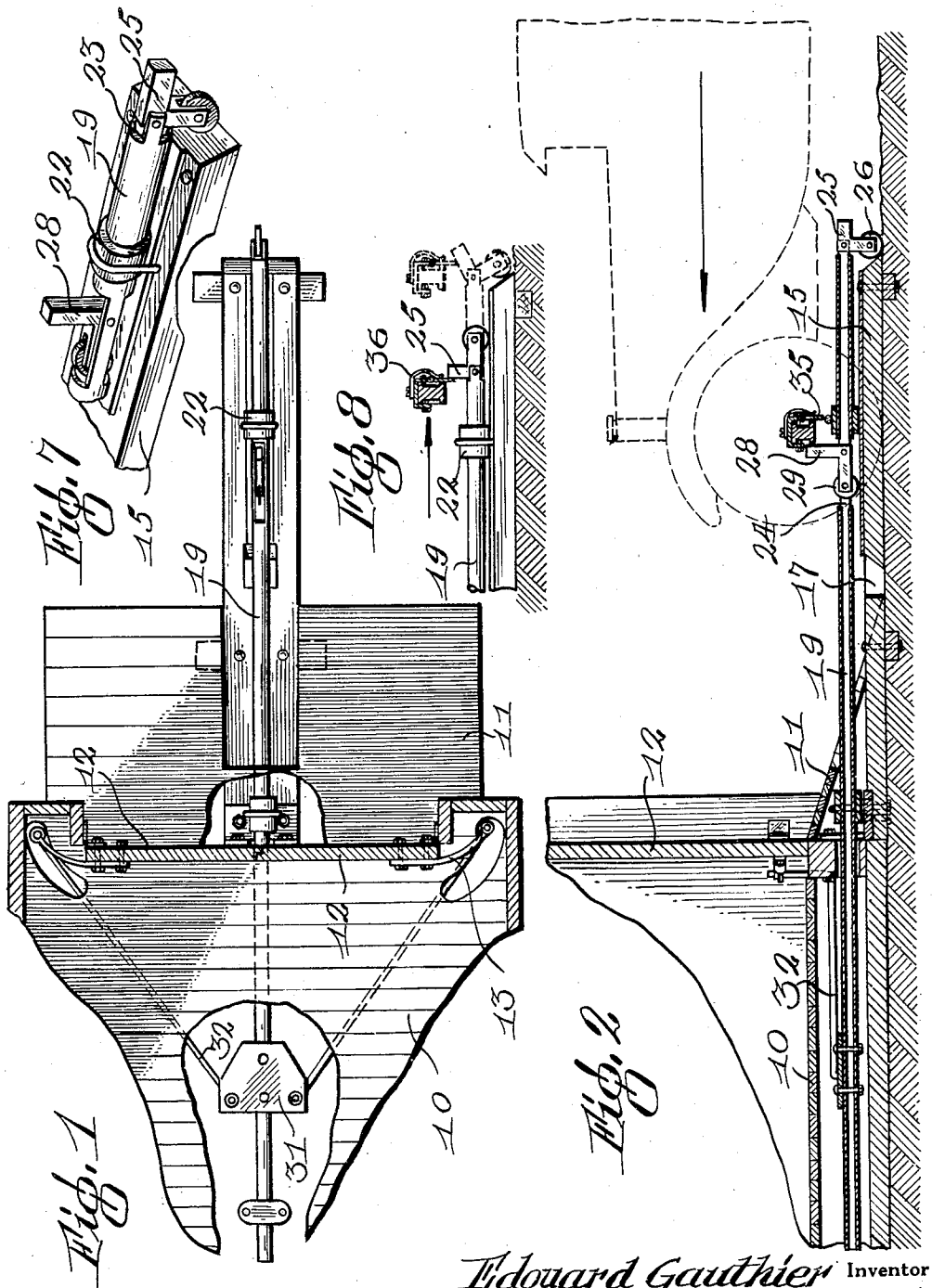
June 4, 1935. E. GAUTHIER 2,003,484

DOOR OPERATING APPARATUS

