June 19, 1923. 1,459,631

J. LIND

GATE AND OPERATING MECHANISM THEREFOR

Filed Dec. 12, 1921 3 Sheets-Sheet 1

Fig. 1.

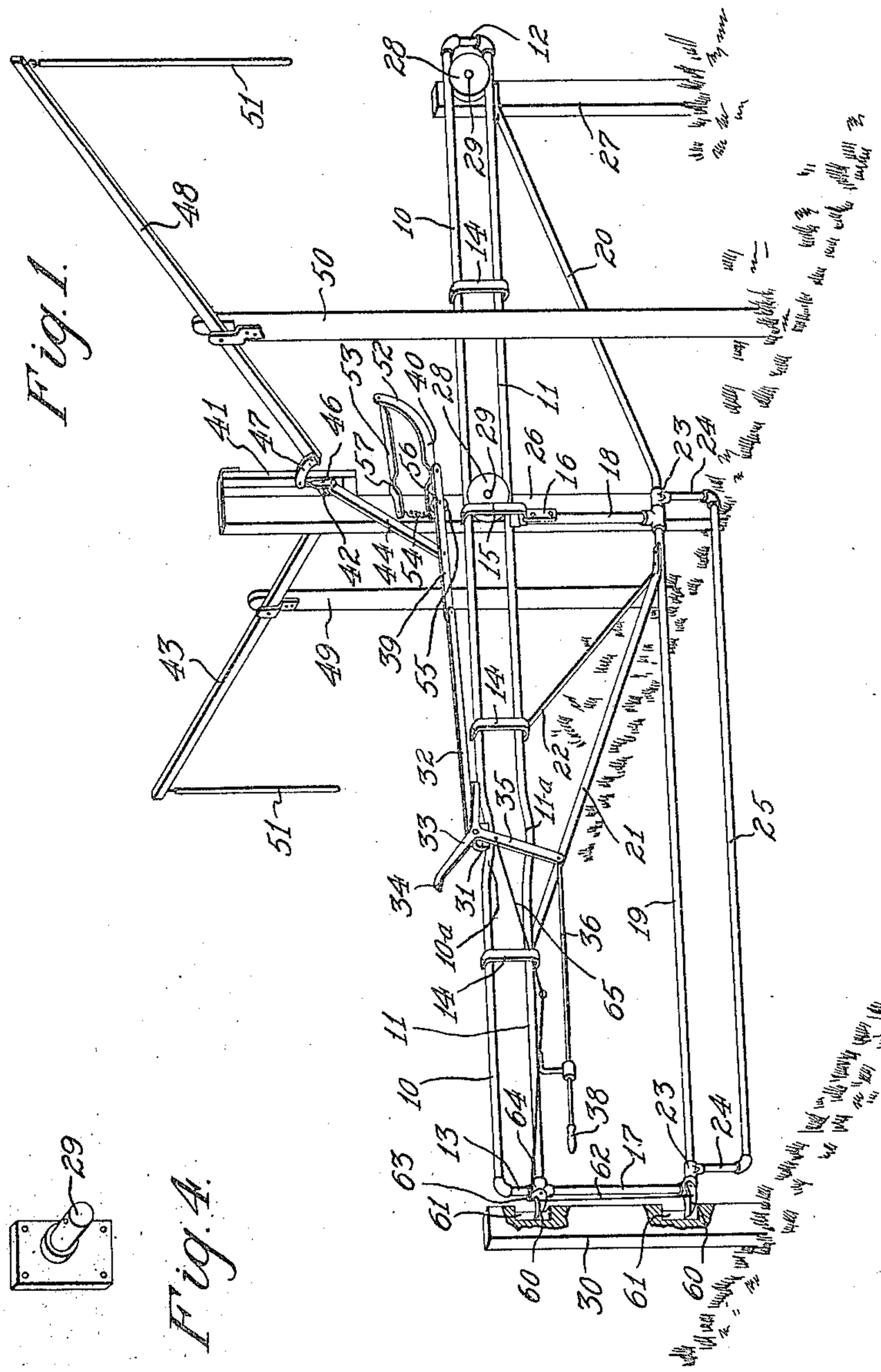

Fig. 4.

