No. 618,112. Patented Jan. 24, 1899.

A. MASON.

LEVER OPERATED SLIDING GATE.

(Application filed June 13, 1898.)

(No Model.) 2 Sheets—Sheet 1.

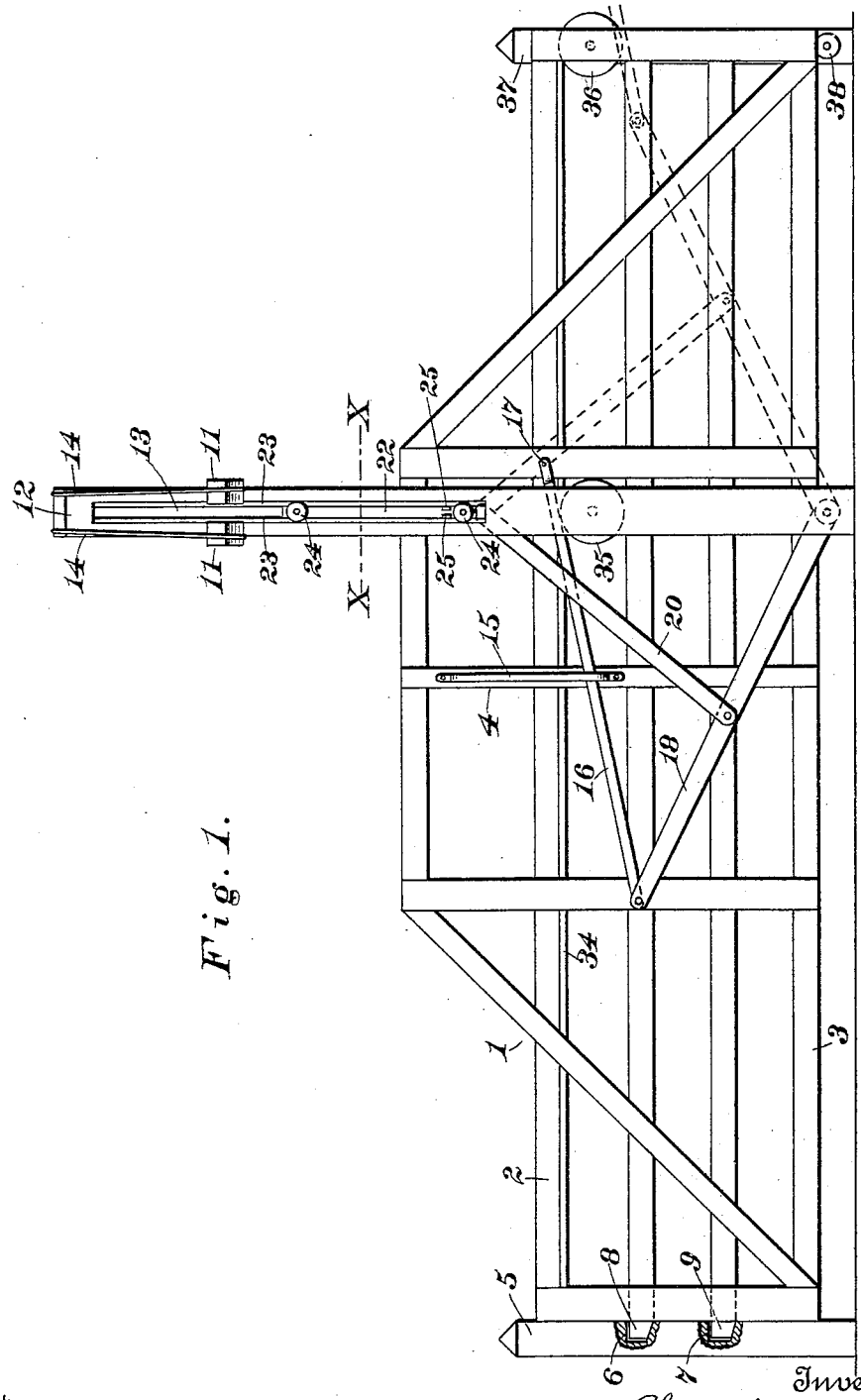

Fig. 1.

