Oct. 19, 1954 A. C. DAVID 2,691,836

IMPACT OPERATED VIBRATING LATCH GRAVITY GATE

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Fig. 1.

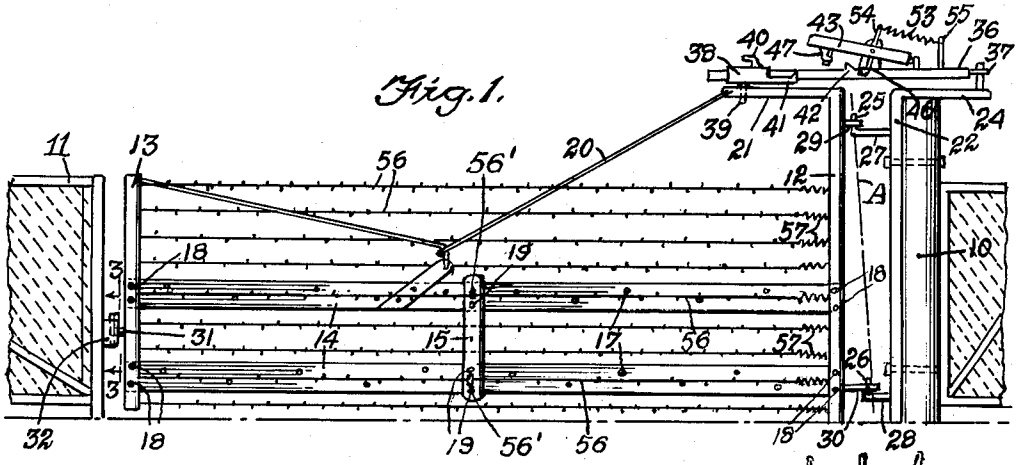


Fig. 4.

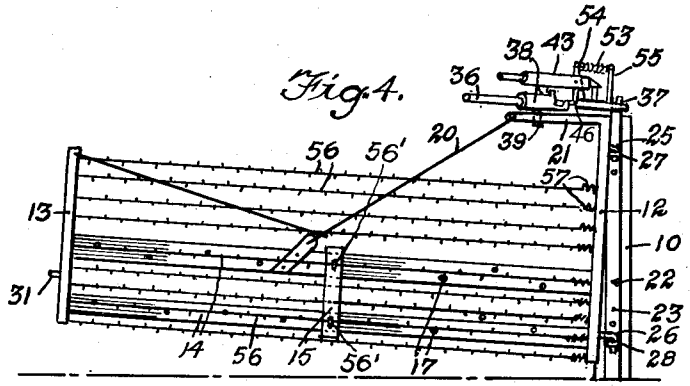


Fig. 2.

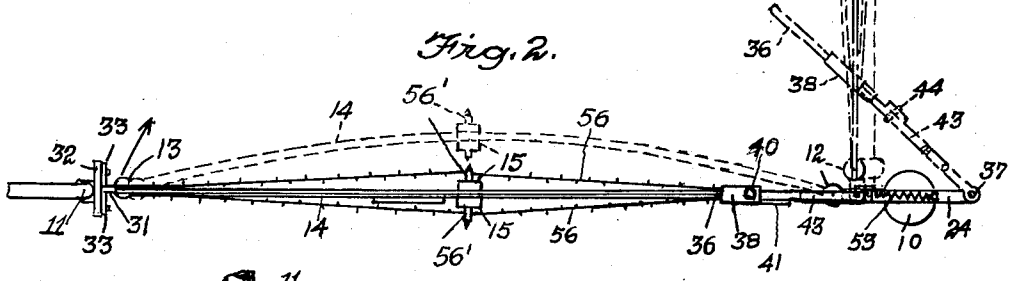
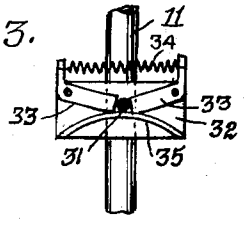


Fig. 3.



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Fig. 5.