George L. Lingloff

WITNESS:

John Lind.

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Filed Dec. 12, 1921 3 Sheets-Sheet 2

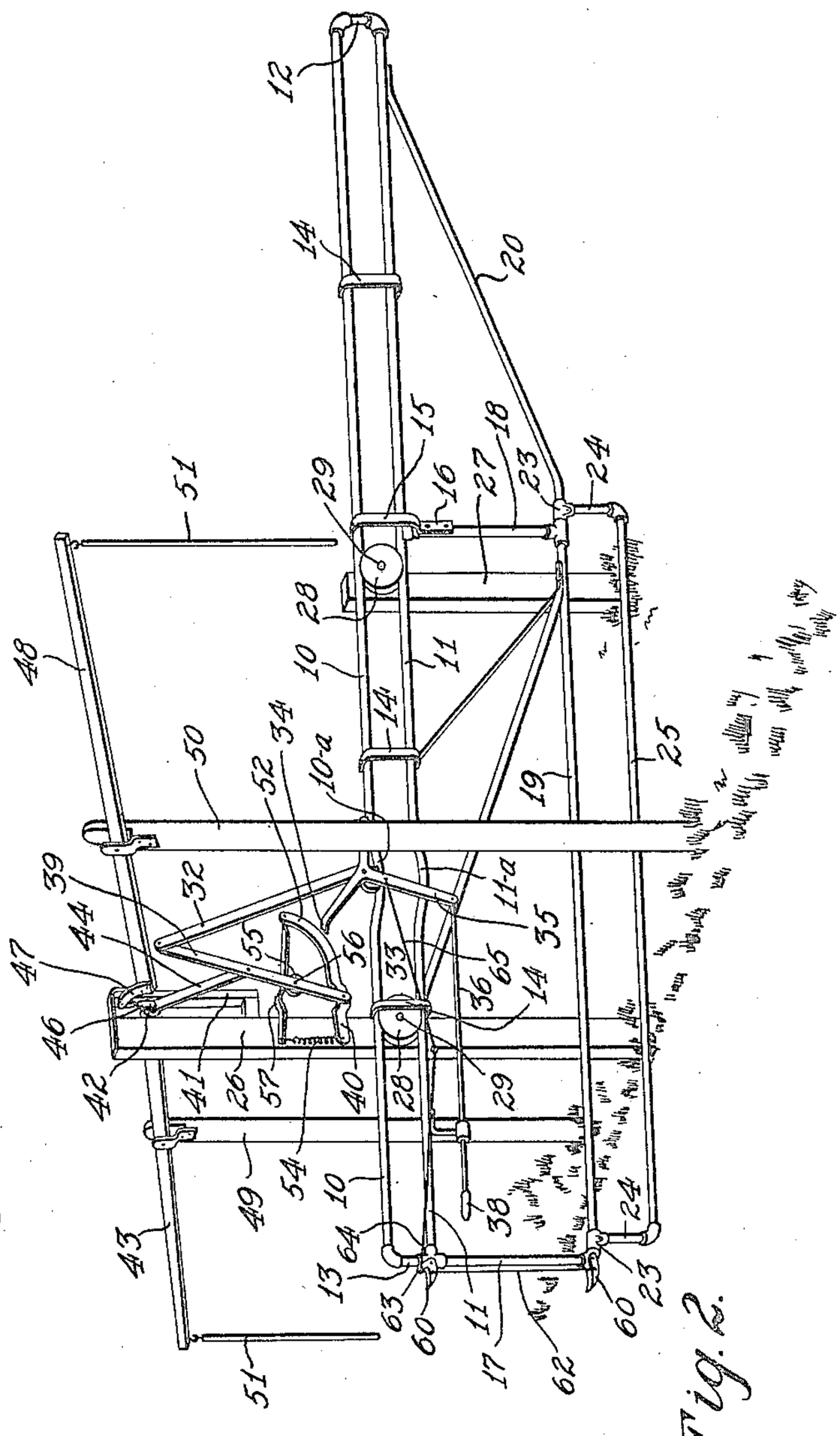

Fig. 2.

