J. W. STEVENSON.

Gate.

No. 204,631. Patented June 4, 1878.

Fig. 1.

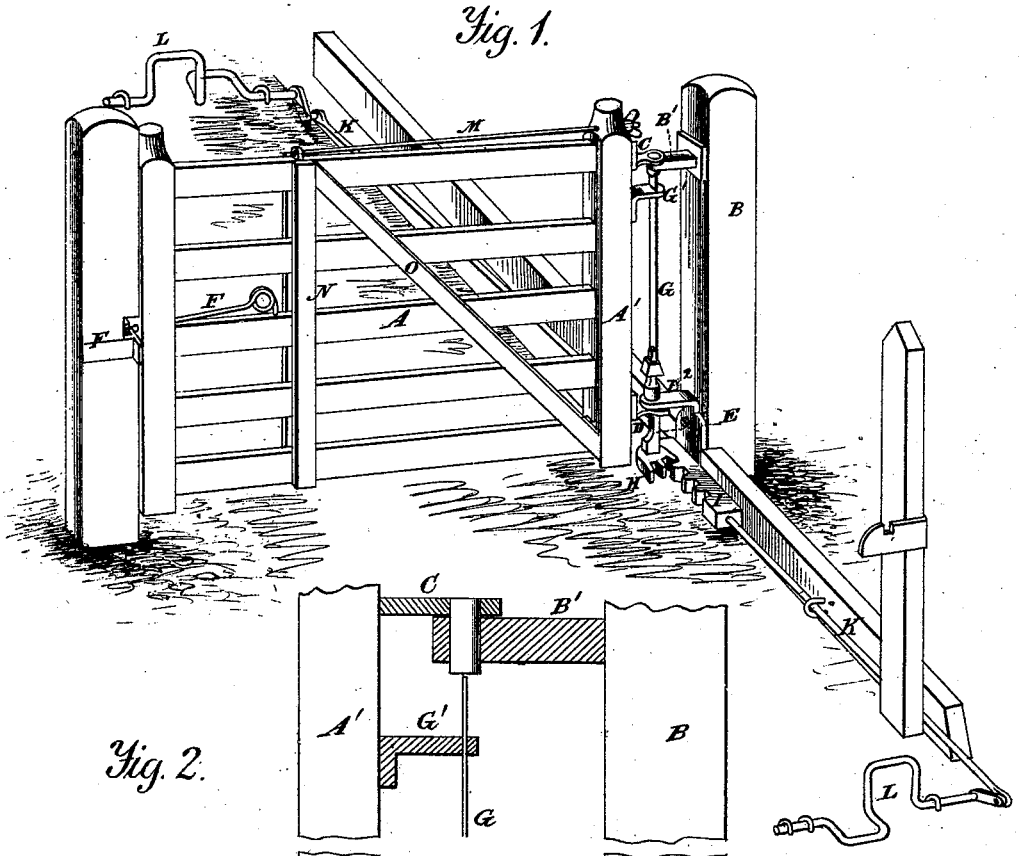
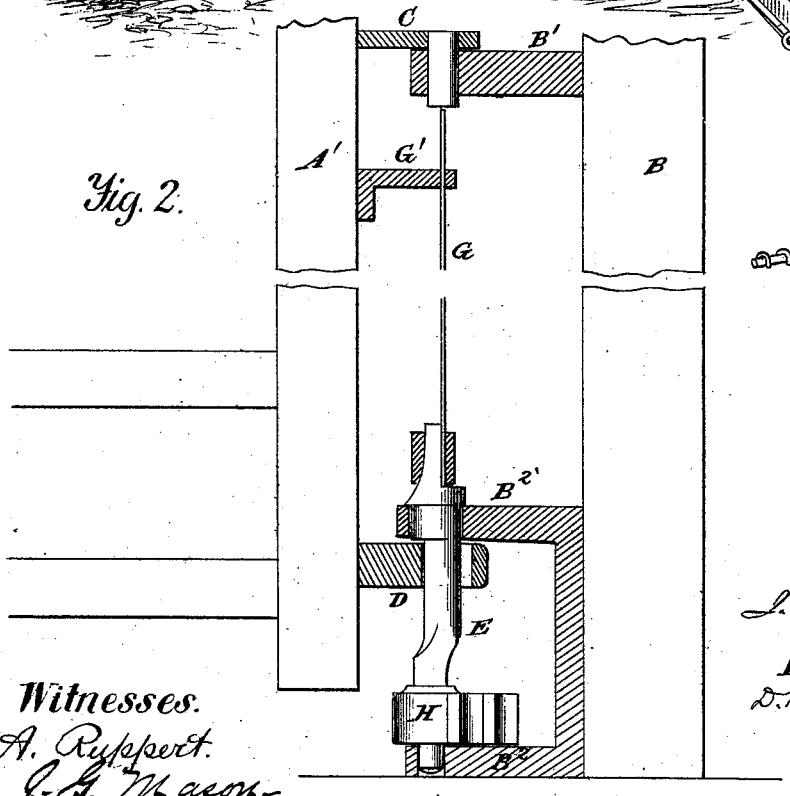


Fig. 2.



