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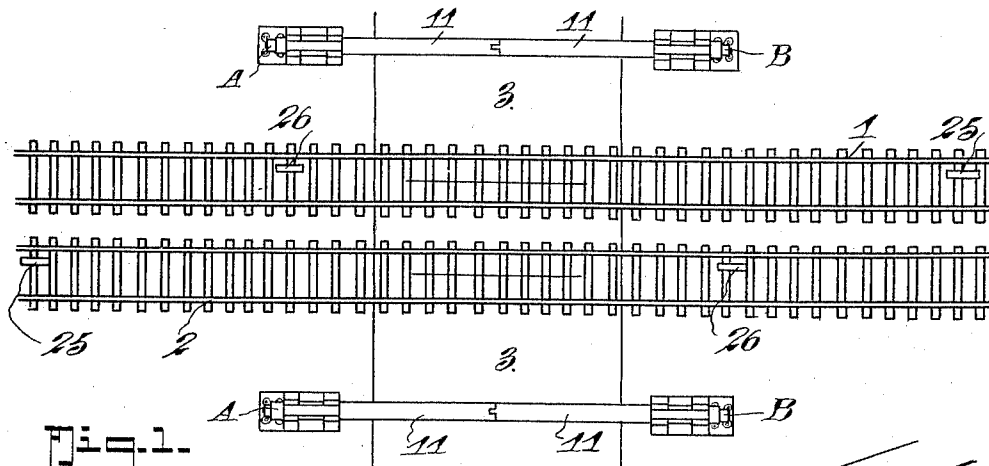
A. REGALMUTO

1,731,908

SAFETY GATE FOR RAILWAYS

Filed Aug. 3, 1928

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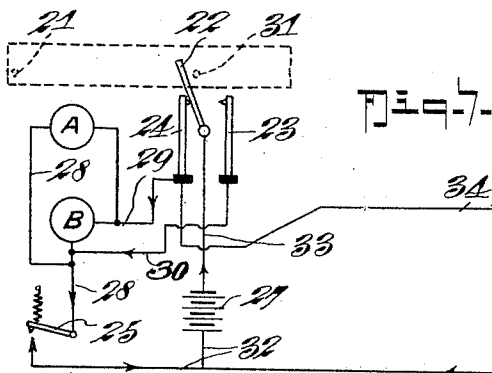
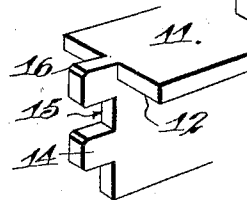
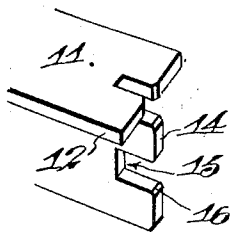


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Fig. 5.

Fig. 6.