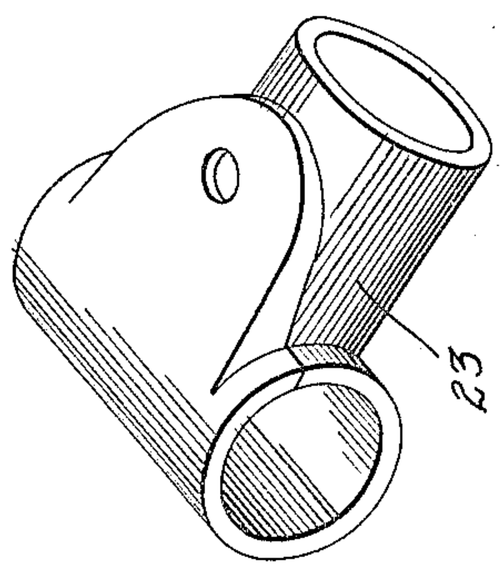

Fig. 7.

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GATE AND OPERATING MECHANISM THEREFOR

Filed Dec. 12, 1921 3 Sheets-Sheet 3

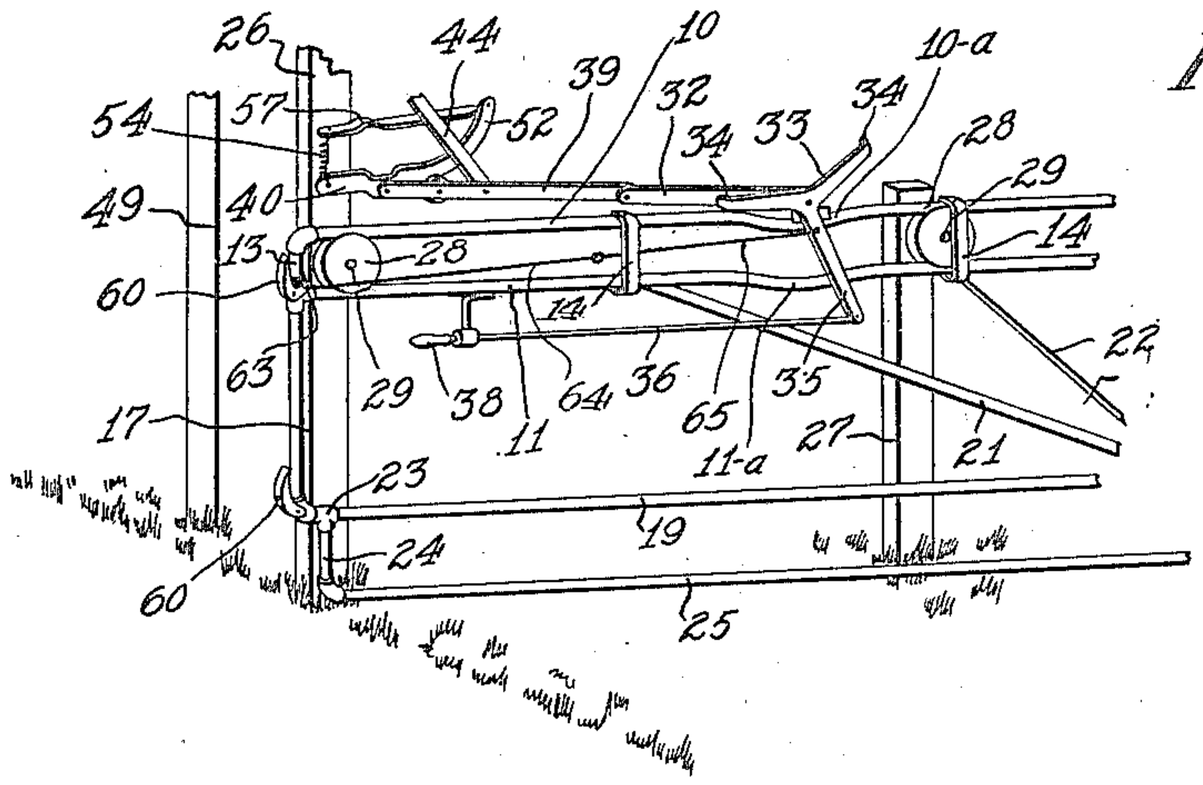

Fig. 3.

