April 6, 1937. A. B. PINARD 2,076,092

GATE

Filed Nov. 20, 1935 3 Sheets-Sheet 1

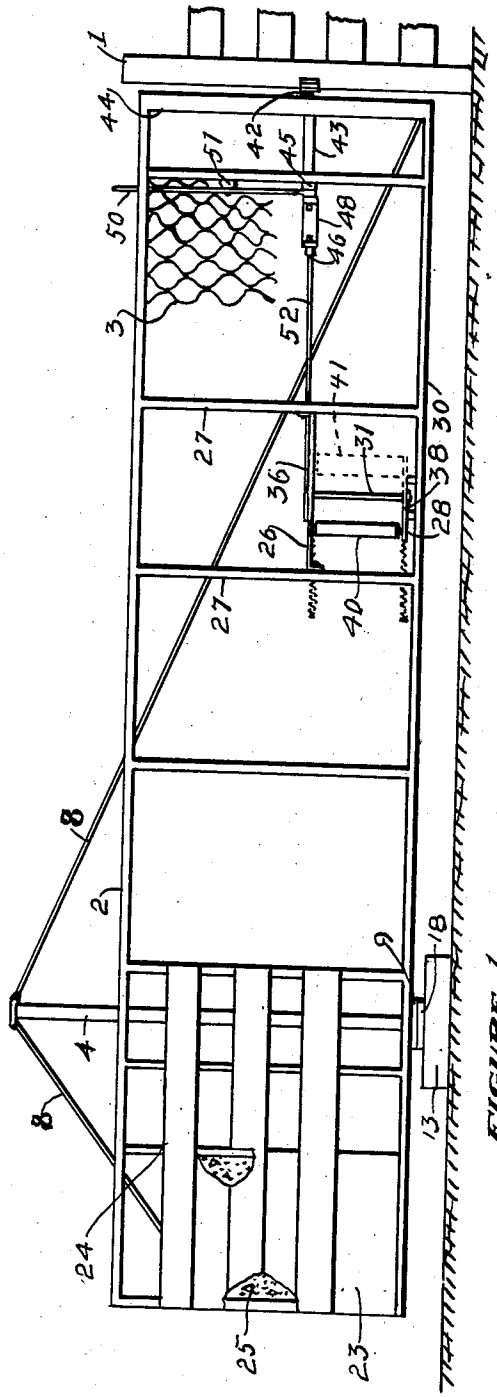


FIGURE 1

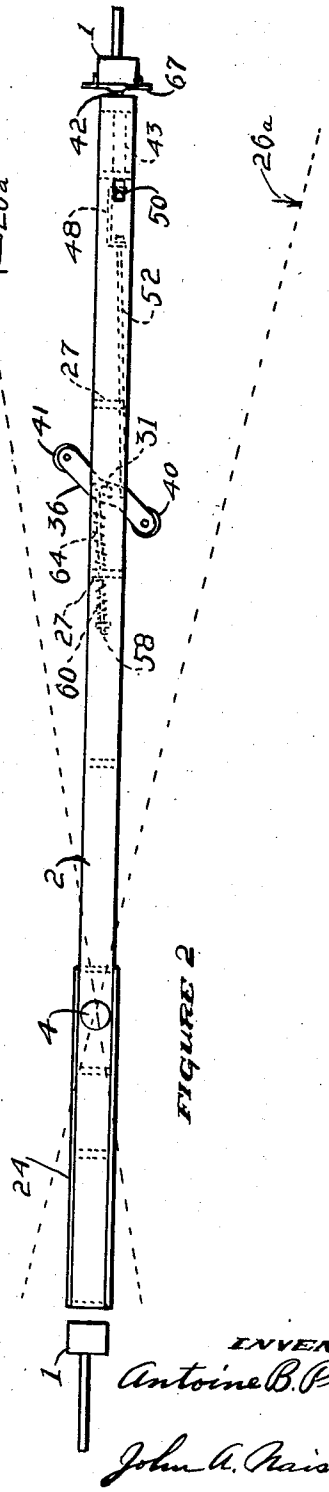


FIGURE 2

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GATE

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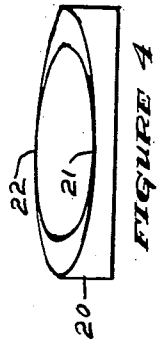