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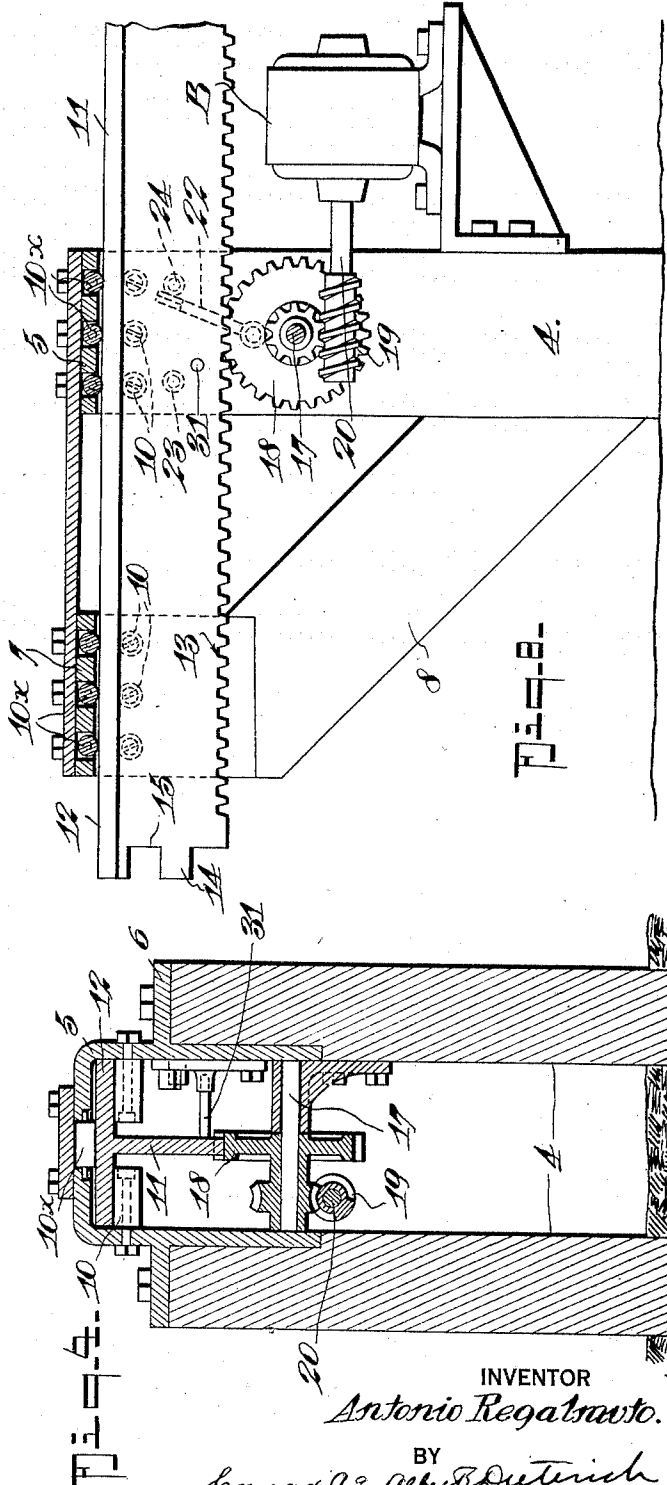
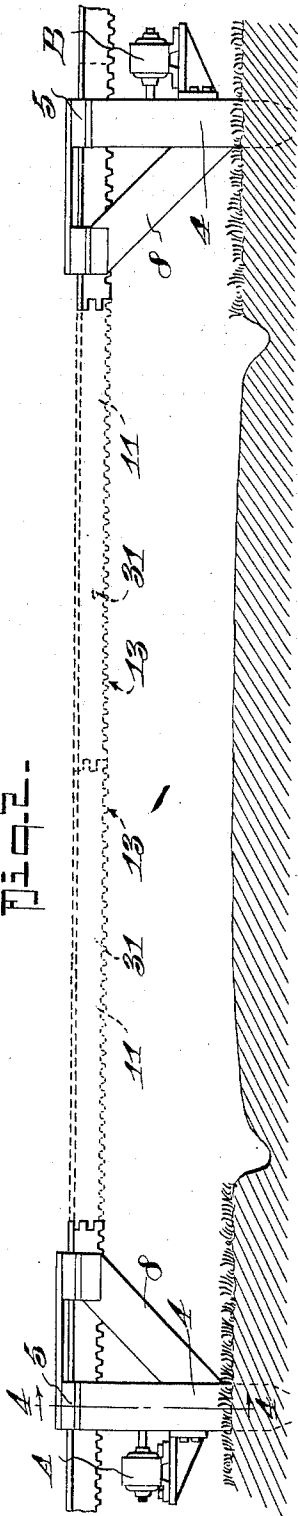
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2 Sheets-Sheet 2

Fig. 2-



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UNITED STATES PATENT OFFICE

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SAFETY GATE FOR RAILWAYS

Application filed August 3, 1928. Serial No. 297,311.

The invention relates to railway crossing gates and the same has for its object more particularly to provide a simple, inexpensive, ruggedly constructed apparatus which
5 may be manufactured at a low cost and which will not easily get out of order but will effectively serve its intended purpose.

