J. W. CLARK.

Gate.

No. 197,828. Patented Dec. 4, 1877.

Fig. 1.

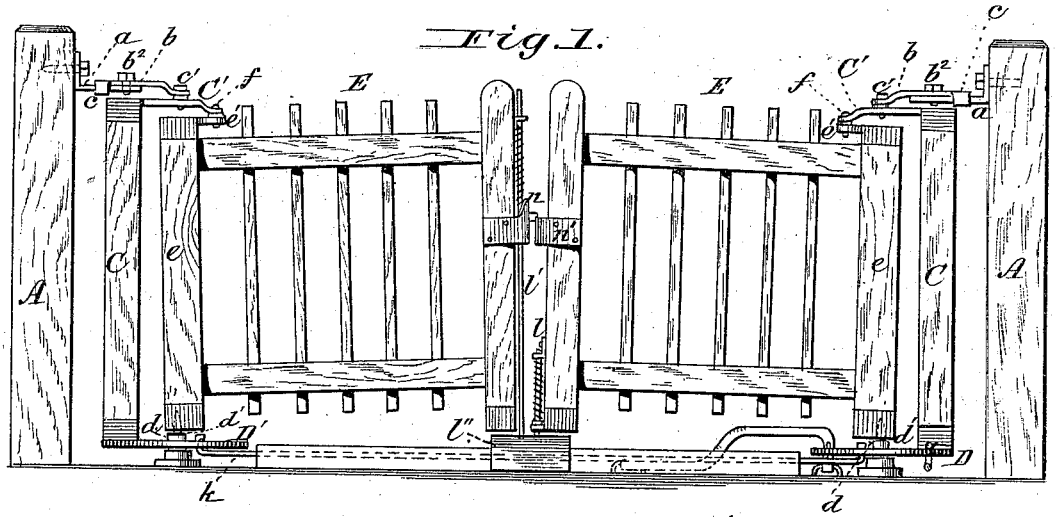


Fig. 4.

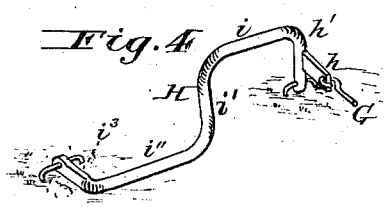
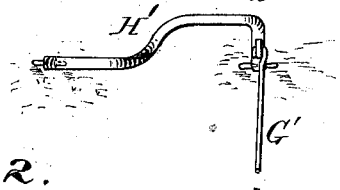
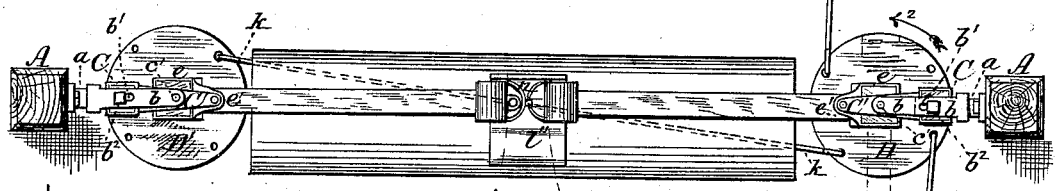


Fig. 2.





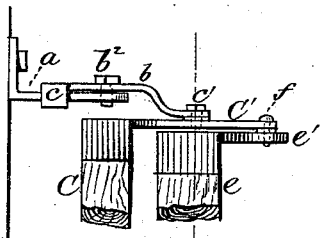
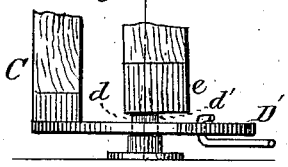


Fig. 3.



