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GATE OPERATING MECHANISM.

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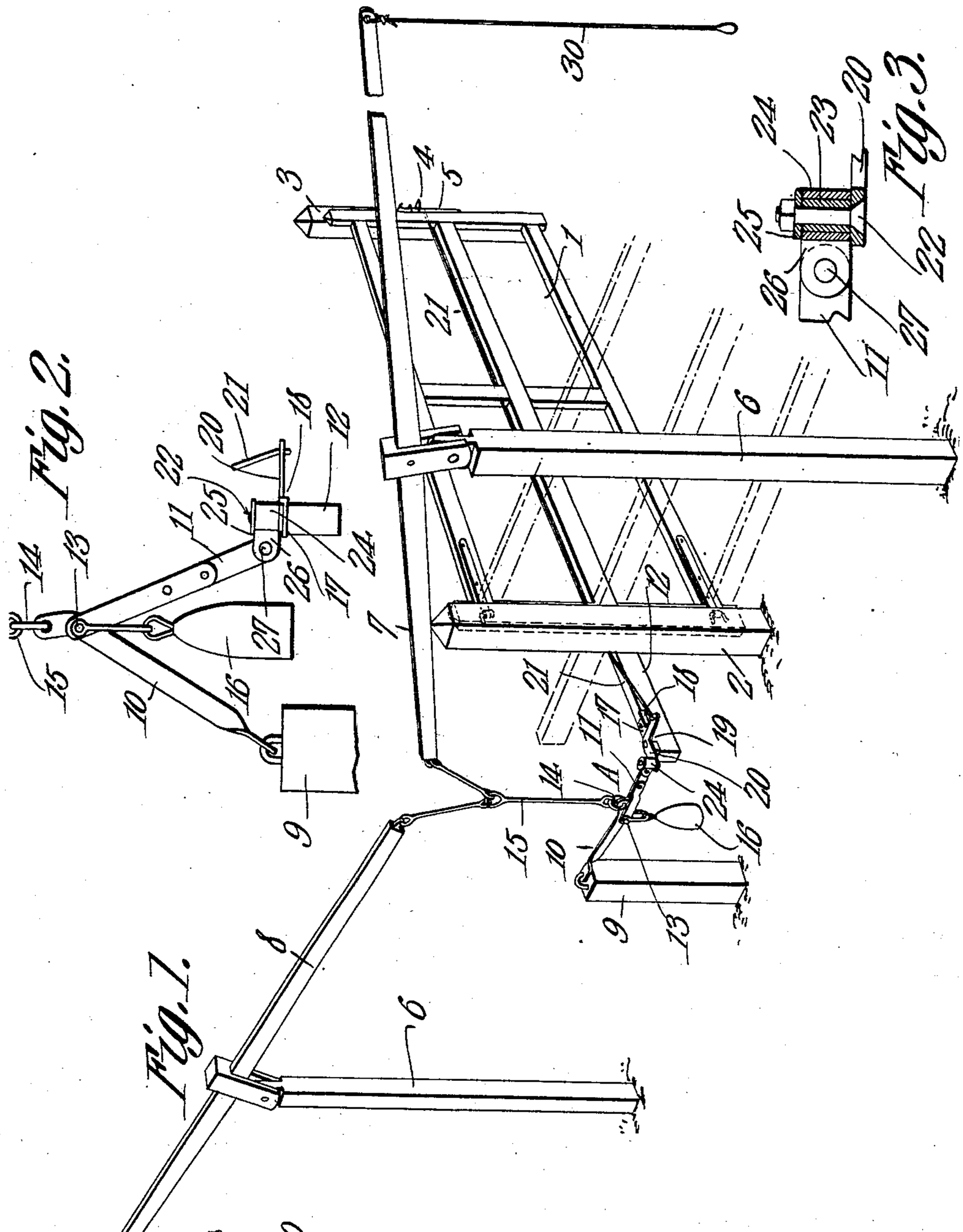

Fig. 1.

Fig. 2.

Fig. 3.

Witnesses

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GATE-OPERATING MECHANISM.

No. 910,782. Specification of Letters Patent. Patented Jan. 26, 1909.

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To all whom it may concern:

Be it known that I, JAMES E. BUCKMAN, a citizen of the United States, residing at Shelbyville, in the county of Shelby and State of Kentucky, have invented a new and useful Gate-Operating Mechanism, of which the following is a specification.

This invention relates to mechanism for opening and closing gates from a distance; and has for its object to provide a simple and efficient mechanism for swinging a gate, which mechanism shall, upon being operated open and close the gate and positively hold it in opened or closed position until the mechanism is again operated.

To this end, the invention comprises a pair of toggle levers, one of which is pivoted to the gate and the other to a fixed support. The toggle levers are held in extended position by means of a weight and flexed by either of a pair of overhead levers suitably connected to said toggle. Pulling on either lever raises the toggle joint, which reaches its extreme limit of flexure when the gate is half way between its open and closed position, but the momentum of the gate carries the toggle levers over this point and the weight suspended therefrom completes the movement of the gate and again extends the toggle.

With these and other objects in view the invention consists of the combination and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawing, in which—

Figure 1 is a perspective view of a gate equipped with the improved operating mechanism; Fig. 2 a detail view of a portion of said mechanism and Fig. 3 an enlarged sectional view of a detail of the invention.

