Sept. 27, 1960 C. J. THOMAS 2,953,916

GATE LOCK

Filed July 3, 1958 3 Sheets-Sheet 1

Fig. 1

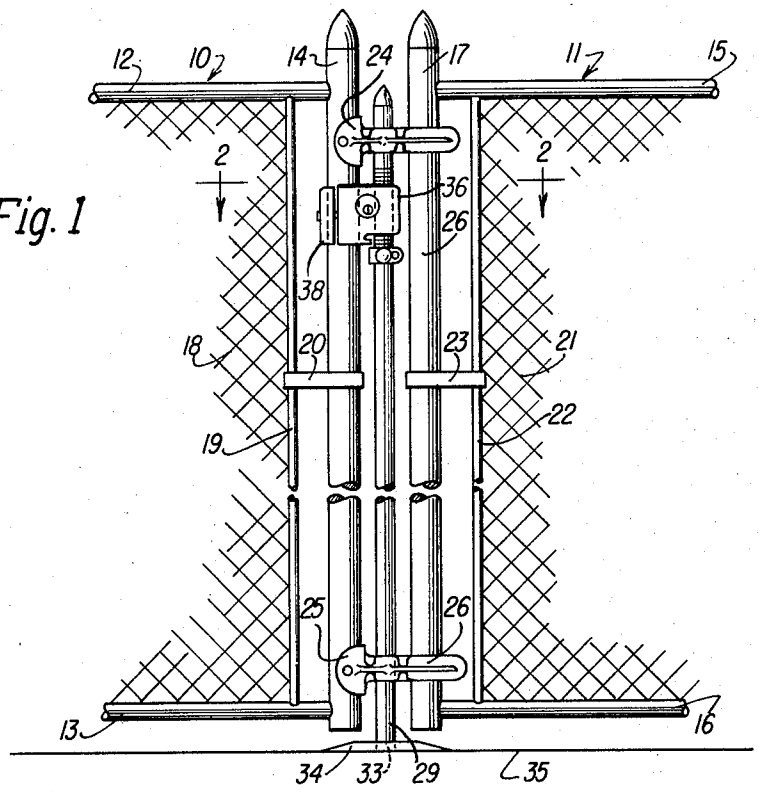
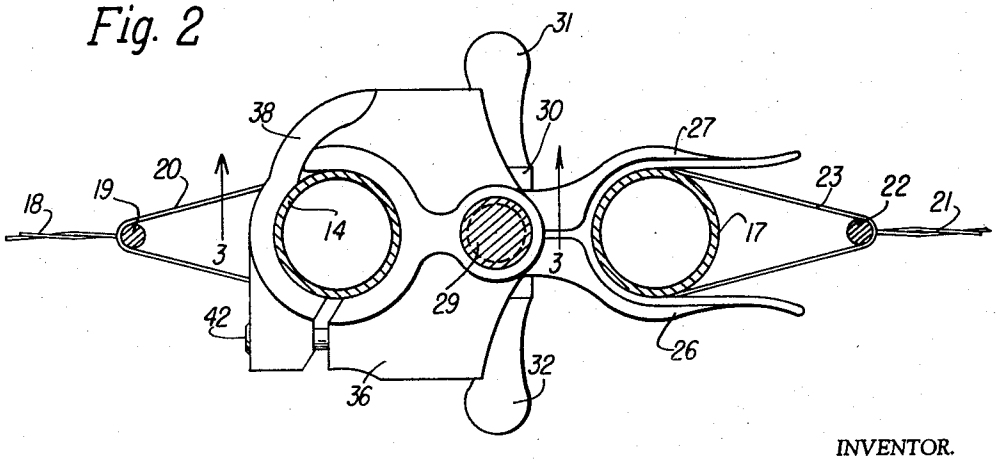