FIGURE 4

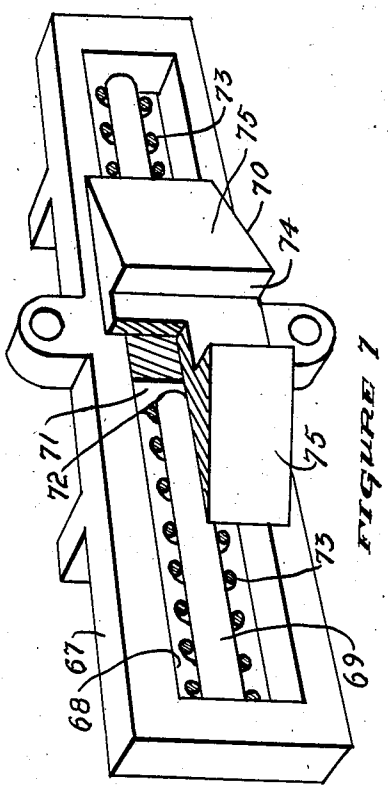


FIGURE 1

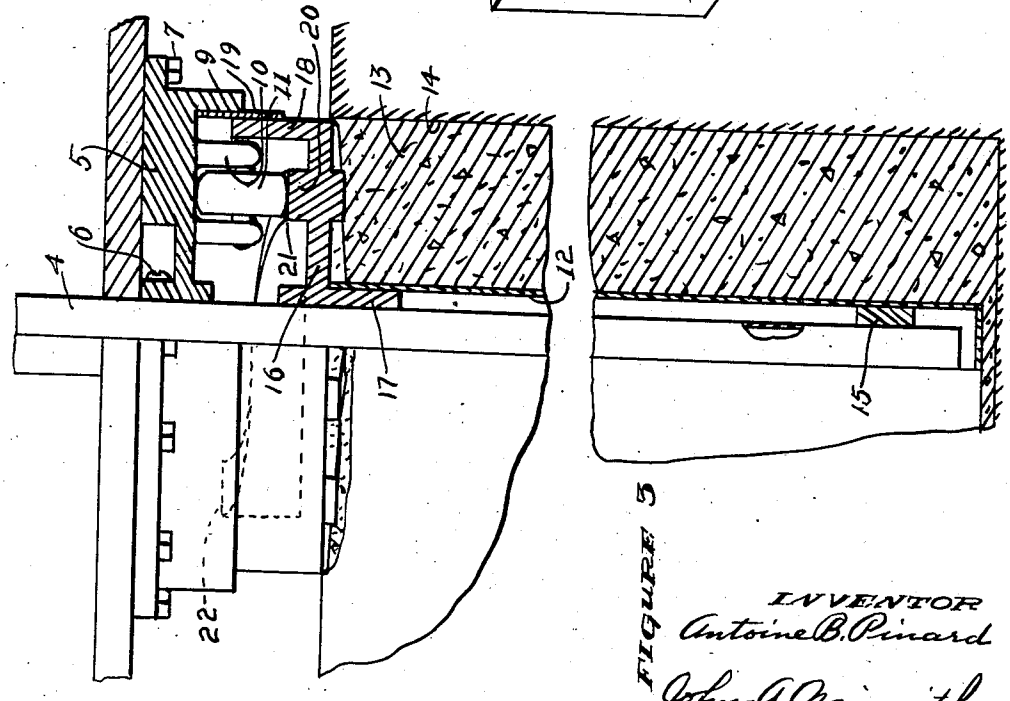


FIGURE 3

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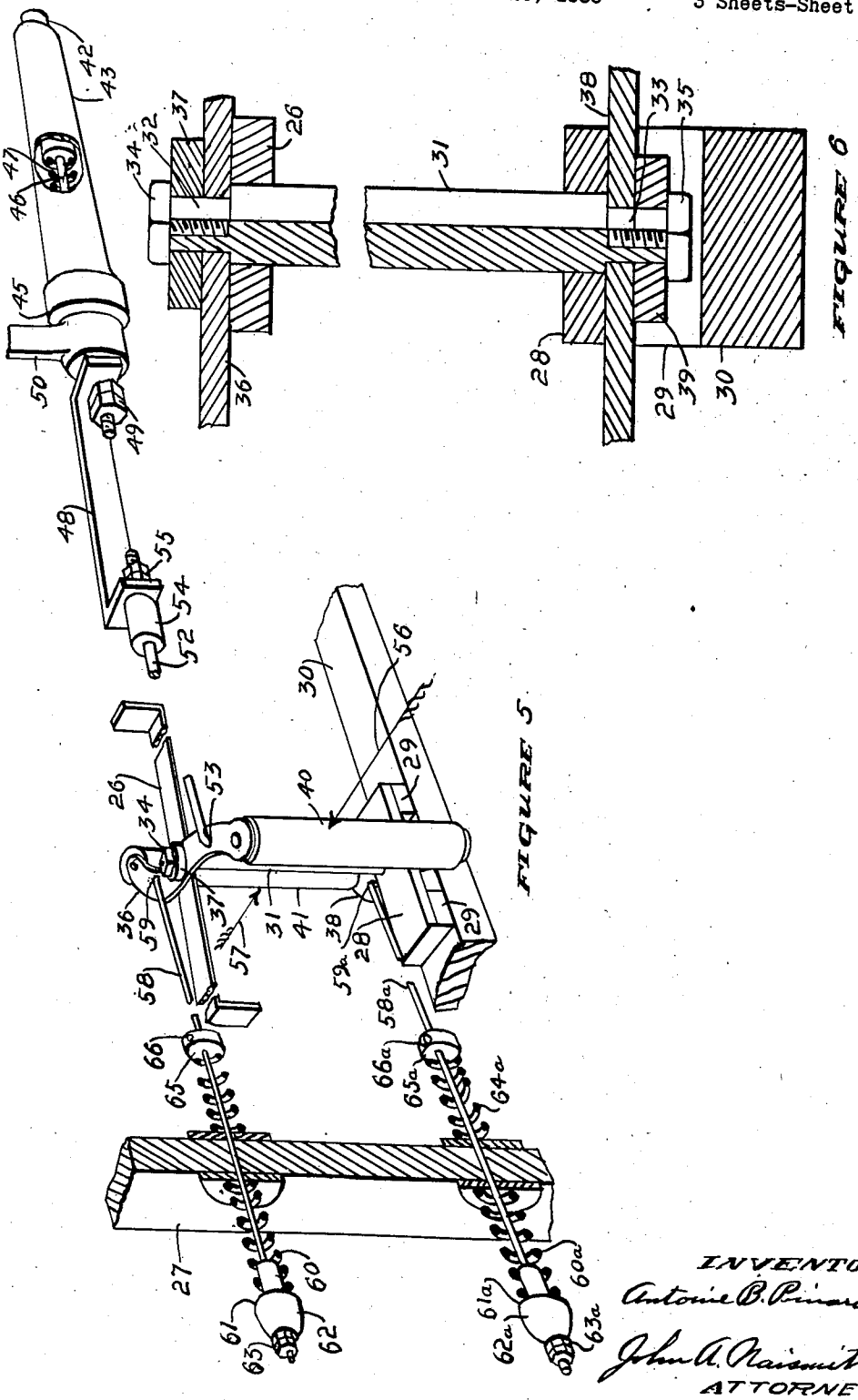


FIGURE 6

FIGURE 5

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Patented Apr. 6, 1937 2,076,092

UNITED STATES PATENT OFFICE

2,076,092

GATE

Antoine B. Pinard, San Jose, Calif.

Application November 20, 1935, Serial No. 50,679

2 Claims. (Cl. 39—31)

It is one object of the present invention to provide a gate or closure that will open automatically when pressure is brought to bear against the same, and that will automatically close and latch when said pressure is released.

It is another object of the invention to provide a device of the character indicated that may also be manually released for opening.

It is still another object of the invention to provide a device of the character indicated that will be economical to manufacture, positive in operation, strong, durable, and highly efficient in its practical application.

In the drawings:

Figure 1 is an elevation of a gate embodying my invention, parts being broken away.

Figure 2 is a plan view of the same.

Figure 3 is a view of the gate supporting means, partly in elevation, partly in section, and having parts broken away.

Figure 4 is an elevation of the cam forming a part of the supporting means.

Figure 5 is a perspective view of the automatic latch operating mechanism with parts broken away.

Figure 6 is a detail section of the bumper mounting forming a part of the latch operating mechanism.

