(No Model.) 2 Sheets—Sheet 1.

A. L. COOPER & F. A. COLVER.

GATE.

No. 557,491. Patented Mar. 31, 1896.

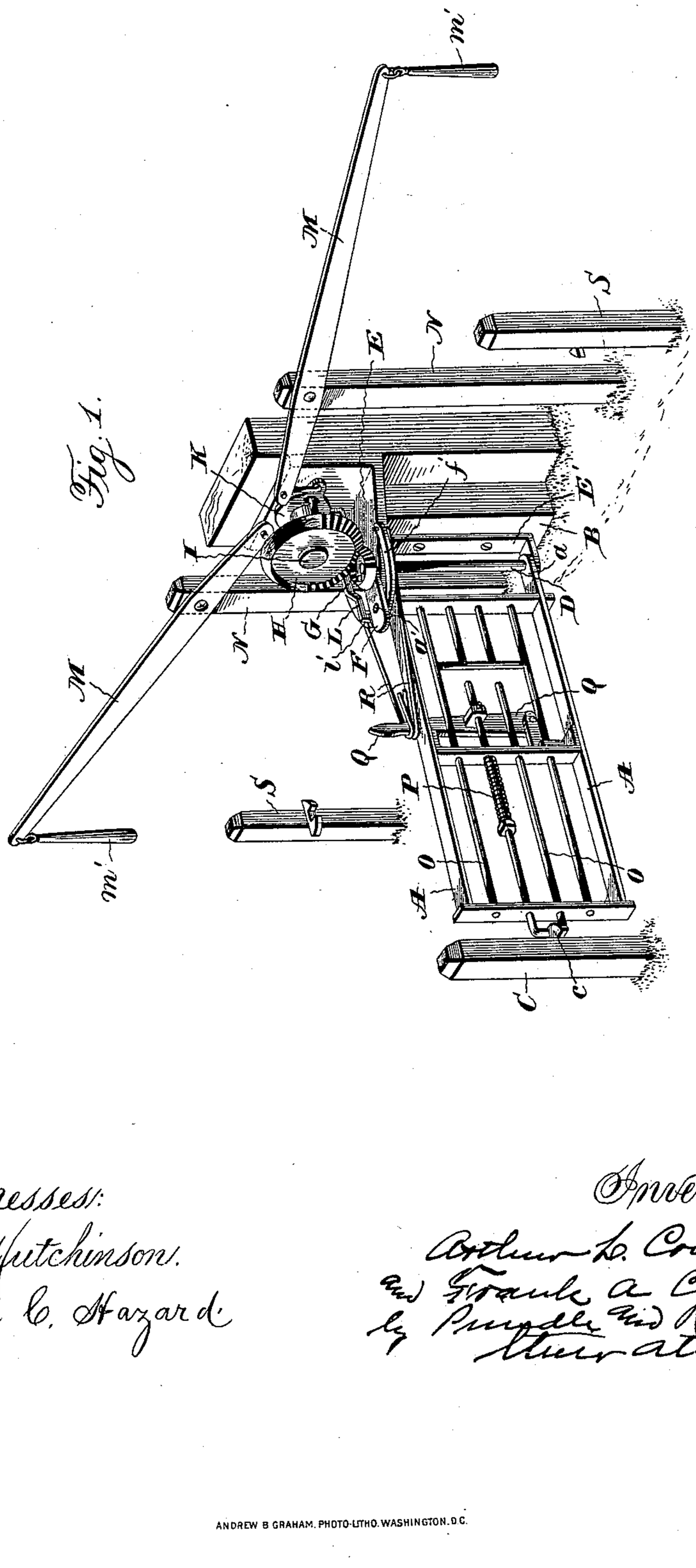

Fig. 1.

Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventors.
Arthur L. Cooper
and Frank A. Colver
by Pringle and Russell
their attorneys

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

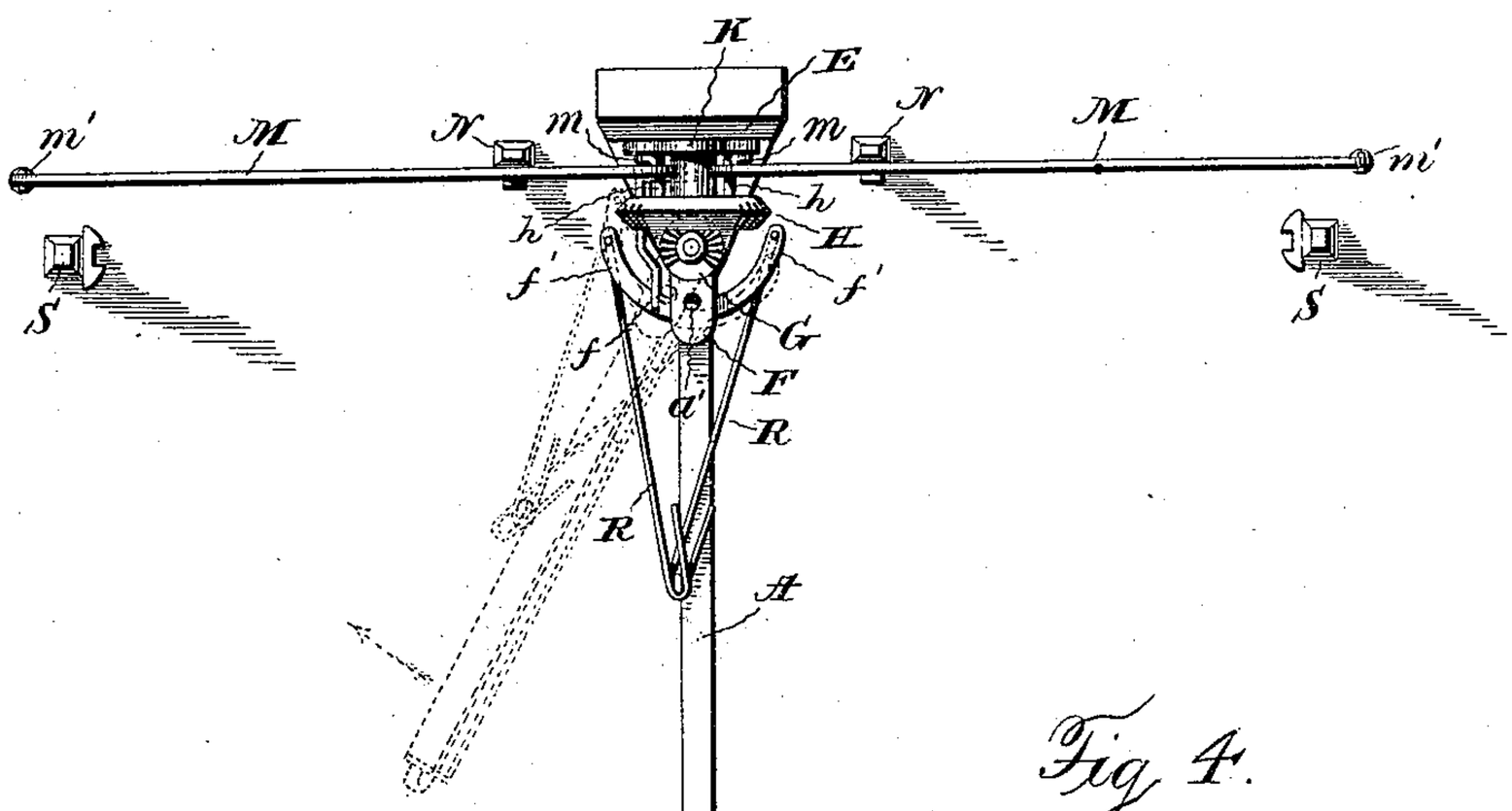


Fig. 3.