Fig. 2



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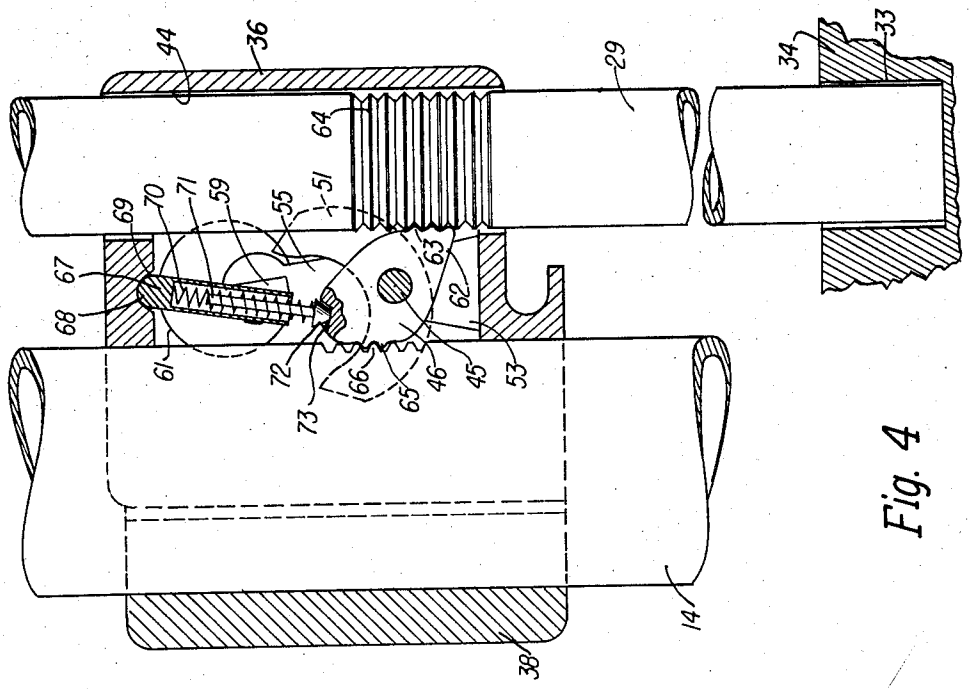