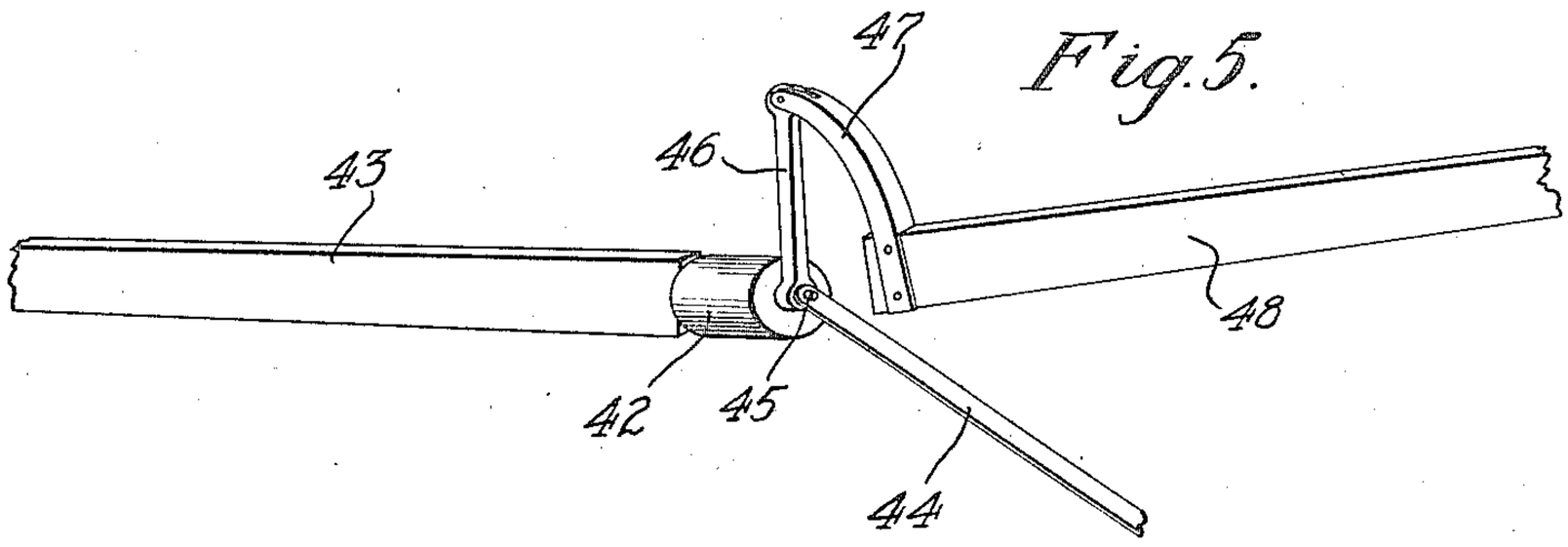

Fig. 5.

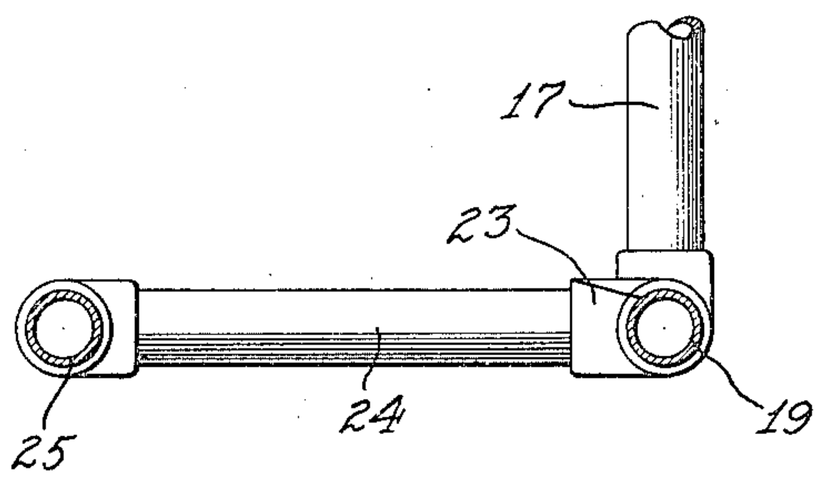

Fig. 6.