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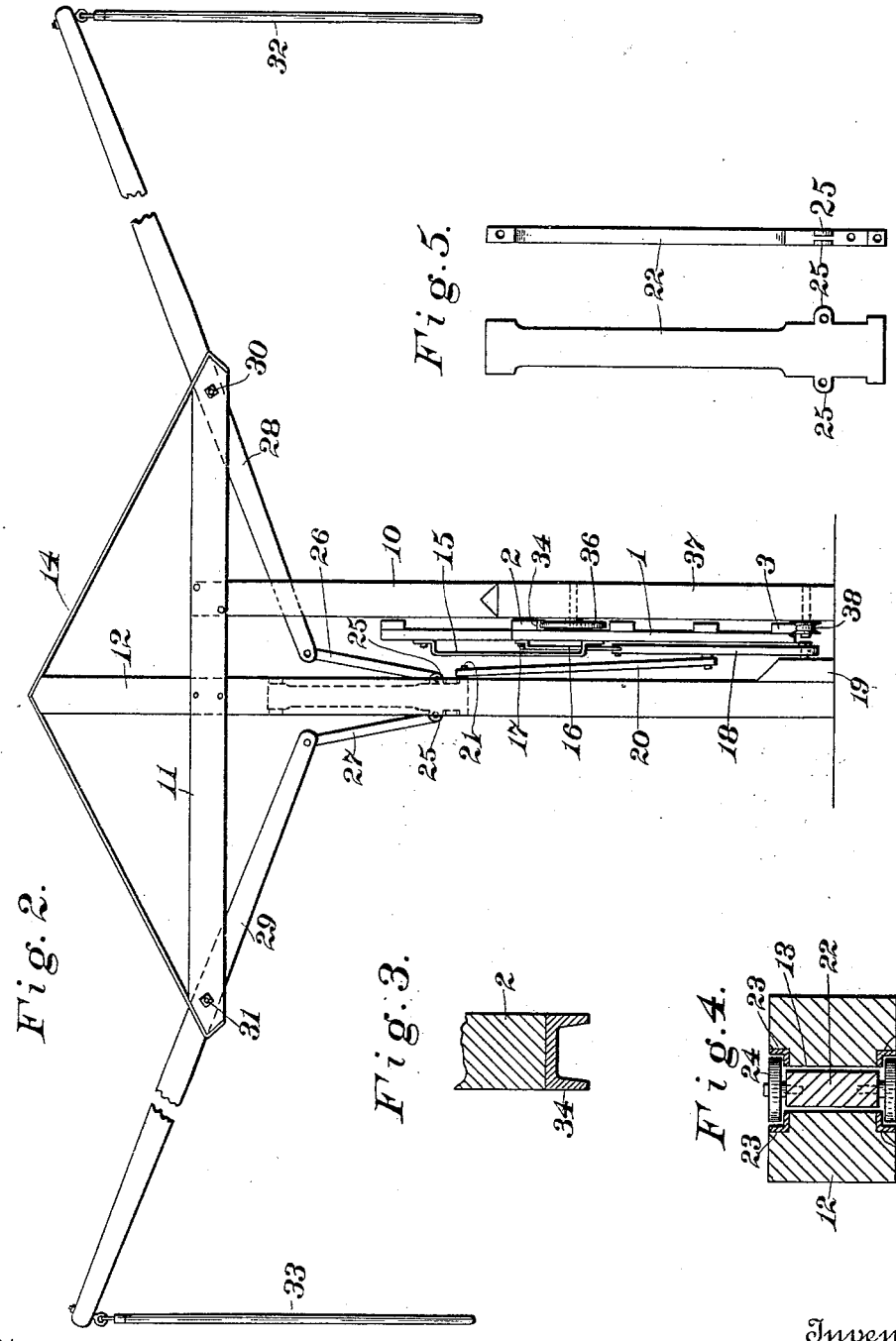

Fig. 2.

Fig. 5.

Fig. 3.

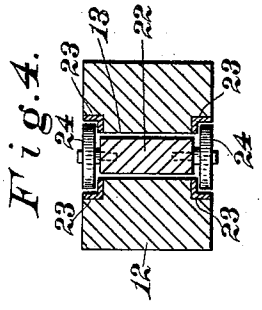

Fig. 4.

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UNITED STATES PATENT OFFICE.

ALEXANDER MASON, OF FORT MADISON, IOWA.

LEVER-OPERATED SLIDING GATE.

SPECIFICATION forming part of Letters Patent No. 618,112, dated January 24, 1899.

Application filed June 13, 1898. Serial No. 683,322. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER MASON, a citizen of the United States, residing at Fort Madison, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Lever-Operated Sliding Gates; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to lever-operated sliding gates; and its object is to produce a gate having the general structure of that shown and described in United States Letters Patent No. 590,069, granted to me September 14, 1897, capable of performing the same service, yet possessing a smaller number and simpler arrangement of coöperating parts. In my present improvement I do not employ either the weight adjustable upon the pivoted arm or the vertical guide-groove, or the roller connecting said arm and guide-groove, as shown in my patent cited, those elements being rendered unnecessary by the introduction of another connecting-rod and rearrangement of parts, all fully described in detail hereinbelow.

Figure 1 represents a side view of my invention, the broken lines indicating the positions of the arm and connecting-rods when the gate has been opened. Fig. 2 represents an end view from the right-hand side of the gate situated as in Fig. 1. Fig. 3 shows a cross-section of the upper rail with channel-iron secured along its lower edge. Fig. 4 represents a horizontal section of the slotted main gate-post on line *x x* of Fig. 1, showing the position of the weight and the devices introduced to guide the movement of the weight within the post. Fig. 5 represents one form given the weight, viewed from the side and from the edge.

Like numerals designate like parts throughout the views.

Considering Figs. 1 and 2, the numeral 1 marks the gate portion generally; 2, the top rail; 3, the bottom rail, and 4 an upright situated about midway between the ends of the rails. The gate portion is constructed in any convenient manner that will afford sufficient rigidity and strength.

