(No Model.)

J. S. SHOBE.

GATE.

No. 421,440. Patented Feb. 18, 1890.

Fig. 1

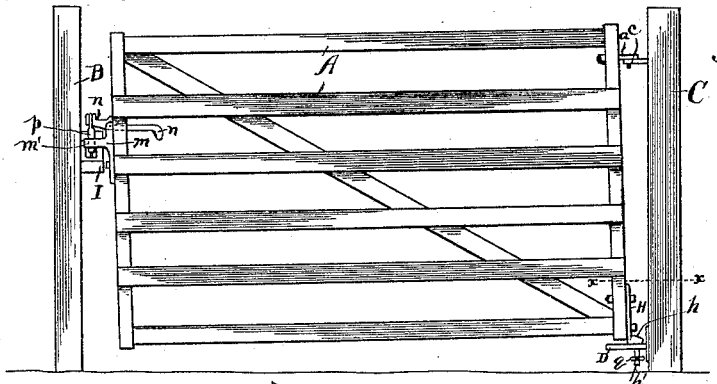


Fig 3

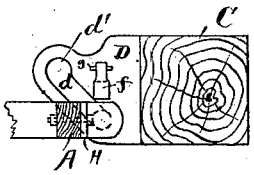


Fig 11

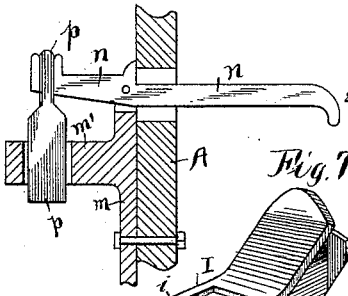


Fig 2

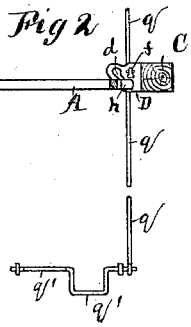


Fig 4

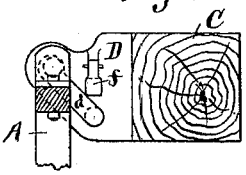


Fig.6

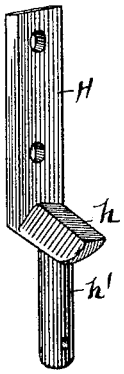


Fig. 7

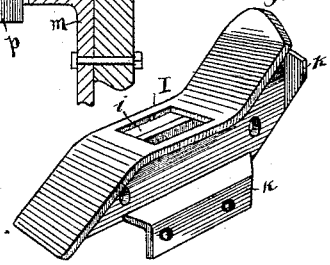


Fig.5

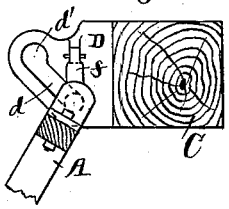


Fig.8

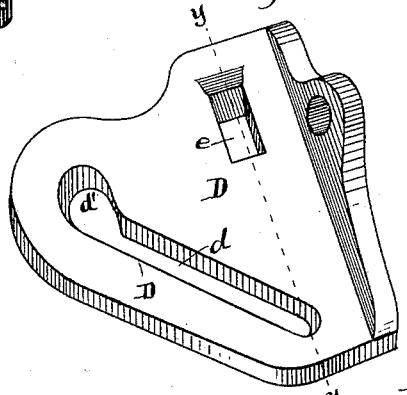


Fig.9

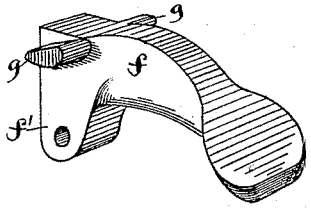
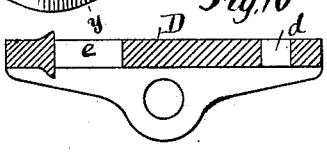


Fig.10



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GATE.

SPECIFICATION forming part of Letters Patent No. 421,440, dated February 18, 1890.

Application filed June 12, 1889. Serial No. 313,979. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. SHOBE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Gates, of which the following is a specification.

My invention relates to the improvement of that class of farm-gates wherein the gate is opened and closed by driving over a trip-rod.

