June 23, 1936. A. E. SPOONER 2,045,207

GATE OPENING AND CLOSING DEVICE

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Fig. 1.

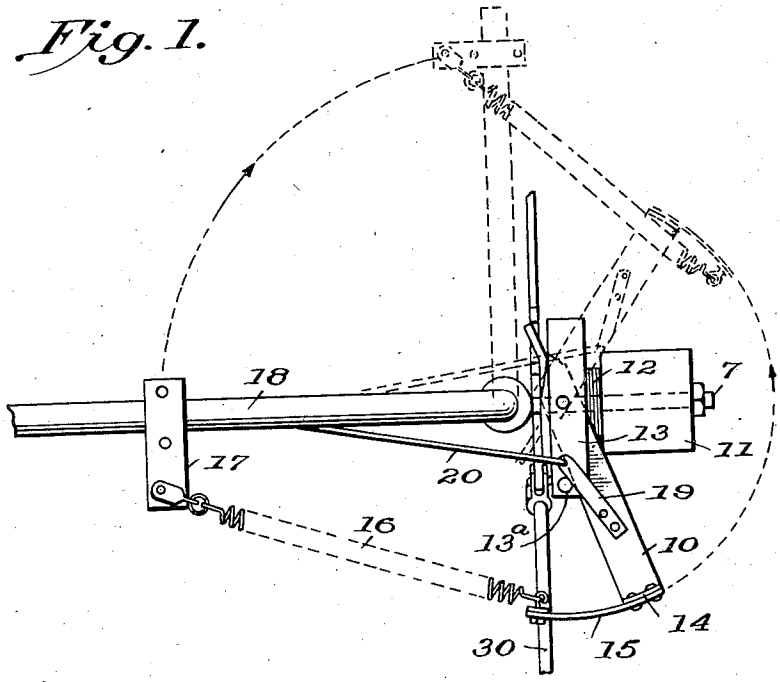


Fig. 2.

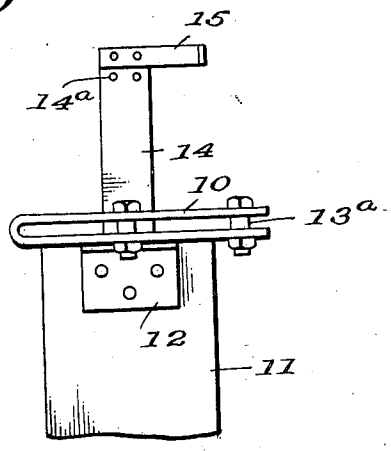
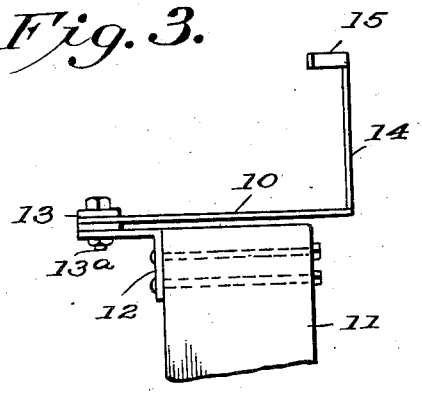


Fig. 3.



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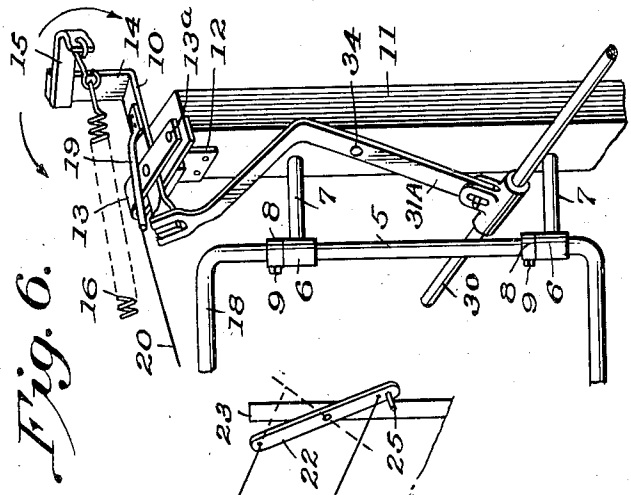


Fig. 6.

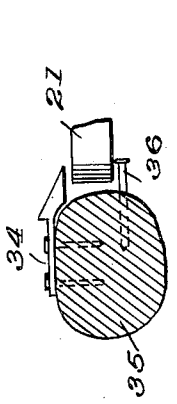


Fig. 5A.

