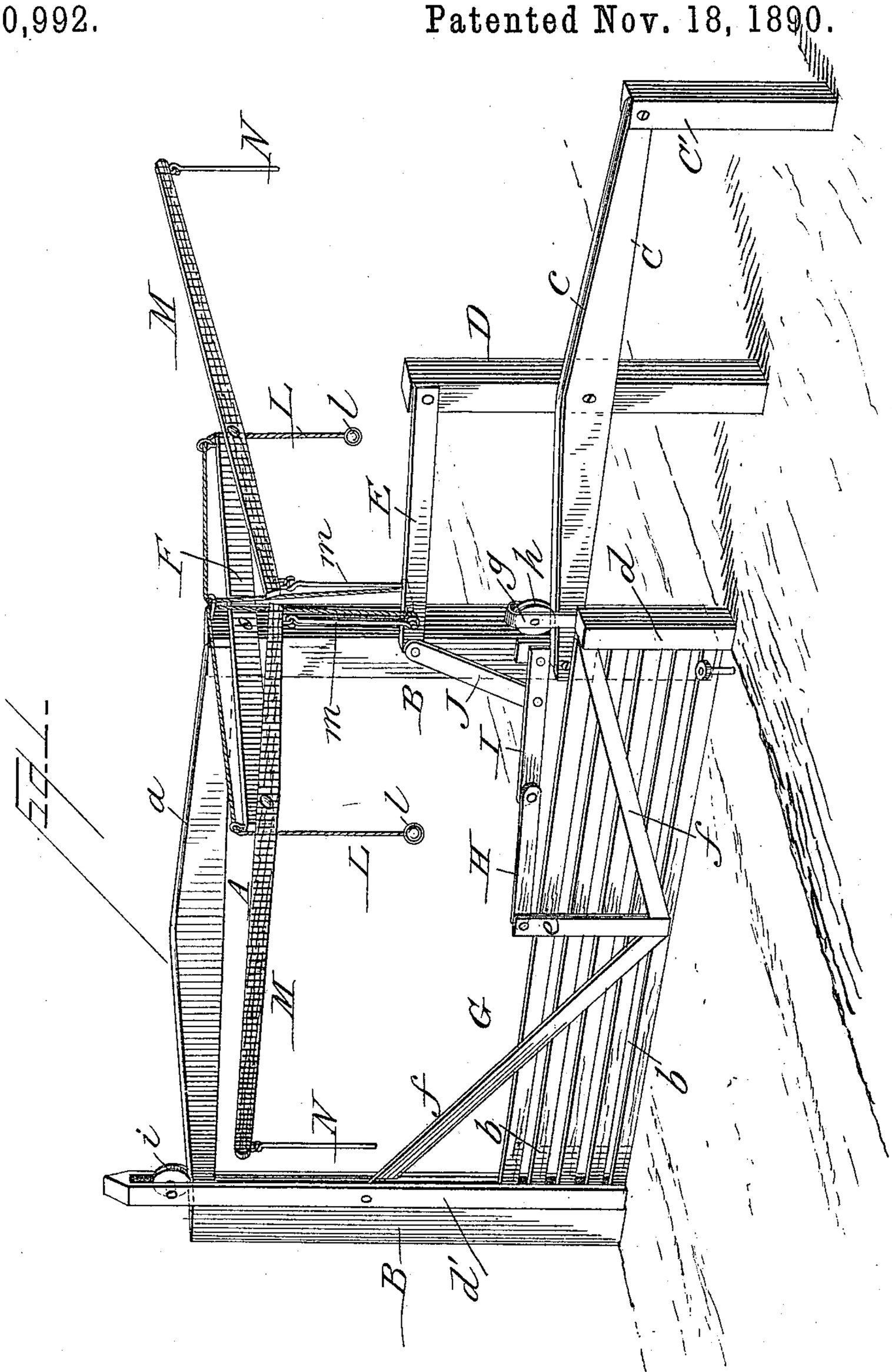
(No Model.) 2 Sheets—Sheet 1.

W. & T. E. BRITTON.

GATE.

No. 440,992. Patented Nov. 18, 1890.