Fig. 4

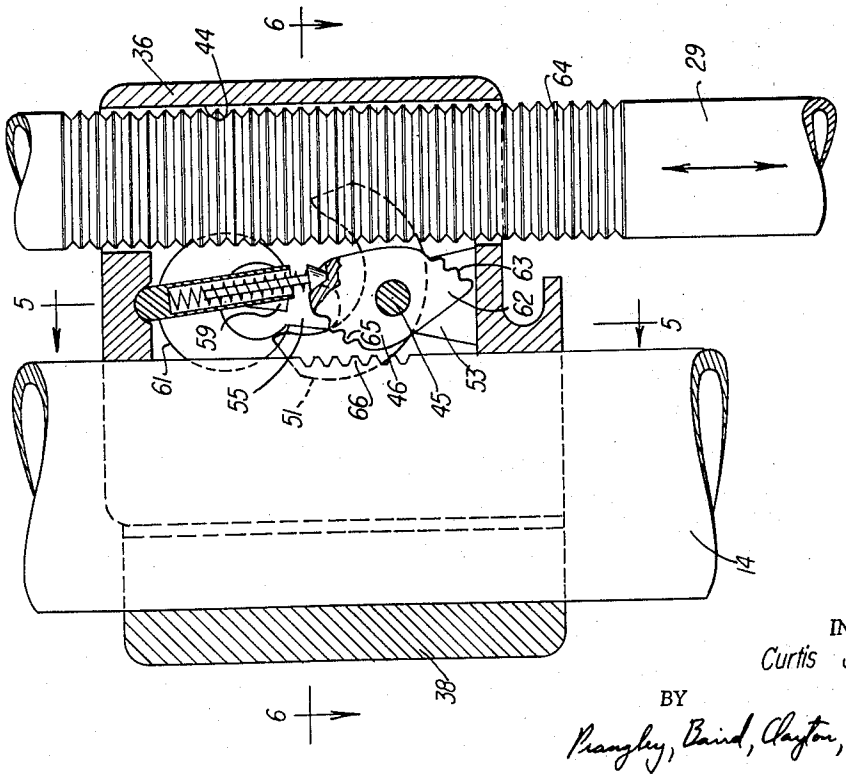


Fig. 3

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GATE LOCK

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Fig. 5

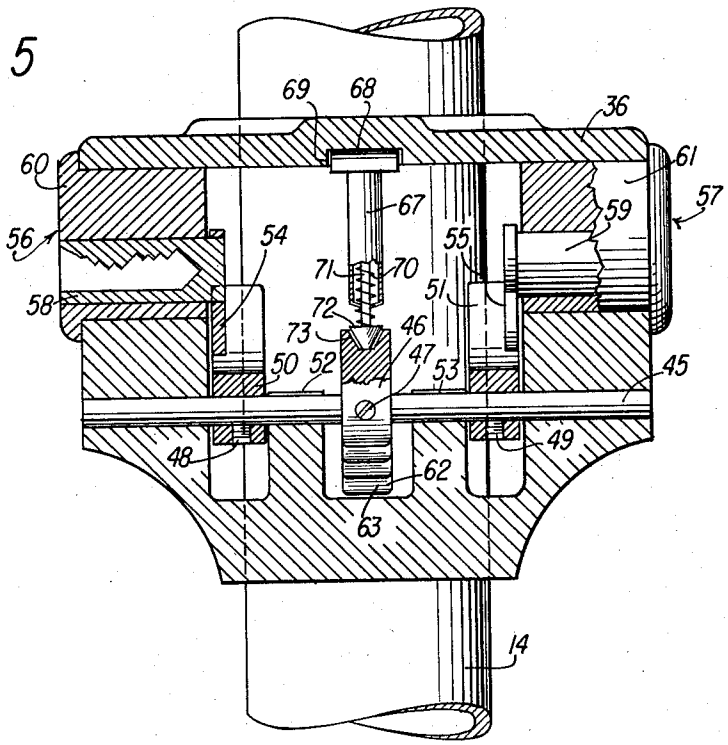
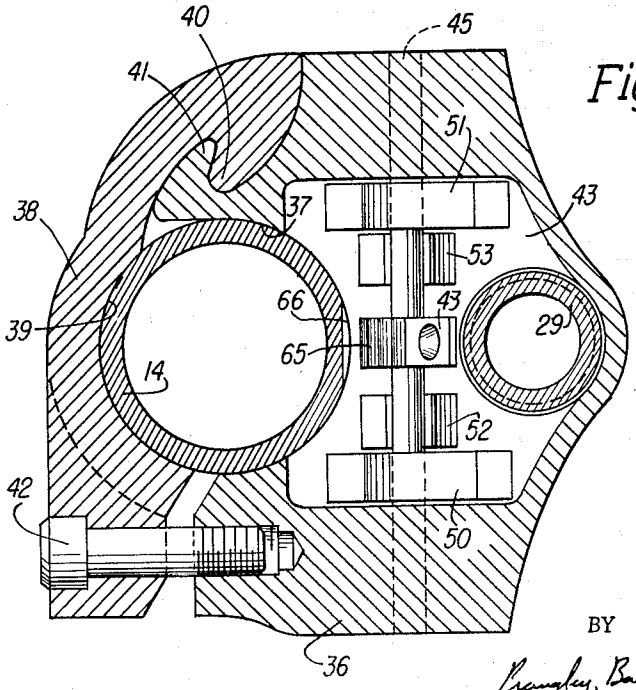


Fig. 6



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GATE LOCK

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14 Claims. (Cl. 70—77)

This invention relates to a lock latch structure, and more particularly to a lock latch for use with a fence gate, especially gates having a pair of swingable sections such as those commonly employed in industrial applications.

Gates used as removable barriers across entrances to commercial and industrial plants most frequently have two swingable sections which, when open, provide a wide passage therebetween suitable for accommodating one or more vehicles. Such gates are designed to meet along the movable ends thereof to form a continuous barrier across such entryway to close the same. Since at times it is necessary to secure the gates in their closed position, lock means are normally associated therewith.

The most common type of lock means for this purpose comprises a forked yoke or other coupling rigidly carried by one of the gate sections for receiving a vertically disposed frame element of the other section when the sections are swung into the closed position thereof, in which position the two sections usually are disposed in substantially planar alignment. The yoke slidably carries a vertically oriented drop rod the lower end of which may be inserted into a recessed receiver embedded into or otherwise made rigid with the roadway or other ground surface. The anchorage so defined between the drop rod and receiver prevents movement of the gate sections; and in order to maintain this constraint, a padlock is effectively connected between the drop rod and yoke in a manner such that upward movement of the rod to withdraw it from the recessed receiver cannot be effected.

It will be appreciated that a locking arrangement of this type has numerous disadvantages, among which are the inconvenience associated with the use of removable locks, the likelihood of loss or misplacement thereof, the difficulty of releasing the lock from either side of the gate, and the necessity of locking the drop rod only after the gate sections have been closed and the rod has been inserted into the receiver. With a view toward these considerations, an object of the present invention is to provide a locking arrangement that overcomes such disadvantages.