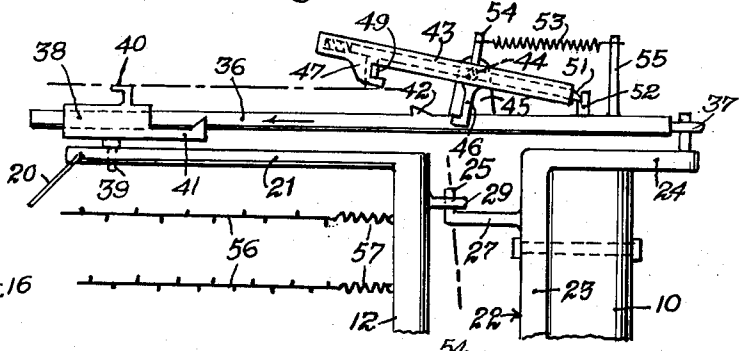


Fig. 11.

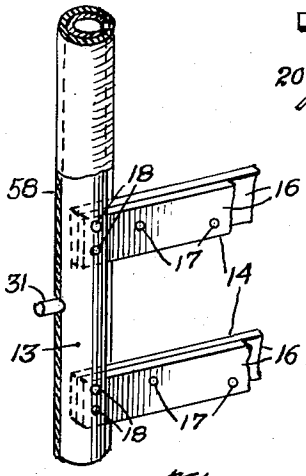


Fig. 6.

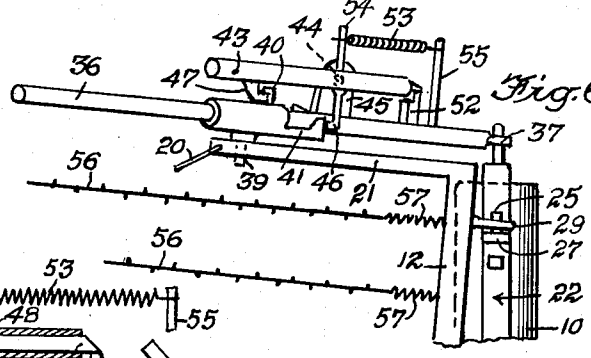


Fig. 8.

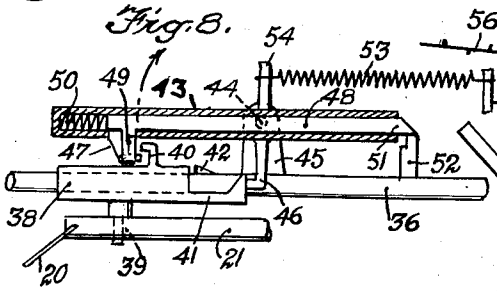


Fig. 7.

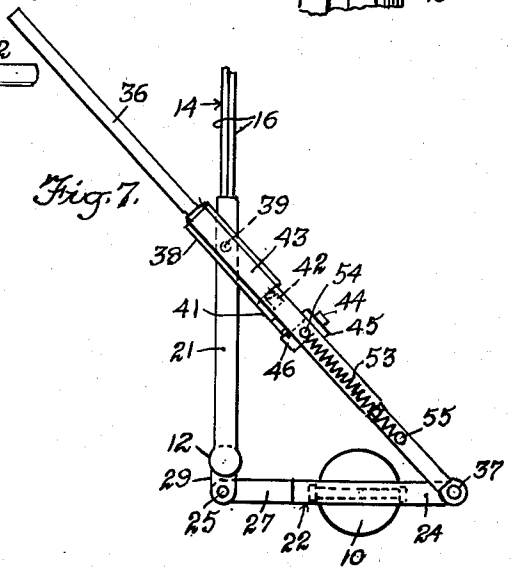


Fig. 9.

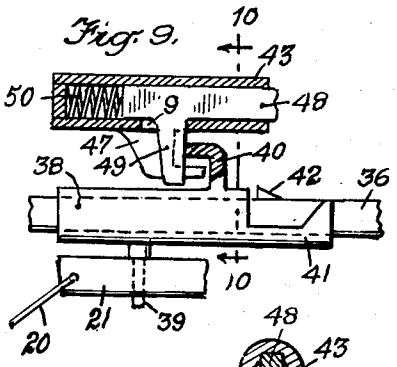
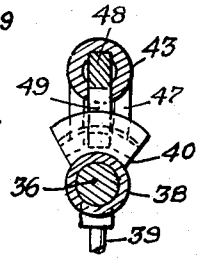


Fig. 10.



