April 25, 1950 W. O. EILERT 2,505,467

GATE HAVING MULTIPLE PINTLE SPRING HINGE MEANS

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FIG. 1

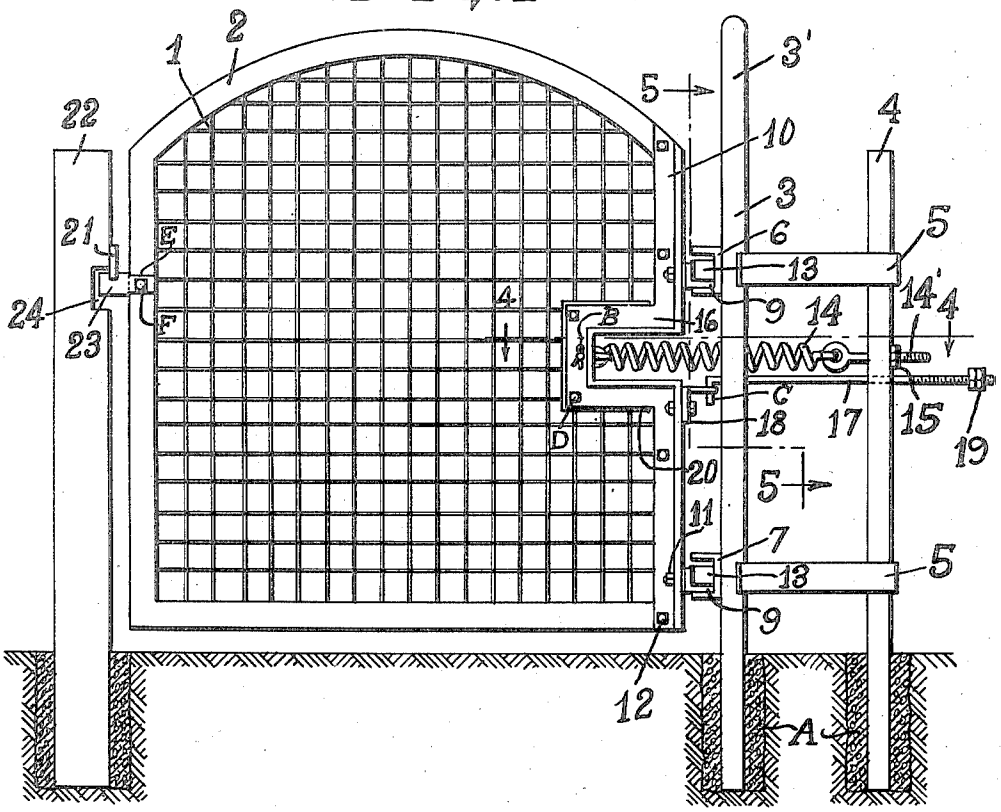


FIG. 2

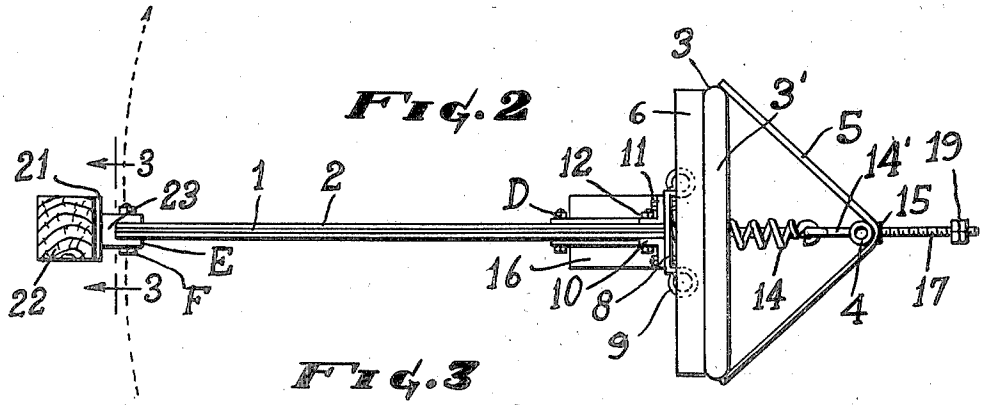
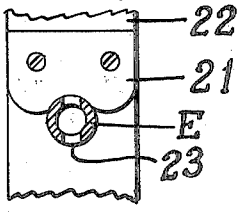