Another object of the invention is in the provision of a lock latch for fence gates, which is an integral part thereof and may be used with convenience and facility, from either side of the gate. Still another object is that of providing a lock latch structure of the character described, which permits free axial movement of the drop rod in either direction when the latch is released, and when locked permits only uni-directional movement of the drop rod (namely, downward movement thereof), whereby the rod may be inserted into the receiver therefor but not removed therefrom.

A further object is to provide a lock latch structure wherein a constraining force, in direct ratio to the magnitude of an upwardly directed force applied to the drop rod, is automatically established between the relatively rugged drop rod and gate frame when the structure is locked so as to restrict movement of the rod; and since

such constraining force is exerted between the rod and gate frame, the various components of the lock latch may be made of light-weight, inexpensive materials.

Yet a further object is in the provision of a lock latch structure, wherein a casing having a compartment therein is clamped to a gate frame element and is provided with a passage therethrough in open connection with the compartment and slidably receiving the drop rod which is constrained against upward movement by a wedge cam, operative between the drop rod and frame element, and moved between the lock and release position thereof by an actuator segment controlled by a crank-equipped key lock. Additional objects and advantages of the invention will become apparent as the specification develops.

An embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a broken side view in elevation of a swingable gate structure embodying the invention;

Figure 2 is an enlarged, horizontal sectional view taken along the line 2—2 of Figure 1;

Figure 3 is a vertical sectional view taken along the line 3—3 of Figure 2, and showing the lock latch in the release position thereof;

Figure 4 is a vertical sectional view also taken generally along the plane of Figure 3, but showing the structure in the locking position thereof;

Figure 5 is a transverse sectional view taken along the line 5—5 of Figure 3; and

Figure 6 is a horizontal sectional view taken along the line 6—6 of Figure 3.

The gate illustrated in Figure 1 comprises a pair of swingable sections 10 and 11 supported by means (not shown) at the outer ends thereof for swinging movement between the closed position shown and an open position whereat the inner ends of the gate sections are separated to permit passage therebetween. Sectioned gates of this type are used extensively, and generally comprise a relatively rigid perimetric frame having top and bottom supports 12 and 13, in the case of the section 10, rigidly secured to a vertical post or frame element 14; and supports 15 and 16, in the case of the section 11, rigidly secured to a vertically extending post or frame element 17. A wire mesh fence 18 is carried by the horizontal frame elements 12 and 13, and at an end thereof is affixed to a rod 19 oriented in parallel relation with the vertical frame element 14 and biased theretoward by a tensioning member 20 secured to both the vertical frame element and rod. Similarly, the gate section 11 is equipped with a wire mesh fence 21 secured to a rod 22 biased toward the vertical frame element 17 by a tensioning member 23.

Rigidly secured to the frame element 14 at axially spaced locations therealong are a pair of forked yoke or coupling members 24 and 25. These members may be riveted or otherwise made rigid with the frame element 14, and extend laterally therefrom. As is shown most clearly in Figure 2, each of the couplings defines at the forked end thereof a pair of spaced legs 26 and 27 that may diverge slightly at their outer ends and which form at the base thereof an arcuate recess adapted to seat the frame element 17 therein. The frame element 17 is moved into and out of the forked couplings upon movement of the gate sections between the closed and open positions thereof, and it will be apparent that the element 17 must be aligned with the coupling members at the proper location during swinging movement of the gate sections 10 and 11 to assure seating of the element 17 in the couplings. The purpose of the coupling members is to constrain the gate section 11 against movement when the gate section 10 is locked in the closed position thereof.

The coupling members 24 and 25 are disposed in vertical alignment, and intermediate the ends thereof are

equipped with aligned bores that slidably receive an elongated latch or drop rod 29 that is oriented medially of the vertical frame elements 14 and 17 when the gate sections are closed, as illustrated in Figure 1. Preferably, the drop rod 29 is equipped with a handle structure 30 having handle portions 31 and 32 extending outwardly therefrom on opposite sides of the fence 18 to permit the drop rod to be manually elevated from either side of the gate. Conveniently, the rod 29 may be rounded at the lower end thereof, as shown at 33 in Figures 1 and 4, to facilitate insertion thereof into a recess provided therefor in a receiver 34 that is embedded or otherwise rigidly anchored in a surface, indicated by the line 35. The surface 35 may be a concrete or asphalt road or walkway, and the receiver may be formed integral therewith or may be a metal component anchored within such material. The essential consideration is that the receiver be a stationary element that necessarily prevents lateral movement of the drop rod 29 when the lower end thereof is inserted into the receiver. However, free movement of the gate sections is afforded when the drop rod is elevated to withdraw the lower end thereof from the receiver.

