R. A. ASPLUND.

RAILWAY GATE.

APPLICATION FILED APR. 17, 1917.

1,318,309.

Patented Oct. 7, 1919.

2 SHEETS—SHEET 1.

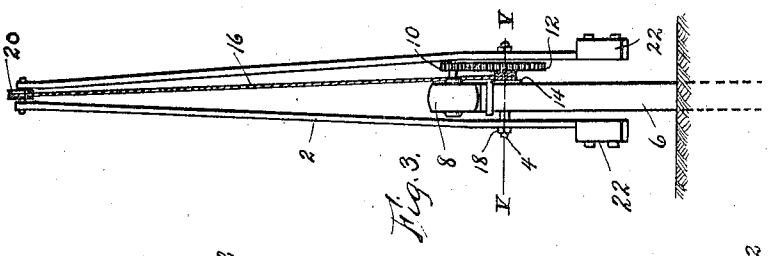


Fig. 3.

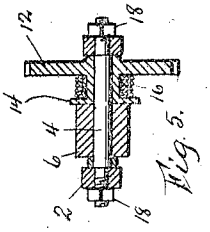


Fig. 5.

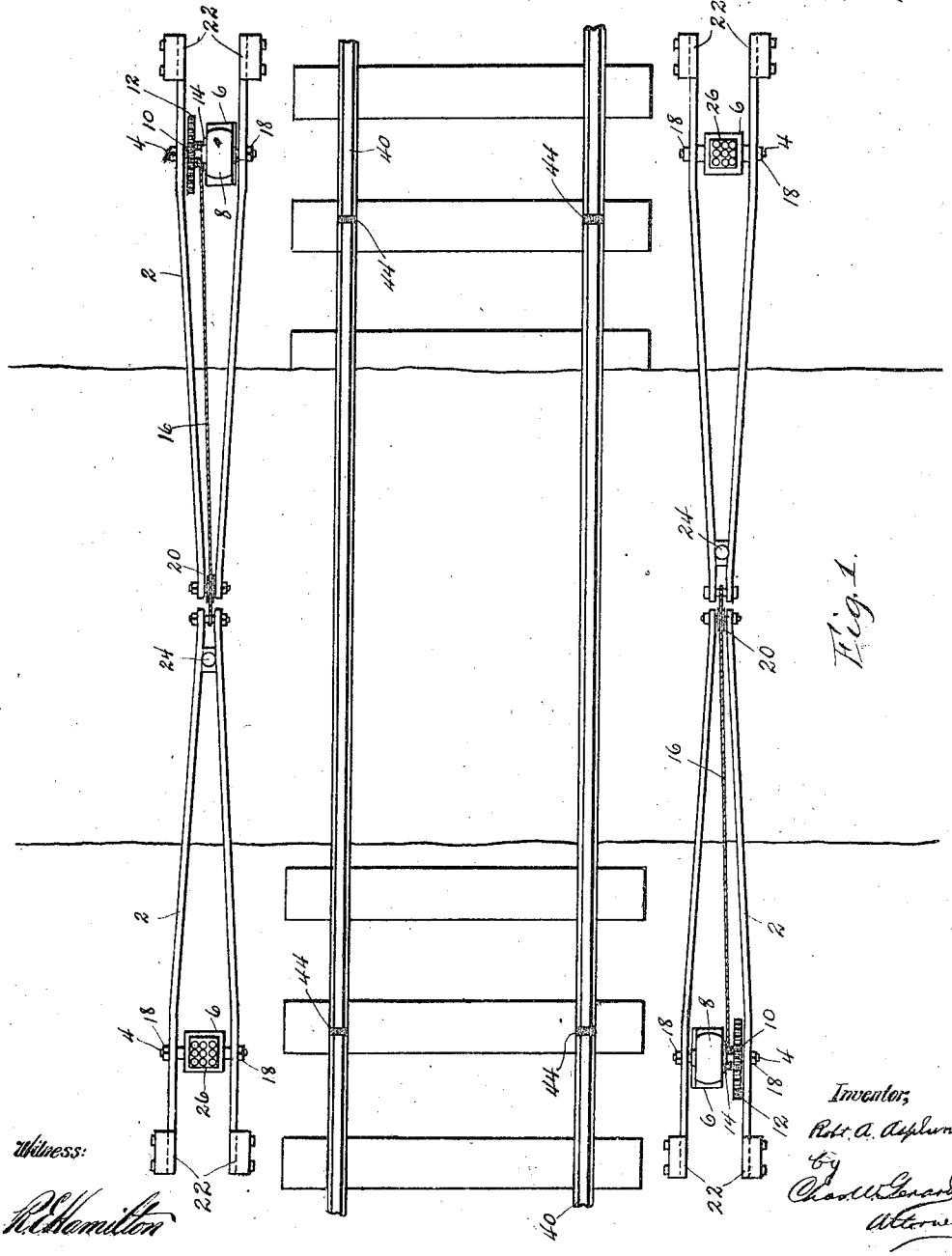


Fig. 1.