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(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

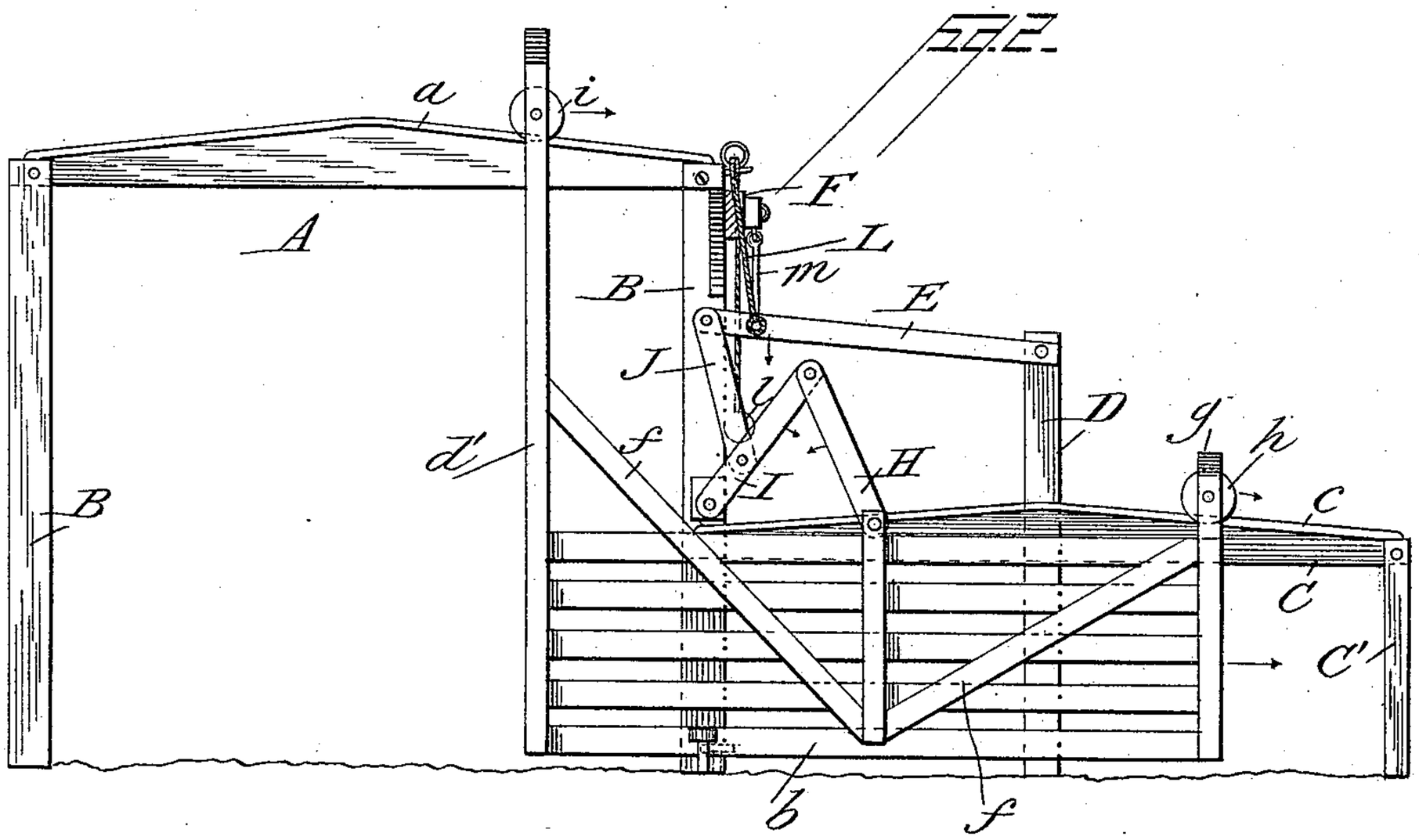
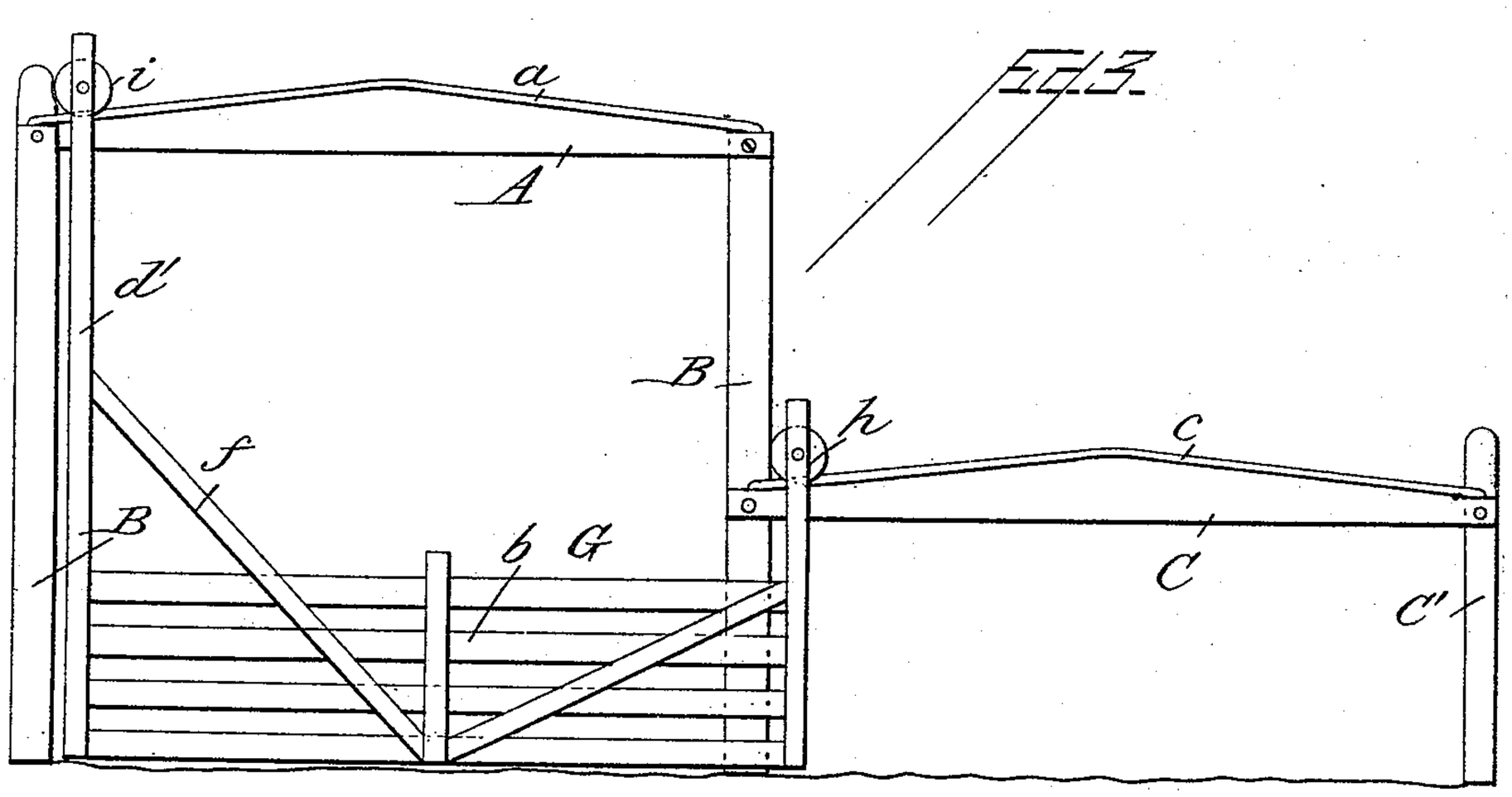


