Dec. 25, 1951 E. S. BERGLUND 2,579,463

GATE OPENER

Filed May 3, 1949 2 SHEETS—SHEET 1

Fig. 1.

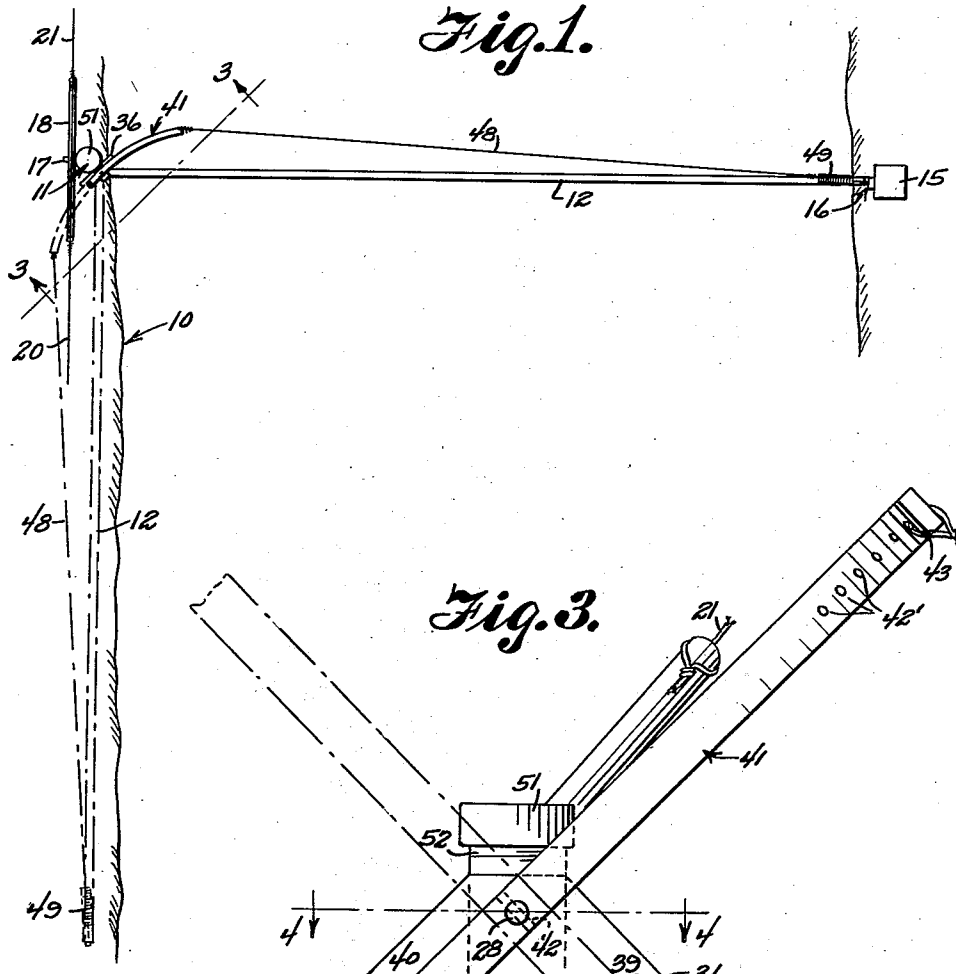


Fig. 3.

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Fig. 2.

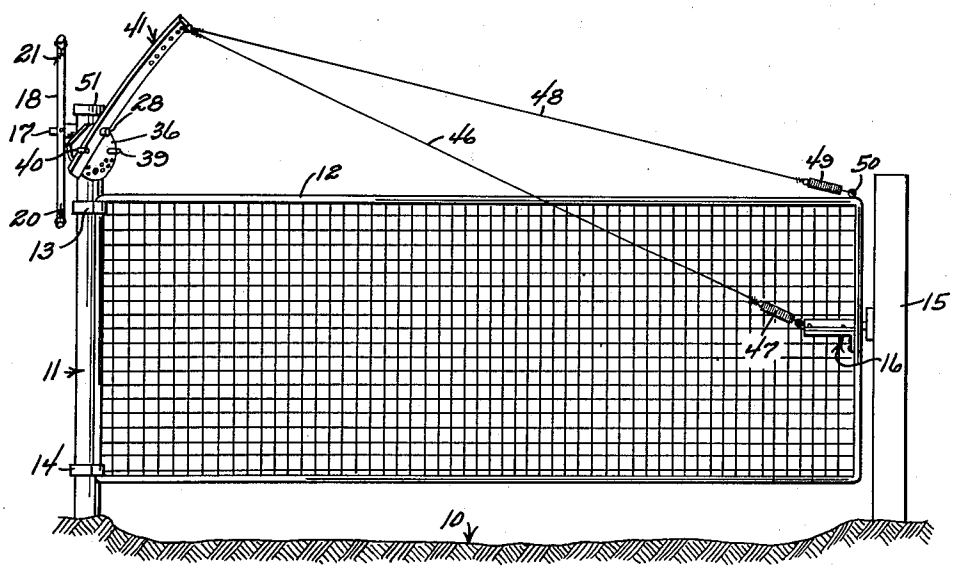


Fig. 4.