Further, said invention has for its object to provide a duplex gate, one unit of which
10 is mounted at one side of the road adjacent the crossing, and the other unit of which is mounted at the opposite side of the road, the two units including longitudinally movable gate bars and suitably controlled electric motor gate-operating instrumentalities
15 for moving the bars toward and from one another across the road.

Other objects will in part be obvious and in part be pointed out hereinafter.

20 To the attainment of the aforesaid objects and ends, my invention consists in the novel details of construction and in the combination, connection and arrangement of parts, hereinafter more fully described and then
25 pointed out in the claims.

In the drawings:

Fig. 1 is a plan of a railway crossing with the invention applied.

30 Fig. 2 is a side elevation of one of the gates comprising my invention, the two gate bars being shown separated in full lines and closed together in dotted lines.

Fig. 3 is a detail perspective view of one of the gate units, the motor being omitted.

35 Fig. 4 is a cross section on the line 4-4 of Fig. 2.

Figs. 5 and 6 are detail perspective views of the adjacent ends of the gate bars.

40 Fig. 7 is a diagrammatic view of one electric circuit with switching and circuit closing instrumentalities such as may be employed to control the operation of the gate by approaching trains.

45 Fig. 8 is a sectional view showing the operating means.

In the drawings in which like numerals and letters of reference indicate like parts in all of the figures, 1 and 2 represent the
50 trackage of a railroad and 3 represents the

cross road which is to be protected by the gates that constitute my invention.

At each side of the road 3 there is placed, adjacent the railway right-of-way, suitable supporting posts 4, the same being preferably
55 arranged in pairs. Supported on the posts are elevated guide members 5 preferably of channeled form and having flanges 6 for mounting on the posts 4.

Auxiliary guide members 7 of somewhat
60 similar form to the guide members 5 are mounted on diagonal extensions from the posts 4 and are connected by brace bars 8 with the guide members 5. Anti-friction rolls 10-10* are mounted in the guides 5
65 and 7 to support the gate bars 11.

The gate bars 11 are of approximately T shape in cross section and have their top flange 12 arranged to ride on the rollers 10 and beneath the rollers 10*. The lower edge
70 of the vertical web of each gate bar 11 is toothed or gear-cut as at 13 to provide racks for engagement with the driving gears 18. The opposed ends of the gate bars 11 have
75 tongues 14 and recesses 15 which interlock when the gate bars are brought together (gate closed), the interlocking elements preferably being bevelled, as at 16, to assure each coming
together.

In the main guide members 5 there are held
80 shafts 17 on which the driving gears 18 are mounted. The gears 18 are driven by worm gears 19 through worm shafts 20 of electric motors A and B, there being one motor to each unit of the gate. Two complementary
85 units comprise a single gate.

The motors A and B are mounted on suitable brackets 35 that are secured to the posts 4. The motors A and B are operated by electric circuits closed by circuit closers located
90 in juxtaposition to the railway tracks at suitable distances from the crossing so that they may be engaged by the train approaching the crossing.

Various types of switches and circuits may
95 be employed but for purposes of illustration I have indicated one way in which the motors may be operated. By referring particularly to Fig. 1 and to the diagrammatic Fig. 7 it will be seen that train actuated switches
100

25 and 26 are employed, one of these switches 25 serving to close the motor circuit in such manner as to bring the gates together, while the other closes the circuit reversely so as to open the gates as will now be more fully explained. Mounted on one of the posts 4 is a reversing switch comprising two stationary contacts 23 and 24 and an overbalanced movable contact arm 22 which will always be in contact with one or the other contacts 23 and 24. The arm 22 is electrically connected to one pole of a source of electric energy 27 by a wire 33, the other pole of which source 27 is connected by wires 32 with one of the contacts of each switch 25 and 26.

The other contact of switch 25 connects by wires 28 with one pole of each motor A and B, the other pole of which connects by wires 27 with the fixed contact 24. The fixed contact 24 is also connected by wire 34 with the other contact of switch 26. The contact 23 is connected by wire 30 to the same side of the motors as is wire 28.

