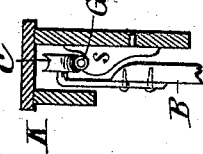
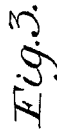
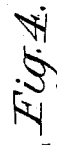
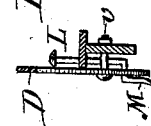
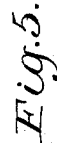
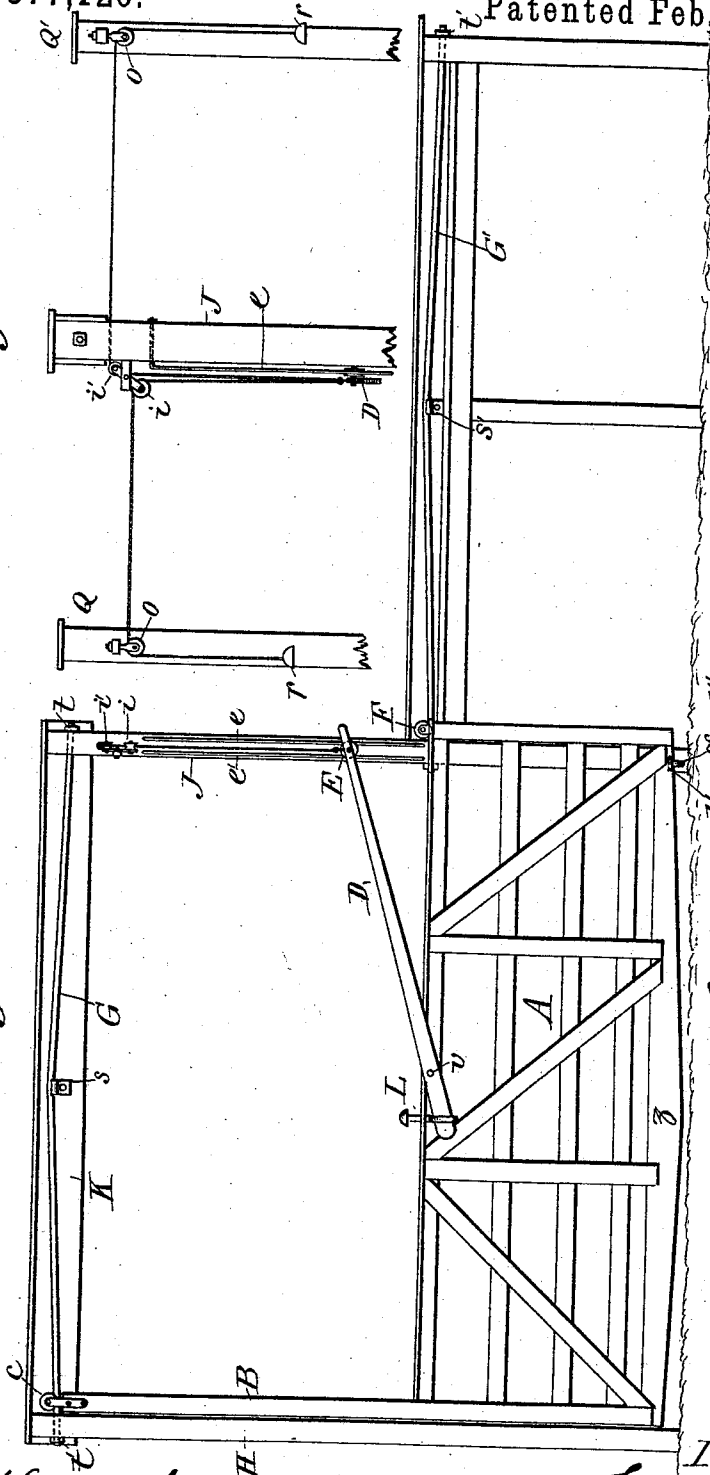
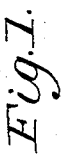
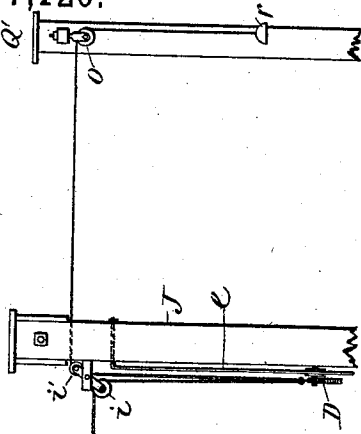
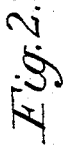


(No Model.)