FIG. 3



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Fig. 4

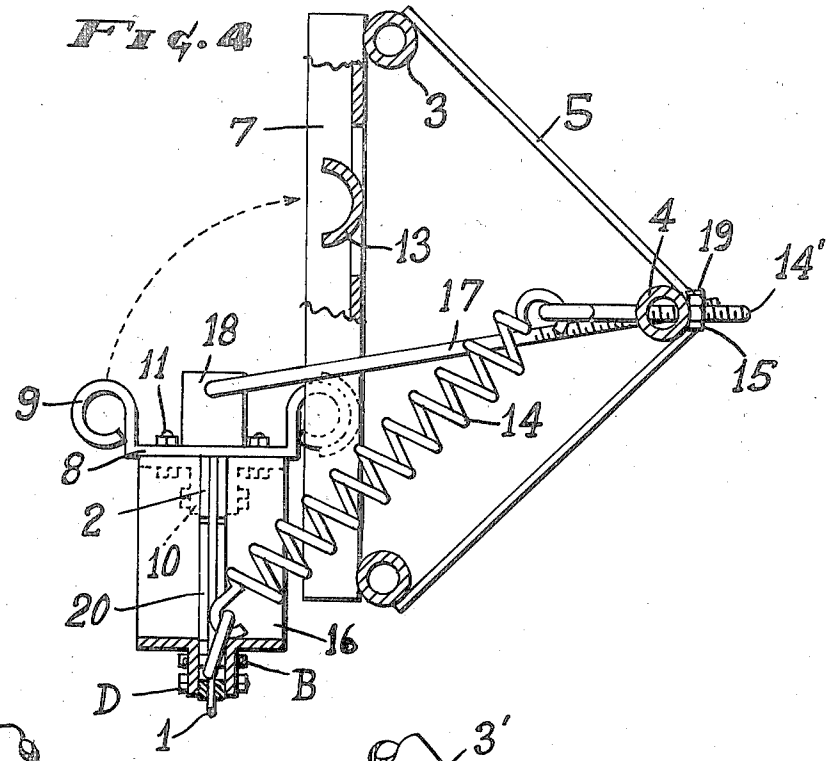
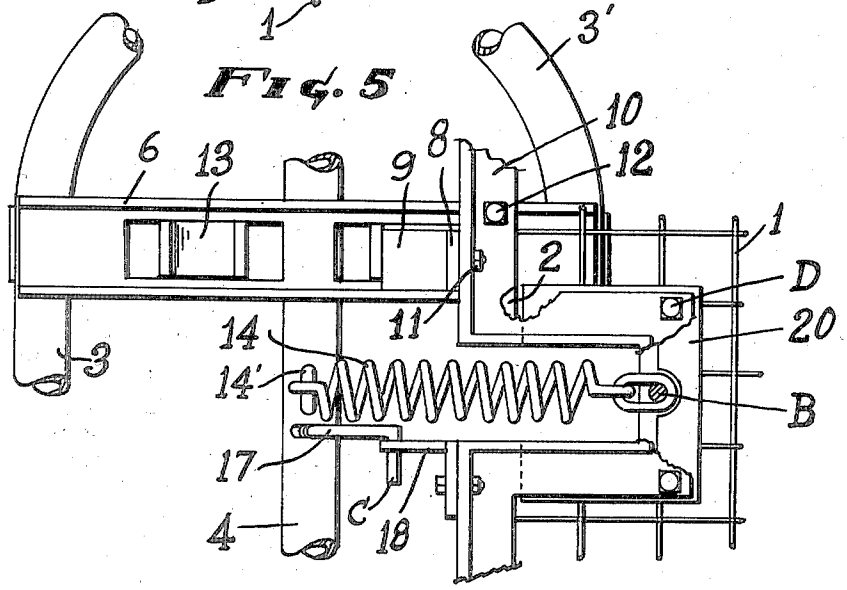


Fig. 5



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GATE HAVING MULTIPLE PINTLE SPRING HINGE MEANS

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2 Claims. (Cl. 39—87)

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This invention relates to a supporting structure for fence gates, or the like, and has for its principal object the provision of hinge means to rockably carry the gate so that the gate may be swung open in either direction.

A further object of this invention is the provision and arrangement of a coil spring to automatically swing the gate in an entirely closed or open position, selectively.