Secured to the vertical frame element 14 intermediate the coupling members 24 and 25 is a casing 36. The casing 36, as shown most clearly in Figure 6, has a vertically extending passage 37 extending therethrough that receives the frame element 14 therein. The casing is anchored at a preselected location along the frame element by means of a clamp 38 which has an arcuate inner surface 39, forming a continuation of the passage 37 and therefore engaging the frame element 14. The clamp at one end thereof is provided with a finger 40 that interlockingly engages a complementary finger 41 provided by the casing; and at its other end, the clamp has a passage extending therethrough which receives a screw 42 threadedly engaging a tapped passage therefor in the casing 36. Thus, the composite casing and clamp structure is circumjacent the frame element 14 and is fixed thereon by the frictional engagement therewith enforced by the tightening of the screw 42.

The casing 36 defines a compartment 43 therein that communicates with the passage 37 along one side thereof. The compartment also connects with a passage 44 which extends therethrough in parallel relation with the passage 37, but disposed along the opposite side of the compartment. The drop rod 29 is axially movable through the passage 44, as is most apparent from Figures 3 and 4. Journalled in the casing 36 is a shaft 45 that extends transversely across the compartment 43 along an axis substantially normal to a plane defined by the longitudinal axes of the passages 37 and 44. Rigidly secured to the shaft 45 at substantially the midpoint of the compartment 43 and in alignment with the frame element 14 and drop rod 29 is a wedge cam 46. A set screw 47 may be employed to rigidly relate the wedge cam to the shaft. Also constrained on the shaft 45 by means of the respective set screws 48 and 49 are a pair of generally C-shaped actuator segments 50 and 51. The actuator segments are located on opposite sides of the wedge cam 46 adjacent the respective side walls of the casing 36. It will be apparent that the shaft 45, wedge cam 46, and actuator segments 50 and 51 move in unison because of the rigid inter-relation thereof.

The casing 36 may be equipped with a pair of spaced bearing elements 52 and 53 disposed on opposite sides of the wedge cam 46 intermediate the actuator segments 50 and 51, and such bearing elements rotatably carry the shaft 45 and thereby support the same intermediate the ends thereof. The C-shaped actuator segments are cooperatively engaged by the respective cranks 54 and 55 that are carried, in turn, by the cylindrical barrel or tumbler of the locks 56 and 57. These tumblers are denoted with the numerals 58 and 59, and are designed to be rotated by insertion of an appropriate key thereinto. Body members 60 and 61 which contain the respective tumblers 58 and 59 are mounted within bores provided therefor in the casing 36. The cranks 54 and 55 are rigidly secured to their corelated tumblers, and in being eccentric with respect to the rotational axes thereof describe a path of movement when the tumblers are rotated that passes through the arcuate mouths defined by the C-shaped actuators. Consequently, when one or the other of the cranks is rotated in the appropriate direction, the actuator segments are moved thereby between the positions shown in Figures 3 and 4.

The wedge cam 46 is provided at the end thereof, which is denoted 62, with serrations or notches 63 adapted to engage the ridges or ribs 64 formed along the surface of the drop rod 29 throughout a length thereof slightly greater than the vertical dimension of the casing 36. The wedge cam has similar serrations or notches 65 along the opposite side thereof that are engageable with ribs or ridges 66 formed along the surface portion of the frame element 14 confined within the compartment 43. When the wedge cam is in the release position shown in Figure 3, the respective serrations 63 and 65 are spaced from the ridges 64 and 66 of the drop rod and frame element, whereby the drop rod may be moved axially without constraint. However, when the wedge cam is in the lock position thereof shown in Figure 4, the respective serrations 63 and 65 mesh with or engage the ridges of the drop rod and frame element and, as will be described in greater detail hereinafter, prevent axial movement of the drop rod in one direction.

Operative between the casing 36 and wedge cam 46 is an over-center spring assembly comprising a spring seat and guide member 67 having an arcuate upper end 68 that seats within a recess 69 provided therefor along the top wall of the casing 36 within the compartment 43. The spring seat 67 is freely pivotal in clockwise and counter-clockwise directions with respect to the orientation thereof in Figures 3 and 4, but is prevented from movement along the axis of the shaft 45 by the end walls of the recess 69, as is most apparent in Figure 5. Seated within the member 67 is a helical spring 70 that receives the pin 71 therein of a plunger having a frusto-conical head 72 that nests within a recess 73 provided therefor in the wedge cam 46. The spring 70 bears downwardly against the head 72 and thereby exerts a biasing force against the wedge cam. It will be evident that the force application of the spring 70 is offset from the shaft 45 either to one side or to the other thereof, depending upon whether the structure is in the lock or release positions thereof. Consequently, the resultant spring force tends to selectively maintain the wedge cam in either of such positions.

