

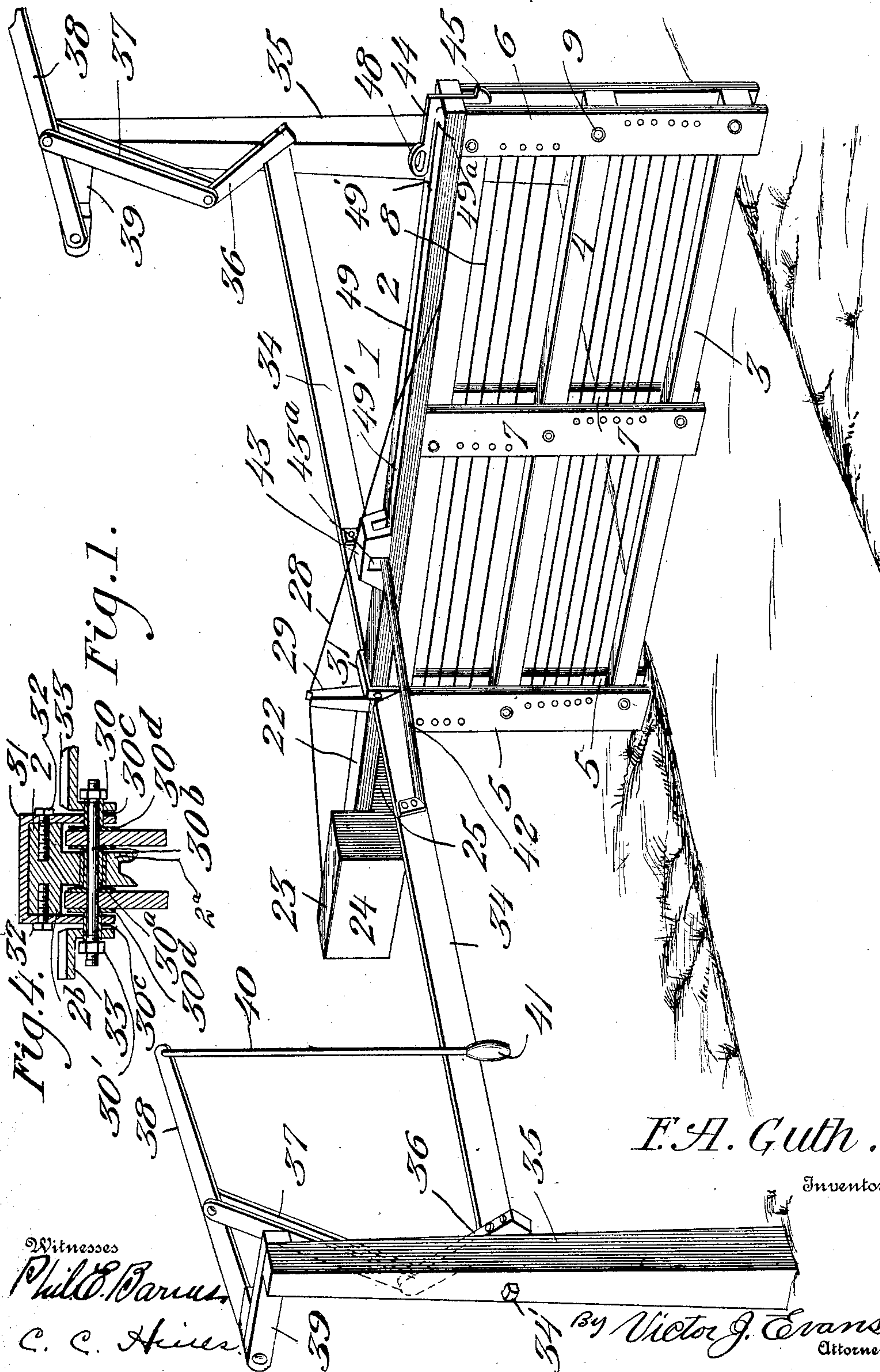
No. 827,630.

PATENTED JULY 31, 1906.

F. A. GUTH.  
GATE.

APPLICATION FILED MAR. 3, 1906.