Numeral 5 designates the gate-post on one side of the road, the face of the post toward the gate being provided with recesses 6 and 7, having slanting lower walls adapted to receive the correspondingly-shaped ends 8 and 9 of two of the intermediate rails of the gate. As the rail ends slide within the recesses, when the gate is closing the slanting faces of the recesses slightly raise it and prevent that end of the gate from sagging or from being swung sidewise by stock with possible injury to the gate.

On the opposite side of the roadway from post 5 will be noted two posts, the shorter, 10, being relatively solid and terminating at the cross-pieces 11 11, while the longer post 12 possesses a longitudinal slot 13 and rises some distance above the cross-pieces. In Fig. 2 the form and extent of the cross-pieces is best exhibited, together with their points of attachment to posts 10 and 12. Rods 14 14, passing over the top of post 12 and arranged to support the ends of the cross-pieces, also appear in Fig. 2.

To upright 4 (see Figs. 1 and 2) are secured the bent ends of a rod 15, which constitutes a retaining-guide for a connecting-bar 16. One end of bar 16 is joined to the gate by a pivot 17 and the other end after passing between rod 15 and upright 4 is pivotally attached to an arm 18, the remaining extremity of the arm being pivoted to an offset or block 19 at the base of post 12. At about the middle point of arm 18 a second connecting-bar 20 is secured pivotally, and, extending upwardly, bar 20 is attached by pivot 21 to the sliding weight 22, which travels slot 13, already described. Along the edges of the slot (see Fig. 4) angle-irons 23 23 are fastened in recesses cut to receive them, and rollers 24 24, borne by weight 22, follow the vertical metal track so provided. Weight 22 may thus rise and fall in the slot with minimum frictional resistance. Bar 20 is usually formed of thin steel, and the remaining bar and the arm may be of steel also, if desired.

From ears 25 25, projecting from the weight near its lower end, links 26 and 27 pass upwardly and connect on the right and left, re-

spectively, with levers 28 and 29. Fulcrums 30 and 31 are afforded the levers near the ends of the cross-pieces, and hand-rods 32 and 33 are shackled to the free ends of the levers, as drawn.

Considering Fig. 3, it will be observed that the top rail 2 has secured along its lower edge a grooved metal strip or channel-iron 34, and in Figs. 1 and 2 wheels 35, revoluble upon posts 10 and 36, revoluble upon a fourth and last post 37, appear. The periphery of each wheel corresponds with the shape of the channel, and the top of the gate cannot swing sidewise.

Bottom rail 3 of the gate is engaged and directed by a grooved wheel 38, revoluble upon a pintle near the base of post 37, which prevents lateral movement.

In operating the gate a person approaching from either side in a vehicle is brought within convenient reaching distance of one of the hand-rods hanging from the ends of the main levers. A downward pull exerted upon the rod raises the weight and necessarily arm 18, and an opening movement is imparted to the gate portion by means of bar 16. When the weight has arrived at its highest point, arm 18 projects vertically between posts 10 and 12, but the gate portion has acquired a certain momentum, which carries it past its virtual "dead-center," and the weight begins falling, thereby exerting a pressure through bar 16 upon arm 18, tending to continue the opening movement during the descent of the weight or until the movement is otherwise terminated. In full-open position the arm and connecting-bars occupy the attitudes set out in broken lines, (see Fig. 1,) and it is believed to be clear that the main levers and hand-rods have returned to their original or highest positions. Let either hand-rod again be pulled downwardly and the weight rises in the slot, bringing arm 18 again into the vertical and starting the closing movement, to be continued and completed by the fall of the weight bringing the arm and connecting-bars back to the positions shown in full lines in Fig. 1. Weight 22 is intentionally heavy enough to keep the gate closed against ordinary efforts of stock.

Having thus described my invention, what I claim, and desire to protect by United States Letters Patent, is—

1. In a lever-operated sliding gate the combination of a gate portion or structure, gate-posts, wheels borne by two of said posts and adapted to support and guide said gate, a pivoted arm, a bar pivotally connected with said arm and gate, a weight, devices for raising said weight, a bar pivotally connecting said arm and weight, said weight rising and falling during each opening and each closing movement of the gate, substantially as described.

2. In a lever-operated sliding gate, the combination of a gate portion or structure, gate-posts, wheels borne by two of said posts and adapted to support and guide said gate, a pivoted arm, a bar pivotally connected with said arm and gate, an upright attached to said gate, a rod 15 having bent ends secured to said upright and forming a retaining-guide for said connecting-bar, a weight, one of said posts being relatively longest and having a vertical slot capable of receiving said weight, angle-irons edging said slot, rollers borne by the weight, a bar pivotally connecting said arm and weight, cross-pieces fixed upon said longest post, levers fulcrumed upon said cross-pieces, links pivotally joining said weight and said levers, and hand-rods shackled to the free ends of the levers, said weight rising and falling during each opening and each closing movement of said gate, as set forth.

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

ALEXANDER MASON.

Witnesses:
HENRY HUNT,
JAMES B. PORTER.