Witnesses.

A. Ruppert.

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UNITED STATES PATENT OFFICE.

JAMES W. STEVENSON, OF RICHMOND, INDIANA.

IMPROVEMENT IN GATES.

Specification forming part of Letters Patent No. **204,631**, dated June 4, 1878; application filed December 20, 1877.

To all whom it may concern:

Be it known that I, JAMES W. STEVENSON, of Richmond, in the county of Wayne and State of Indiana, have invented new and useful Improvements in Farm-Gates, of which the following is a specification:

This invention belongs to that class of gates that are operated by means of a bent rod, forming a double crank, laid in a track, actuated by the wheels of the passing vehicle.

In the gates in common use the movement of the gate is made to depend entirely on the action of gravity.

My invention consists in making the gate to operate by means of a rack and pinion and torsion-spring, as will be hereinafter distinctly set forth.

In the annexed drawings, making a part of this specification, Figure 1 is a perspective view of a gate and approaches. Fig. 2 is a vertical longitudinal section, showing the apparatus that actuates the gate.

The same letters are employed in both figures in the indication of identical parts.

A is the gate. B is the post, to which the gate is hung upon brackets B^1. The pintle of the wing C of the upper hinge passes through the eye in the bracket B^1, and sustains the top of the gate. The lower hinge is formed by a bracket, D, which underlies the lower bracket B^2. A shaft, E, passes through the eyes of the brackets D B^2, and is stepped in a recess in the lower arm of the bracket B^2. This shaft has its upper bearing in the eye of the bracket B^2, and is eccentric, so that as it is made to revolve, the shaft will throw the gate out of a perpendicular, so as to lift the latch F out of its catch F′, thus releasing the gate.

A torsion-spring, G, made preferably of a flat piece of steel, is fastened to a shoulder on the top of the shaft E, and has its upper end secured to a bracket, G′, bolted to the frame A′ of the gate. A segmental pinion, H, is fastened to the lower end of the shaft E, and, projecting toward the post B, engages the teeth of a rack, I, resting in the lower angle of the bracket B^2. This rack is actuated by the rods K and double-crank rods L, placed in each side of the gate in the well-known manner.

When the gate is closed, as shown in Fig. 1, a vehicle coming from either direction, being guided so as to strike the elevated loop of the crank-rod, will shift the rod K and bar I, thereby turning the shaft E and raising the latch F free from its catch, and disengaging the gate from the post. The rotation of the rod E at the same time imparts a quarter-turn to the torsion-spring G, the tension of which, acting on the gate through the brackets G′, throws the gate sharply open as soon as the latch is freed, and the latch of the gate, when open, engages a catch on a post placed for the purpose, so as to hold the gate open until, having passed through, the wheels of the vehicle strike against the other loop of the crank-rod, and so, through the rod K, rack I, pinion H, and eccentric-shaft E, again sets the torsion-spring with its strain in the opposite direction, and lifts the latch again from the catch, so that by the tension of the spring the gate will be sharply closed.

I am by this means able to use a single gate instead of the double gates heretofore employed for automatic operation.

In order to strengthen the gate and keep it perfectly staunch, so that the movement of the shaft may lift the latch from its catch and not be absorbed by lost motion, a brace-rod, M, is extended from the upper end of the frame-piece A′ to a lug on the top rail of the gate. This brace is supplemented by the vertical and diagonal braces N and O.

The end of the brace-rod M, passing through the top of the post A′, has a thread cut upon it, so that by means of a thumb-nut on the outer end any loose motion incident to the sagging of the parts may be taken up by turning this nut.

I am aware that gates have heretofore been operated by a bent crank-rod acting on a lever and crank to throw the gate out of perpendicular, and so lift the gate and release the latch and cause the gate to swing by gravity.

I am also aware that tension brace-rods have been used to prevent sagging in gates.

My invention is distinguished from what

has been before known in the employment of the brackets B^2 and D, acting in conjunction with the eccentric-shaft to perform the same function, but by different mechanism, to which my claim is strictly limited.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the gate A and post B, the wings C, bracket B^1, forming a bearing for the pintle of the upper hinge, and the bracket B^2, forming a bearing at both ends for the eccentric-shaft E, and wing or bracket D, which embraces the shaft and throws the gate out of the perpendicular by the rotation of the shaft, substantially as set forth.

2. In combination with the gate and brackets and shaft E, the torsion-spring G, pinion H, and rack I, for actuating the gate by the action of the passing vehicle, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES W. STEVENSON.

Witnesses:
D. W. COMSTOCK,
E. H. SHUTE.