April 3, 1928. 1,665,157

G. H. DAHNKE

TRAFFIC CONTROLLING DEVICE

Filed Sept. 30, 1925 2 Sheets-Sheet 1

Fig. 1.

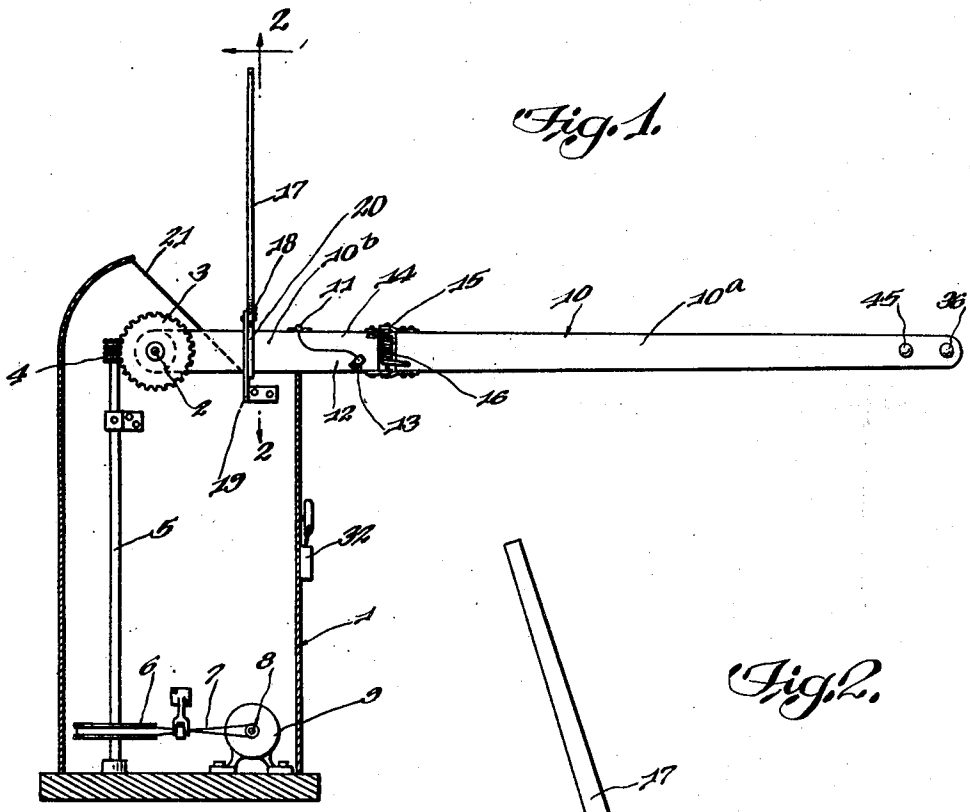


Fig. 2.

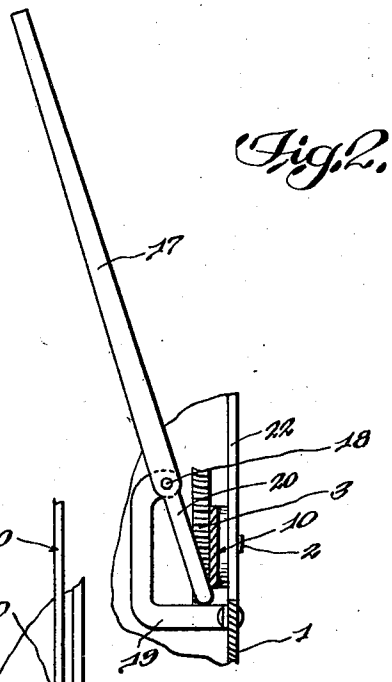
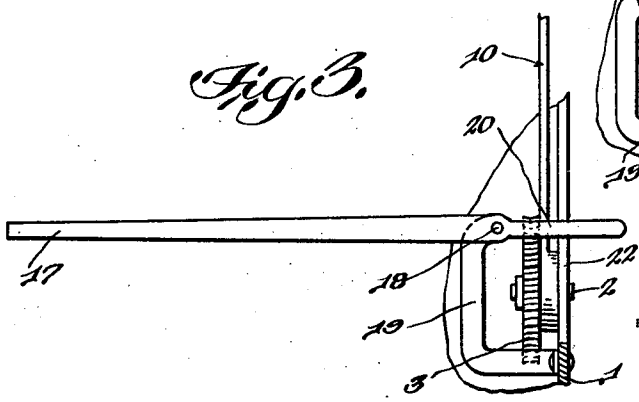


Fig. 3.