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IMPACT OPERATED VIBRATING LATCH GRAVITY GATE

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Application February 26, 1953, Serial No. 339,133

6 Claims. (Cl. 39—31)

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This invention relates to a gate of the type interposed in the length of a fence, and which is designed and adapted to be opened by contact therewith of a moving automobile or other vehicle traveling toward the gate from either side thereof.

An object of the present invention is the provision of a gate of the indicated character which is longitudinally flexible so that by reason of the flexibility of the gate, the gate may be unlatched and be swung into an open position by the push of a moving vehicle, there being combined with the gate a device which delays or checks the closing movement of the gate long enough so that the vehicle will clear the gate on its way through the passage provided by the gate.

Another object of this invention is the provision of improvements in a gate of the indicated character by virtue of which livestock are discouraged from pushing or rubbing on the gate; and to afford protection for a vehicle which might not get past the open gate due to stalling of the vehicle for any reason.

With the foregoing, other objects, benefits and advantages of the present invention will appear when the following specification is read in conjunction with the accompanying drawings, in which:

Fig. 1 is a side view of a gate embodying the present invention, the gate being shown in closed position.

Fig. 2 is a plan view showing the gate in closed position in full lines, and in open position in dot and dash lines, and vibration of the gate in open position is indicated in dotted lines.

Fig. 3 is an enlarged detail view of the latch for releasably holding the gate in the closed position.

Fig. 4 is a reduced plan view showing the gate checked in the open position.

Fig. 5 is an enlarged fragmentary side view showing the relation of certain parts when the gate is in the closed position.

Fig. 6 is a view similar to Fig. 5, but showing the relation of the parts when the gate is in the open position.

Fig. 7 is an enlarged fragmentary plan view showing the relation of certain parts when the gate is in the open position.

Fig. 8 is an enlarged fragmentary side view of parts of the gate delaying or checking device, the rocker latch member being shown in longitudinal section, and said parts are in the relation they assume when the gate is in open position.

Fig. 9 is an enlarged fragmentary side view of

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certain parts of the gate delaying or checking device, parts being shown in section, and said parts are in the relation they assume when the gate oscillates in its open position.

Fig. 10 is a detail sectional view taken on the line 10—10 of Fig. 9.

Fig. 11 is an enlarged fragmentary sectional perspective view of the outer end portion of the gate.

As shown in the drawings, the gate of the present invention is arranged in a passage between a hinge gate post 10 and a keeper gate post 11 that are parts of a fence, barrier or enclosure. The posts are firmly set erect in the ground. The posts are each preferably in the form of a metal pipe, or the like, capable of withstanding considerable twisting strain.

The gate comprises vertical inner and outer end members 12 and 13, flexible and resilient horizontal members 14, and vertical pressure bars or members 15. The members 14 have their opposite ends rigidly secured to the members 12 and 13 respectively. Each of the members 12 and 13 preferably consists of a metal pipe, or the like, to withstand twisting strain. Each of the members 14 is preferably composed of flexible and resilient wooden boards 16. Each member 14 is made of two boards 16 in the present instance, although one or more than two boards may be used. The boards 16 are laid together and secured to each other in laminated relation by a plurality of securing elements such as bolts 17. Each board 16 is approximately six inches wide and three-fourths of an inch thick for satisfactory results. The opposite ends of the members 14 are rigidly secured to the members 12 and 13, respectively, and this is accomplished by the provision of a slot or slots in each member 12 and 13, and the use of securing elements, such as the bolts 18, which extend through the members 12, 13 and 14, with the ends of the members 14 disposed in the aforesaid slots. In the present instance use is made of two horizontal members 14 but more may be used if desired. The members 15 of metal or wood are disposed at opposite sides respectively of the members 14 across the same, and are secured thereto by bolts 19. Each member 15 transmits to the members 14 pressure exerted on the members 15 by the bumper of a moving vehicle. The pressure transmitted by the members 15 causes the members 14 to flex or bow longitudinally. As a consequence the gate is in fact bowed longitudinally as indicated in dotted lines in Fig. 2. A brace 20 composed of interconnected plate and rods has a three point con-

nection with parts of the gate, namely, the upper horizontal member 14, the upper end of the vertical member 13 and a lateral arm 21 formed on or secured to the upper end of the vertical member 12. The brace 20 strengthens the gate yet allows it to be flexed as stated.

