

Nov. 30, 1948.

I. B. McKEOWN

2,455,018

GATE OPERATING MEANS

Filed Dec. 11, 1944

4 Sheets-Sheet 1

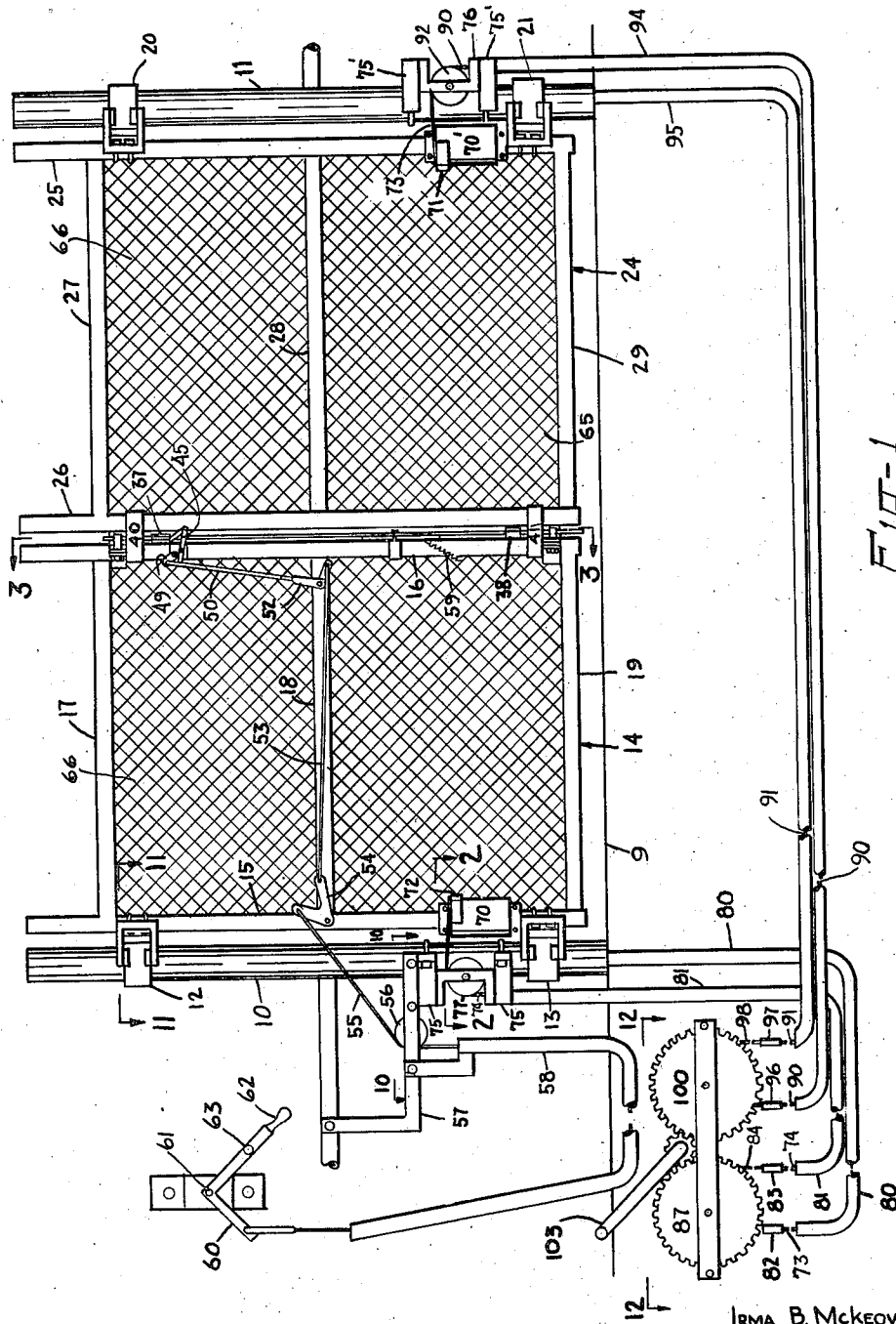


Fig-1

IRMA B. McKEOWN
INVENTOR

BY

ATTORNEY

Nov. 30, 1948.