E. R. CHASE.
GATE OR DOOR.

No. 577,126.

Patented Feb. 16, 1897.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD R. CHASE, OF FINDLAY, OHIO.

GATE OR DOOR.

SPECIFICATION forming part of Letters Patent No. 577,126, dated February 16, 1897.

Application filed April 6, 1896. Serial No. 586,466. (No model.)

To all whom it may concern:

Be it known that I, EDWARD R. CHASE, a citizen of the United States, residing at Findlay, Hancock county, Ohio, have invented new and useful Improvements in Sliding or Rolling Gates or Doors, of which the following is a specification.

My invention relates to field and driving gates or doors which, instead of swinging on hinges, are opened and shut by sliding or rolling upon a track, and particularly to devices and mechanism by which a person may sit in a vehicle or upon a horse and by operating a lever or other suitable connecting device may open and close the gate or door without alighting from either side and may upon such closing securely lock the same. I accomplish these objects by means of the mechanism illustrated in the accompanying drawings, which are hereby referred to and made a part hereof, which represent my invention as applied to a gate, but which, it will be at once seen, can be as easily applied to a barn or other door, if desired.

In the drawings, Figure 1 is a view in elevation of the device with all its parts, so far as essential mechanism is concerned, ready for operation, but not showing the front frieze of the protective cover over the track. Fig. 2 is a view of the upper portion of the rear post of the gate and post on either side thereof with attachments thereon to support a line used in operating the gate. Fig. 3 is a view on a transverse cutting, showing the relation of the track, its supports, and the pulleys or rollers supporting the gate or door. Fig. 4 shows a double guide-pulley used to control the bottom of the gate in motion; and Fig. 5 is a transverse cutting of the top boards of the gate, showing a device for unlocking the gate when the same is to be opened from the ground without use of the operating lines or levers specially adapted to be used from a vehicle or horse.

Similar letters refer to similar parts throughout the several views, in which—

A is an ordinary team-gate having an extended end stile B, bearing a pulley or roller C at its upper end. A has also at or near its center lengthwise a lever or rod D, so joined to it as to be capable of a half-revolution and bearing at its free end a pulley or roller E.

The end of the rod D attached to the gate is, for reasons hereinafter mentioned, extended beyond its bearing *v* some little distance, so that it comes in contact with the vertical rod L. Gate A has also at its rear upper corner the pulley or roller F and has its bottom board Z convexly shaped on its lower side and lengthwise.

H, J, and K form a frame surrounding gate A, K supporting a track G, properly held in place by its ends being fast in J and H at *t* and *t'*, and having intermediate supports of castings *s s*. K, with its track, &c., may be suitably covered by a box or cornice, as shown in Fig. 3, which is not, however, a material part of the device. Track G is mechanically composed of two inclined planes descending to front and rear from its center. Post J has upon it, above the gate, two guides *e* and *e'*, adapted to receive the grooved pulley E on lever D, and of length at least equal to the distance from pulley E to bearing *v* on D.

Above the guides *e e'* are two pulleys *i* and *i'*, attached in any suitable manner to post J. In line with J and at right angles to the gate are two posts Q and Q', bearing pulleys *o o'*, attached to the end of D, bearing E in any convenient manner, and passing over *i* and *i'* and *o o'* are lines *m* and *m'*, respectively, provided with handles. At the lower part of post J is a guide X, bearing pulleys or rollers *y y'*, adapted to receive between them Z of the gate. Running rearward from J, having one end therein, is a track G' at the same height as pulley F. G' is in all its parts identical in construction with G and has its parts respectively parallel thereto and in the same vertical plane. G' may be conveniently supported on the posts of the fence or otherwise.

L is a rod passing down through the cap-board or on the side of the gate, having an offset M at its lower end adapted to engage the extended end of lever D when the gate is shut, but not interfering with its semirevolution on its bearing *v* as it is opened or shut. It is provided with any suitable cap or head to prevent it from falling out when not supported by D.