3 SHEETS—SHEET 1



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Inventor

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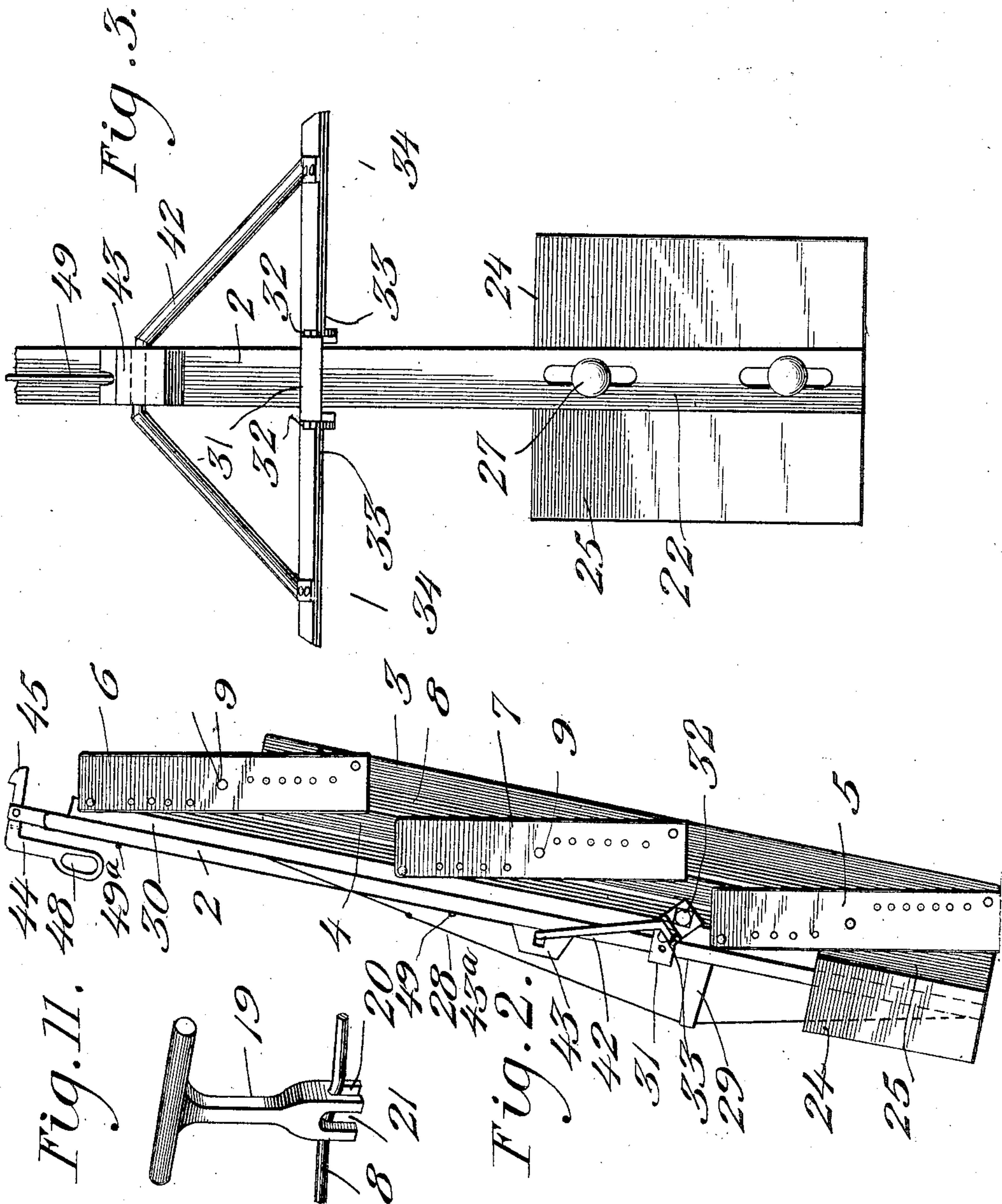