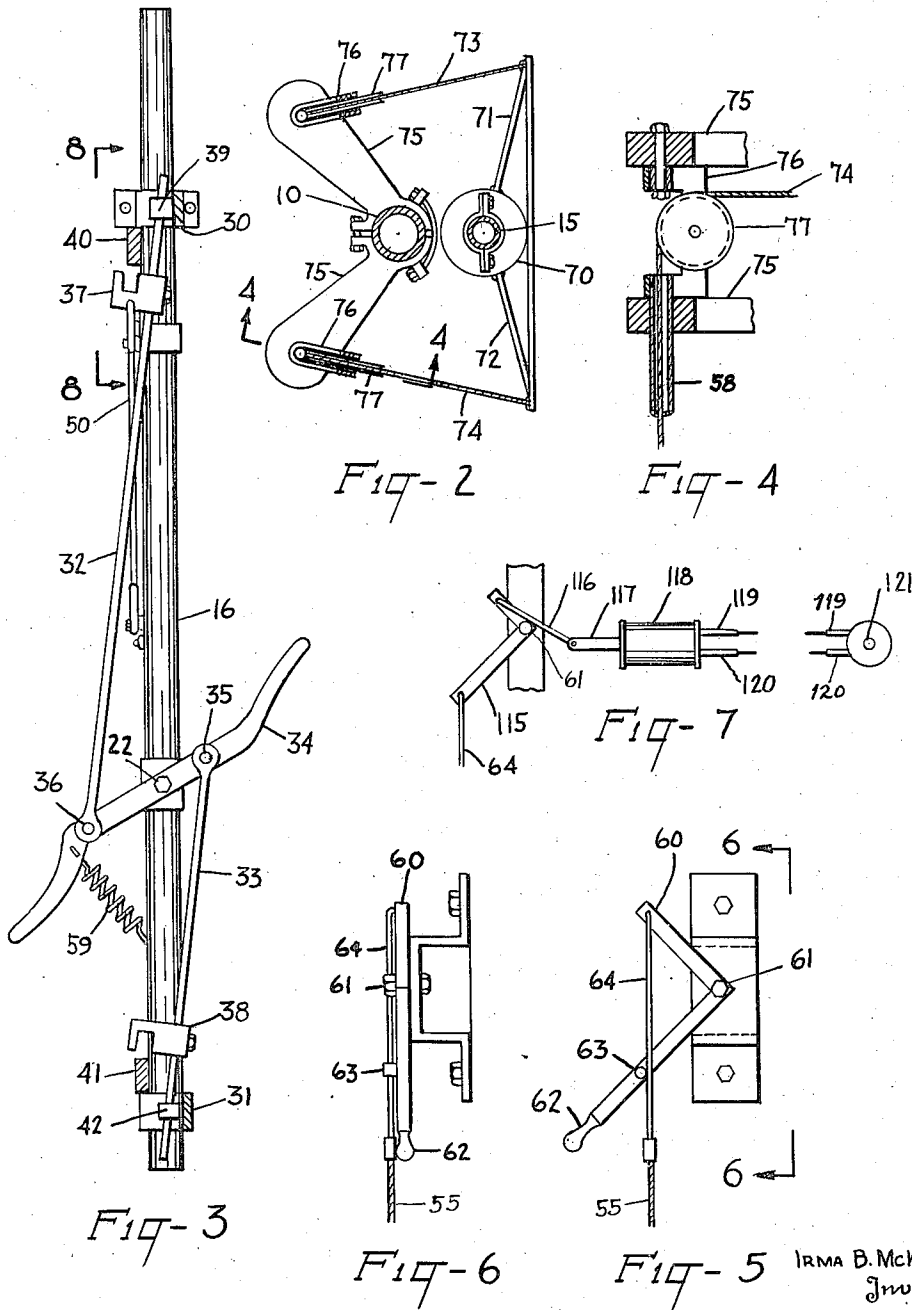
I. B. McKEOWN

2,455,018

GATE OPERATING MEANS

Filed Dec. 11, 1944

4 Sheets-Sheet 2



IRMA B. McKEOWN
Inventor

334

Paul Kohn

Attorney

Nov. 30, 1948.

I. B. McKEOWN
GATE OPERATING MEANS

2,455,018

Filed Dec. 11, 1944

4 Sheets-Sheet 3