The objects of my invention are to provide the lower hinge-post plate with a detachable and reversible attachment, which, in conjunction with a peculiar form of gate hinge-pin bar, will obviate the tendency of the lower hinge-pin to slide forward in said hinge-post plate when the gate is being closed, so to suspend the gate as to relieve the hinge-post from the weight of the gate, to provide a superior form of latch-plate so constructed as to prevent unnecessary jar on the gate and latch when the former is closed, and to admit of its use in connection with a gate opening either way, and to accomplish these objects in a simple and inexpensive manner.

In the accompanying drawings, representing my improved gate, Figure 1 is a front elevation of the gate when closed. Fig. 2 is a detail view taken on line *x x* of Fig. 1, showing a portion of the trip-rods and one of the trips. Fig. 3 is an enlarged detail view taken on said line *x x*, showing the position of the parts when the gate is closed. Fig. 4 is a similar view showing the position of the parts when the gate is open. Fig. 5 is a similar view showing the position of the parts when the gate is closing. Fig. 6 is a view in perspective of the lower hinge-pin of the gate. Fig. 7 is a view in perspective of the latch-plate. Fig. 8 is a view in perspective of the hinge-post plate. Fig. 9 is a view in perspective of the detachable plate-dog. Fig. 10 is a section taken on line *y y* of Fig. 8, and Fig. 11 is a vertical central section of the gate-latch arm, its pin, and socket.

Similar letters refer to similar parts throughout the several views.

A represents a gate, which may be of any desired or well-known design.

B represents the front or latch post and C the rear or hinge post.

Projecting forwardly from the post C is an arm *c*, which overlaps and is pivotally connected in the usual manner with an arm *a*, projecting from the rear end of the gate-frame, near the upper side thereof.

D represents a flat metallic hinge or bearing plate having a flange on its rear edge, said flange being secured to the front face of the post C, near the lower end thereof, thus causing the plate D to project outwardly at right angles with said post. This plate D is provided near its forward end, in the usual manner, with a diagonal slot *d*, the latter running obliquely forward from the post C.

Formed in the plate D, between the slot *d* and the post C, is a short mortise or socket *e*.

f represents a short metallic dog having formed on its rear end a downwardly-projecting lug *f'*, and having projecting outwardly, from opposite sides thereof and adjoining its upper side near its rear end, two short bearing-arms *g*, the under surface of said bearing-arms presenting a convex surface, as shown. The body of the dog *f* extends forwardly, and has its approximately-pointed end beveled downwardly and rearwardly, as shown. This dog *f* is detachably connected with the plate D by having its lug *f'* inserted within the socket *e* of the plate, and allowing the curved faces of the bearing-arms *g* to bear upon the surface of the plate D on opposite sides of said socket. When thus located, the dog will extend in a line parallel with the front face of the post C, and its forward end will terminate at a point adjoining the slot *d* and near the rear end thereof.

Secured to the rear end of the gate-frame in the usual manner is a vertical hinge pin-plate H, which consists of a metallic bar having projecting rearwardly from its lower end a lug *h*, having beveled sides, and the outer end of which is curved downwardly and inwardly to form a rounding bevel, as shown. From about the center of the length of the lug *h* extends downwardly a pivot or hinge pin *h'*. This pivot-pin, as shown, terminates at a point lower than the under side of the gate, and when the gate is hung passes loosely through the slot *d* of the plate D, the lug *h* forming a bearing-shoulder, which rests upon the plate D on each side of said slot.

I represents the latch-plate, which consists,

as shown, of a metallic block having a broad flattened upper face and a central downwardly-projecting rib on the under side of said face and a central mortise *i* in said face. From the rear end of this mortised central portion the top side of the latch-catch plate is inclined upwardly and rearwardly, said upwardly and rearwardly inclined portion terminating in a short upward bend, as shown. The forward portion of the upper side of the latch-catch plate in front of the central mortise *i* is inclined downwardly and forwardly, as shown. The body or that portion of the latch-plate beneath its upper flattened side is provided with suitable flanges *k*, which are adapted to bear against the inner side of the post B, to which said latch-plate is secured by bolts or screws made to pass through bolt or screw holes formed in said flanges *k*, or to bear against blocks or other projections on the post.

Secured to the front end of the gate-frame is a metallic bar *m*, having a forwardly-extending arm *m'*, which, when the gate is closed, as shown in Fig. 1 of the drawings, projects over the mortise *i* of the latch-plate I.

Made to pass loosely through a slotted opening formed in the front frame-standard of the gate is a latch-arm *n*; said latch-arm being pivoted at about the center of its length to said gate-frame standard or to the upper end of the bar *m*.