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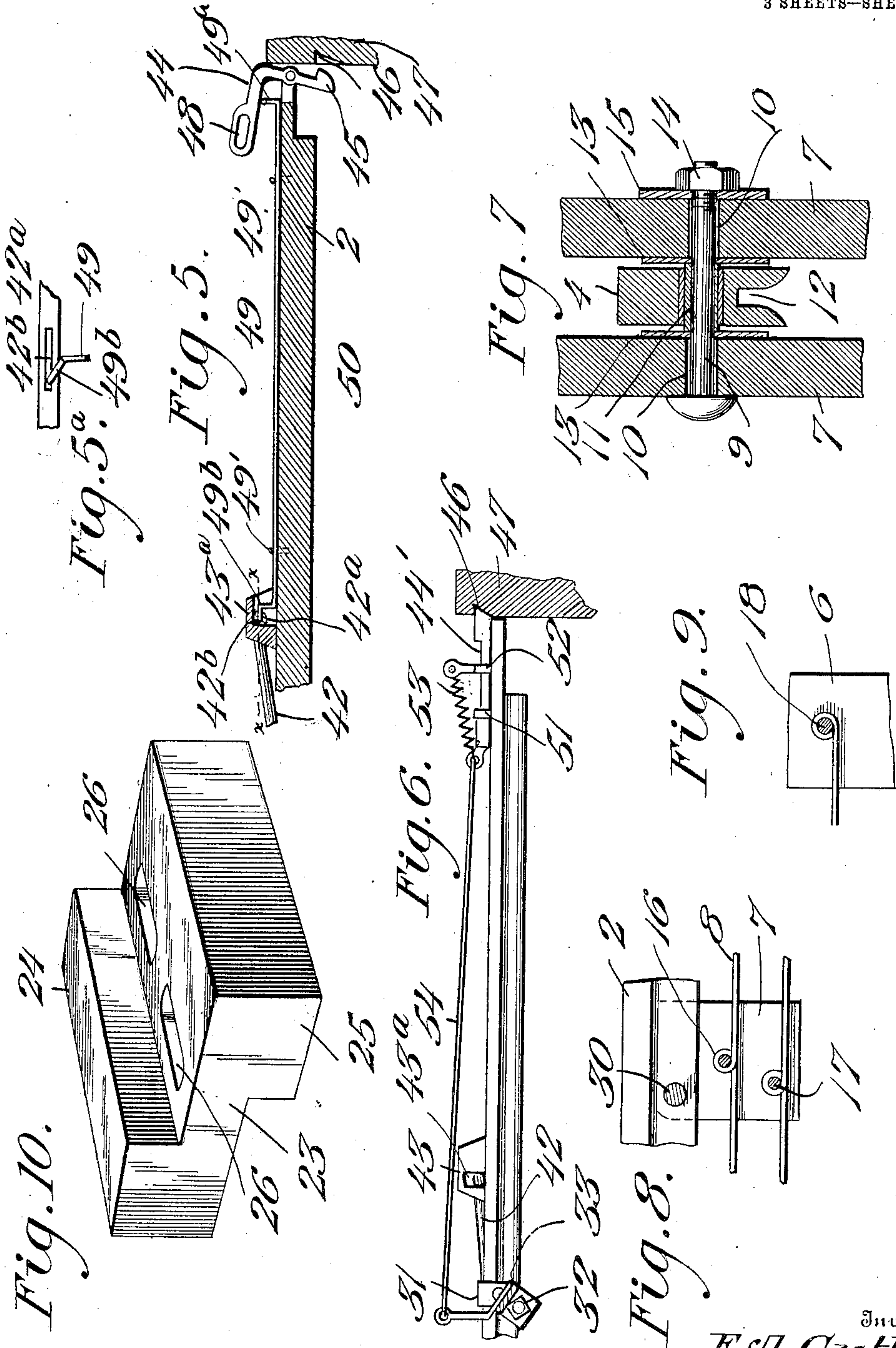
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# UNITED STATES PATENT OFFICE.