The gate is mounted or hung on the post 10 for movement approximately ninety degrees between a closed position and an open position. The gate is gravity centered to be self-closing. In moving from the closed position into an open position, the gate swings laterally and tilts upwardly at the same time. In closing, the gate under the action of gravity tilts downwardly and swings laterally. In order to mount or hang the gate so as to move in the stated manner, there is provided means as follows. Use is made of an L shape metal bracket 22 consisting of a riser 23 and an arm 24 on the upper end of the riser 23 and extending at a right angle with respect thereto. The riser 23 is bolted to the post 10 so that the arm 24 extends horizontally. Hinge pintles 25 and 26 are secured to the riser 23 in any suitable manner by means of lateral extensions 27 and 28 on which the pintles respectively are formed. The extension 27 of the upper pintle 25 is longer than the extension 28 of the lower pintle 26 for the purpose of alining the pintles in such manner that they provide a hinge axis A extending obliquely with respect to a vertical line. The angle of the hinge axis is such that the gate closes slowly by gravity. The vertical member 12 has spaced apertured lugs thereon constituting pintle eyes 28 and 29, corresponding to the pintles 25 and 26, respectively, and which receive said pintles with the eyes 28 and 29 resting on the extensions 27 and 28 respectively. Thus the gate is mounted or hung gravity centered for movement between a closed position and an open position, the gate being self-closing. The movement of the gate from the closed into an open position is approximately ninety degrees in either direction to afford ingress and egress.

In order to latch the gate in the closed position there is provided a stud 31 on the vertical member 13 which cooperates with a keeper comprising a bracket 32 secured to the post 11, and detents 33 on the bracket, there being a helical spring 34 interposed between and connected with said detents. The bracket 32 has a sector shape plate 35 engaged by the stud 31 when the gate is in its closed position. The detents 33 encountered by the stud 31 restrain the closing movement of the gate, and enable the stud to come to rest upon the plate 35. The stud 31 resting on the plate prevents the gate from sagging while in its closed position. When pressure is exerted on one of the bars 15 by the pushing force of the bumper of an automobile while the gate is closed, the stud 31 will encounter one of the detents 33, as the case may be, and momentarily that detent will prevent lateral movement of the stud 31. As a consequence, the members 14 will be flexed thereby bowing the gate and so causing the lug 31 to move endwise free of encountered detent. Then the gate swings into an open position.

In order to releasably latch the gate in its open position to delay or check the closing movement of the gate for a period of time sufficient to allow a vehicle to pass even though the vehicle is moving very slowly, there is provided a device as follows. A radius rod 36 has pivotal connection with the arm 24, as at 37, and the rod parallels the gate when the latter is in its closed position. A sleeve 38 has pivotal connection with the arm 21, as at 39. The rod 36 extends through the sleeve 38 so that the sleeve may slide back and forth on the rod, and that the sleeve may turn slightly on the rod. The sleeve 38 has a hook 40 on the top thereof and a projection 41 on one end at the bottom. The hook 40 viewed from the end of the sleeve is segmental in shape. The end of the sleeve 38 adjacent the projection 41 is movable into contact with a stop 42 formed on the rod 36. A tubular member 43 is mounted on the top of the rod 36 for rocking or pivotal movement on a horizontal axis by means of a pivot 44 on the member 43 and an upstanding lug 45 on the rod 36. An arm 46 on the member 43 extends downwardly therefrom at the pivot 44. A hook 47 depends from the member 43 near the outer end of the latter The hook 47 is similar to the hook 40 and cooperates therewith. A trigger rod 48 is slidable in the member 43 and has a depending lug 49 movable in a slot 9 in the tubular member 43. A helical compression spring 50 is arranged in the member 43 between the inner end of the rod 48 and the closed end of said member 43. The outer end 51 of the trigger rod 48 cooperates with a notched block 52 on the top of the rod 36. The lug 49 moves adjacent the hook 47. A helical retractile spring 53 has its opposite ends respectively connected with upstanding arms 54 and 55 on the member 43 and the rod 36 respectively. The spring 53 rocks the member 43 into an angular position when the trigger rod 48 has been moved inwardly in the member 43, and said member 43 is held in the angular position by the spring 53, while the spring 50 holds the end 51 of the trigger rod 48 in engagement with the side of the block 52, as shown in Figs. 1, 5, 6 and 8.