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Fig. 4.

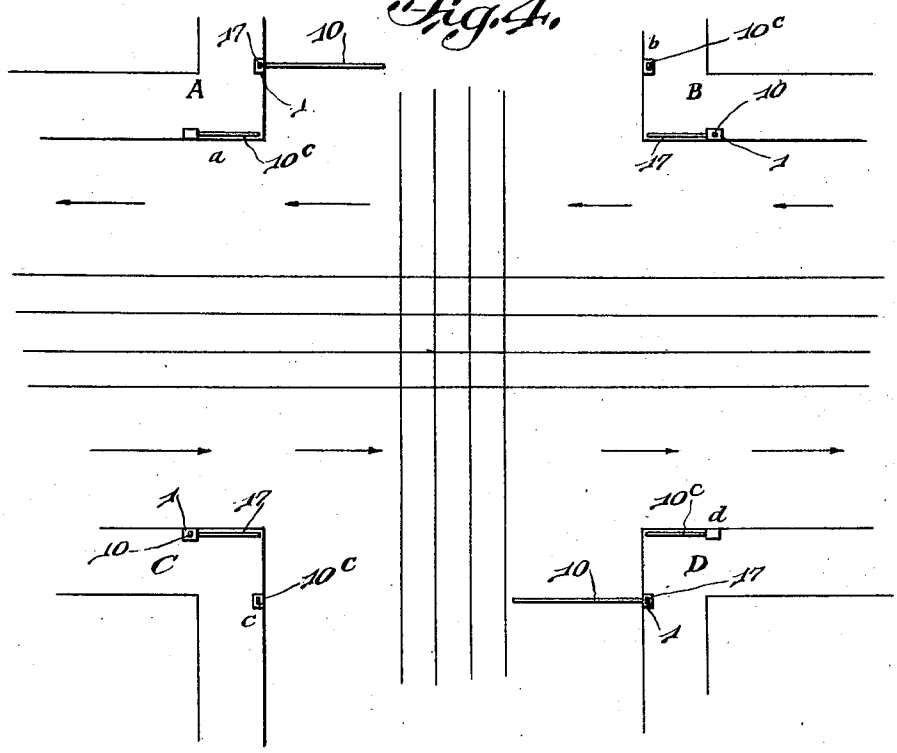
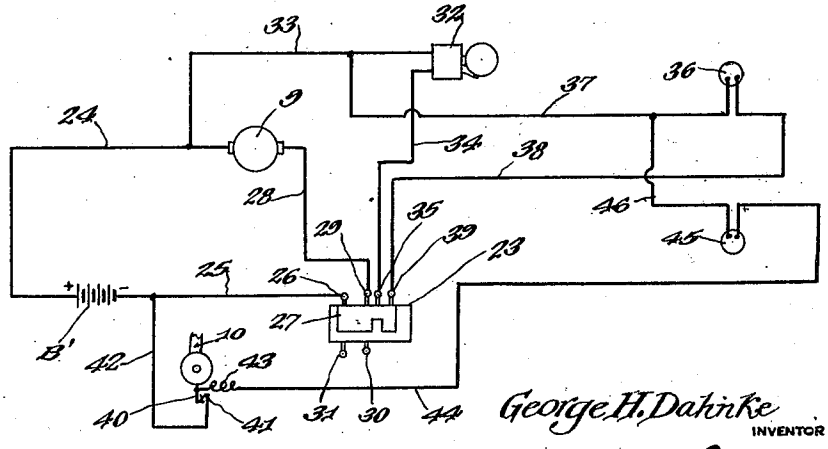


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TRAFFIC-CONTROLLING DEVICE.

Application filed September 30, 1925. Serial No. 59,653.

This invention relates to traffic controlling devices, and more particularly to a device especially adapted for use at the intersection of streets and highways.

One of the main objects of the invention is to provide a device of the character stated of simple construction and operation which can be readily produced and applied at small cost. A further object is to provide a device of this character which will act to control both vehicular traffic and pedestrian traffic. Further objects will appear from the detailed description.

In the drawings:

Fig. 1 is a side view of the device, the standard being shown in section.