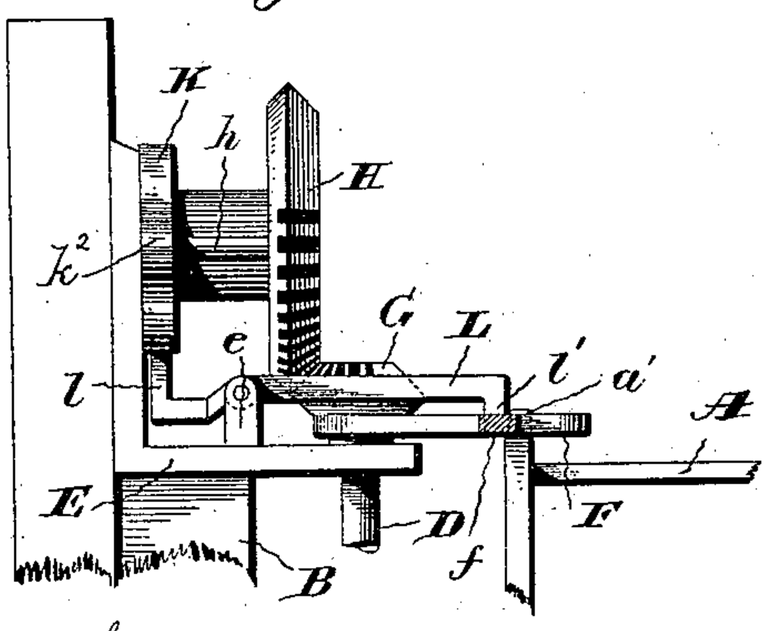
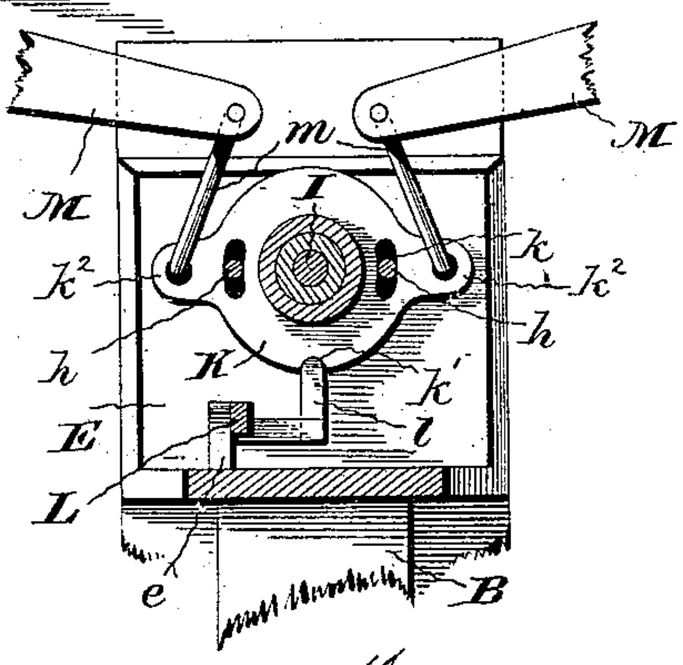


Fig. 4.



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and Frank A. Colver
by Prindle and Russell
their attorneys

UNITED STATES PATENT OFFICE.

ARTHUR L. COOPER AND FRANKLIN A. COLVER, OF FRANKFORT, INDIANA.

GATE.

SPECIFICATION forming part of Letters Patent No. 557,491, dated March 31, 1896.

Application filed January 7, 1896. Serial No. 574,635. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR L. COOPER and FRANKLIN A. COLVER, of Frankfort, in the county of Clinton, and in the State of Indiana, have invented certain new and useful Improvements in Farm-Gates; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of our gate; Fig. 2, a plan view thereof, and Figs. 3 and 4 are detail views of the gate-releasing mechanism.

Letters of like name and kind refer to like parts in each of the several figures.

The object of our invention is to provide a farm-gate of the class which are adapted to be opened and closed by persons in vehicles or on horseback, which shall be simple in construction, so as to be cheap of manufacture and not liable to become disordered, and yet be thoroughly reliable in operation.

To this end our invention consists in the gate having the construction and combination of parts substantially as hereinafter described.

In the carrying of our invention into practice we employ a gate A of usual form, which may be constructed of wood or metal, and a post B, to which the gate is hinged or pivoted so as to be adapted to swing horizontally in either direction to and from a latch-post C.

The hinge or pivot of the gate is formed by a vertical shaft D journaled at its upper end in the horizontal extension of a bracket E bolted to the upper part of the post B and at its lower end in the horizontal extension of a bracket E′ fastened to the lower part of said post, the gate having at its bottom a rigid extension *a*, which rests upon said bracket extension and through which the shaft passes, and having at its top a vertical pin or stud *a′*, that is loosely engaged by an opening in an arm or lever F fixed near the upper end of said shaft. Immediately above the arm or lever the shaft has fixed to it a segmental beveled pinion G, that meshes with a like gear H journaled on a horizontal stub-shaft or gudgeon I, that projects from the bracket E. Journaled loosely upon the hub of said gear H is a circular plate or disk K, that is adapted to have a certain amount of movement independent of said gear and also with it, such result being obtained by providing the gear on its side adjacent to the disk with two pins *h* and *h*, that respectively engage curved slots *k* and *k′* in the disk, said slots being longer than the diameter of the pins. The disk can thus rotate independently of the gear before the ends of the slots engage the pins, whereupon the two will move together.