FIG. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM BRITTON AND THOMAS E. BRITTON, OF WELLMAN, IOWA.

GATE.

SPECIFICATION forming part of Letters Patent No. 440,992, dated November 18, 1890.

Application filed May 12, 1890. Serial No. 351,510. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM BRITTON and THOMAS E. BRITTON, citizens of the United States, residing at Wellman, in the county of Washington and State of Iowa, have invented certain new and useful Improvements in Gates; and we 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.

Our invention relates to an improvement in gates for farm, field, and other uses, the object of the invention being to provide a simple, cheap, durable, and easily-operating automatic gate, which will meet all the demands of a gate for constant practical use in the various localities and situations where farm-gates are required; and the invention consists in the construction, arrangement, and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating our invention, Figure 1 is a perspective view of our improved gate, it being shown as closed. Fig. 2 is a side elevation of the same, certain parts being removed and the gate shown in the position which it occupies when it is being opened. Fig. 3 is a similar side elevation showing the gate closed and all the accompanying operating mechanism removed.

Similar letters of reference designate corresponding parts throughout the different figures of the drawings.

In carrying our invention into practical effect we first rear or construct a suitable frame consisting, essentially, of a beam, bar, rod, or other support arranged over the roadway or other place where the gate is required to be, said beam being in the drawings represented by the letter A, and being supported at each end upon the standards B B, located in an upright position at either side of the road or other locality where the gate is to be placed. The transverse beam A will of course be at a suitable height from the ground to permit the passage underneath it of any kind of wagon or vehicle. Its upper edge is formed with a double incline, said edge being highest at the middle point and sloping therefrom toward each end. The upper edge of the beam is provided with a track *a*, adapted to permit a grooved roller to move thereon and be guided thereby. The double incline is an important feature, as it serves to provide sloping surfaces, on which the rolling device is free to move downward under the action of gravity, as will be hereinafter fully explained when we come to recite the construction and operation of the gate proper.

At one side of the road is another horizontal beam C, supported at one end upon a suitable post C′, while at the other end it is secured to the adjacent upright B, said beam C being at a distance above the ground about the same as the upper edge of the gate proper and at about a half or third the height, preferably, of the other cross-beam A. Said beam C has likewise the doubly-inclined upper edge, which is highest at the middle point and slopes therefrom toward each end, and which is provided with a rail *c* to serve as a track for the grooved wheel, which moves thereon and is guided thereby, said doubly-inclined beam or bar C being thus made to afford a track-surface for the wheel, which moves up and down thereon freely, the downward movement being impelled by the action of gravity.

Midway of the beam C is a vertical post D, which rises to some distance above the beam C and is set firmly and rigidly in the ground, the beam C being preferably secured to the post D, so that all the parts may be compacted securely together. To the upper end of this post D is pivoted a horizontal lever E, the purpose of which we will explain presently.

The upright B, to which the beam C is connected, is provided near its upper end with a transverse horizontal bar F, firmly secured thereto.

G denotes the gate proper, which may be of any suitable and ordinary construction. It is composed in the present example of the invention of a series of horizontal bars *b b*, of which there may be any number, which bars are connected together by the end pieces *d* and *d′*, the center bar *e*, and the diagonal braces *f f*.

Of course some other form of construction for the gate may be employed, if so desired, as we do not intend that our invention should be restricted to any precise form of gate.

The gist of the invention lies in the mode

of operating the same, and therefore various structural combinations for the gate may be devised and adopted, if preferred. I have selected the common gate composed of a series of bars, merely for illustration in this instance. The end connecting-piece *d* is provided with a vertical loop or other similar upward projection *g* of such a form and character as to permit a vertical pulley *h* to be pivoted therein, said pulley having a grooved periphery and adapted to roll upon the doubly-inclined beam C, the grooved periphery of the roller *h* being upon the track *c*. The other end connecting-piece *d'* of the gate is extended a long distance above the gate, so as to have its upper end above the doubly-inclined beam A, said upper end of the bar *d'* being suitably slotted or otherwise fashioned and arranged to permit a roller *i* to be pivoted therein, having a grooved periphery adapting it to fit upon the rail *a*, which serves as a track therefor, so that the roller can roll nicely upon the doubly-inclined beam during the reciprocatory movements of the gate.

Pivoted to the gate G at a point near the middle of its upper edge, said pivotal point in the present illustration being at the upper end of the central piece *e*, is a link H. Another link I is pivoted to the extremity of the aforesaid link H, and also to the upright B. When the gate is in the closed position shown in Fig. 1, these two links H and I lie in a horizontal plane, being in line with each other. They therefore serve as a locking-brace, so that the gate cannot open unless the horizontality of these two links is disturbed.

Pivoted to the free end of the horizontal lever E, to which we have above referred, and also to the link I, at a suitable distance from that end thereof which is pivoted to the upright B, is an inclined link J.

We will now proceed to describe the devices for opening and closing the gate.