Fig. 2 is a section taken substantially on line 2—2 of Fig. 1 showing the pedestrian arm raised.

Fig. 3 is a section similar to Figure 2 but showing the pedestrian arm lowered.

Fig. 4 is a diagram of a street crossing or intersection showing the manner of applying the device.

Fig. 5 is a diagram of the circuits for controlling the operation of the motor and the alarm device and the lights.

The device includes a hollow post or standard 1 within which is rotatably mounted a stub shaft 2 on which is secured a worm wheel 3 which meshes with a worm 4 at the upper end of a shaft 5 rotatably mounted in suitable bearings in the standard. A pulley 6 is secured on the shaft adjacent the lower end thereof and is connected by a belt 7 to a pulley 8 secured on the armature shaft of an electric motor 9 of suitable type, the motor and associated parts being preferably enclosed within a standard 1 so as to be protected thereby. A main traffic arm 10 is secured on shaft 2, at its outer end, so as to be operated thereby. This arm may be of any suitable construction but is preferably constructed as illustrated with a hinge at 11 and an extension 12 which limits downward movement of the outer section 10^a of the arm, the hinge 11 permitting movement of section 10^a about a horizontal axis. Suitable guide strips or fingers 13 are secured to extension 12 and serve to hold block 14 at the inner end of section 10^a in alignment with the extension of the outer end section 10^b of the arm. Section 10^a is hingedly secured at 15 to block 14 for swinging movement about a vertical axis and is normally held in alignment with the block by a spring 16 mounted about the pintle of the hinge. The arm constructed in this manner is raised and lowered in accordance with the direction of rotation of worm wheel 3, and in the event that the outer section 10^a should descend upon a vehicle, this section can raise about the axis of hinge 11 so as to prevent damage to the vehicle. In the event that a vehicle should collide with section 10^a of the arm, this section can swing in either direction about the axis of the hinge 15 and will be returned to normal position by the action of spring 16. This effectually prevents damage to vehicles due to being struck by or colliding with the main traffic arm.

A supplemental traffic arm 17 which is intended to control pedestrian traffic is pivotally mounted adjacent one end at 18 on a suitable bracket 19 secured to and positioned within standard 1. This arm 17 is provided with an extension 20 which projects beyond pivot 18 in the direction of arm 10 and arm 17 is disposed at right angles to arm 10 so that, when the main vehicular traffic arm is raised, arm 17 being lowered, the extension 20 extends beneath arm 10 and across the path of movement thereof. When arm 10 is lowered into operative position it contacts with extension 20 of arm 17 thus swinging the latter arm upwardly into raised position. Upon the raising of arm 10 arm 17 is released and is moved into lowered position by gravity due to the fact that this arm 17 is, when in raised position, disposed at an upward and outward inclination and the outer portion of arm 17 is much longer and heavier than extension 20. This provides simple and highly efficient means whereby arm 17 is operated simultaneously with and oppositely to the main control arm 10, these two arms cooperating to effectually control both vehicular traffic and pedestrian traffic. Movement of arm 10 in either direction is positively limited by the end walls of slot 21 in standard 1 thru which this arm operates. In the event that motor 9 continues to run for a short time after the arm has reached its extreme position in either direction, the belt 7 can slip on pulleys 6 and 8 thus preventing damage to any of the parts of the device. Downward movement of arm 17 is also limited by the lower end wall of slot 22 and through the side wall of casing 1, which slot accommodates arm 17. The standard 1 is also provided with a slot 22 which accommodates

extension 20 of arm 17 during operation thereof.