When the structure is in its unlocked or release position, the drop rod 29 is free to move axially in vertical directions with respect to the casing 36, and then may be withdrawn from or inserted into the receiver 34. However, when the structure is locked, the wedge cam is in frictional engagement with both the drop rod 29 and frame element 14. It is held in this position because of the force applied thereagainst by the spring 70 tending to rotate the wedge cam in a counter-clockwise direction, as seen in Figure 4. The frictional forces present between the wedge cam and frame element 14 along one side thereof, and drop rod 29 along the other side thereof, are implemented by the notches formed in the surface of the frame element and drop rod and mating notches or serrations formed in the wedge cam.

Nevertheless, the rod 29 may be moved downwardly relative to the casing for such downward movement thereof tends to rotate the wedge cam in a clockwise direction, and the only force tending to resist such rotation is that supplied by the relatively weak coil spring 70. The spring force is readily overcome and the drop

rod can be moved downwardly without difficulty, much in the manner that a ratchet is moved through the return stroke thereof. The opposite condition exists if an upwardly directed force is applied to the drop rod **29**, for such force is exerted against the wedge cam and tends to rotate it in a counter-clockwise direction, as viewed in Figure 4. Rotation in this latter direction is rigidly constrained by the frame element **14** which is in abutting engagement with the wedge cam. The cam then is in effect a wedge that resists upward movement of the drop rod **29** with whatever force is required. Therefore, if a force of progressively increasing magnitude is exerted against the drop rod **29** in an upward direction, the resistive force applied in a downward direction by the wedge cam to the drop rod progressively increases therewith.

It will be noted that the resistive force is developed through the wedge cam between the drop rod **29** and frame element **14**, and does not appear on the casing **36**, shaft **45** or other components of the structure. Consequently, the only components requiring substantial strength are the drop rod, frame element and wedge cam. However, in the latter case, the forces are essentially compressive; and thus, the cam need not be constructed so as to have a high tensile strength. This characteristic of the structure enables it to be made of lightweight, relatively inexpensive materials.

The structure is essentially symmetrical about a center plane therethrough normal to the shaft **45**, as is apparent from Figures 5 and 6. Thus, the lock elements, cranks and actuators are respective duplicates of each other, and are provided simply to permit the structure to be manipulated from either side of the gate. Preferably, a single key will fit both of the locks although this is by no means essential. When either of the locks is manipulated so as to rotate the cylindrical tumbler thereof, the appropriate crank is rotated and is effective to lock or release the structure depending upon the prior condition thereof. Thus, if the structure is unlocked (as shown in Figure 3), one or the other of the cranks can be rotated into engagement with the C-shaped actuator segment therefor and will cam or drive the same in a rotational sense about the axis of the shaft **45**, thereby rotating the shaft and the wedge cam to position the latter in the locking condition thereof.

Therefore, in Figure 3, the crank **55** is rotated in a clockwise direction to lock the structure. The converse is also true and then, referring to Figure 4, rotation of the crank **55** in a counter-clockwise direction will cause the actuator **51** to rotate about the axis of the shaft **45** and thereby move the wedge cam to its unlocked position. The key can be withdrawn from either of the locks **56** or **57** when the respective cranks thereof are in a neutral position, which conveniently is in vertical alignment with the shaft **45**. Therefore, one of the locks cannot interfere with manipulation of the structure by the other lock.

A gate, whether sectioned or of other construction but equipped with the latch lock structure, may be manipulated in a conventional manner to open and close the same, when the lock is released. In such event, the drop rod is simply lowered and raised at the appropriate times to engage and disengage the receiver. The structure differs from conventional gate locks, however, for not only can the structure be locked after the drop rod **29** is inserted into the receiver, but also when the gate is open to permit subsequent insertion of the drop rod into the receiver without further manipulation of the locks.

While in the foregoing specification an embodiment of the invention has been set forth in considerable detail for purposes of adequately disclosing the same, it will be apparent that those skilled in he art may make numerous changes therein without departing from the principles and spirit of the invention.