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## GATE.

No. 827,630.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed March 3, 1906. Serial No. 304,028.

*To all whom it may concern:*

Be it known that I, FREDERICK A. GUTH, a citizen of the United States of America, residing at Waverly, in the county of Pike and State of Ohio, have invented new and useful Improvements in Gates, of which the following is a specification.

This invention relates to improvements in the construction of vertically swinging or tilting and folding gates, and is designed to provide an accurately-balanced gate which is adapted to be folded in close compass and may be easily and conveniently operated directly by hand or through actuating devices extending to opposite sides of the gateway, whereby the gate may be readily opened and closed by a pedestrian, rider, or driver and whereby any tendency of the parts to hang or bind in the opening and closing of the gate will be effectually prevented.

The invention is further designed to provide a gate of this character which is simple of construction, efficient in use, and comparatively inexpensive of production, and embodies improved operating and latch mechanism.

With the above and other objects in view the invention consists of the novel construction and combination of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a gate embodying my invention, showing the gate in closed position. Fig. 2 is an elevation of the gate in open position. Fig. 3 is a fragmentary top plan view of the top bar of the gate and parts carried thereby. Fig. 4 is a section through the pivotal connections between the stationary pickets and top bar of the gate. Fig. 5 is a vertical longitudinal section through the upper portion of the gate and keeper-post, showing the latch mechanism. Fig. 5<sup>a</sup> is a detail showing the operating connection between the V-lever and latch-rod, the crank being illustrated in raised position to retract the latch. Fig. 6 is a side elevation of the top bar with cooperating parts in section, showing a modification in the latch mechanism. Fig. 7 is an enlarged detail cross-section, showing one of the pivotal connections between the parts of the gate. Figs. 8 and 9 are detail views showing the mode of connecting the wire strands with the center and end pickets of the gate. Fig. 10 is a detail view of the counterweight-block. Fig.

11 is a similar view of the wire-tightening device, indicating its mode of use.

Referring to the drawings, the numeral 1 designates a tilting gate composed of top and bottom longitudinal bars 2 and 3 and a central longitudinal bar 4, pairs of terminal and central pickets 5, 6, and 7, located on opposite sides of said longitudinal bars and pivotally connected therewith, and longitudinal strands 8 of wire filling the spaces between the longitudinal bars.

The pickets 5 are disposed at the rear end of the gate and are embedded in the ground or fixed to a suitable base to serve the function of a post on which the gate swings or tilts, while the top bar 2 is of sufficient width to give strength and rigidity to the gate structure and is preferably T-shaped, having a vertical portion 2<sup>a</sup>, which extends between the pickets, and a horizontal portion 2<sup>b</sup>, projecting laterally over and beyond the same.

The longitudinal bars and pickets are pivotally connected by bolts 9 to fold in the manner shown in Fig. 2 when the gate is swung to open position. Each of these bolts 9 extends through openings 10 in the pickets and through a bearing-sleeve 11, fitted in a box 12 in the associated longitudinal bar, as shown in Fig. 7. Washers or wear plates 13 surround the bolt on opposite sides of the bar between the same and the pickets and are held in the desired frictional contact with the bar by the sleeve 11, which is somewhat longer than the box within which it fits, so that the ends thereof will project beyond the bar and bear upon the washers to force the same against the pickets when the bolt is tightened by the action of its securing-nut 14. By this means the parts of the gate will be prevented from shifting out of alignment from undue play and from binding or hanging in the movements of the gate. The nut 14 is preferably arranged to bear against a washer 15 engaging the face of the adjacent picket.

The wires 8 are provided with eyes or loops 16 to engage bolts 17, connecting the intermediate pair of pickets 7, and are looped or coiled at their extremities about corresponding bolts 18, connecting the pairs of end pickets, the sets or series of bolts above the central pivots of each set of pickets being arranged in rear and in front of the center line of the pickets to connect the parts in such manner as to secure an easy folding operation. When slackness in the wires occurs, the



wires may be conveniently tightened by bending or crimping them in the manner and by the use of a form of tool such as shown in Fig. 11, said tool 19 having opposite sets of slots 20 and 21, disposed at right angles to each other and of different depths or widths, so that they may be alternately used to deflect the wire in different planes and to different extents to adjust the wire to the desired tension and prevent stretching of the deflected portion.

