

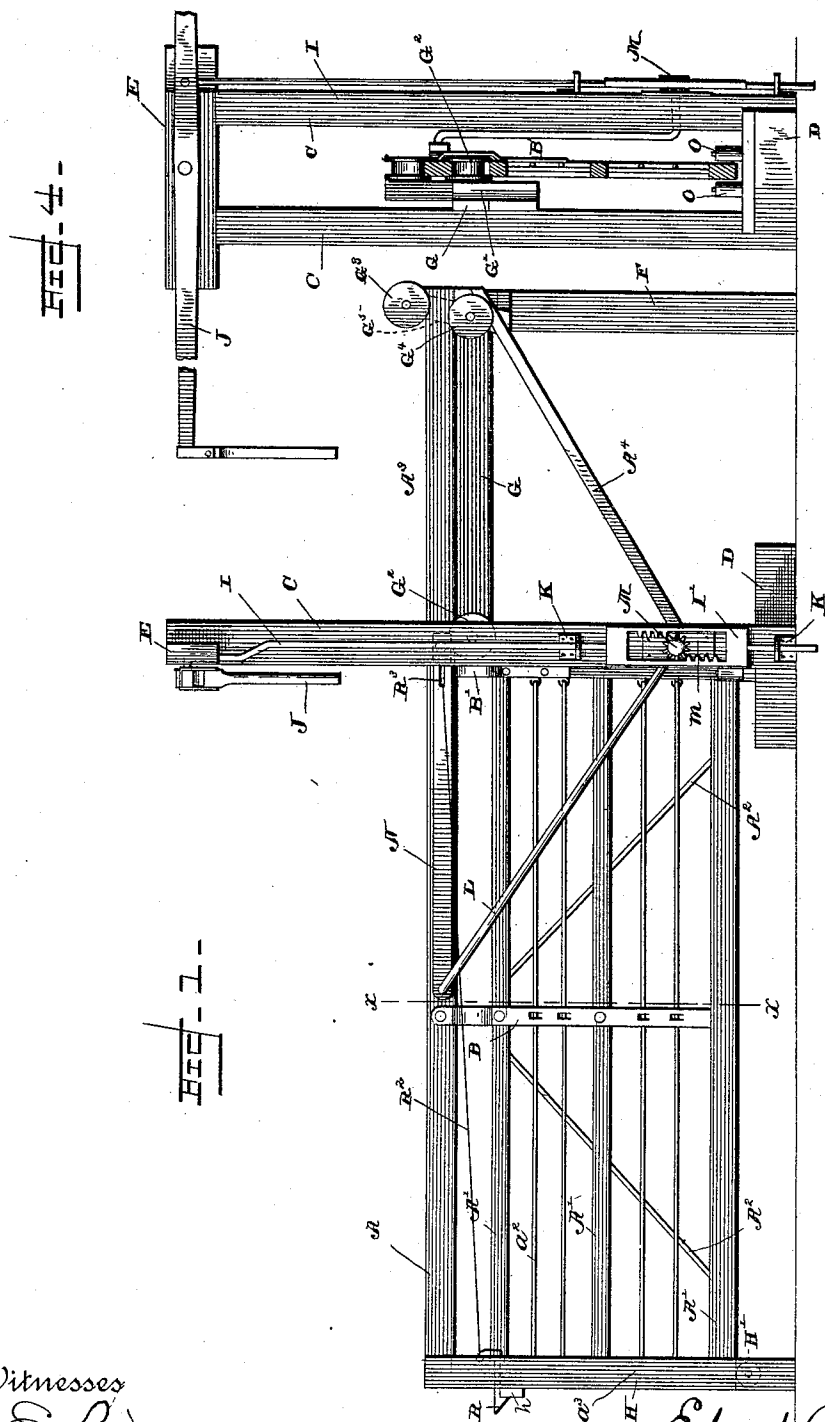
(No Model.)

2 Sheets—Sheet 1.

E. A. CASPER.
GATE.

No. 479,702.

Patented July 26, 1892.