To more particularly describe the parts above mentioned and to show the relations of the same with their several uses, the gate A is suspended on the tracks G and G' by the

pulleys C and F, the lower board z being between the guide-rollers $y y'$. The gate being thus hung, the lever D is joined to A preferably at the top rail or board of the gate by pivot v at a point a few inches in front of the apex or center of the track G. The other end by the traveling pulley or roller E is engaged by the guides $e e'$, so as to allow it free motion vertically. This pulley E is preferably grooved with a V-shaped groove and the guides $e e'$ beveled to fit such groove for the purpose of holding them securely together without the necessity of the joint between them being close enough to bind, though any other convenient form will do. The guides should come down upon the post J, so that the rod D will, when the gate is shut, be practically level. In that position the gate will be, by the rod D, locked shut. In this position L will rest upon the upper side of D by its offset M and the lock can be released by pressing down upon L, which will depress the end of D to such a degree that the angle between D and the gate will increase until the gate can be pushed back, and the rod D will, by its traveler E, controlled by the guides $e e'$, assume first a vertical position and then as the gate passes the center again fall toward the lower end of the guides. The tracks G and G' may be of any convenient shape, but it will be possibly found to be more economical to make them of pipe and to have the pulleys C and F grooved to correspond to the size used, though a V-grooved pulley upon a track with an edge beveled to a slightly more acute angle will be found a very convenient and secure form. Besides the end supports in the posts of the frame, G and G' may be supported at as many points as desired by castings or braces, of which I show a suitable form in Fig. 3.

In operating the gate from a vehicle or horse, for which the device is especially intended, use is made of the lines m or m' , according to the side of the gate approached. Making use of the handle r , a strong steady pull is given, which, by means of the rod D, is communicated to the gate. This is continued until the gate has acquired momentum enough to roll up the tracks G and G' to the apex, when the rod D will of course be vertical, except, as before mentioned, the few inches of difference from center in attaching D to the gate. When the gate passes the center of the tracks, it completes its opening by gravity carrying it down the reverse part or end of the track. When completely opened and the lever D has again fallen to its lowest point in that position, the gate will not be locked open, as it was shut, because the difference from the center of the attachment of D, being by virtue of its reverse position doubled with reference to the portion of the gate between the point v and the pulley E E, will

not fall sufficiently low to form a lock. There is this further advantage in putting v in the position mentioned as to the center, viz: Any track with two inclines so slight as are necessary for the successful operation of the device described is apt in practical construction to have flat place at the apex large enough to cause a gate to stop on a dead-center in opening or shutting if the pull given was not sufficiently strong. If D was hinged to A exactly in the vertical center of the track, in case of such a stop it would be exactly vertical, and it would be impossible without dismounting to start the gate either way; but by setting the gate end of D a little from the center should such a stop occur the angle remaining between D and the vertical would give opportunity to communicate motion to the gate to start it from the center; and it will also be noticed that in closing the gate should a pull only be given sufficient to bring D to the vertical the gate would of its own gravity roll back and give opportunity for a second pull that would be sufficient. It will now be noticed that the bottom board z is in the form above mentioned to accommodate the rising of the gate upon the tracks G G' and still be retained within the guides $y y'$ without unduly lengthening the axles of these.

I have described above and illustrated in the drawings mentioned the application of power by means of a rope or line from the end of lever D to r ; but it will be perceived at once that this power might be applied by means of connecting the pulley end of D with a horizontal lever at a proper height and make the posts Q Q' fulcrums by putting at proper distances, and so operating the gate, and in some cases this method might be preferable. The action of the gate upon the tracks G G' would be identical with its action if the line described is used.

Having thus described my invention, so that any mechanic can comprehend its essential features and construct it, what I claim as novel, and desire to secure by Letters Patent, is—

1. The combination with a gate or door A, of the tracks G, and G' each formed of two oppositely-inclined planes; and a bottom board z , having its lower edge shaped to planes, the converse of said tracks, G, G', substantially as above described.

2. The combination with the gate or door A, of the tracks G, G'; the lever D, pivoted near the middle of upper gate-rail, the guides E, E, engaging one end of said lever; and the vertical rod L having an offset M, resting upon the other end of said lever, substantially as described.

EDWARD R. CHASE.

In presence of—

GEO. W. RUHL,
A. G. FULLER.