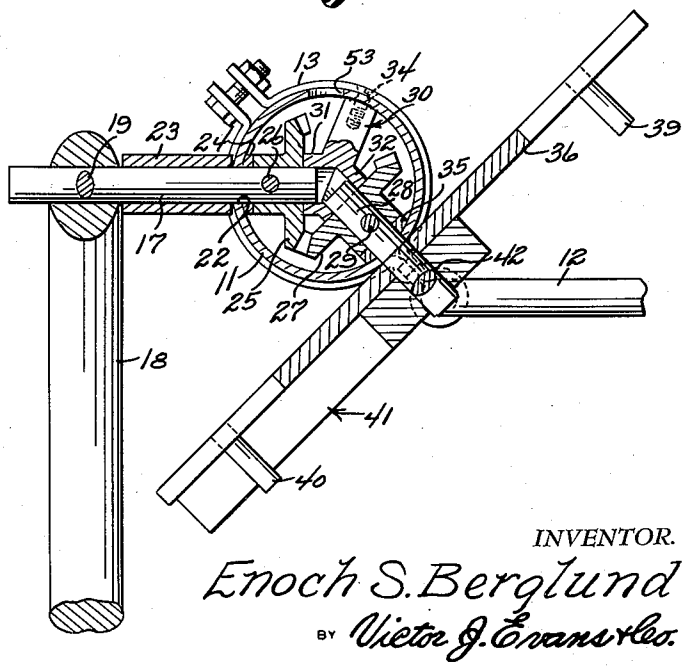
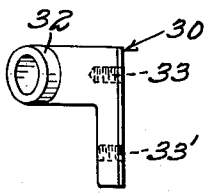


Fig. 5.



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GATE OPENER

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Application May 3, 1949, Serial No. 91,137

2 Claims. (Cl. 39—51)

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This invention relates to a gate operating mechanism, and more particularly to a mechanism for opening and closing a farm gate.

The object of the invention is to provide a mechanism which will enable the occupant of a vehicle to open and close the gate without alighting from the vehicle.

Another object of the invention is to provide a gate operating device which is constructed so that a person can open and close the gate without dismounting from a horse, or alighting from a vehicle.

A further object of the invention is to provide a gate operating device which is extremely simple and inexpensive to manufacture.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is a top plan view of a gate provided with the operating mechanism, according to the present invention;

Figure 2 is a side elevational view of the gate provided with the operating mechanism;

Figure 3 is an enlarged sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a sectional view taken on the line 4—4 of Figure 3; and

Figure 5 is an enlarged side elevational view of the shaft support shown in Figure 4.

Referring in detail to the drawings, the numeral 10 designates a roadway which may run in any direction as for example, east and west, or north and south. Supported in the ground is a vertically disposed hollow post 11, and a gate 12 is mounted for swinging movement about the vertically disposed post 11. A pair of spaced parallel brackets 13 and 14 hingedly connect the gate 12 to the post 11 and the position of the brackets 13 and 14 can be varied as desired in order to support gates of various sizes.

The present invention is directed to a device for automatically opening and closing the gate 12. Thus, an occupant of a vehicle or a person mounted on a horse can open the gate without alighting from the vehicle or without dismounting from the horse. Arranged in spaced parallel relation with respect to the post 11 is a vertically disposed upright 15 and the gate 12 and the upright 15 are provided with a conventional coacting latch mechanism 16 which normally maintains the gate 12 locked when the gate 12 is in its closed position as shown in Figure 2.

Rotatably supported by the top of the post 11 is a first horizontally disposed shaft 17, and an

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actuating arm 18 is connected to the first shaft 17 by means of a pin 19, Figure 4. Connected to one end of the arm 18 is a pair of cables or lines 20, while connected to the other end of the arm 18 is a similar pair of cables or cords 21. The cables 20 and 21 extend parallel with the roadway 10 and are adapted to be gripped and pulled by the user to rotate the arm 18 when the gate is to be opened or closed. The cables 20 and 21 may have a counterweight connected to their outer or free ends so that after the user has pulled on the cables to open the gate, the counterweights will return the gate to its normal or closed position. The shaft 17 projects through an opening 22 in the post 11, and a sleeve 23 is circumposed on the shaft 17, the sleeve 23 serving to maintain the arm 18 in proper spaced relation. A washer 24 is circumposed on the shaft 17 and is arranged within the post 11. A bevel gear 25 is mounted on the inner end of the shaft 17 and is secured on the latter by means of a pin 26. Arranged in meshing engagement with the bevel gear 25 is a second bevel gear 27 which is mounted on a second shaft 28. A pin 29 serves to maintain the bevel gear 27 fixed on the shaft 28. Thus, upon rotation of the shaft 17, the shaft 28 is caused to rotate since the gear 25 and gear 27 are arranged in meshing engagement with each other. However, in place of using intermeshing gears for connecting the shafts together, other coupling means may be used, such as a universal joint, or a flexible shaft.