Witnesses

E. S. Duval Jr.
Am. S. Boyden

Inventor

Edward A. Casper.
per Fred. Casper
Attorney

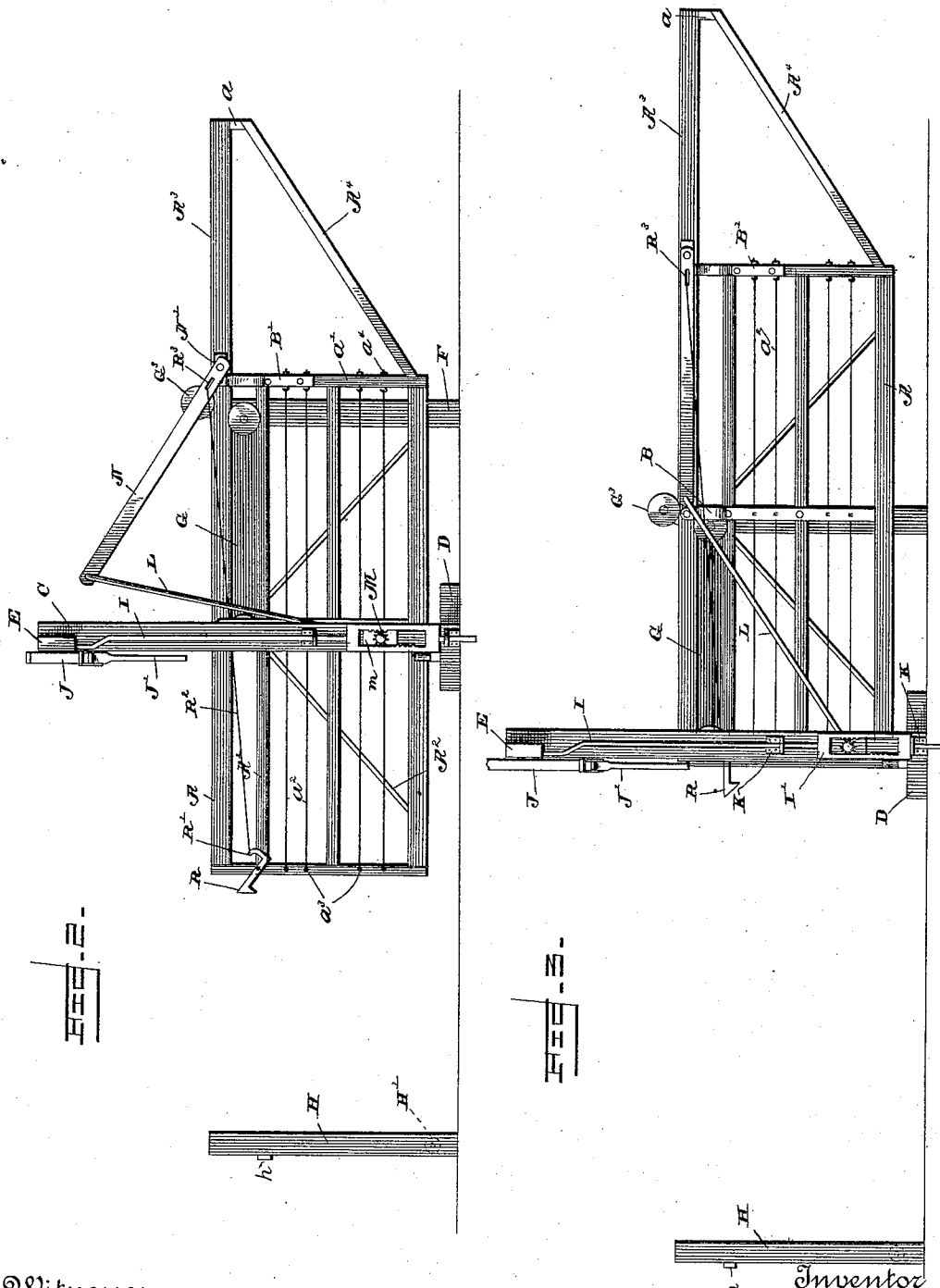
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UNITED STATES PATENT OFFICE.

EDWARD AUGUSTUS CASPER, OF PRINCEVILLE, ILLINOIS.

GATE.

SPECIFICATION forming part of Letters Patent No. 479,702, dated July 26, 1892.

Application filed January 22, 1892. Serial No. 418,914. (No model.)

To all whom it may concern:

Be it known that I, EDWARD AUGUSTUS CASPER, a citizen of the United States, residing at Princeville, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Gates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in gates for use on farms or other places where devices of this character are employed, the object of the invention being to provide an automatic gate which can be opened and closed by the operator without the necessity of alighting from a carriage or other vehicle and without the necessity of dismounting when on horseback.