Figure 7 is a perspective illustration of the latch keeper.

The particular embodiment of the invention herein disclosed is shown applied to a gate such as is commonly placed across a roadway, and between posts as 1—1 defining the sides of the gateway or opening, the reference character 2 indicating the framework of the gate and 3 the wire mesh with which it is covered.

At 4 is shown a metal standard passing vertically through the frame 2 and spaced from one end of the gate a distance approximating one-fourth of its length. This standard is fixedly secured to the gate by means of a plate 5 secured to the standard by means of set screws as 6 and to the under side of the bottom of the gate by bolts as at 7. The upper end of the standard extends above the gate and supports the ends thereof through the medium of guys 8.

The plate 5 is provided with a depending peripheral flange as 9, and has a wheel or roller mounted thereon in any suitable manner as at 10, the said roller 11 being placed between flange 9 and standard 4.

The standard 4 extends down into a sheet metal casing 12 closed at its lower end and imbedded in concrete as at 13 in a hole 14 formed in the ground at the point at which the gate is to pivot. A bearing 15 is provided for the lower end of the standard, and a plate 16 is seated in the top of the concrete and provided with a bearing 17 for the standard, the bearing 17 extending into the upper end of casing 12 to form a closure therefor.

The plate 16 has an upstanding peripheral flange 18 having a diameter slightly less than the flange 9 so that the flange 9 may pass over the same. A thin sheet metal band 19 is mounted upon the outside of flange 18 and extends above the same and within flange 9 to effectually prevent the entrance of foreign matter when plate 5 is elevated as hereinafter described. In the inner side of the plate 16 and concentrically disposed relative to standard 4 to form a path of travel for the roller 11 is a cam track 20. The cam track 20 has one low point disposed in the plane of the gate when closed, and one high point diametrically opposite the low point, these points being indicated at 21 and 22 respectively. This cam track is so formed that its surface is everywhere perpendicular to the axis of standard 4, with a symmetrical and uniform incline between the high and low points so that when the roller 11 is forced upwardly thereon in either direction the force of gravity of the superimposed weight will always return it to the low point.

If the gate were made a double one then it would extend an equal distance both ways from the standard 4, one side balancing the other. But since the form shown is a single gate balancing means must be provided therefor.

In the present instance the balancing is effected by forming a box as 23 in the short end 24 of the gate and filling this box with concrete as indicated at 25.

By means of the construction described the gate is so weighted and balanced that when at rest it will extend at right angles to the road and directly across the same, but may be easily swung in either direction as indicated at 26a when pressure is brought to bear against either side of its longer portion, its return to a normal state of rest being prompt and positive.

In order that the gate may be securely held in place when closed and yet be automatically opened by a vehicle approaching from either side the following latch mechanism is provided.

At 26 is shown a flat bar having one upwardly turned end and one downwardly turned end and disposed horizontally between two uprights 27 forming a part of the gate frame and to which it is secured. The bar is spaced upwardly from the bottom beam of the gate, and the uprights selected are disposed in the central portion of the gate overlying the central portion of the road.

At 28 is a plate mounted on spaced blocks 29 on bottom beam 30 and below the center of bar 26.

At 31 is shown a spindle journaled in the bar 26 and plate 28 and having squared end portions

as 32 and 33 tapped to receive cap screws 34 and 35.

At 36 is shown a symmetrically formed and oppositely curved lever seated on the squared end 32 of spindle 31 to rotate therewith and secured in place by a washer 37 and the cap screw 34. A similar lever is mounted on the lower end of the spindle as indicated at 38 and 39. Between the corresponding ends of the levers are mounted bumper elements 40—41.

The latch bar 42 is slidably mounted in a tube 43 seated in and passing horizontally through the end upright 44 of the gate and having a cap 45 on its inner end. Seated in the inner end of the latch bar 42 is a rod 46 which slidably engages the cap 45, a spring 47 being mounted on the rod and bearing against the latch bar 42 and the inner side of the cap 45 to urge the bar into a latching position.

A yoke is shown at 48 having one end engaging the rod 46 and held against axial movement by nuts 49. Mounted loosely on rod 46 between the yoke 48 and cap 45 is a lever 50 which is pivoted on the upright 44 at 51 and extends upwardly above the top of the gate so that the latch may be released by hand if it is so desired.