When the gate has been moved into an open position in the manner heretofore explained, the parts of the delaying or checking device are in the relation shown in Figs. 4, 6 and 8. The arm 46 will have encountered the projection 41 causing the member 43 to rock on the pivot 44 and against the action of the spring 53. The member 43 then is disposed substantially parallel to the rod 36. The end 51 of the trigger rod 48 is engaged with the top of the block 52 which holds the member 43 against return movement. At the same time the hook 47 engages the hook 40, thereby delaying or checking the closing movement of the gate. The engagement of the sleeve 38 with the stop 42 limits the opening movement of the gate and due to the flexibility of the gate the latter vibrates or oscillates as indicated in Fig. 2. This causes the sleeve 38 to move back and forth on the rod 36. As long as the sleeve reciprocates the hooks 40 and 47 cannot disengage, thereby delaying the closing movement of the gate. However, when the amplitude of the vibrations of the gate has diminished to a point where the reciprocating sleeve 38 no longer takes a full stroke and, as a consequence, the action of the sleeve no longer succeeds in rocking the trigger member 43 enough to allow the end 51 of the trigger rod 48 to engage the top of the block 52, the spring 53 rocks the member 43 into its angular releasing position. Then the gate may gravitate into the closed position in which it is latched by means of the stud 31 and detents 33 and supported by the plate 35.

Barbed wires 56 have tension springs 57 as parts thereof, and the opposite ends of these wires are connected with the vertical members 12 and 13 respectively. Certain of the wires are

disposed adjacent the members 14 and pass loosely through guides 56' on the members 15. The wires are thus held taut, and discourage livestock from pushing or rubbing on the gate.

A rubber pad 58 is secured around the vertical member 13 to afford protection for a vehicle which might not get past the open gate due to stalling.

It is to be understood the invention is not restricted to the embodiment thereof illustrated and described, and that details of construction may be modified and rearranged in accordance with the scope of the invention as defined in the appended claims.

I claim:

1. The combination of a gate and gate post on which the gate is hinged for self-closing movement, and the gate tilts as it moves between a closed and an open position, a radius rod pivotally mounted on said post, cooperative latch members, one of said latch members being pivotally mounted on the gate and slidable and turnable on said rod, and the second one of said latch members being pivotally mounted on said rod, yieldable means for moving the second latch member into an unlatching position, and cooperative means on the latch members causing the latching engagement of said latching members upon movement of said members in response to the swinging and tilting movement of the gate, to thereby delay the closing movement of the gate.

2. The combination as set forth in claim 1, wherein the pivotal axis of said rod is substantially vertical and is disposed at one side of the hinge axis of the gate.

3. The combination as set forth in claim 2, wherein the pivotal axis of the first latch member is substantially vertical.

4. The combination as set forth in claim 1, and cooperative means on the rod and second latch member for releasably retaining the latter in a latching position.

5. The combination with a self-closing swinging gate, which tilts as it swings between a closed and an open position, of a device for delaying the closing movement of the gate after the gate has been moved into its open position, said device comprising a fixed arm on the gate, a sleeve pivotally mounted on said arm, a rod having one end

pivotally connected with a stationary part adjacent the gate, said sleeve being slidable and slightly turnable on the rod, a tubular latch member mounted for rocking movement on said rod, yieldable means for rocking said latch member into a releasing position, a spring loaded trigger slidable in said latch member, an abutment on said rod which cooperates with the trigger for temporarily holding said latch member in a latching position when the latch member is moved thereinto, coacting means on the sleeve and latch member for rocking said latch member into its latching position upon rearward sliding movement of the sleeve as the gate is moved into its open position, said sleeve having a hook; a lug on said trigger which cooperates with said hook to disengage the trigger from the abutment to enable the latch member to be rocked into its releasing position upon the forward movement of the sleeve in response to the closing movement of the gate.

6. The combination with a gate post and a gravity centered self-closing flexible gate mounted on said post, of a device for delaying the closing movement of the gate after the gate has been swung into its open position, said device being operative for the stated purpose by reason of the oscillation of the gate while in an open position, said device comprising a latch member mounted on the gate for pivotal movement with respect thereto, a radius rod mounted on the post for angular movement with respect thereto and slidably engaged with said latch member, and a spring actuated latch member mounted on said rod for pivotal movement which cooperates with said first mentioned latch member.

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