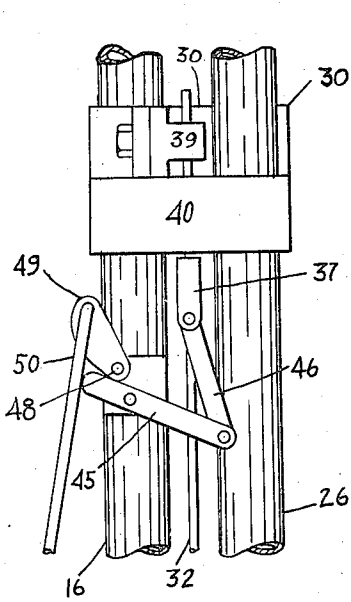


Fig- 8

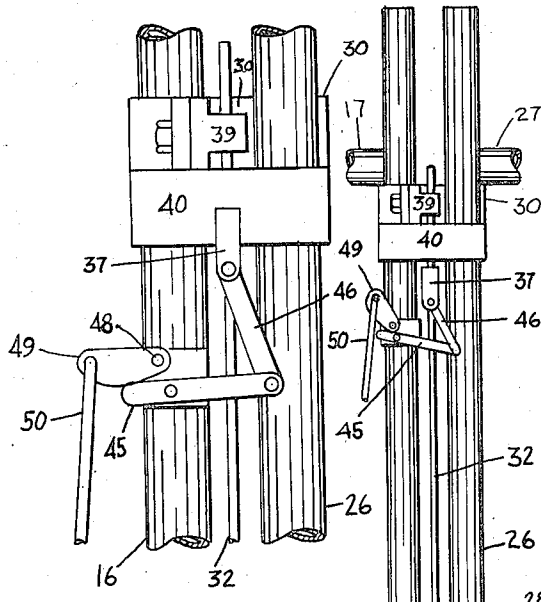


Fig- 9

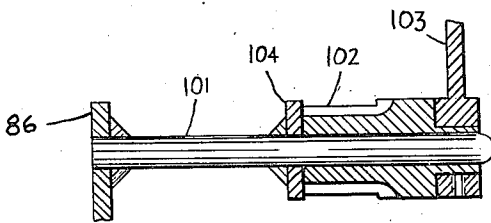


Fig- 14

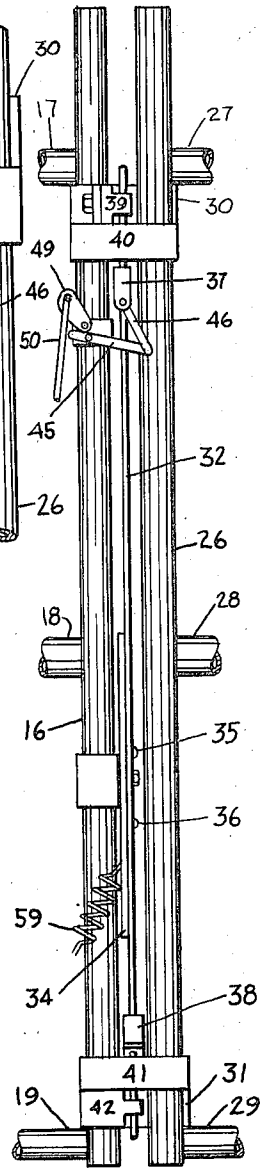


Fig- 15

IRMA B. McKEOWN
Inventor

334

Paul Kato

Attorney

Nov. 30, 1948.