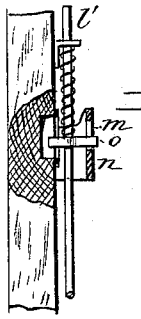
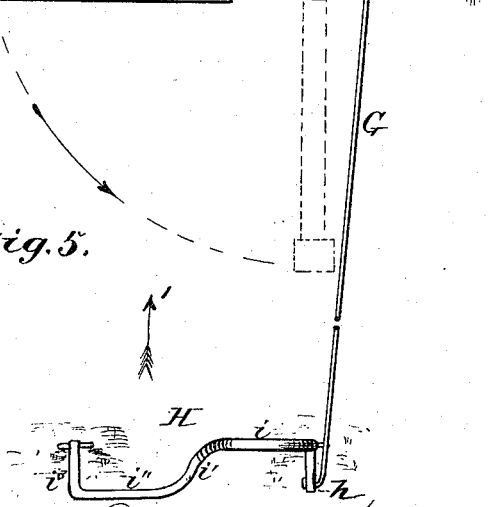


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES W. CLARK, OF ETNA, OHIO.

IMPROVEMENT IN GATES.

Specification forming part of Letters Patent No. **197,828**, dated December 4, 1877; application filed October 6, 1877.

To all whom it may concern:

Be it known that I, JAMES W. CLARK, of Etna, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Automatic Gates; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of gates which are automatically opened and closed by a vehicle in approaching and passing through them; and it consists in a novel construction of the hinges or pivots upon which the gate swings, and upon the construction of the device upon which the wheels of a vehicle operate to open and close the gate, and also in the latch.

In the drawings, Figure 1 is a front elevation of a double gate constructed according to my invention, closed. Fig. 2 is a plan view of the same, the open position being shown in dotted lines. Fig. 3 is an enlarged detail view of the top and bottom hinges of the gate. Fig. 4 is a detail perspective view of the double-bent operating-lever, and Fig. 5 a sectional detail of the gate-latch.

In the description one only of the swinging sections of a double gate will be generally referred to, the other section being similarly constructed and arranged, as stated hereinafter.

The letter A designates a stationary gate-post, and from a point near the top of this post projects a flat stationary arm, *a*, in line with the direction of the closed gate, and upon the top of this arm lies a longitudinally-adjustable bar, *b*, in which is cut a slot, b^1, through which projects a square-headed clamp-screw, b^2, which fits into a screw-threaded hole in the end of the first-mentioned or stationary arm *a*. From the inner end of the adjustable bar *b* lugs or ears *c* project downward on each side of the stationary arm *a*, and serve as guides in the adjustment of the bar *b*, the outer end of which extends beyond the end of said stationary arm, and through said end is cut a round hole. C is a revolving post, from the top of which projects an arm, C′, from the center of the top of which a pin, *c*′, projects through the round hole in the adjustable bar *b*, just referred to, and the foot of this revolving post rests upon and is fixed to the face of a horizontally-arranged disk, D, near its circumference. Upward through an opening in the center of this disk projects a pivot, *d*, which is fixed in a permanent foundation in the ground. The part of the pivot which projects above the disk is of less diameter than the lower part, so that immediately above the disk a shoulder, *d*′, is formed around the said pivot, and upon the diminished upper part of this pivot fits a socket in the bottom of the rear vertical bar *e* of the swinging gate E, the weight of said bar resting upon the shoulder *d*′. From the top of this rear vertical bar *e* projects a lug or ear, *e*′, toward the opposite vertical bar, and in this lug or ear is a hole, into which fits a pin, *f*, projecting downward from the end of the arm C′, before referred to as extending from the top of the revolving post C.

It will thus be seen that while the rear vertical bar *e* of the gate is pivoted centrally and upon a stationary pivot, the top of said bar is pivoted eccentrically and to a revolving pivot.

As the arm C′, which projects from the top of revolving post C, is rigid and rests upon the lug or ear *e*′, it maintains said revolving post and disk D at a fixed distance from the ground without the necessity for a bearing for said disk to rest vertically upon, and thus is prevented any interference with the action of the disk by a bearing clogged with snow, ice, or mud.

Near the circumference of the disk D, at a point close to the foot of the revolving post, is pivoted a rod, G, which extends at a right angle to the gate, and just above the ground for any desired distance, but which must not be less than about twice the length of an ordinary horse and wagon, the necessity for which minimum length will be seen hereinafter.