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Patented June 19, 1923. 1,459,631

UNITED STATES PATENT OFFICE.

JOHN LIND, CLEARWATER, IDAHO.

GATE AND OPERATING MECHANISM THEREFOR.

Application filed December 12, 1921. Serial No. 521,706.

To all whom it may concern:

Be it known that I, JOHN LIND, a citizen of the United States, residing in the county of Clearwater, State of Idaho, have invented new and useful Improvements in Gates and Operating Mechanism Therefor, of which the following is a specification.

This invention relates to gates such as are used on farms and has for its object the provision of a novel gate and operating mechanism therefor, the gate being operable by a person in a conveyance or at a distance from the gate to open the gate to its fullest extent, and also being conveniently operable by a pedestrian or equestrian directly at the gate for opening the latter only a sufficient distance to permit the pedestrian or equestrian to pass therethrough.

An important object is the provision of a gate structure which has track members peculiarly formed and cooperating with guide rollers whereby to assist the gate either opening or closing after the movement has been started.

Another object is the provision of a gate of this character which is provided with a hingedly mounted section which may be swung upwardly so as to provide clearance in case there is a heavy fall of snow upon the ground or to permit the passage of small animals.

An additional object is the provision of a gate and operating mechanism of this character which will be comparatively simple and inexpensive in manufacture and installation, easy to operate, highly efficient in use, durable in service and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings in which,

Figure 1 is a perspective view illustrating the gate locked in closed position.

Figure 2 is a perspective view illustrating the gate partly open.

Figure 3 is a perspective view of a portion of the gate and the locking mechanism in the position for holding the gate open.

Figure 4 is a detail perspective view of one of the elements of the device.

Figure 5 is an enlarged perspective detail view illustrating the pivotal connection of portions of the operating and locking mechanism connected to the pivot on which the guiding roller is rotatable.

Figure 6 is a cross-sectional view taken through the gate proper and showing the same in swung position for permitting the passage of small animals, and

Figure 7 is a detail perspective view of one of the mountings for the hinged section of the gate.

Referring more particularly to the drawings, I have shown my gate as formed of pipe sections and couplings and including vertically spaced upper and lower track members 10 and 11 which are connected at their ends by pipe sections 12 and 13 and which are connected intermediate their ends by a series of spaced offset bracket members 14 and a bracket member 15 of special construction which is provided with an elongated depending portion 16. Depending from the lower track member 11 in vertical alignment with the end pipe member 13 is an arm 17 depending from the underside of the track member 11 near the other end thereof is an arm 18 which is secured to the extension 16 of the bracket 15. The lower ends of the arms 17 and 18 are connected by a horizontally disposed pipe member 19 and connected with the lower end of the arm 18 at its juncture with the pipe is an inclined brace 20 which is connected with the end member pipe 12. I also provide a brace 21 which is inclined upwardly in the opposite direction and which is connected at one end at the juncture of the pipe 19 with the pipe 18 and which has its other end secured to the underside of the lower track member 11 at a point spaced somewhat from the front end of the gate. It may also be advisable to provide a truss rod 22 connected with the lower end of the arm 18 and connected with one of the bracket members 14 for reinforcing the structure. It is intended that the gate thus described be covered with screen wire of suitable mesh and type, though such is not shown as its illustration would tend to confuse the remaining parts of the device.