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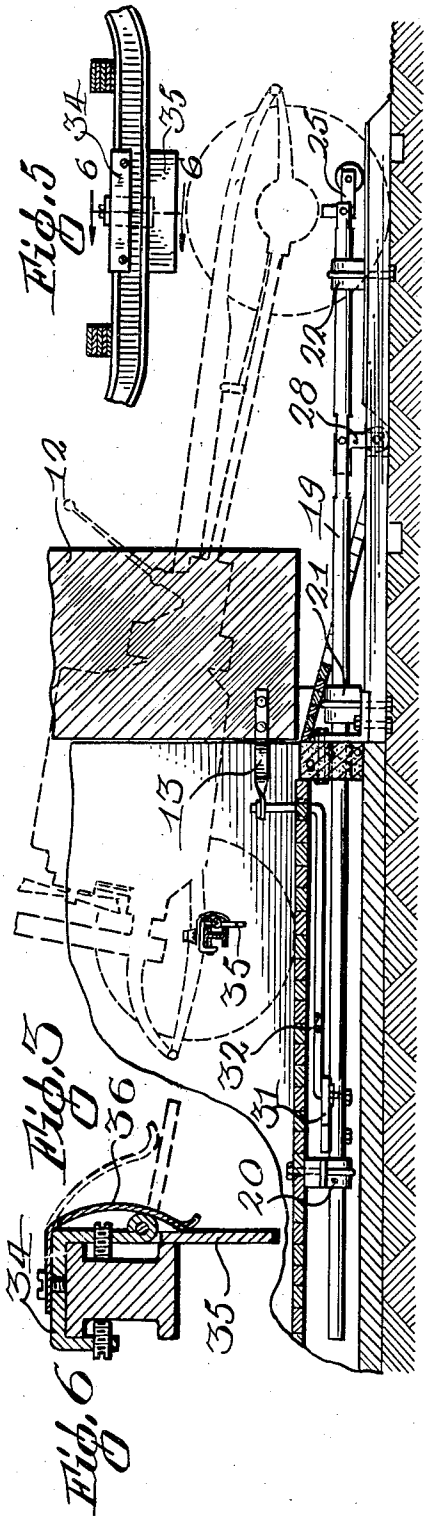