I. B. McKEOWN

2,455,018

GATE OPERATING MEANS

Filed Dec. 11, 1944

4 Sheets-Sheet 4

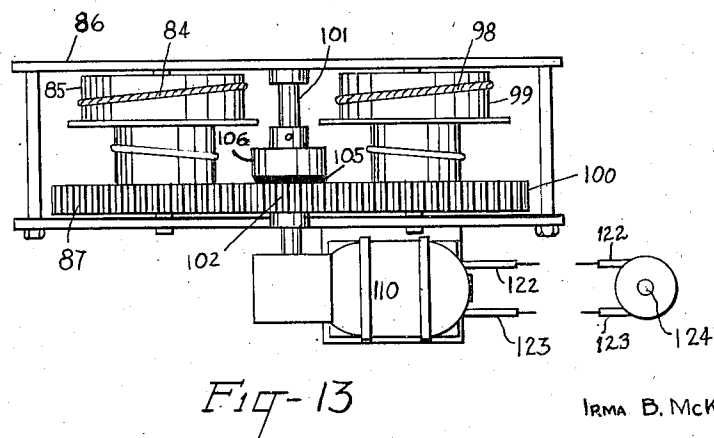
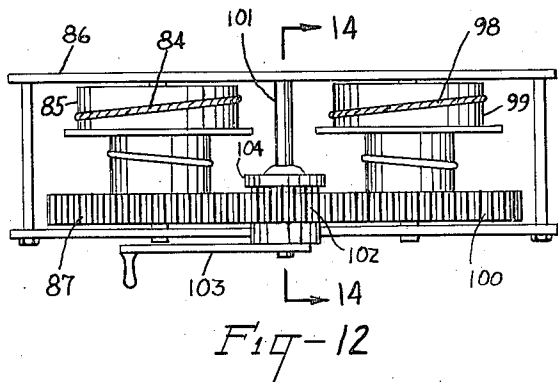
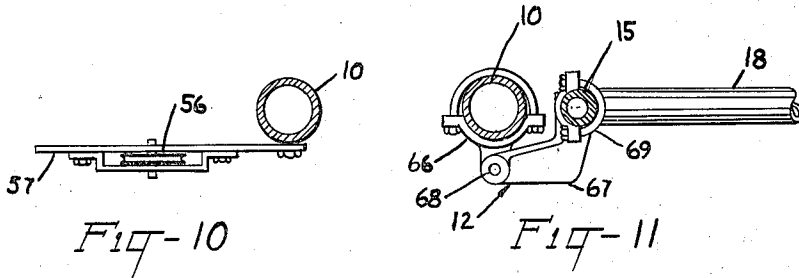


Fig-13

IRMA B. McKEOWN

Inventor

334

Paul Slator

Attorney

UNITED STATES PATENT OFFICE

2,455,018

GATE OPERATING MEANS

Irma B. McKeown, Charlotte, N. C.

Application December 11, 1944, Serial No. 567,751

2 Claims. (Cl. 39—52)

1

This invention relates to closure operating means and more especially to means for opening and closing a gate or pair of gates from a point located distantly from the gate.

In large industrial establishments, a fence usually surrounds the grounds on which the plant is located and one or more gates, of course, are provided for ingress and egress to the grounds and the plant therein. Also it is necessary to keep the gate locked at all times in many instances, and it is inconvenient to operate these gates by sending a person to the gate for opening and closing the same. It would also be very expensive to employ a gatekeeper for an occasional opening and closing and locking of the gate.