The invention also aims to overcome the difficulty of the dead-center which so often occurs in gates of this character and renders them unfit for practical use; and it consists in certain peculiarities in the construction, arrangement, and combination of the several parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a side elevation of my improved gate in its closed position. Fig. 2 is a similar view of the same in a partially-opened position, showing the operation of the levers and other parts. Fig. 3 is a side elevation of the gate in its fully-opened position. Fig. 4 is a vertical section of the gate on the line *x x* of Fig. 1.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

In the drawings, A represents the main frame of my improved gate, which may be of any ordinary construction and has the parallel strips A' and diagonal supporting-braces A². The upper longitudinal strip of the frame A is provided with the integral extension A³. To this integral extension A³, by means of a short connecting-piece *a*, is suitably secured the diagonal brace A⁴, which is fastened at its lower end to the lower part of the main frame of the gate. The gate is further strengthened at its middle point by the provision of the vertical cross-bar B, which is suitably bent at

its upper end to allow it to pass by the rollers, which are secured to a suitable frame and upon which the gate rolls.

B' is another short supporting strip or bar secured to the outer upright *a'* of the main frame A. This short strip or bar B' is formed at its upper end in the same manner as the upright B and for the same purpose. (See Figs. 1, 3, and 4.)

The gate-frame A may or may not be provided with the longitudinal wire rods *a*², as desired.

C C designate two upright standards, which are adapted to carry the operating mechanism of the gate. These standards are secured at their lower ends to the base-piece D and at their upper ends to the cross-piece E. (See Fig. 4.) Set in the ground at a suitable distance from the main uprights C C is a suitable post or upright F, which is at the outer limit of the gate extension when the gate is closed. To the top of this upright post F is secured one end of a connecting strip or bar G, its other end being fastened at about the middle of one of the uprights C.

H H represent upright posts, which are embedded in the ground and secured together near the top by means of a cross-piece *h*. When the gate is in its closed position, its end rests within the uprights H and bears against the cross-piece *h*.

Secured to the inner end of the cross-piece G is a supplemental block or strip G', to which is suitably fastened a pulley or wheel G², on which the upper part of the main frame is adapted to ride or roll. (See Fig. 4.) On the outer end of this strip G is secured another supplemental block or strip, which is placed in a diagonal position, as shown in Fig. 1 in dotted lines and represented by the reference-letter G⁵. To the upper end of this diagonal portion G⁵ is journaled a roller or pulley G³, and to its lower end is journaled the pulley or wheel G⁴. All these rollers G², G³, and G⁴ are properly flanged and act as guides and bearings for the main frame of the gate, keeping it in its proper position and allowing it to run smoothly back and forth when being operated for the purpose of opening and closing.

I is a vertical reciprocating rod secured at its upper end to the horizontal operating-le-

vers J, which levers have the downwardly-extending handles or arms J', suitably hinged thereto. The lower end of this vertical reciprocating rod I is provided with a double rack-bar I', which is provided with a series of cogs on its upper right-hand side and with a similar series on its lower left-hand side, as clearly shown in Figs. 1, 2, and 3.

K K denote two plates or brackets fastened to one of the upright posts C at suitable distances apart, in which the vertical reciprocating rod I works, these plates or brackets K also forming stops to limit the upward and downward movement of the double rack-bar I'.

L denotes another long arm or lever, which is bent at its lower end at a right angle and passes through the lower portion of the upright post C, to which the reciprocating rod I is secured. (See Fig. 4.) To the outer end of this right-angled portion is rigidly secured a cogged pinion or gear-wheel M, said right-angled portion having a bearing or strengthening plate *m*, secured to the main upright C. This cogged pinion meshes with the double-rack bar I' and operates in the manner hereinafter described. The outer or free end of the lever-arm L is also bent at a short angle and has secured to it the lever N, the other end of which lever N is journaled in a suitable bearing on the main frame of the gate, as shown at N', Fig. 2.

O O denote plain guide-rollers for the lower portion of the gate, which are secured to the base-piece D. (See Fig. 4.)

It will be noted that the upper portion of the reciprocating rod I is bent, as shown in Figs. 1, 2, and 3, in order to allow it to pass by the cross-piece E, which cross-piece E is cut away for the purpose, as shown in Fig. 4.