Fig. 5

Fig. 6

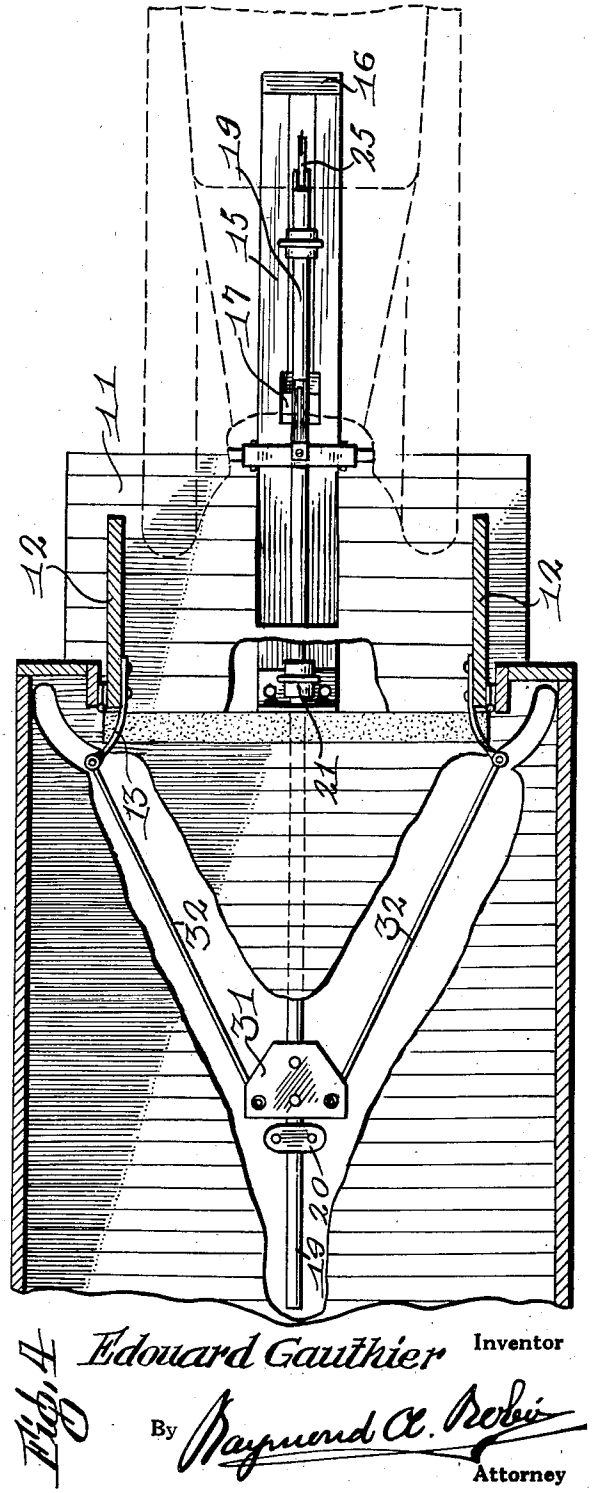


Fig. 4

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Patented June 4, 1935 2,003,484

UNITED STATES PATENT OFFICE

2,003,484

DOOR OPERATING APPARATUS

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Application September 12, 1932, Serial No. 632,760

3 Claims. (Cl. 268—35)

The present invention relates to improvements in door operating apparatus and particularly to apparatus for opening and closing garage doors.

An important object of the invention is the provision of apparatus for opening and closing garage doors which will be automatically actuated by a vehicle about to enter the garage or leaving the same.

A further object of the invention is the provision of door operating apparatus designed so that a vehicle may engage and actuate the same without the necessity of the operator dismounting from or stopping the vehicle.

Another object of the invention is the provision of door opening apparatus of the above character which will be durable and reliable in use.

A still further object of the invention is the provision of door opening apparatus of the above character which is very simple and which can be manufactured and installed at a relatively low cost.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawings forming a part of this specification and in which like reference characters are employed to designate corresponding parts throughout the same:

Figure 1 is a top plan view of the apparatus in door closing position,

Figure 2 is a longitudinal vertical section therethrough,

Figure 3 is a side elevational view showing the apparatus in door opening position,

Figure 4 is a top plan view of the same,

Figure 5 is a fragmentary elevational view of a vehicle axle with an attachment associated therewith,

Figure 6 is an enlarged transverse section taken on the line 6—6 of Figure 5,

Figure 7 is a fragmentary perspective view of the outer end portion of the operating apparatus, and

Figure 8 is a side elevational view of the same shown in contact with part of a vehicle.

Referring to the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates the elevated flooring of an automobile garage having disposed at the front thereof, an inclined drive section 11. At the front, the garage structure is provided with a pair of hingedly mounted doors 12 adapted, in the present instance, to swing outwardly. To the lower portion of each door 12 is connected a door actuating bracket 13 having a projecting curved extension terminating in a pivot eye.

Rigidly secured on the ground and projecting forwardly in front of the garage is an elongated flat ledge structure 15 terminating in a bevelled outer end projection 16 and provided, at the intermediate portion, with a depression 17 having one end wall also bevelled.

Mounted horizontally so as to extend partly in front of the garage and partly beneath the flooring thereof is a longitudinally slidable operating rod 19, slidably held in position by means of guide sleeves 20, 21 and 22. The sleeve 20 is fastened to the floor boards of the garage by means of a U-bolt. The sleeves 21 and 22 are likewise fastened to the elongated ledge 15. The rod 19 is bifurcated at the outer extremity as indicated at 23 and is provided, at an inwardly spaced position, with an elongated slot 24.

Pivotally connected to the outer bifurcated end of the rod 19 is a right angular metallic bracket 25 having journalled in the end of one leg thereof a roller 26. The opposed leg of the bracket 25 is adapted to provide an actuating contact lug. A similar right angular bracket 28 is pivotally connected to the rod within the slot 24, this bracket also carrying in the end of one leg a rotatable roller 29, while the other leg is adapted to form a contacting lug.