The outer end of this rod is jointed to the end of a horizontal arm, *h*, of a bent lever, H, pivoted at its elbow to a foundation fixed in the ground. The other arm, *h*′, of this

bent lever extends vertically a short distance, and is then bent in a horizontal direction parallel with the gate, for, say, about two feet, as shown at *i*, and is then inclined downward and outward from the gate until it reaches the ground, as at *i'*, along which it extends, say, two feet farther, as at *i''*, and then is bent at a right angle toward the gate, as at i^3, and is pivoted to a foundation similar to that to which the elbow is pivoted, and on a line therewith, which is parallel to the gate.

The disks D and D' of the opposite halves of the double gate are connected by a rod, *k*, pivoted to each, so that the turning of one disk turns the other in an opposite direction by means of this rod. When the gates are closed spring-latches *l l'* take into a suitable catch, *l''*, arranged upon the ground at the middle of the gateway. These latches *l l'* are rods, suitably arranged in guides, and forced longitudinally downward by helical springs. One of these latch-rods, *l'*, extends upward to the top of the gate, so as to be easily reached by a person on horseback; and around in front of this rod, and near the top of the gate, is bent a semicircular band, *n*, through a closed vertical slot, *m*, in the front of which projects a pin, *o*.

To the front edge of the opposite gate E is attached a similar band, *n'*, having a vertical slot opening upward, and when the gates are closed the pin *o* extends into this slot, and thus is formed a top latch for the gates. When they are closed automatically the curved face of the opposite band will strike the pin *o*, and force it inward until the open slot coincides therewith, when the elasticity of the rod *l'* forces it outward and into said open slot.

In opening the gate by hand, the raising of the rod to disengage it from the bottom catch also lifts the pin *o* out of the open slot. Now, when a vehicle is approaching the gate in the direction of the arrow 1, Fig. 2, it should be so guided that its off fore wheel will strike the elevated horizontal portion of the lever H, and force it down upon the ground, thus throwing upward its short arm *h*, and turning, by means of rod G, the disk D in the direction of the curved arrow 2. This turning of the disk D revolves the post C, and causes the front end of top arm C' to swing rearward, drawing with it the top of gate E, as shown in dotted lines, Fig. 2, thus lifting the latches on the front edge of the gate from their engaging catches, and the gate by gravity falls open. By means of the rod *k*, connecting the two disks, the opposite gate is similarly operated. After the vehicle has passed through the gate its wheel strikes the elevated part of another bent lever, H', by means of which and an operating-rod, G', the gate is closed, as will be readily understood without further explanation.

I am aware that a bent lever, somewhat similar and for the same purpose as my bent lever H, has been heretofore used, and is shown but not claimed in my patent of June 9, 1874, No. 151,756; but between this old form of lever and that here shown there is this important difference, viz: the old lever is in the shape of two clearly-defined loops, standing at right angles to each other, so that at the middle of said lever there are three elbows, and two sides of the elevated loops stand vertically, so that when the fore wheel of a vehicle strikes and depresses said loop, the hind wheel is apt to strike and be stopped by the then raised loop, and especially is this so if the vehicle is on a turn and the wheels not tracking, as is most always the case in approaching the gate, as the driver will turn his team toward the middle of the gate after driving over the lever to open said gate.

Now, this stoppage by the hind wheel striking an elevated loop will not occur in driving over my present lever, because the inclined middle part thereof will be struck by the hind wheel in turning, or when the fore wheel passes over the inner end of the raised loop, and the wheel will slide off said inclined part.

I claim—

1. The top hinge composed of arm *a*, adjustable bar *b*, lugs *c*, and arm C', substantially as described.

2. The bottom hinge composed of stationary pivot, entering the bottom of vertical gate-bar *e*, and revolving disk, supported by the pivot *d*.

3. The double-bent operating-lever H, having the inclined middle portion *i'*, substantially as set forth.

4. The combination of the spring-rod *l'*, having a vertically-guided projecting pin, *o*, the open-slotted semicircular band attached to the front edge of opposite swinging gate, and the bottom catch arranged in the middle of the road, substantially as set forth.

In testimony that I claim the foregoing I have affixed my signature in the presence of two witnesses.

JAMES W. CLARK.

Witnesses:
JOHN T. MOWREY,
J. M. CALVERT.