The motor 9 may be of any suitable or preferred type and is controlled by a rotary reversing switch 23 of known type which may be driven in any well known or preferred manner, this switch acting to reverse the direction of the motor at predetermined intervals of time. In the diagram illustrated in Figure 5 the motor is shown as connected by a wire 24 to one side of a suitable source of electrical energy B, the other side of which is connected by wire 25 to a brush 26 positioned for contact with a contact strip 27 of rotary switch 23. The other side of motor 9 is connected by wire 28 to a brush 29 also positioned for contact with strip 27. The two brushes 26 and 29 are connected to brushes 30 and 31, respectively, positioned at the other side of the switch. Upon rotation of switch 23 strip 27 connects brushes 26 and 29 so as to close the motor circuit rotating the motor armature in one direction. After the switch 23 has turned over a predetermined distance the strip 27 moves out of contact with brushes 26 and 29 and into contact with brushes 30 and 31 again closing the motor circuit and reversing its direction of rotation. An alarm device, such as a bell 32, is mounted on standard 1 and has one pole connected by wire 33 to wire 24. The other pole of this bell is connected by wire 34 to a brush 35 positioned for contact with the strip 27 of switch 23 so as to close the bell circuit and sound the alarm when the motor circuit is closed and the arm 10 is moved into lowered position, the motor being driven in proper direction for lowering the arm when the brushes 26 and 29 are in contact with strip 27, the arm being raised when strip 27 contacts with brushes 30 and 31. A red light 36 is carried by arm 10 at the outer end thereof and one side of this light is connected by wire 37 to wire 33, the other side of this light being connected by wire 38 to a brush 39 positioned for contact with strip 27. By this means the circuit of light 36 will be closed upon the sounding of the alarm and while the arm is in lowered position. Immediately upon passing out of contact with brushes 26 and 29, 35 and 39, during rotation of switch 23, strip 27 contacts with brushes 30 and 31 raising the arm 10. When the arm 10 is returned to raised position a contact 40 engages with a contact 41 which is connected by a wire 42 to wire 25, the contact 40 being carried by arm 10 and connected by a flexible connection 43 and the wire 44 to one side of a green light 45 the other side of which is connected by a wire 46 to wire 37, this green light being mounted on the arm 10^a adjacent the outer end thereof. In this manner, when the arm 10^a is lowered the alarm is sounded and the red light is illuminated and when this arm is raised the green light is illuminated, thus producing a traffic signal which is readily visible at night.

In using the device at an intersection such as that illustrated in Figure 4, one of the devices is placed at each right hand corner as considered from the direction of traffic, the devices in Figure 4 being indicated by letters A, B, C and D. With the traffic going in directions indicated by the arrows, the main vehicular traffic arms of devices A and D are lowered, the short arms 17 of these devices being raised, and the main vehicle traffic arms of the devices B and C are raised, the short pedestrian traffic arms being lowered. Preferably, though not necessarily, in connection with the devices at A, B, C and D I also use supplemental devices *a*, *b*, *c* and *d* which are similar in construction to the main devices except that one arm 10^c corresponding to arm 10 is used, the arm 17 being omitted. These supplemental devices *a*, *b*, *c* and *d* are connected to the main devices to be operated in synchronism therewith and so that when the arms 10 of devices A and D are lowered, arms 10^c of devices *a* and *d* are also lowered, arms 10^c of devices *b* and *c* being raised when arms 10 of devices B and C are raised. With the arms of the various devices in the positions illustrated and described in reference to Figure 4, it will be noted that the vehicular traffic is stopped in one direction while being open in the other direction, pedestrian traffic being unobstructed from right to left as considered in this view of the drawings and vehicular traffic being stopped in this direction. This renders it safe for pedestrians to cross the intersection in either direction from left to right and, as the lowered arms 10 of the devices A and D are on the right hand side of the thoroughfare as considered from the direction from traffic, vehicles leaving the main line of traffic can turn to either side, making either a right hand or a left hand turn, without seriously endangering pedestrian travelling across the thoroughfare from right to left or vice versa. After the arms of the various devices have been in the relative positions illustrated in Figure 4 for a predetermined time, the devices are all simultaneously operated so as to reverse the positions of the arms thus permitting both pedestrian and vehicular traffic in either direction over the intersection. The device constructed and arranged in the manner described is very simple in its operation and is highly efficient for handling traffic and intersections and on highways where traffic is unusually heavy and it is necessary to protect pedestrians from attempting to cross the stream of vehicular traffic.

What I claim is:

In traffic control means of the character described, a supporting structure, a main

control arm pivotally associated with the supporting structure, means for raising and lowering said arm, and a supplemental arm pivotally mounted intermediate its end portions to the supporting structure, said supplemental arm having a portion extending beyond its pivotal connection with the supporting structure beneath the main arm whereby said supplemental arm is adapted to be operated by operation of the main arm, and said supplemental arm being adapted for movement through a plane substantially at right angles with respect to the plane through which said main arm is adapted to move.

In testimony whereof I affix my signature.

GEORGE HENRY DAHNKE.