The operation of my improved gate will be evident from the foregoing description without need of much further additional explanation. In Fig. 1 the position of the parts when the gate is in its closed position is shown. Suppose now a person approaches the gate in a wagon or on horseback, going in the right-hand direction, looking toward the drawings, and desires to open and close the gate without dismounting. He will take hold of the handle J' and depress the same, which will communicate motion to the horizontal arm J, thence to the vertical reciprocating rod I, and this in turn will depress the double rack-bar I', causing the right-hand cogs of said bar to press upon the cogged pinion M, and this pinion being rigidly secured to the right-angled portion of the lever L will cause said lever to rise in an upward direction, carrying with it the free end of the lever N. (See Fig. 2.) The pull upon the handle J' is continued until the rack-bar has reached the downward limit of its stroke and rests against the lower bracket or plate K and the parts have assumed the position shown in Fig. 3 and the gate is in its opened

position. After the vehicle has passed through the gate the person in said vehicle will depress the handle on the other side of said gate, which will cause the cogs to press in an upward direction upon the cogged pinion M, and this will communicate motion to the lever L and thence to the lever N, and thus shut the gate, causing it to assume the closed position shown in Fig. 1. Suppose now a person approaches from the other side. By pressing downward upon the handle J the lower cogs of the rack-bar I' will rise upon the cogged pinion until the rack-bar has reached the upper stop K and by the upward pressure of the cogs upon the pinion M has communicated motion to the levers L and N, and thus caused the gate to be opened. Then after the person has passed through the gate he will depress the handle J' on the opposite side, which will cause the gate to close and again assume the position shown in Fig. 1. By means of this combination a simple and efficient gate is provided, which avoids the common difficulty of a dead-center, so often experienced in gates of this character, and one which is easily and quickly operated with the least expenditure of power.

Of course many changes may be made in the exact details of the construction as herein illustrated and described for the purpose of adapting the gate to other possible locations than a farm and to suit the exigencies of different cases, and I reserve the liberty of so doing.

The front posts H H have journaled therein near their bottom the roller H', upon which the gate rests when in a closed or locked position. (See Figs. 1, 2, and 3.)

The wire rods a^2 of the gate pass through suitable holes or perforations a^3 , formed in the front vertical upright of the frame of said gate, and, being secured to the rear upright of said frame by suitable hooks or otherwise, are adapted to be tightened or loosened by the burrs or nuts a^4 for the purpose of straining the wire rods a^2 , as shown in Fig. 2.

The gate may also be provided with a suitable locking device, if desired, said locking device being shown in Fig. 1 in its operative or locked position and in Figs. 2 and 3 in its inoperative or unlocked position. It consists of a latch pivoted to the front upright of the frame and denoted by the reference-letter R, said latch having a hooked portion, which is adapted to fit over the cross-piece *h* of the posts H H. (See Fig. 1.) Its rear end is provided with the projection R', to which is connected a wire R², the other end of said wire being secured in a slot R³, near the inner end of the lever N. When the gate is in a locked position, the end of the wire, which is adjustably secured in the slot R³, will be at the front end of said slot; but as the gate gradually opens it will be drawn to the opposite end of the slot, where it will rest when the gate is completely opened.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a gate, the combination of suitable rollers on which the same is hung and guided with means for automatically opening and closing said gate, consisting of a double rack-bar, a cogged pinion engaged by said rack-bar, a vertical arm attached to said rack-bar, a horizontal lever pivoted to the cross-piece of the main uprights, and the handle for operating said horizontal lever, together with the intervening levers between the cogged pinion and the gate, substantially as described.

2. The combination, with the gate, of suitable rollers connected thereto, the levers for operating said gate, the cogged pinion for operating said levers, the vertical arm carrying the double rack-bar engaging said pinion and the horizontal lever, and the handles for operating the same, substantially as described.

3. The combination, with the gate A, of the rollers G², G³, and G⁴, levers L and N, reciprocating rod I, having the double rack-bar I', the cogged pinion M, horizontal lever J, and

handle J' for operating the same, substantially as described.

4. The combination, with the gate A, of the levers L and N, said lever L being bent at its lower end into a right angle, which right-angled portion is pivoted to the lower part of one of the main standards and having its free end pivoted to the free end of the lever, the other end of said lever N being pivoted to the main frame, the cogged pinion connected rigidly to the right-angled portion of the lever L, the double rack-bar for operating said pinion, said rack-bar being held in brackets secured to the main uprights, and the reciprocating rod for operating said rack-bar, together with the horizontal lever and its operating-handles, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD AUGUSTUS CASPER.

Witnesses:

J. VOGEL,

R. A. HARDEN.