Revolubly mounted upon the bar or pipe 19 near the ends thereof are bracket members 23 which are formed as shown in detail in one of the figures of the drawings and with which are connected pipe sections 24 which extend normally downwardly and which are in turn connected by a horizontal pipe or rod 25. By this construction it will

be seen that the lower rod 25 and the pipe members 24 connected therewith may be swung upwardly upon the bar or pipe 19 at the pivot so as to be disposed out of the way for permitting the passage of small animals through the gate or for effecting clearance in case there is deep snow upon the ground. It is intended that the frictional engagement of the members 23 upon the pipe 19 be sufficient that the bar or pipe 25 may be held in its elevated position when desired without danger of its dropping down unintentionally or accidentally.

The supporting and guiding means for the gate includes upright posts 26 and 27, wheels 28, and their pivots 29. A post 30 is provided with means to engage the front end of the gate and hold it against lateral movement.

A bearing member 31 is secured to the upper track member 10 and has a link 32 and actuating lever 33 pivotally secured thereto. The lever 33 has two similar and oppositely extending arms each provided with a lateral extension or shoulder 34. An arm 35 of the lever 33 extends substantially at right angles to a line passing through the shoulders 34 as shown. The arm 35 depends from the pivotal portion of the lever 33 and supports the rear end of the rod 36. A handle 38 is formed or secured on the front end of the rod 36 adjacent to the front end of the gate so that a pedestrian or equestrian may easily reach this handle and open the gate in a manner which will be understood after considering the following description.

A link or lever 39 has one end pivotally connected to the link or lever 32, its other end being pivotally connected to the post 26 through the medium of a bracket 40 on this post, and the pivot 29, of one of the sheave wheels 28, is also mounted on this post, the other sheave wheel 28 being mounted on the post 27 which is provided specially for supporting this sheave wheel. The post 26 not only supports the front sheave wheel 28 and the bracket 40 to which the locking links 32 and 39 are secured, but also support the guiding bar 41 along which a rotatable extension 42 of an operating lever 43 rolls or travels. The rear side of the post 26 constitutes another guide which is parallel with the bar 41 and along which the roller 42 also travels. A link 44 has its lower end pivotally connected to the link 39 and its upper end is pivotally connected to a pivot 45 which constitutes an extension of the pivot or axle on which the roller 42 rotates. A link 46 has its lower end secured to the pivot 45, and its upper end is pivotally connected to a lateral or upward extension 47 of an operating lever 48, the latter extending in the opposite direction from the lever 43. The levers 43 and 48 have posts 49 and 50 as their fulcrums, and depending rods 51 on the ends of the levers 43 and 48 constitute manipulating means for operating the levers 43 and 48 in a manner which is well known.

It should be understood that the link 44 may be comparatively thin and somewhat yieldable laterally and that its pivotal connection with the pivot 45 may be so loose that the necessary angular movement of this link with relation to the length of the lever 43 is obtained without undue bending or straining of the link or its pivot. It should be understood that the pivot 45 is an extension of the lever 43 and may be formed integrally therewith or secured thereto in any appropriate way.

From the above description it will be seen that the pivotal connected links 32 and 39 form a toggle which not only locks the gate in its closed position and in its open position but also coacts with the manipulating member 38, through the medium of the lever 33, and with the manipulating members 51, through the medium of the overhead levers and the links 43 and 49, for sliding the gate longitudinally to its open and closed position.

Assuming that the gate is in closed position shown in Figure 1, the links 32 and 29 are in the position for locking the gate in the closed position, the pivotal connections of these links being substantially aligned. Moreover, it will be seen that the rear shoulder 12 rests upon the upper track member 10. The links or levers 32 and 39 constitute a gate shifting device which is operable either by the actuating lever 43 and 48 or by the structure shown separately in Figure 3. It will be seen that if the handle or manipulating member 38 is put to the right or rearwardly of the gate, it will cause the lever 33 to raise the link 32 and thereby shorten the distance between the pivot which connects this link to the gate and to the post 26, thereby causing a rearward movement of the gate so that it rolls or slides along the wheels 28 toward its open position or in the direction in which the handle 38 is being pushed. The person who is manipulating the handle can easily limit the opening movement of the gate so as to provide sufficient room to pass therethrough without opening the gate to its full extent, and this not only saves time and labor of fully opening the gate but also saves the gate and operating mechanism from unnecessary wear. To prevent the links 32 and 39 from falling from their upright position and locking the gate in the half open position, special retaining means is provided. This retaining means comprises an arm or extension 52 of the bracket 40 a keeper or retaining lever 53, a spring 54, a wheel 55 and the axle or pivot 56, the latter being secured to the link 39 of the