I claim:

1. In a lock latch structure for use with a swingable gate having a generally vertical frame element adjacent the travelling end thereof, a casing having a compartment therein and having also a pair of generally parallel passages extending therethrough along opposite sides of said compartment and in open connection therewith, one of said passages being dimensioned for receipt of such frame element therein, a clamp interlockingly connected with said casing for fixedly securing the same in a preselected position along such frame element, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of such gate, a pin rotatably supported by said casing intermediate said passages in substantially normal disposition relative to a plane defined by the longitudinal axes thereof, a wedge cam anchored on said pin for movement thereby between a locking position of engagement with both said rod and such frame element and a release position remote from said rod, a generally C-shaped actuator segment constrained on said pin for rotating the same to selectively position said wedge cam in the locking and release positions thereof, a lock carried by said casing and being equipped with a crank engageable with said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon, and over-center spring means coupled between said casing and wedge cam to selectively bias the latter toward the locking and release positions thereof, said wedge cam being oriented when in the locking position thereof at an inclination relative to the longitudinal axis of said rod to effect a progressively increasing wedging force thereagainst and thereby constrain the same from movement in a direction opposed to the aforesaid direction of inclination but also to effect a decreasing wedging force thereagainst upon movement of the rod in the opposite direction to permit such movement thereof.

2. In a lock latch structure for use with a swingable gate having a generally vertical frame element adjacent the travelling end thereof, a casing having a compartment therein and having also a pair of generally parallel passages extending therethrough along opposite sides of said compartment and in open communication therewith, one of said passages being dimensioned for receipt of such frame element therein, means for fixedly securing said casing to such frame element at a predetermined position therealong, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of such gate, a pin rotatably supported by said casing intermediate said passages and in a substantially normal disposition relative to a plane defined by the longitudinal axes thereof, a wedge cam anchored on said pin for movement thereby between a locking position of engagement with both said rod and such frame element and a release position remote from said rod, a generally C-shaped actuator segment constrained on said pin for rotating the same to selectively position said wedge cam in the locking and release positions thereof, a lock carried by said casing and being equipped with a finger engageable with said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon, and means for selectively biasing said wedge cam toward the locking and release positions thereof, said wedge cam being oriented when in the locking position thereof at an inclination relative to the longitudinal axis of said rod to effect a progressively increasing wedging force thereagainst and thereby constrain the same from movement in a direction opposed to the aforesaid direction of inclination but also to effect a decreasing wedging force

thereagainst upon movement of the rod in the opposite direction to permit such movement thereof.

3. In a lock latch structure for use with a swingable gate having a vertical frame element adjacent the travelling end thereof, a casing having a compartment therein and having also a pair of generally parallel passages extending therethrough along opposite sides of said compartment and in open connection therewith, one of said passages being dimensioned for receipt of such frame element therein, means for fixedly securing said casing to such frame element at a predetermined position therealong, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of such gate, a pin rotatably supported by said casing intermediate said passages and in a substantially normal disposition relative to a plane defined by the longitudinal axes thereof, a wedge cam anchored on said pin for movement thereby between a locking position of engagement with both said rod and such frame element and a release position remote from said rod, a generally C-shaped actuator segment constrained on said pin for rotating the same to selectively position said wedge cam in the locking and release positions thereof, a lock carried by said casing and being equipped with a crank engageable with said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon, and means for selectively biasing said wedge cam toward the locking and release positions thereof, said wedge cam being effective to progressively increase the wedging force operative between said drop rod and such frame element to prevent movement of the drop rod when an upward force is applied thereto but also being effective to permit movement of the drop rod when a downwardly oriented force is imposed thereon.

4. In a lock latch structure for use with a swingable gate having a generally vertical frame element adjacent the travelling end thereof, a casing having a compartment therein and having also a pair of generally parallel passages extending therethrough along opposite sides of said compartment and in open connection therewith, one of said passages being dimensioned for receipt of such frame element therein, means for fixedly securing said casing to such frame element at a predetermined position therealong, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of such gate, a pin rotatably supported by said casing intermediate said passages and in substantially normal disposition relative to a plane defined by the longitudinal axes thereof, a wedge cam anchored on said pin for movement thereby between a locking position of engagement with both said rod and such frame element and a release position remote from said rod, a generally C-shaped actuator segment constrained on said pin for rotating the same to selectively position said wedge cam in the locking and release positions thereof, and a lock carried by said casing and being equipped with a crank engageable with said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon, said wedge cam being effective to progressively increase the wedging force operative between said drop rod and such frame element to prevent movement of the drop rod when an upward force is applied thereto but also being effective to permit movement of the drop rod when a downwardly oriented force is imposed thereon.