Pivoted to a lug *e* at the side of the upper bracket E is a horizontal bar L, which at one end has an upward extension *l*, adapted to be engaged by the lower side of the disk K and to coöperate with a notch *k* therein, and at its other end has a downward extension *l′*, that is adapted to be moved into and out of an opening *f* in the lever F.

When the bar or lever L engages both the opening *f* and the notch in the disk, the gate will be rigidly held against movement on its peculiar hinge should pressure be applied to it, as by a horse or cow pushing against it, and thus prevented from being opened by such means. The rotation of the said disk K independent of the gear is to preliminarily release the gate from the latch thus formed, said disk operating to cam the bar or lever L out of engagement with the lever F.

Upon diametrically opposite sides the disk K is provided with radial arms k^2 and k^2, respectively connected by links *m* and *m* to the inner ends of levers M and M, pivoted to posts N and N, placed on opposite sides of the gate in line with the hinge-post B. At its outer end each of said levers is provided with a pendent handle *m′*, by which the lever may be rocked and the gear turned.

The gate-latch consists of a U-shaped rod O, mounted to slide horizontally in the vertical bars of the gate and projected yieldingly outward by a spring P to coöperate with a notched plate *c* of usual form upon the latch-post C. At its inner end the latch-rod is connected to a vertical lever Q, and this is pivoted at its lower end to a bracket on the gate, and at its upper end is connected by two links or rods R and R with arms or extensions *f′* and *f′* of the lever F located on diametrically opposite sides of the pinion G. By this arrangement the rotation of the lever F in either direction will move the lever Q to disengage

the latch-rod from the post C. The connection between each link and the lever Q is by means of an elongated loop or hook on the link, so as to avoid any interference by either link with the motion of the lever Q when operated by the other link. Preferably the upper end of said lever Q is given a form for convenient grasp by the hand, so as to allow the operation thereof in this way when desirable.

Latch-posts S and S are provided at each side of the gateway to hold the gate in its open position.

The operation of our gate is as follows: To open the gate, a downward pull is given the lever-handle m' at the side of approach to the gate, which will cause first the partial revolution of the disk K to release the bar L from the lever F and then the turning of the gear H and pinion G and the swinging of the lever F horizontally. Said movement of the lever F will have the twofold effect of rocking the lever Q to disengage the gate-latch and tilting over the gate through the described connection of said lever F therewith, so as to shift its center of gravity. The weight of the gate of course will, through this shifting of its center of gravity, cause the same to swing open on its pivotal connection with the shaft D. We thus make the gate itself contribute to the power for effecting its opening.

The gate is closed by a movement precisely similar to that described for opening, which is effected by pulling upon the lever-handle at the other side of the gate.

It will be observed that in opening, the gate swings away from the point of approach.

Having thus described our invention, what we claim is—

1. The combination of the gate, the latch mechanism, the vertical shaft to which the gate is pivoted, a lever on said shaft pivotally connected to the gate, two links connected to said lever and a lever of the latch-operating mechanism, a pinion on said shaft, and a lever-operated gear, meshing with said pinion, substantially as and for the purpose specified.

2. The combination of the gate, the swinging and tilting hinge thereof, a lock for said hinge, a rotatable plate for actuating said lock, means for connecting said plate and the gate-moving means and means for rotating said plate, substantially as and for the purpose set forth.

3. The combination of the gate, the swinging and tilting hinge thereof, comprising in part a lever, a pivoted locking-bar that engages the latter, a rotatable plate for actuating said bar, a pin-and-slot connection between said plate and the gate-moving mechanism, and means for rotating said plate, substantially as and for the purpose shown.

4. The combination of the gate, the latch mechanism, the vertical shaft to which the gate is pivoted, a lever on said shaft, pivotally connected to the gate, a lock device engaging said lever, two links connected to the latter, and to the latch mechanism, and means for operating said lock device and actuating the lever, substantially as and for the purpose set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 30th day of December, 1895.

ARTHUR L. COOPER.
FRANK. A. COLVER.

Witnesses:
HERBERT M. HOCKMAN,
BERT M. HUFF.