Witness:

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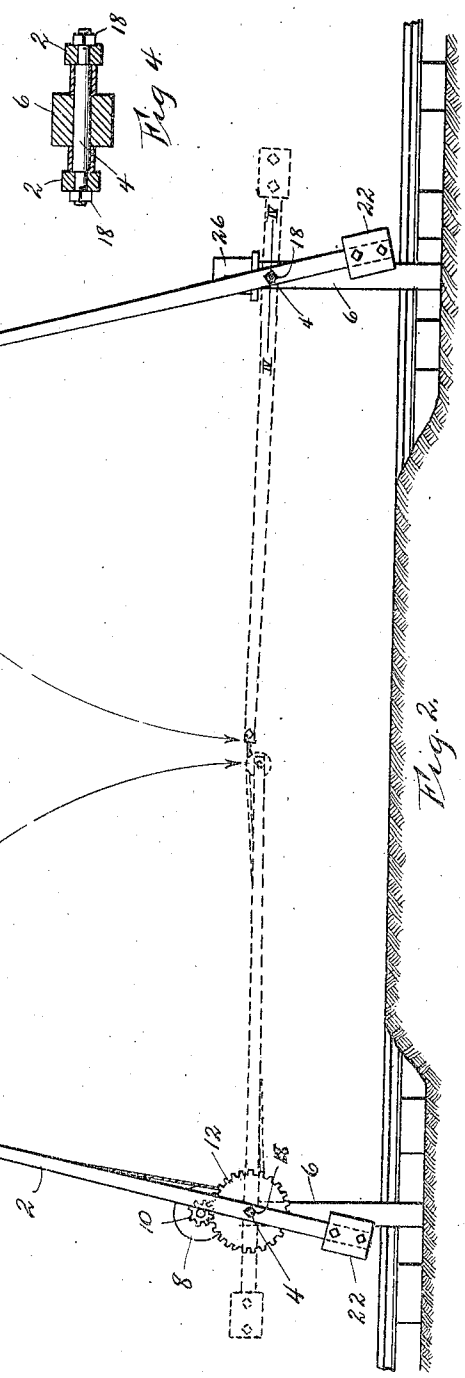


Fig. 2.

Fig. 4.

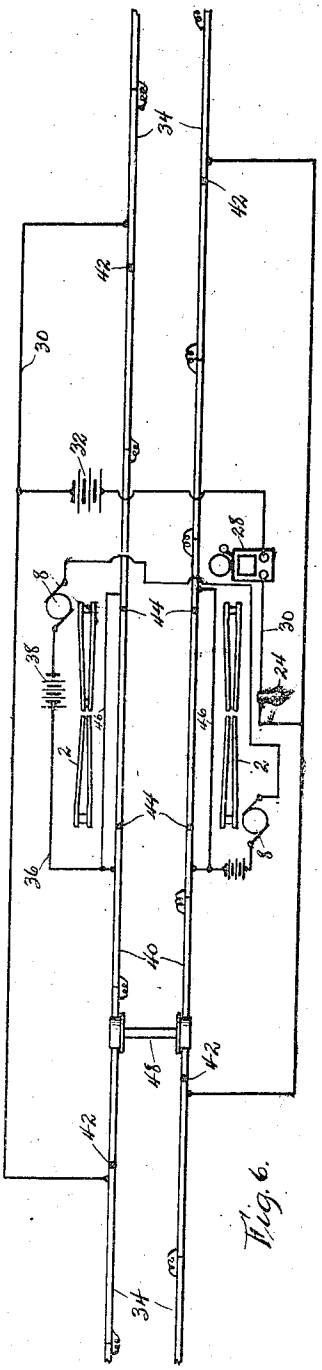


Fig. 6.

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UNITED STATES PATENT OFFICE.

ROBERT A. ASPLUND, OF KANSAS CITY, KANSAS.

RAILWAY-GATE.

1,318,309. Specification of Letters Patent. Patented Oct. 7, 1919.

Application filed April 17, 1917. Serial No. 162,676.

To all whom it may concern:

Be it known that I, ROBERT A. ASPLUND, a citizen of the United States, residing at Kansas City, in the county of Wyandotte, State of Kansas, have invented certain new and useful Improvements in Railway-Gates, of which the following is a full and exact specification.

This invention relates to gates for railway crossings, and the object in view is to provide an improved arrangement and construction for operating the gates of such crossings.

To this end the invention comprises a novel gate operating means arranged in combination with a track circuit adapted to electrically and automatically actuate said means as a train closes the circuit subsequently to the operation of electric visual and audible alarms associated with the gates and also actuated by means of track circuits which are closed by the train at suitable points remote from the crossing.