M M designate two horizontal levers pivoted one at each end of the horizontal bar F. The inner ends of these levers are connected by pivot-links *m m* to the lever E. The outer ends of the levers M M are provided with pivoted hand-bars N N, which depend in such position that they may be readily grasped by persons who desire to open the gate. It will now be obvious that if a person desires to pass through the gate he may, by pulling upon one of the depending hand-bars on one side of the gate, cause the lever E to be lifted, which will actuate the link J, which will in turn act on the links H and I, disturbing their horizontality and thus unlocking the gate and causing it to reciprocate endwise, its rollers *h* and *i* moving in consequence up the inclines of the beams A and C. The passer-by will pull upon the handle until the gate-rollers reach the apex of the doubly-inclined beams, when he will let go of the handles and the descent of the rollers along the inclines of the beam under the action of gravity will serve to complete the opening of the gate and cause it to stand wide open. The movement of the rollers down the incline is shown in Fig. 2, and the consequent position of the several actuating links and levers is also depicted in said figure as they move during the opening of the gate. When the person has passed the gate through the opening thus afforded, he will pull upon the other depending hand-bar until the gate is half closed and the rollers have reached the apex of the double inclines, when he will let go and the gate will automatically complete its closure in the same way that it automatically completed its opening. This leverage system for opening and closing the gate is especially valuable if there should be upon the tracks of the double inclines any obstruction—such as snow or sleet, or any other incumbrance which might clog or impede the free working of the rollers and prevent the proper action of gravity—for the opening of the gate can still be satisfactorily accomplished by pushing upward on the said levers M M, and thus assisting gravity in driving the gate open to the desired extent.

Other means for opening the gate consist of two cords, ropes, chains, or similar devices L L, which are preferably provided at the ends with balls *l l*, which serve as handles. These ropes depend at the ends of the horizontal bar F in such a manner that the balls *l l* may be easily grasped by hand, and said ropes pass through staples or other guides near the ends of the bar F, and also through a common staple or guide at the upper extremity of the upright B, just over the bar F, as shown in Fig. 1, thence downward, the other ends of the rope being connected to lever E, near that end thereof nearest the upright B. The cords L L will be operated in the same manner as the levers M M, and will be productive in their operation of the same result. Both the hand-pieces N N and the cords L L will be especially useful for persons approaching the gate on vehicles or on horseback, since said ropes or levers are in such position that they can be readily grasped by such persons without the trouble of dismounting.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the horizontal beam A, supported on the uprights B B, and having the doubly-inclined upper edge provided with track *a*, the horizontal beam C, supported at one end upon the upright C', and having likewise a doubly-inclined upper edge provided with the track *c*, the gate G, having the end pieces *d* and *d'*, said end piece *d* carrying the pivoted pulley *h*, having a grooved periphery and adapted to roll upon the track *c*, and said piece *d'* being provided with the pivoted roller *i*, arranged to roll upon the track *a*, the transverse horizontal bar F, connected to one of the uprights B, the vertical post D, secured to the beam C about midway thereof, the hori-

zontal lever E, pivoted to the upper end of post D, the interpivoted links H and I, said link H being pivoted to the gate and said link I being pivoted to the main frame, and the link J, pivoted to the lever E and to the link I, substantially as described.

2. The combination of the beam A, supported on the uprights B B, and having the doubly-inclined upper edge provided with the track *a*, the beam C, connected to one of the uprights B, and supported at its other end by the upright C′, and having the doubly-inclined upper edge provided with the track *c*, the gate G, having the end pieces *d* and *d′*, said end piece *d* carrying the pulley *h*, which rolls upon the track *c*, and said end piece *d′* carrying the pulley *i′*, which rolls upon the track *a*, the transverse horizontal bar F, connected to the same upright B to which the beam C is secured, the vertical post D, connected to beam C at about midway thereof, the interpivoted links H and I, said link H being pivoted to the gate and said link I being pivoted to the main frame, the link J, pivoted to lever E and to the link I, and the pivoted lever-bars M M, having hand-levers N N, the inner ends of said lever-bars being connected by the pivotal rods *m m* to the lever E, all substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM BRITTON.
THOMAS E. BRITTON.

Witnesses:
A. S. FOLGER,
C. C. PATTERSON.