The top bar 2 is provided with an extension-arm 22, carrying a counterweight 23 to balance the gate, said weight preferably consisting of a cement block having upwardly and downwardly extending enlargements 24 and 25, located on opposite sides of its longitudinal center and provided centrally with elongated openings 26 for the reception of fastening-bolts 27, passing through corresponding openings in the arm 22, whereby the block may be adjusted longitudinally on said arm for attachment in the proper position to balance the gate. The enlargements 23 impart the requisite weight to the block and are so located as to permit the block to be reversed with either enlargement projecting uppermost when the gate is in closed position and also to clear the sides of the pickets 5, on which they are located, when the gate is swung to open position. A rod or wire 28 is attached at one end to the arm 22 and at the other end to the top bar 2 in advance of the center of the gate and passes intermediately over a short post 29, located on the bar 2 above the stationary pickets 5, the rod or wire thus forming a truss to stay the free end of the gate.

The gate is hung upon the stationary pickets 5 by a main pivot-bolt 30, which projects through the depending portion 2<sup>a</sup> of the top bar 2 and through the upper ends of the pickets 5 and the arms of an inverted-U-shaped saddle or bracing-iron 31, straddling said bar and secured thereto by suitable fastenings 32, the ends of the bolts extending beyond the arms of the saddle and threaded to receive nuts 30'. The short arms of L-shaped brackets or straps 33 are pivotally mounted upon the extended ends of the bolts and confined thereon by the nuts 30', and the long arms of said brackets are fastened to the inner ends of actuating-bars 34, projecting in alinement with the stationary pickets in opposite directions beyond the gate and on opposite sides of the gateway. The bolt preferably extends through a bearing-sleeve 30<sup>a</sup>, mounted in a boxing 30<sup>b</sup> in the top bar, and through similar sleeves 30<sup>c</sup>, mounted in the openings in the arms of the saddle and brackets, and washers or wear-plates 30<sup>d</sup> are arranged on the bolt between the pickets and arms of the saddle. The sleeves 30<sup>a</sup> and 30<sup>c</sup> are longer than the openings in which they are fitted, so as to bear against the washers

and nuts in the manner shown in Fig. 4, so that by adjusting the nuts any undue looseness or play between the parts may be effectually taken up and prevented and any tendency of the pivotal connections to bind obviated.

Each bar 34 is pivoted at its outer end, as by a bolt 34', to a supporting-post 35 and has fixed to it a crank-arm 36, connected by links 37 to a main operating-lever 38, fulcrumed to a horizontal post extension 39 and carrying at its free end a depending rod 40, having a handle 41. The bars 34 constitute, in effect, rock-shafts actuated by the lever mechanism just described for swinging the gate on its fulcrum-bolt to an open or closed position, a downward pull upon the handle 41 serving to swing the gate to open position, while an upward push upon said handle will swing the gate to closed position. Motion is transferred from the bars or rock-shafts to the gate through the medium of a substantially V-shaped lever 42, terminally attached to the inner ends of said bars and extending across the bar 2 through the vertically-slotted side walls of a hollow pivot block or eye 43, fastened to the top of the bar, the construction being such that motion will be imparted to the gate and simultaneously to both rock-shafts when the actuating-handle of the lever mechanism of either rock-shaft is operated.

The free end of the top bar 2 carries a gravity-latch 44 in the form of a bell-crank lever whose vertical arm is provided with a locking lug or dog 45 to engage a keeper 46 in the latch-post 47, while the upper or horizontal arm of said lever is enlarged to form a handle 48 and to weight the lever so as to adapt it to automatically throw the lug 45 into locking position. A rocking, latch-controlling rod 49 is journaled in bearing-staples 49' on top of the bar 2 and has its end portions provided with cranks 49<sup>a</sup> and 49<sup>b</sup>, the first arranged below the horizontal arm of the latch and the other operatively connected with the central portion of the lever 42.

As shown in Fig. 5, the free end of the crank 49<sup>b</sup> engages a longitudinal groove or slot 42<sup>b</sup>, formed in the central portion 42<sup>a</sup> of the lever 42, which portion 42<sup>a</sup> extends through the pivot-block 43 across the top bar 2. The construction of this connection between the latch-rod and lever 42 is such that the upward and downward movements of the part 42<sup>a</sup> of the lever in the pivot-block 43 will swing the crank 49<sup>b</sup> to rock the rod 49.