operating mechanism. The lever or keeper 53 is provided with an arcuate or segmental recess or seat 57 that fits over the upper part of the wheel 55 when the link or lever 39 is in its vertical or upright position, thereby retaining the levers 32 and 39 in their upright position so long as the gate is half open. When sufficient momentum or force is given to the gate, in closing or opening, this momentum or force carries the wheel 55 out of the recess or seat 57. By pushing or pulling the gate rearwardly or forwardly from its half opened position it can be fully opened or closed. A very important feature of the construction of the gate proper is the downward curve or dip 10^a and 11^a formed in the track members 10 and 11 at the intermediate portions thereof, this dip operating to facilitate the opening or closing of the gate after it has been given a partial opening or closing movement, that is to say sufficient momentum to start the opening or closing action.

If the person who wishes to open the gate is in a conveyance, or considers it more convenient to open the gate by means of the member 51 and over-head levers, either the lever 43 or 48 is operated so as to pull the link 44 upward and this effects the opening movement of the gate in the same manner that this movement is effected by the lever 33. By careful manipulation of the overhead levers, so that the detaining device is permitted to have control, the gate may be only partly opened and detained in this position until it is desired to close it. When the gate is fully opened, as shown in Figure 3 the links 32 and 39 coact with one another to lock the gate in the open position so that the gate cannot be closed by its rebound.

An important feature of the present construction of the device is the provision of a pair of latch fingers 60 which are pivoted at the forward end of the gate and which are engageable within mortices 61 formed in the post 30. These latch fingers are connected by a link or rod 62 and the uppermost one is formed as a bell crank or angle lever having one arm 63 connected with a flexible member 64 which is in turn connected with a rod 65 connected with the depending flange 35 of the lever 33 as clearly shown. Ordinarily, that is when the gate is in closed position, these latch fingers 60 seat within the mortices 61 and operate to prevent the gate from being strained or partially opened by side thrust or pressure within. When any of the above described operating means is brought into play for opening the gate, it will be readily apparent that a pull is exerted upon the rod 65 and flexible members 64 which will result in swinging the uppermost latch finger 60 which being connected with the lower finger by means of the link or rod 62 will effect swinging movement of the lowermost latch member also that in this way both of the latch members will be swung up to give free passage. When the gate is returned to closed position it is of course apparent that these latch fingers will again engage within the mortices for preventing side play of the gate.

From the foregoing description and a study of the drawings, it is of course apparent that I have thus provided a simply constructed and consequently inexpensive gate and operating means therefor which will be highly advantageous in providing ample means whereby the gate may be opened and closed from a person in a vehicle or on horse back approaching the gate, the construction being furthermore such that the gate may be partially opened by a pedestrian. The provision of the hinged and foldable section of the gate is believed to be an important feature as it provides ample means for clearance in case there is a heavy fall of snow and also provides means whereby small animals may be allowed to pass through the gate without necessitating opening thereof. Owing to the particular arrangement it is to be noted that the gate should be highly serviceable and that it would have a long life and efficiently perform all the functions for which it is intended.

While I have shown and described the preferred embodiment of the invention, it is of course to be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention I claim:

A gate structure comprising a post located at one side of a gate opening, a pair of posts located in alignment with said first named post and at the other side of the gate opening, guide rollers carried by said second named posts, a gate formed at its upper portion with upper and lower track members engaging said rollers, said track members being formed intermediate their ends with spaced parallel downwardly curved portions providing a dip facilitating completion of the movement of the gate from one position to another when the opening or closing movement has been started, and means for moving said gate longitudinally, said operating means comprising levers pivoted at opposite sides of the gate and provided with handles, and link and lever mechanism connected with said levers and with the gate.

In testimony whereof I affix my signature.

JOHN LIND.