A rod 52 is connected to lever 36 as at 53 and passes through a bearing member 54 on yoke 48 where it is fitted with nuts 55.

By means of this construction when a vehicle engages the bumper device from either side as indicated at 56 and 57 the latch bar is withdrawn, but when the pressure is released the spring 47 instantly returns it to its normal extended position.

Since the latch is designed to be withdrawn by the impact of a vehicle such as an automobile or a truck against the bumper device it is necessary to provide means for controlling the action of the mechanism so that it will operate easily and positively and yet be subjected to no excessive shocks.

The control mechanism comprises a rod 58 attached to the lever 36 at 59 diametrically opposite the connection 53 of rod 52 and passing through the adjacent upright 27. Mounted on the free end of rod 58 and bearing against the upright 27 is a heavy spring 60. The outer end of the spring bears against a shoulder 61 formed on member 62 slidably mounted on rod 58 and adjustably positioned thereon by means of nuts 63. A second lighter spring 64 is mounted on the rod 58 to bear against the inner side of upright 27, and the resiliency of this spring is adjusted by means of a collar 65 mounted on rod 58 and held in position by means of set screw 66.

These springs 60 and 64 are so adjusted that spring 60 will prevent too free action of the bumper mechanism and spring 64 will effectually absorb the rebound.

The action of the control mechanism described is divided equally with a duplicate mechanism connected to the lever 38, the parts of which are indicated by similar numerals followed by the letter "a".

The keeper which cooperates with the latch bar 42 comprises a plate 67 mounted on the post 1 and provided with a longitudinal slot 68 having a centrally disposed bar 69 extending longitudinally therethrough.

At 70 is shown a member having a boss 71 formed on its inner face and slidably mounted on the bar 69 as at 72. Springs as 73 are mounted on bar 69 on each side of boss 71 to bear against the same and the opposite ends of the said slot. By this means the member 70 is normally held in a central position relative to the slot but may slide in either direction when force is applied thereto. The outer or exposed side of the member 70 has a centrally disposed vertical slot 74 formed therein and two angular faces as 75 sloping from the edges of the slot to the ends of the member as shown.

When the gate structure is assembled and mounted as described the impact of a vehicle from either side will automatically operate the bumper mechanism to withdraw the latch bar 42 and throw the gate open, the action of spring 60 helping to throw the gate free of the vehicle and causing it to travel bodily up on cam track 20.

When the gate swings back to close as hereinbefore described the latch bar 42 first engages a face 75 on member 70 and is guided to the slot 74 into which it drops. Since the member 70 is resiliently mounted the shock of latching is absorbed by a spring 73.

When the bumper is released after being operated by a vehicle it will swing somewhat under the influence of the control springs 60 and 64, but since the rod 52 has a slidable connection with the yoke 48 this movement can take place without effecting the parts immediately connected to the latch bar.

It is to be understood, of course, that while I have herein shown and described but one specific embodiment of the invention, changes in form, construction, and method of assembly and operation may be made within the scope of the appended claims.

I claim:

1. A gate structure comprising, in combination, a vertically disposed fixed hollow cylinder having a closed bottom end and an open top end and imbedded in the ground, a bearing in the lower portion of the cylinder, a plate fixedly mounted at the top of the cylinder and having a bearing portion projected into said cylinder, an upstanding annular flange formed thereon and an annular cam surface formed thereon between the bearing portion and flange, a gate carrying standard mounted for vertical and rotational movements in said bearings, a plate mounted on said standard to overlie the first plate and having a depending annular flange disposed to overlap the said upstanding flange, and a roller mounted on said second plate to engage the cam surface on the first plate.

2. A gate structure comprising, in combination, a vertically disposed fixed hollow cylinder having a closed bottom end and an open top end and imbedded in the ground, bearings in the upper and lower portions of the cylinder, a plate fixedly mounted at the top of the cylinder and having an upstanding annular flange associated therewith in concentric relation to the cylinder and having an annular cam surface associated therewith between the flange and cylinder, a gate carrying standard mounted for vertical and rotational movements in said bearings, a plate mounted on said standard to overlie the first plate and having a depending annular flange disposed to overlap the upstanding flange, and a roller mounted on said second plate to engage the cam surface on the first plate.

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