It is an object of this invention to provide gate operating means located in a building or other location remotely located from the gate, whereby the gate can be unlocked and can be opened by an operator disposed within the building, the building being locked at all times when an attendant is not present to operate the gate, thus making it impossible for intruders to scale the fence and operate the gate from the inside, even though the operating means are located on the inside, and even though the operating means were located some distance away from the fence on the inside thereof.

It is another object of this invention to provide means for opening and closing a gate whereby the same not only can be manually operated if desired, but can be electrically operated by remotely controlled switches so that one switch can be pressed for unlocking the gate, and another switch can be pressed for actuating the closure operating means for opening the gate, and then when it is desired to do so, the same means can be operated to return the gate to closed position and the locking means can also be remotely controlled for unlocking, and the locking means are adapted to automatically lock the gate after the gate has become closed, when the means for holding the locking means in open position have been released or moved to allow the locking means to return to locking position.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

Figure 1 is an elevation of a double gate showing my invention applied thereto, and showing a portion of the invention disposed below the ground line;

Figure 2 is a horizontal sectional view taken along the line 2—2 in Figure 1;

Figure 3 is an enlarged elevation taken along the line 3—3 in Figure 1;

Figure 4 is a vertical sectional view taken along the line 4—4 in Figure 2;

2

Figure 5 is an enlarged detail view showing the locking or latch operating means in a position where the latch or locking means are held in closed position;

Figure 6 is an elevation of Figure 5 looking from along the line 6—6 in Figure 5;

Figure 7 is a modified view of electrical means for operating the locking means instead of the conventional bell crank manually operated lever;

Figure 8 is an elevation looking along the line 8—8 in Figure 3; and showing the locking or latch operating means in open position;

Figure 9 is a view similar to Figure 8, but showing the latching or locking means in closed or locked position;

Figure 10 is a horizontal sectional view taken along the line 10—10 in Figure 1;

Figure 11 is a horizontal sectional view taken along the line 11—11 in Figure 1;

Figure 12 is a top plan view of the closure operating means and looking from along the line 12—12 in Figure 1;

Figure 13 is a modified form of Figure 12, and showing electrical means for actuating the closure operating means;

Figure 14 is a cross sectional view taken along the line 14—14 in Figure 12;

Figure 15 is a front elevational of the proximate portions of the gates 14 and 24.

Referring more specifically to the drawings, the numerals 10 and 11 indicate upright posts properly secured in the ground, the ground line being indicated by numeral 9. Post 10 has suitable conventional hinges 12 and 13 secured thereon which hingedly support a gate 14 which comprises uprights 15 and 16 with horizontal bars 17, 18, and 19. The post 11 has conventional hinges 20 and 21 thereon which are identical to the hinges 12 and 13 and they support a gate 24 in the same manner as described for gate 14. The gate 24 comprises upright members 25 and 26 with horizontal members 27, 28, and 29.

The upright 16 of gate 14 has a pair of brackets 39 and 42 thereon in which rods 32 and 33 are slidably mounted, the proximate ends of these rods being pivotally connected to a hand lever 34 as at 35 and 36. The lever 34 is pivoted at 22 to upright 16. The rods 32 and 33 have thereon latch members 37 and 38 which have notches therein which are adapted to engage bars 40 and 41 mounted on the upright member 26 of gate 24. This locking means is conventional and it is with this that I provided remote means for actuating the lever 34, rods 32 and 33, to latch the two gates together or to unlatch same. The rear surface of upright 16 has bars 30 and 31 secured thereon against which the upright 25 strikes when gate 24 moves to closed position.

On upright 16 there is pivoted a lever 45 intermediate its ends and to one of its ends there

3

is pivotally connected a link 46 which is pivotally connected to the rod 32. Pivoted as at 48 on upright 16 is a cam 49 which has in the outer free end thereof, a pivoted connection which the upper end of a rod 50, whose lower end is connected to one end of a bell crank 52 pivoted on the horizontal portion 18 of gate 14.