The shaft support 30 is provided for maintaining the shaft 17 and 28 in alignment and the shaft support 30 includes a pair of diverging socket members 31 and 32 which rotatably receive therein the inner ends of the shafts 17 and 28 respectively. The support 30 is provided with a pair of interiorly threaded recesses 33 and 33' which threadably receives therein set screws 34, Figure 4, for maintaining the shaft support 30 immobile. Circumposed on the shaft 28 and arranged contiguous to the inner surface of the post 11 is a washer 35. A sector shaped plate 36 is arranged contiguous to the outer surface of the post 11, and suitable securing elements, such as screws 37, secure the plate 36 to the post 11. The plate 36 is provided with a plurality of spaced openings 38 therein for receiving and snugly holding stop members 39 and 40, and the stop members 39 and 40 can be positioned in any of the openings 38 desired in order to limit pivotal or swinging movement of the bar 41. A pin 42 connects the bar 41 to

the shaft 28, so that movement of the arm 18 causes the bar 41 also to move, the bar 41 being arranged contiguous to and in sliding relation with respect to the plate 36.

The upper end of the bar 41 is provided with a plurality of spaced openings 42 which are adapted to selectively receive a wire hook 43 therein. Carried by the wire hook 43 is a pair of cables 46 and 48, the cable 46 being connected to a spring 47. The spring 47 is connected to the slide bolt of the latch 16, so that rotation of the arm 41 disengages the slide bolt of the latch 16 to thereby permit the gate to be swung open.

The line or cable 48 is connected to a spring 49, and the spring 49 is connected to an eye bolt 50 which is connected or secured to the end of the gate 12. Thus, movement of the bar 41 will cause swinging movement of the gate 12 at the same time that the latch 16 is being opened.

A cap 51 is arranged in threaded engagement wtih the threaded exterior portion 52 of the post 11 to protect the inner working parts of the gate operating mechanism from adverse weather conditions, such as rain, dust, snow and the like.

In use, with the gate 12 in its closed position and extending across the roadway 10, an occupant of a vehicle or a person mounted on a horse can open the gate without the necessity of alighting from the vehicle or dismounting from the animal. To open the gate, the person pulls on the cables 20 or 21 depending on the direction of travel of the person. By pulling on the cables 20 or 21, the arm 18 is rotated, thereby rotating the shaft 17, and this in turn results in a rotation of the shaft 28, since the gears 25 and 27 are arranged in meshing engagement with each other. The rotation of the shaft 28 causes the bar 41 to rotate or pivot and the pivotal movement of the bar 41 can be limited by inserting the stop members 39 in the proper openings 38. Rotation of the bar 41 causes a tension to be exerted on the spring 47 through the line 46 so that the latch 16 is opened to permit swinging movement of the gate 12. At the same time, movement of the bar 41 causes the gate 12 to swing from its solid line position, shown in Figure 1, to the dotted line position so that the vehicle can pass down the roadway 10. Additionally, there is provided an opening 53 which is adapted to receive one of the shafts 17 or 28 in the event that the roadway 10 extends in a different direction so that the gate operating mechanism can be used without requiring refabrication of new parts even though the roadway 10 may run north and south, or east and west.

What I claim:

1. In combination, a vertically disposed hollow post, a gate mounted for swinging movement about said post, a pair of brackets hingedly connecting said gate to said post, a vertically disposed upright spaced from said post and supported by the ground, coacting latch means on said gate and upright for selectively maintaining said gate locked, a first horizontally disposed shaft rotatably supported by the top of said post, an arm connected to said first shaft, cables connected to said arm for turning the latter to thereby rotate said first shaft, a second shaft rotatably supported by said post, intermeshing bevel gears connecting said first shaft to said second shaft, a sector-shaped plate secured to the top of said post and provided with a plurality of spaced openings, a bar arranged in sliding relation with respect to said plate and connected to said second shaft, means arranged in the openings in said plate for limiting movement of said bar, and means connecting said bar to said latch means and to said gate, said last-named means comprising a hook connected to the upper end of said bar, cables connected to said hook, and springs connected to said cables.

2. The apparatus as described in claim 1, wherein the means in the openings in the plate embodies stop members, and a cap arranged in threaded engagement with the upper end of said post for protecting the inner working parts of the gate-operating mechanism.

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