A still further object is to provide socket engaging elements to carry the weight of the gate, and a spring as a sole means to retain the same engaged.

A still further object is to provide an adjustable stop to control the extent of opening of the gate.

A still further object of this invention is to arrange a plurality of vertically positioned tubular uprights, spaced in triangular relationship with respect to cross section, to support a comparatively long gate against sagging thereof either in its closed or open positions.

A still further object is to arrange the gate supporting structure so that the swinging end of the gate is permitted to rock downwardly by an operator to release its locking means when the gate is in a closed position, but locked against opening when pressure is applied laterally or upwardly on the gate which is commonly exercised by livestock.

A still further object is to provide a supporting and hinge means for a swinging gate that may be sold as an article of manufacture to be applied to any suitable gate without serious alteration of said gate, except to provide an offset inwardly from the carrying end of the gate to accomplish the result above set forth with respect to the function of the spring.

These and other objects will hereinafter be more fully explained, reference being had to the accompanying drawings, forming a part of this specification, and in which like characters will apply to like parts in the different views.

Referring to the drawings:

Fig. 1 is a side elevation of a gate and supporting structure to carry the gate, the fence for the gate being omitted.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is an enlarged sectional view of the gate latch, taken on line 3—3 in Fig. 2.

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Fig. 4 is an enlarged sectional view taken on line 4—4 in Fig. 1, parts removed for convenience of illustration.

Fig. 5 is an enlarged view taken on line 5—5 in Fig. 1, looking in the direction of the arrows, the gate being shown, in this instance, in an open position.

The invention herein disclosed relates more specifically to the means for supporting a fence gate, rather than the gate, itself, as the gate may be of any suitable and conventional type. For convenience of illustration, the gate, in this instance, consists of wire meshing 1 secured between a pair of frame members 2, said frame members being rectangular in cross section and being secured together and to the wire meshing by welding, or any other suitable method. It will be understood that the frame members 2 may be substituted by a tubular frame to which the wire meshing would be secured, said tubular frame not being shown in the drawings, but such being adaptable to my invention with like efficiency as that of the first described frame members.

The supporting structure for the gate consists of a pair of vertically positioned pipes 3 that are adjacent the carrying end of the gate and each being spaced a predetermined distance from its respective side of the gate. The upper ends of said pipes 3 are braced by an arcuate portion 3' that integrally connects said pipes. Positioned centrally between said pipes 3 but outwardly therefrom is another pipe 4, which is secured rigidly to first said pipes by a metallic strap 5 adjacent the upper and lower ends of said pipes, said strap having its ends welded to pipes 3, and from thence engaging about the pipe 4 centrally of its length to rigidly brace the pipes together in triangular relationship. It will be seen that the pair of pipes 3 function as means to avoid sagging of the gate when in an open position, while pipe 4 coacts with pipes 3 to avoid sagging of the gate when in a closed position, and furthermore the lower ends of said pipes are embedded in concrete A as a rigid footing for said pipes.

Horizontally positioned and extending from one pipe 3 to the other and being welded thereto is a pair of channel members 6 and 7 positioned adjacent their upper and lower extremities of the

pipes, respectively. The webs of the channel members are secured to the said pipes, while the legs of said channel members confront the carrying end of the gate, the lower legs of the channel members supporting the weight of the gate as engaged by their respective gate leaf plates seating thereon. Each leaf plate consists of a straight portion 8 and an annular portion 9 at each end thereof, said annular portions 9 resting on the lower legs of its respective channel member as above described, while the straight portions 8 of each plate is secured to a pair of spaced apart and vertically positioned angle bars 10 by bolts 11, said bars 10 being secured to the carrying end of the gate by bolts 12 engaging through the bars and clamping the gate therebetween.

As a means to avoid lateral movement of the annular portions 9 as carried on the lower legs of the channel members, I provide sockets 13 for receiving their respective annular portions 9 of the leaf plate, said sockets being formed arcuately to coincide with the annular portions by removing a portion of the channel member as shown in Fig. 4. In a closed position of the gate, both annular portions of each leaf plate will engage in their respective sockets, while in an open position of the gate, one member of each pair of sockets correspondingly will engage in their respective sockets, and the other corresponding pair of annular portions will leave their sockets to permit opening of the gate as shown in Figs. 4 and 5.