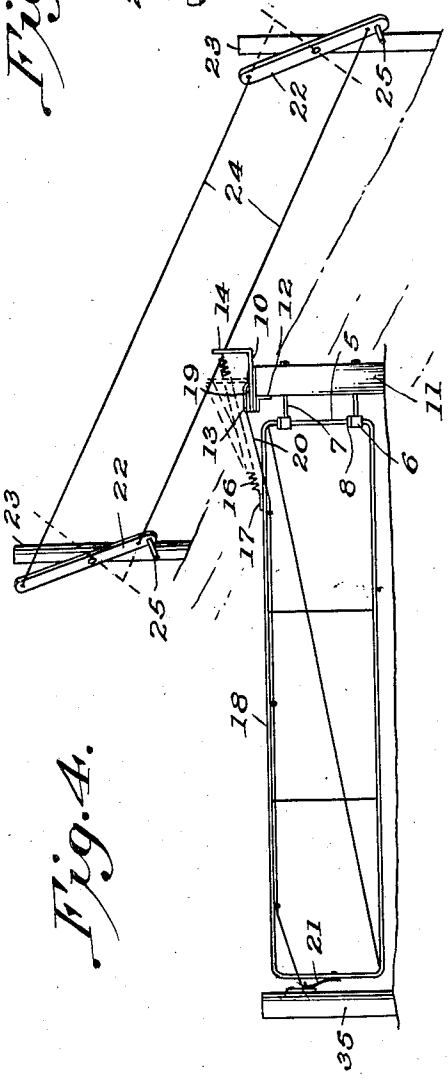


Fig. 4.

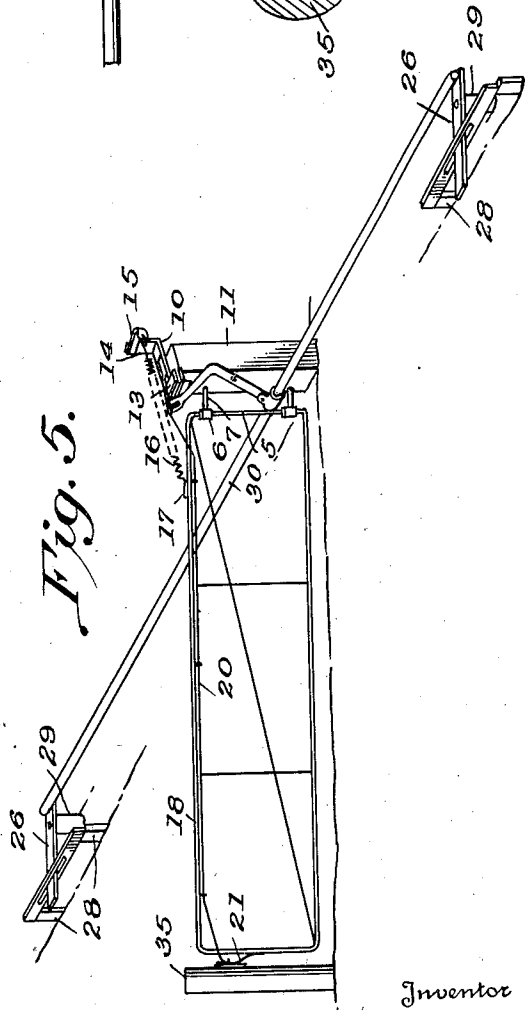


Fig. 5.

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GATE OPENING AND CLOSING DEVICE

Albert Edward Spooner, Renfrew, Ontario, Canada

Application November 13, 1931, Serial No. 574,876

3 Claims. (Cl. 39—17)

This invention relates to improvements in automatic gate opening and closing devices, the primary object being to provide a gate opening and closing device that is automatically operable from either direction eliminating the necessity of disembarking from a vehicle either in opening or closing the gate.

A further object is to provide a gate opening and closing device that is mounted wholly upon the supporting post of the gate thus eliminating additional weight upon the gate structure which in turn prevents undue sagging as is common with some types of gate openers.

A still further object is to provide a device that can be adapted to any type or size of gate in that it does not require any specific gate construction, is very simple in operation, has no complicated parts or arrangement to get out of order and is economical to construct.

With these and other objects in view, as will appear as the description proceeds, the invention consists in the design, construction and arrangement of parts as hereinafter more specifically set forth, claimed and shown in the accompanying drawings forming a part of this present application and in which:—

Fig. 1 is a plan view showing the general arrangement of the reversing bar, gate clip tension spring and other co-operating elements,

Fig. 2 is an end view showing the bearing clevis of the reversible bar and the upwardly extending spring bar.

Fig. 3 is a side view of Fig. 2.

Fig. 4 is a general perspective view showing one form of operating means,

Fig. 5 is a general perspective view showing another form of operating means,

Fig. 5A is a cross section of the post to which is secured the latch keeper,

Fig. 6 is a detail perspective view of the operating mechanism, as shown in Fig. 5.