It should be understood that there is a pair of switches 25, 26 for each track of a double track system, and two pairs for a single track system, so that a train approaching the crossing from either direction may close and open the gates properly.

Assume that a train is moving from left to right in Fig. 7, (indicated by the arrow) and that the gates are open. As soon as the train engages switch 25 and closes the circuit at that point (switches 25 and 26 may be of the delayed-break type to remain closed a definite time interval in order to permit the motors to run long enough to function properly) the current flows from source of energy 27 to arm 22, to contact 24, to motors A and B via wire 29, to switch 25 via wires 28, and return to source 27 via wire 32. As soon as the gate bars 11 are brought together the rear pin 21, on that bar 11 which operates the reversing switch, engages the arm 22 and throws it over into engagement with contact 23, thereby breaking the circuit which was closed by the switch 25, (the switch 25, it should be understood, automatically opens as soon as its function is completed) and making ready a reverse circuit to be closed by switch 26.

The train having passed the crossing now actuates switch 26 to close the circuit there, whereupon current flows from source 27 via arm 22, contact 23, wires 30, 28, to motors A and B, and from thence via wires 29, 34 to switch 26 and from there back to source 27 via wire 32. This reverses the rotation of the motor. As soon as the guide bars reach the open or separated position the forward pin 31 will throw arm 22 back to contact 24, thereby completing the cycle of operations.

While I have disclosed a gate composed of two units it is obvious on narrow roadways a single unit may be employed.

Having thus described my invention, what

I claim and desire to secure by Letters Patent is:

1. In railway crossing gates, a pair of units, one located at each side of the road adjacent the trackway; said units each comprising an elevated rack bar, a motor to move said bar longitudinally, and means to support said bar; the bars of the units being arranged to move across the road toward and from each other.

2. In railway crossing gates, a pair of units, one located at each side of the road adjacent the trackway; said units each comprising an elevated rack bar, a motor to move said bar longitudinally, means to support said bar; the bars of the units being arranged to move across the road toward and from each other, and means to interlock the adjacent ends of said bars when in contact with each other.

3. In railway crossing gates, a pair of units, one located at each side of the road adjacent the trackway; said units each comprising an elevated rack bar, a motor to move said bar longitudinally, and means to support said bar; the bars of the units being arranged to move across the road toward and from each other, electric circuits including train-operated circuit closers for actuating said motors to move said bars; and circuit switching means controlled by the movement of at least one of said bars for stopping the motors and setting the circuits ready for further operation.

4. In railway crossing gates, a supporting post, a guide member mounted thereon, a T-shaped gate bar having a rack portion, anti-friction rolls carried by said guide member on and between which said gate bar is supported, a shaft, a spur gear on said shaft to mesh with said rack portion, a worm gear for driving said spur gear, a motor mounted on said post and having a worm shaft meshing with said worm gear, and means to operate said motor.

5. In railway crossing gates, a supporting post, a guide member mounted thereon, a T-shaped gate bar having a rack portion, anti-friction rolls carried by said guide member on and between which said gate bar is supported, a shaft, a spur gear on said shaft to mesh with said rack portion, a worm gear for driving said spur gear, a motor mounted on said post and having a worm shaft meshing with said worm gear, means to operate said motor, an auxiliary guide member, a connection between said guide members, and a diagonal support between said auxiliary guide member and said post.

6. In railway crossing gates, a unit comprising supporting posts, a guide member on said posts, a T-shaped rack bar, anti-friction rollers carried by said guide member and engaging the under and upper sides of the upper flanges of said ratchet bar for sustaining said rack bar to be moved longitudi-

nally, a motor to move said rack bar, electric circuits for operating said motor and including two train operated switches, one for operating the motor in one direction and the other for operating the motor in the reverse direction, and a reversing switch in said circuits controlled by the movement of the rack bar.

Signed at the city of New York, in the county of New York and State of New York, this 29th day of June, one thousand nine hundred and twenty-eight.

ANTONIO REGALMUTO.