Pivoted to the other end of bell crank 52 is a rod 53 which is pivoted to one end of a bell crank 54 which is pivotally mounted on upright 15 and the other end of this bell crank 54 has connected thereto a cable 55 which extends over a pulley 56 mounted in a framework 57, and this pulley extends through an underground pipe 58 to a remote point, such as a guard house or a building located inside the fence, where it is connected to one end of a bell crank lever 60 pivoted as at 61 and has a handle portion 62 with a pin 63 therein.

In the position shown in Figure 1, the gate is in normal unlatched position, being held in this position by tension spring 59 secured to the lever 34 and to the wire netting 66. By rotating the bell crank lever on its pivot 61 in a counter-clockwise manner from the position shown in the upper left hand corner of Figure 1 to the position shown in Figure 5 to where the pin 63 engages the rod 64, the cam 49 will therefore rotate lever 45 in a counter-clockwise manner to move the latch 37 upwardly to engage bar 41 and this will also move latch or dog 38 downwardly to engage bar 42 to thus lock the gate in position. The lower end of rod 64 is connected to the cable 55 after it passes through the underground pipe 58.

The hinges 12, 13, 20 and 21 are conventional hinges and are shown in detail in Figure 11 and comprises a collar 66 secured around the upright posts and having a bracket 67 pivotally secured to the collar 66 as at 68 and the bracket 67 is secured around the outer upright of each gate by any suitable means, such as a U-bolt 69.

Secured on the upright 15 is a member 70 and on upright 25 of the other gate 24 there is secured a similar member 70', the two members being identical except that they are opposite hand, and a description of one will suffice for the other. These members have arms 71 and 72 to which cables 73 and 74 are secured at one end.

Secured around post 10 is a bracket 75 and a similar bracket 75' is secured around post 11, it being identical to bracket 75 except that it is opposite hand. The bracket 75 has upper and lower arms, both designated by reference character 75, and between these is pivotally mounted a pair of U-shaped members 76, each having a pulley 77 therein over which cables 73 and 74 pass, the cable 73 passing through an underground pipe 80, and the cable 74 passing through an underground pipe 81 to a remote portion of the premises where the structure shown in the lower left hand corner of Figure 1 and in Figures 12 and 13 is located.

In Figure 1 the winding drums are shown as being underground, but it is only for lack of space as this winding mechanism is usually located adjacent to the bell crank comprising member 60 and 62 in the guardhouse or watchman's house or some other place on the premises.

The cables 73 and 74, after passing through the underground pipes 80 and 81 are connected to suitable turnbuckles 82 and 83 which in turn are connected to a cable 84 wound around a drum 85 mounted for rotation in a framework 86 and having a pinion 87 fixed thereon.

4

The bracket 70' is identical to bracket 70 already described and has cables 90 and 91, the cable 91 not being shown in the right hand portion of Figure 1, but being on the remote side of the structure as shown in the right hand portion of Figure 1, and these cables 90 and 91 pass over suitable pulleys 92 which are identical to the pulleys 77 shown and described in the left hand side of Figure 1 and also described in Figures 2 and 4.

The cables 90 and 91 pass through underground pipes 94 and 95 to suitable turnbuckles 96 and 97 which are connected to a cable 98 which is wound around a drum 99 mounted in the framework 86 and having a pinion 100 fixed thereon.

There is also a shaft 101 mounted in the framework 86 and has a pinion 102 thereon which connects with both pinions 87 and 100 and a suitable crank 103 is fixedly mounted on the pinion 102 so that when a crank 103 is turned, the pinion 102 will rotate and the cylinders or drums 85 and 99 will be rotated to wind the cables 84 and 98 therearound to open or close the gates depending upon what direction the crank is turned.