To the forwardly-projecting end of the arm *n* is linked the upper link-shaped end of a downwardly-hanging latch-pin *p*. This downwardly-hanging latch-pin passes loosely through a vertical slot or mortise formed in the arm *m'*.

Connected with the lower end of the hinge-pin *h'*, beneath the plate D, are trip-rods *q q*, said rods running outwardly in the usual manner at right angles with the face of the gate when the latter is closed, and each being connected with one end of a trip *q'*, the latter being of the usual double-crank form and pivoted in the usual manner to suitable foundation or frame embedded in the earth.

The above-described gate is opened in the manner usually prescribed for opening gates of this class.

The gate-hinge or pivot pin being located in the rear end of the slot *d* of the plate D, the upper portion of the gate thrown forward, as shown in Fig. 1 of the drawings, and the latch-pin resting with the latch-plate, the contact of a vehicle-wheel with the upwardly-extending crank of the trip *q'* operates to force forward one of the rods *q*, which, through its connection with the pin *h'*, forces the latter to the forward end of the slot *d'*, thus causing the forward end of the gate to be inclined upwardly and forwardly sufficiently to cause its latch-pin to be released from the latch-plate I and allow it to swing open by gravity. The vehicle having passed through the gate and its wheel brought into contact with the oppositely-located trip, it will be seen that the motion of the remaining rod *q* thus produced will, by its connection with the pin *h'*, force the latter again to the rear end of the slot *d*, and thus again change the incline of the gate and allow the same to close by gravity. Heretofore considerable difficulty has been occasioned during the closing of this class of gates, said difficulty being caused by the tendency of the pin *h'* to slip back to the forward end of the slot and thus prevent the closing of the gate. As shown in Fig. 5 of the drawings, this difficulty is obviated by the use of the dog *f*, which, as shown, forms a bearing or stop for the rear end of the lug *h* of the hinge-bar H, until the gate has swung past the center of the arc which it describes. Owing to the beveled forms of the ends of the lug *h* and dog *f*, it will be seen that the outer end of the dog will not interfere with the passage of the pin *h'* through the slot *d* while the gate is being opened, the beveled sides of the lug *h* causing the dog to be slightly raised when brought in side contact therewith.

It will be seen that when the gate is closing the latch-pin *p* will come into contact with the downwardly-inclined surface of the forward portion of the latch-plate I and will travel up the same until it finally drops by gravity into the mortise *i*, where it is held by the thickness of the latch-plate top. This will operate to slightly raise the front part of the gate, thus bringing the greater portion of the weight of the gate upon the latch and preventing the rear end of the gate from sagging. In case there is an excess of force it will be seen that the latch-pin may be carried past the center of the latch-plate and up the rear incline thereof until its force is spent, when it will drop back into the mortise *i*.

As shown in the drawings, the slot *d* of the plate D is provided at its forward end with a slight offset *d'*, which will form a bearing or seat for the hinge-pin *h'* when the latter is in that end of the slot, and thus prevent any tendency of the hinge-pin to slip back to the rear end of the slot when the same is not submitted to pressure. It will be observed, also, that the plate D is so formed as to admit of the position of its upper and lower sides being reversed in case it is desired to swing the gate in an opposite direction, and that the dog *f* is so formed as to admit of its attachment to either side of the plate D.

I am aware that the principle of opening and closing gates herein described has been employed by others; but my invention differs from these in having the above-described means of preventing the return of the gate-hinge pin to the forward end of the plate-slot when the gate is closing and in the peculiar construction and connection of the latch and latch-plate.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the gate A, its

upper hinge-arm *a*, lower hinge-bar H, its lug *h*, and pin *h'*, of the post C, its hinge-arm *c*, slotted hinge-plate D, dog *f*, detachably connected, as described, with said hinge-plate and operating-rods *q* and trips *q'*, substantially as and for the purpose specified.

2. In a trip-gate, the combination of the gate A, upper hinge-arm *a*, lower hinge-bar H, having lug *h* and pin *h'*, pivoted latch-arm *n*, supporting, as described, pin *p*, and plate *m*, having slotted arm *m'*, with the post C, its hinge-arm *c*, slotted plate D, dog *f*, detachably connected with said plate, as described, operating-rods *q*, and trips *q'*, post B, and latch-plate I, secured to said post and having a front and rear incline and central mortise, substantially as and for the purpose set forth.

JACOB S. SHOBE.

In presence of—
C. C. SHEPHERD,
JOHN TRAVEL.