Similar reference characters are used for the same parts in all the figures.

In the drawing, 1 indicates a gate of any ordinary type of construction hinged to a post 2 and closing against a post 3, provided with a keeper 4 for a spring latch 5, fastened to the swinging end of the gate. At a suitable distance on each side of the gate post 2 is an upright post 6, each higher than the gate post and each having a long operating arm or lever fulcrumed on its upper end, said levers adapted to oscillate in the same plane. The inner ends of the levers 7 and 8 terminate a short distance from each other but their outer ends extend far enough from the gate to permit it to open without interference.

At the proper distance from the hinge post 2 on the side opposite that towards which the gate swings is a fixed support 9, such for instance as the short post represented in the drawing. Hinged to the top of the support 9 so that it can swing freely in both a vertical and a horizontal direction is one member 10 of a toggle A, the other member 11 is suitably pivoted to one of the rails 12 of the gate or to an arm extended rearwardly therefrom.

The member 10 of the toggle A is, as before described, pivoted to the support 9 so as to move vertically and horizontally and extends a short distance beyond the connecting pivot 13 with an upward curve which is perforated at the end for a ring 14 or other means for the attachment of rods chains or other connecting devices 15 extending upwardly to the inner ends of the levers 7 and 8. A weight 16 is flexibly suspended from the pivot 13 and tends at all times to hold the toggle in extended position and the gate open or closed as the case may be. The ring or other means 14 forms a stop to bear on the member 11 for preventing the toggle members dropping downwardly out of a straight line.

Fastened on the top of the extended rail or arm 12 of the gate, at its end is a plate 17 having an upturned flange 18 on one edge slotted at 19 to enable one arm of an elbow lever 20 pivoted at its angle to said plate to project therethrough and slightly beyond the side of the rail. A wire 21 or other suitable means extends from said elbow lever to the spring latch 5 of the gate. It follows, therefore, that when the elbow lever is rocked, the wire 21 will disengage the latch from its keeper and free the gate.

The other arm of the elbow lever 20 has an end perforation for a bolt 22 which projects upwardly therethrough from the bottom where the hole is countersunk for the bolt head.

Surrounding the bolt is a tubular thimble 23, which may be of gas pipe, to form a journal or bearing for a sleeve 24 mounted thereon and held in place by a washer 25 on the bolt 22 overlying the sleeve 24 and held close against the end of the thimble 23 by riveting the end of the bolt over the washer or by a nut screwed on the bolt. The thimble is thus held in fixed position while the sleeve turns freely thereon and is prevented from escaping by the washer 25. The sleeve 24

has projecting from one side two lugs or fingers 26 between which the outer end of the toggle member 11 is placed and held by a horizontal pivot 27. The inner end of the member 11 is forked to straddle the member 10 as shown.

Let it be assumed that a person walking, riding or driving approaches the gate from either direction and finds it closed, as represented in Fig. 1. The rope 30, which hangs from the outer end of each lever 7 and 8, is grasped by the hand and drawn down, raising the inner end of said lever and the joined ends of the toggle members 10 and 11. The first result of this movement is to rock the elbow lever 20 and unlatch the gate, after which the extended end of the rail 12 is drawn toward the fixed support and the gate begins to open, gaining momentum until the toggle has been flexed to its greatest limit, see Fig. 2, and the gate swung to a half open position. At this point the pivotal axis of the toggle and the hinges of the gate lie in the same vertical plane. The momentum imparted to the gate carries it beyond this point to the other side of the plane when the toggle begins to extend or open again and, owing to the weight 16, the toggle continues to straighten and push the gate until it is wholly opened and the toggle returns to its straight line position. After passing through the gate, a like pull on the other rope 30 will cause the gate to close by a similar operation of the mechanism used to open it.

The various parts of the mechanism may be made of iron or steel, either cast, malleable, or rolled and stamped into shape.

What is claimed is:—

1. The combination with a gate and its latch, of an operating mechanism comprising a lever mounted on the gate to the rear of its hinges, a connection between said lever and the latch, a sleeve swiveled on the lever, a support, toggle levers, one of which levers is pivoted to a support, and the other to the aforesaid sleeve, and means for operating the toggle levers.

2. A gate operating mechanism comprising a gate, toggle levers, one of which levers is pivoted to a fixed support and adapted to swing vertically and horizontally thereon, a sleeve horizontally rotatable on a rearward extension on the gate and having lugs on which is pivoted the second arm of said toggle lever, means for preventing said toggle levers from dropping below their extended position, means for flexing said toggle levers to swing said gate to mid position between open and closed, and a weight for lowering said toggle levers to full extended position for completing the movement of said gate in either direction.

3. A gate operating mechanism comprising a gate, toggle levers, one of which levers is pivoted to a fixed support and adapted to swing in both a vertical and horizontal direction, a flanged plate fastened to a rearward extension of said gate, a lever fulcrumed to said plate and adapted to operate the latch of the gate, a vertical thimble on the opposite end of said lever, a sleeve mounted to turn on said thimble and having arms for the outer end of the other toggle lever, a weight tending to extend the toggle levers, and means for flexing said toggle levers to start the swinging gate into action.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES E. BUCKMAN.

Witnesses:
P. R. Beard,
W. H. Tipton.