The pinion 102 is loosely confined against a stop 104 fixed on shaft 101. The shaft 101 is welded at one end to the framework 86, or shaft 101 may, if desired, have a friction clutch plate or disc 105 fixed on a disc 106 fixed on the shaft 101 and the pinion 102 would be loose on shaft 101, and instead of having a crank 103 shown in Figure 12, a gear motor 110 can be employed which is connected in a conventional manner to shaft 101 for imparting rotation to the pinion 102 to also turn pinions 87 and 100 and the drums 85 and 99 to which they are secured.

The gates may be unlocked by electrical means instead of by manual means, and in such instance, a bell crank lever 115 is pivoted as at 61 in the same manner as the manually operated bell crank lever and this bell crank lever 115 has its long arm connected to rod 64 and the short arm is connected to a link 116 which in turn is connected to the core 117 of the solenoid 118 which has suitable wires 119 and 120 leading to a switch or push button 121. It is seen that by pushing the push button 121 the bell crank lever 115 will be operated to unlatch the gate in the same manner as if the manually operated means were employed.

In case the winding drum should be desired to be operated electrically from a remote point instead of by a hand crank, the gear motor 110 is connected as previously described and has wires 122 and 123 leading to a remote point and connected to a push button 124 so that after the gates are unlocked by pushing on push button 121, push button 124 can then be pushed while the push button 120 is still held in contact position to operate the gate opening and closing mechanism.

It might be stated that the winding on the drums and the diameter of the drums, drum 85 being of greater diameter than drum 99 and, the connection to the arms 70 and 70' is such that after the locking means has been moved to unlocked position, the gate 14 will move at a faster rate than gate 24 in opening and closing. In moving the gates to closed position, the arrangement is such that the gate 14 will move to closed position ahead of the gate 24, the gate 24 moving in behind the gate 14 to closed position to where the locking means can be released to automatically lock the two gates in position.

In the drawings and specification, there has been set forth a preferred embodiment of the

5

invention and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. An enclosure having an opening provided with a vertically disposed post at each side of the opening, a pair of gates disposed in side-by-side relation for closing the opening, each of said gates having vertically disposed outer frame members disposed in alignment with the posts on each side of the enclosure and pivotally mounted on the posts, each post having mounted thereon a pair of laterally extending arms each provided with a pulley, the outer frame member of each gate having thereon a pair of arms to the end of each of which a cable is attached, a pair of drums disposed in side-by-side relation and located remotely from the enclosure, said drums having a medial portion of a cable wound therearound and the two ends of the cable on one drum extending to one set of said pulleys and being attached to the arms extending laterally from the vertically disposed outer frame member of one gate, and the two ends of the cable on the other drum extending to the other set of pulleys and being attached to the arms on the other gate.

2. An enclosure having an opening and a post disposed on each side of the opening, a pair of gates disposed between the posts for closing the opening, said gates having their remote edges pivotally mounted on the posts for horizontal swinging movement, each of said gates having a pair of arms extending in opposite directions

6

inwardly and outwardly of the enclosure, each of said posts having laterally directed arms each provided with a pulley, a pair of drums disposed in side-by-side relation and common means for imparting rotation to the drums simultaneously, one of said drums being of a larger diameter than the other, each of said drums having wound therearound the medial portion of a cable, the ends of one of the cables extending to the pulleys mounted in the outer ends of the pair of arms on one of said posts and passing therethrough and being secured to the outer ends of the two arms on the outer portion of one of the gates and the ends of the cable on the other drum passing over the other set of pulleys and being secured to the arms on the other gate whereby when rotation is imparted to the drums, one of the gates will travel at its outer portion at a greater rate than the other to hereby move away and out of contact with the other gate immediately upon an opening operation.

IRMA B. McKEOWN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
952,259	DeHoog	Mar. 29, 1910
998,311	Warden et al.	July 13, 1911
1,642,317	Webb	Sept. 13, 1927
1,848,136	Meissner	Mar. 3, 1932
1,913,976	Colman	June 13, 1933
2,000,515	Gross	May 7, 1935