Referring more in detail to the drawings in which similar characters represent corresponding parts throughout the several views, it will be seen that the invention consists of a spring actuated reversing bar 10 pivotally mounted in a metal bearing clevis 13, which is supported on the inner side of a supporting post 11, at the top thereof, by means of a bracket and bolts 12. A spring engaging bar 14 extends upwardly from one end of the reversing bar 10, and attached to the upper end of the bar 14 is a laterally extending metal extension strap 15. A suitable tension spring 16 has one end attached to the free end of the strap 15 and its opposite end connected to the upper member of the gate 18, at a suitable distance from the supporting post 11, by means of a clip 17. The gate 18 has its end post 5 pivotally mounted in the sleeves 6 at the ends of rods 7, extending laterally from the supporting post 11 and collars 8 secured on the post 5, above the sleeves, by set screws 9, prevent the post 5 from sliding downwardly through the sleeves. A catch releasing bar 19 is rigidly secured to the upper side of the reversing bar 10, being slightly curved to overlie the member 13. The member 13 has a bolt 13a mounted in one end which acts as a spacer and buffer for the bar 10. A suitable cable 20 extends from the free end of the bar 19 having its opposite end connected to the gate catch 21. The keeper for holding the gate catch consists of a beveled edge plate 34' secured on either side of a post 35 while a spike 36 is relatively positioned at the other side, as shown in Fig. 5A.

The preferred form of operating mechanism for the reversing bar 10 is shown generally in Fig. 5 and consists of arms 26 suitably positioned on opposite sides of the gate, adapted to be engaged by the wheel of a vehicle traveling towards or from the gate. The arms 26 project through slots formed by transverse members mounted on posts 28. The arms are disposed on a horizontal plane and are pivotally mounted on posts 29, with their inner ends pivotally connected to the ends of a transverse pipe member 30. A bell crank lever 31A is pivotally mounted on the post 11, as at 34, the lower end of the lever being loosely pivoted to the member 30, by a pin and slot connection, while the upper end is bifurcated to operatively engage the extended portion of the reversing bar 10. The member 31 is suitably braced by the members 33.

This arrangement of the device operates by having the vehicle wheel actuate forwardly or rearwardly the bar 26, whence the member 30 is moved accordingly while the bell crank lever 31A actuates the reversing bar 10. As the outer end of the reversing bar passes centre, the spring 16 becomes tensioned, while the catch releasing bar 19 actuates the cable 20 to unlatch the gate catch 21. The reversing bar 10 upon passing centre continues to swing by virtue of the tension spring 16 and the spring causes the gate to swing to an open position as shown by the dotted lines in Fig. 1. The closing action of the gate is substantially the same as described for the opening, the bars 26 being actuated in a reverse manner.

A hand operating mechanism for the reversing bar 10 is shown in Fig. 4, consisting of two posts

23 suitably positioned in line with the supporting post 11 and at right angles to the gate. Pivotally mounted on the posts 23 are hand operated bars 22, the ends of each bar being connected together by rigidly strung wires 24, the lower of said wires being connected with the member 14 by passing through orifices 14a. The bars 22 are provided with handles 25 at their lower ends for manually swinging the bars on their pivots.

In operation, upon either of the bars 22 being moved forwardly or rearwardly the member 14 is accordingly actuated, thus operating the reversing bar 10 to swing the gate to open or closed position.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that certain changes in the shape, size and arrangement of the parts may be made without departing from the spirit of the invention or the scope of the subjoined claims.

What I claim is:

1. In a mechanism of the character described, the combination with a vertical gate post having a gate pivotally connected thereto to swing in a horizontal plane, of a metal bearing clevis mounted on the inner side of the gate post at the top thereof, a reversing bar pivotally mounted in said clevis on a horizontal plane, an upright arm at one end of said reversing bar having an extension at its upper end extending at right angles thereto, a tension spring having one end connected to the extension of the upright arm and its opposite end to the top bar of the gate approximately midway the length of the gate, and remote means for operating said reversing bar.

2. In a mechanism of the character described, the combination with a vertical gate post having a gate pivotally connected thereto, to swing in a horizontal plane, of a metal bearing clevis mounted on the inner side of the gate post at the top thereof, a reversing bar pivotally mounted in said clevis on a horizontal plane, an upright arm at the outer end of said reversing bar having an extension at its upper end extending at right angles thereto, a tension spring having one end connected to the extension of the upright arm and its opposite end to the top bar of the gate approximately midway the length of the gate, a bell crank lever pivotally mounted on the inner side of the gate post having one end operatively engaged with the inner end of said reversing bar, a reciprocating rod connected intermediate its ends to the opposite end of said bell crank lever, and remote means for actuating said reciprocating bar.

3. In a mechanism of the character described, the combination with a vertical gate post having a gate pivotally connected thereto to swing in a horizontal plane, of a metal bearing clevis mounted on the inner side of the gate post at the top thereof, said clevis consisting of a bar bent upon itself to provide spaced parallel arms, a bolt extending through the free ends of the clevis arms, a reversing bar extending between the arms of the clevis and pivotally connected thereto to swing in a horizontal plane, an upright arm at one end of said reversing bar having a curved extension at its upper end extending at right angles thereto, a tension spring having one end connected to the free end of the extension of said upright arm and its opposite end to the top bar of the gate, a latch for securing the gate in a closed position, means for releasing said latch operable by the movement of said reversing bar and remote means for operating said reversing bar.

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