It is also sought to devise a simple and efficient apparatus for accomplishing the desired purpose, which will be economical in operation and also inexpensive to install.

With these general objects in view the invention will now be described with reference to the accompanying drawings, illustrating one form of apparatus which has been devised for embodying the proposed improvements, after which those features deemed to be novel and patentable will be set forth and defined in the appended claim.

In the drawings,

Figure 1 is a plan view of a gate and signal system arranged and constructed in accordance with the present invention, the gates being represented in closed position;

Fig. 2 is a side elevation of the same with the gates shown raised or in open position, the dotted lines indicating the closed position of the gates;

Fig. 3 is an end view of one of the gates in elevation;

Fig. 4 is an enlarged detail section taken on line IV—IV of Fig. 2;

Fig. 5 is a similar section taken on the line V—V of Fig. 3; and

Fig. 6 is a diagram of the electric circuits.

Referring to the said drawings in detail, the gate members 2 of the apparatus are pivotally mounted by means of horizontal shafts 4 journaled in the upper ends of posts 6 provided at each of the four corners of the railway crossing. Upon one of the posts of each pair on the same side of the crossing is mounted an electric motor 8, the shaft of which is provided with a pinion 10 in mesh with a gear 12 journaled on the corresponding gate shaft 4, the hub of which gear is formed as a drum 14 for the winding and unwinding of a cable 16. In order that the gear 12 may have proper freedom of movement the shafts 4 are shouldered against the inner sides of the gate frames (see Fig. 5), being retained by nuts 18 at the outer ends of the shafts, thus leaving the gear 12 and its drum 14 free from any binding pressure.

The cable 16 of each pair of gate members 2 extends from the drum 14 up over a pulley 20 journaled in the extreme upper end (as shown in Fig. 2) of the corresponding gate member, from where the cable extends to the other gate member of the pair and is secured to the extreme upper end of the latter. The gate members are held normally in approximately upright or open position (as in Fig. 2) by means of counterweights 22 secured to their lower ends, against the influence of which weights the gates are lowered into horizontal or closed position by the action of the motors as a train is about to pass the crossing, as will shortly be explained.

Adjacent to the secured end of each cable 16, the corresponding gate member 2 is provided with a signal lamp 24, and each post 6 not carrying a motor 8 serves to support a bell box 26 containing an electric bell 28, which visual and audible signaling devices are included in an electric circuit 30 provided with a battery 32 and electrically connected (see Fig. 6) with track sections 34 at suitable distances in either direction from the crossing, whereby the circuit 30 may be closed by a train on either of the insulated sections 34 at an appropriate interval before the gates are lowered.

The motors 8 are included in an electric circuit 36 provided with the batteries 38 and electrically connected to a track section 40 intermediate the track sections 34 and insulated therefrom as at 42. To avoid any short-circuiting at the road crossing, the sections of track rails at the crossing are insulated off, as indicated at 44, and electric circuit connections 46 provided embracing op-

posite sides of the crossing. At any time, then, that a train enters upon the track section 40 as represented at 48, it is obvious that the circuit will immediately be closed through the motors 8, which thereupon operate to wind the cables 16 and thus bring the gates 2 down into horizontal position for closing the road-passage over the crossing.

It will therefore be apparent that a simple and efficient arrangement and construction have been provided for carrying out the purposes of the invention. A train approaching from either direction will traverse one of the insulated track sections 34 and thereby close the circuit 30 through the signaling devices and maintain these in operation until the train has entered upon the intermediate track section 40. The instant the train enters on track section 40 the circuit 36 is closed and the motors 8 are started into operation. These motors are of light capacity just sufficient to operate the gates; and the arrangement of the cables 16 is such as to require a minimum expenditure of power for their operation in swinging the gates. When the gates are turned into horizontal position the motors are gradually brought to a stop as the load on them exceeds their capacity and remain stationary until the train has traversed the track section 40, after which the motors are simply spun in the reverse direction under the action of the counterweights 22 to bring the gates back into initial position and open up the crossing.

I claim:

A gate apparatus for railway crossings comprising a pair of pivotal gate members held normally in open or approximately vertical position, means for simultaneously closing said gates by swinging them into substantially horizontal position, said means including a cable fixedly secured to the upper end of one of said gate members and provided with a roller engagement with the upper end of the other gate member, a drum on which said cable is adapted to be wound, a track circuit, an electric motor arranged in said circuit and geared to said drum, said motor having barely sufficient capacity to close the gates, whereby it will be brought to a stop after the gates are closed due to the load exceeding its capacity, and means for automatically returning the gates to open position when the track circuit is broken.

In witness whereof I hereto affix my signature.

ROBERT A. ASPLUND.