5. The lock latch structure of claim 4 in which said wedge cam is provided with alternate ridges and grooves along a surface portion thereof adjacent said drop rod, and in which said drop rod is provided along a surface portion thereof with complementary ridges and grooves adapted to engage those of said wedge cam when the cam is in the locking position thereof.

6. In combination with a swingable gate having an upwardly extending frame element adjacent the travelling end thereof, a casing fixedly secured to said frame element and having both a compartment therein and a pair of generally parallel passages extending through said compartment along opposite sides thereof and in open connection therewith, one of said passages having such frame element extending therethrough, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of said gate, a pin rotatably supported by said casing within said compartment and intermediate said passages, a unitary wedge cam fixed on said pin for rotatable movement thereby between a locking position wherein said wedge cam is in direct engagement with both said rod and frame element and a release positioned wherein said wedge cam is spaced from said rod, an actuator segment anchored on said pin and extending laterally therefrom for rotating the same to selectively position said wedge cam in the locking and release positions thereof, and lock means carried by said casing and being equipped with a crank engageable with said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon.

7. The combination of claim 6 in which means are provided for selectively biasing said wedge cam toward the locking and release positions thereof.

8. The combination of claim 7 in which said means comprises an over-center spring coupled between said casing and wedge cam.

9. The combination of claim 6 in which a pair of said actuator segments are provided within said compartment adjacent opposite ends of said pin, and in which a pair of said lock means and cranks therefor are provided for respective actuation of said actuator segments.

10. In combination with a swingable gate having an upwardly extending frame element adjacent the travelling end thereof, a casing fixedly secured to said frame element and having both a compartment therein and a pair of generally parallel passages extending through said compartment along opposite sides thereof and in open connection therewith, one of said passages having such frame element extending therethrough, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of said gate, a pin rotatably supported by said casing within said compartment and intermediate said passages, a wedge cam anchored on said pin for rotatable movement thereby between a locking position of engagement with both said rod and frame element and a release position spaced from said rod, an actuator segment anchored on said pin for rotating the same to selectively position said wedge cam in the locking and release positions thereof, and lock means carried by said casing and being equipped with a crank engageable with said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon, said wedge cam being oriented when in the locking position thereof at an inclination relative to the longitudinal axis of said rod to effect a progressively increasing wedging force between said frame element and rod and thereby constrain the latter from movement in a direction opposed to the aforesaid direction of inclination but also to effect a decreasing wedging force therebetween upon movement of the rod in the opposite direction to permit such movement thereof.

11. In combination with a swingable gate having an upwardly extending frame element adjacent the travelling

end thereof, a casing fixedly secured to said frame element and having both a compartment therein and a pair of generally parallel passages extending through said compartment along opposite sides thereof and in open connection therewith, one of said passages having such frame element extending therethrough, a drop rod extending through the other of said passages and being axially movable with respect thereto for insertion into a receiver therefor to prevent movement of said gate, a pin rotatably supported by said casing within said compartment and intermediate said passages, a unitary wedge cam fixed on said pin for rotatable movement thereby between a locking position in direct engagement with both said rod and frame element and a release position spaced from said rod, an actuator segment anchored on said pin for rotating the same to selectively position said wedge cam in the locking and release positions thereof, an arm on said actuator segment extending laterally with respect to said pin, and lock means carried by said casing for engaging said arm and controlling said actuator segment to selectively urge the same into the positions thereof respectively corresponding to the locking and release positions of said wedge cam to enforce such positions thereon.

12. The combination of claim 11 in which said frame element and drop rod are provided with facing serrated surfaces, and in which said wedge cam has complementary serrated surface portions respectively engageable with those of said drop rod and frame element when the wedge cam is in the locking position thereof.

13. The combination of claim 11 in which said gate comprises swingable sections one of which is equipped with the aforesaid frame element and the other of which is provided with a similar upwardly extending frame element adapted to be brought into adjacent relation when said gate is closed, said first mentioned frame element having a coupling rigidly related thereto and provided with a forked end for receiving the other of said frame elements therein when the gate is closed.

14. The combination of claim 13 in which said coupling is provided with a bore therethrough slidably receiving said drop rod.

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