Fig. 5<sup>a</sup> represents the lever and crank in raised position or in the position occupied by said parts when the lever 42 is disposed to swing the gate and the crank is actuated to retract the latch. When the lever 42 swings upwardly, the crank 49<sup>b</sup> is moved from a normally horizontal position to the position shown in Fig. 5, and consequently rocks the rod 49 to cause the crank 49<sup>a</sup> to raise the arm



48 of the latch 44 and retract the locking member 45 of said latch. When the lever 42 swings downwardly, the crank 49<sup>b</sup> will be returned to normal position, thus swinging the crank 49<sup>a</sup> out of engagement with the latch and allowing the latter to be projected by the action of gravity. Hence it will be apparent that when the lever 42 is operated to swing the gate to open or closed position the latch will be automatically retracted and projected. The slot 42<sup>b</sup> is provided to allow the crank 49<sup>b</sup> to have the necessary lateral play as the lever 42 moves up and down in the pivot-block.

15 In the construction shown in Fig. 6 the latch 44' is of the sliding type and is mounted in guides 51 and 52 and projected by a spring 53, attached to the guide 52 and inner end of the latch, which latter is connected by a link-rod 54 with one of the actuating-bars or rock-shafts, whereby the same result is secured.

The simplicity of the gate structure will be apparent, and it will be seen that the parts thereof are constructed and combined in such a manner as to permit ready adjustment of the pivotal connections to compensate for wear, while securing a free and easy action of the gate with an absence of binding of the parts, and that an exceedingly strong and durable gate structure is provided. It will of course be understood that the latch may be released and the gate swung by hand or through the use of the mechanical operating means herein shown, as desired.

35 Having thus described the invention, what is claimed as new is—

1. A vertically-tilting gate having an extension-arm, and a counterweight-block mounted on said arm, said block being provided with oppositely-extending weighting projections, and adapted to be reversed upon the arm.

2. In a gate mechanism of the character described, the combination of a vertically-tilting gate, said gate being provided with a counterweighted top bar, a stirrup secured to said bar, a pivot-bolt fastening the stirrup and bar to the pivot-post of the gate, brackets pivotally mounted upon the bolt, rock-shafts connected with the brackets, and means for actuating said shafts.

3. In a gate of the character described, the combination of a pivot-post, a vertically-tilt-

ing gate having its portions pivoted to swing at an angle, said gate being provided with a counterweighted top bar having a depending rib, a stirrup secured to the top bar and having its arms depending on opposite sides of said rib, a bolt extending through the rib and arms of the support and pivotally connecting the gate with the pivot-post, brackets pivotally engaging the pivot-bolt, rock-shafts connected with the brackets, means for operating said shafts, and operating connections between the shafts and gate for imparting a swinging motion to the latter.

4. In a gate of the character described, the combination of a pivot-post, a vertically-tilting gate pivoted to said post, said gate having its portions pivoted to swing at an angle and provided with a counterweighted top bar, a slotted fulcrum-block carried by said top bar, rock-shafts arranged on opposite sides of the gate, a lever having angularly-arranged arms connected with the rock-shafts and a connecting portion operating in the slotted block, means for actuating the rock-shafts, and latch mechanism controlled by the movement of the lever in the slotted block.

5. A gate of the character described comprising longitudinal bars, vertical pickets disposed on opposite sides of said bars, pivot-bolts connecting the bars and pickets, rows of bolts connecting the pickets of each pair, said rows being respectively arranged in front and rear of the pivotal connection between the pickets and central longitudinal bar, and wires extending between the bars and through the spaces between the pickets and terminally and intermediately connected with said rows of bolts.

6. A vertically-tilting folding gate provided with an automatically-projected latch, a block fixed to the gate and having slots, rock-shafts, a lever connected with the rock-shafts and extending through the slots in the block, and an operating connection between the latch and lever controlled by the movement of the lever in said slots.

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

FREDERICK A. GUTH.

Witnesses:

WALTER KING,  
JOHN W. ATKINSON.