To the inner portion of the operating rod 19 is bolted, or otherwise secured, a plate 31 having pivotally connected to opposed sides thereof the inner ends of pair of connecting rods 32. The opposed end of each of the rods 32 is pivotally connected with the pivot eye of each bracket 13.

In order to enable effective vehicle actuation of the apparatus, I prefer to attach actuating means to the front vehicle axle. This attachment embodies a channel-shaped support member 34 rigidly connected with the central portion of the axle having hingedly connected to the inner flange an adjustable contact plate 35. The plate 35 is capable of adjustment from a vertically depending actuating position to a rearwardly directed elevated position, as shown at Figure 6. The contact plate 35 is normally held in a depending actuating position by means of a spring 36 which will, however, allow rearward upward movement of the plate against the tension thereof if the plate should contact with an obstacle during the usual forward movement of the vehicle.

The operation of the apparatus is as follows: When the doors 12 are in closed positions, as shown at Figures 1 and 2, and a vehicle is driven so as to enter the garage, the doors 12 will be

automatically swung to an open position by reason of the front axle of the vehicle engaging the contacting lug of the intermediate angular bracket **28**, which lug will, in the closed position of the doors, assume an upwardly projecting position. Continuing forward movement of the car in contact with the upwardly projecting lug will cause inward sliding movement of the operating rod **19** and elements attached thereto. When the rod has been slidably actuated a predetermined distance, the roller **29** and one leg of the bracket **28** will be swung downwardly into the depression **17**, thereby causing the contacting leg thereof to assume a horizontal position within the slot of the rod, as shown at Figure 3. During this operating movement of the slide rod the garage doors **12** will have been swung from a door closing position to fully opened positions, as shown in Figure 4, so that the vehicle may, without interruption, drive directly into the garage.

When the vehicle is to be driven backwardly from the garage, the doors **12** are opened and the car driven outwardly therefrom. As the vehicle is moving over the outwardly projecting portion of the operating rod, the depending contact plate **35** will engage the contacting lug of the outermost roller bracket **25** which will, when the doors are opened, assume an upwardly projecting position. During continuing outward movement of the vehicle, the contact of the plate **35** and the contacting rod will slide the operating rod outwardly until the roller **26** attached to the bracket **25** reaches the outer end of the ledge **15**, at which time the roller will drop and the contacting lug will assume a horizontal position in alignment with the operating rod. During the outward movement of the operating rod, the doors **12**, through the medium of the connecting rods **32** and the brackets **13**, will be swung from open to closed positions.

It is to be understood that the form of my invention herein shown and described is to be taken as a preferred example of the same, and that various changes as to the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In apparatus of the character described the combination with a pair of doors, of a longitudinally slidable operating rod, means connecting the doors with one end of the rod for swinging the doors to open and closed positions upon operation of the rod, a ledge having a recess extending beneath the operating rod, a pair of angular brackets pivotally connected to the operating rod and adapted to swing vertically, and a roller rotatably attached to the end portion of one leg of each bracket, the said brackets being arranged so that one leg thereof will project upwardly to engage a vehicle for sliding the rod and to automatically swing to a downward vehicle disengaging position at a predetermined position of the rod.

2. In door operating apparatus, a longitudinally slidable operating rod, mechanism operatively connecting the rod with a door, a pair of angular brackets pivotally connected to the rod, each of said brackets having a leg adapted to alternately assume upstanding vehicle engaging and retracted positions at predetermined positions of the rod, and a ledge arranged below the operating rod adapted to co-operate with the brackets to alternately extend the operating leg thereof into operative position.

3. In door operating apparatus, a longitudinally slidable operating rod, mechanism operatively connecting the rod with a door, a pair of angular brackets pivotally connected to the rod, each of said brackets having a leg adapted to alternately assume upstanding vehicle engaging and retracted positions at predetermined positions of the rod, a ledge arranged below the operating rod adapted to co-operate with the brackets to alternately extend the operating leg thereof into operative position, a pivotally movable contact member adapted to be connected with a vehicle to engage the legs of the brackets, and spring means bearing against the contact member tending to yieldingly retain the member in a downward bracket engaging position.

EDOUARD GAUTHIER.