The annular portions 9 of the leaf plates are retained in their respective sockets by a coil spring 14 that has one of its ends secured to an eye bolt 14' that engages through pipe 4 and adjustably secured thereto by a nut 15 threadedly engaging on said bolt. The inner or other end of the spring is rockably secured to a pin B that extends transversely through an offset portion 16 formed in the angle bars 10 intermediately of their length, said offset portion being inwardly from the carrying end of the gate so that the line of force of the spring will pass to either side of the pivot point of the gate during its swinging movement from an open to a closed position, or vice versa, whereby the gate is automatically closed and opened by the action of the spring, selectively. For example, should it be desired that the gate remain open, the same is moved openly until the line of force of the spring has crossed the pivot point of the gate as carried by its respective corresponding sockets, at which instance, the spring will automatically rock the gate to its extreme open position, and vice versa for the closing of the gate.

To control the extreme opening of the door or gate I provide a connecting rod 17, one end engaging through elongated transverse slots in said pipe 4, while the other end of said rod 17 has a downward bend C to engage in an L-bracket 18 that is secured to said angle bars 10 as shown in Figs. 1 an 5, the extent of rock of said gate being controlled by the position of lock nuts 19 that threadedly engage on the first said end of the rod to restrict the rod in its movement during opening of the gate.

It will be seen that the angle bars 10 are spaced apart to clamp the carrying end of the gate and may be moved toward and from each other to correspond with the thickness of the gate and then being secured to the leaf plates that transversely cross the same. A portion of the gate at its carrying end is removed to correspond with the offset portion of the angle bars, and having a U-shaped plate 20 on each side of the wire meshing to engage between the offset portion of the bars and secured by bolts A for securely clamping the wire meshing.

All that is required for the removal or replacement of the gate on the stationary supporting structure is the connection of the spring and the connecting rod, the spring however being the sole means to retain the gate engaged, and which may be increased in its tension by tightening the same.

As a convenient means for locking the gate against opening by livestock, there is provided a latch plate 21, that is secured to a post 22 adjacent the swinging end of the gate, said plate at its lower extremity having an arcuate notch to receive a tubular latch 23. The tubular latch 23 has oppositely disposed sector portions removed a spaced distance inwardly from one end thereof to provide legs E for straddling the gate and then secured by a bolt F passing through said legs and gate. The post is provided with a cutaway portion 24 providing for the passage of the tubular latch as the same moves in either direction from the post. To unlock the gate, pressure is applied downwardly thereon, which tips the gate, permitting the tubular latch to pass from its notch in the plate, during which time, the spring permits a slight disengagement of the upwardly positioned socket engaging members at the carrying end of the gate.

While I have shown and described my invention specifically, I do not wish to be restricted to such exact details, as the same may be varied in proportion, material and arrangement of the parts as lie within the scope of the appended claims.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a supporting structure for a fence gate comprising a stationary portion, and a movable portion carried by a gate, said stationary portion comprising three fixed pipes vertically positioned in triangular relationship and having straps to secure the same together, and a pair of horizontal channel members, spaced apart vertically and being secured to a pair of forwardly positioned pipes, said channel members having a pair of sockets integrally formed therefrom, said movable portion comprising a pair of vertical bars, spaced apart and being clamped to the carrying end of the gate, said bars having an offset portion inwardly of the carrying end of the gate and said bars, and leaf plates secured to the bars, said leaf plates having annular ends to engage with their respective sockets as carrying means for the gate, a coil spring to retain the movable portion engaged with the stationary portion, said spring having one end fixed to the other pipe while its other end is secured to the offset portion of the bars, and a rod having one end rockably secured to the vertical bars, the other end being secured to last said pipe functioning as a stop for the gate in its extreme open position.

2. In a supporting structure for fence gates comprising a plurality of vertically positioned and spaced uprights, a pair of socket members secured adjacent each end of the uprights as a fixed carrying means for a gate, a pair of socket engaging elements for each pair of socket members carried by one end of the gate, bar means

secured to said carrying end of the gate to which said socket engaging elements are secured, said bar means having an inwardly positioned offset portion, a coil spring for retaining the elements engaged in the sockets, one end of the spring being secured to the offset portion while the other end is secured to a rearwardly positioned upright, and a rod having its ends rockably connected to the bar means and the rearwardly positioned upright to avoid disengagement of the socket members during extreme open movement of the gate.

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