

W. A. & O. H. OLEEN.  
 DOOR OPENING AND CLOSING MECHANISM.  
 APPLICATION FILED NOV. 3, 1915.

1,270,052.

Patented June 18, 1918.  
 2 SHEETS—SHEET 2.

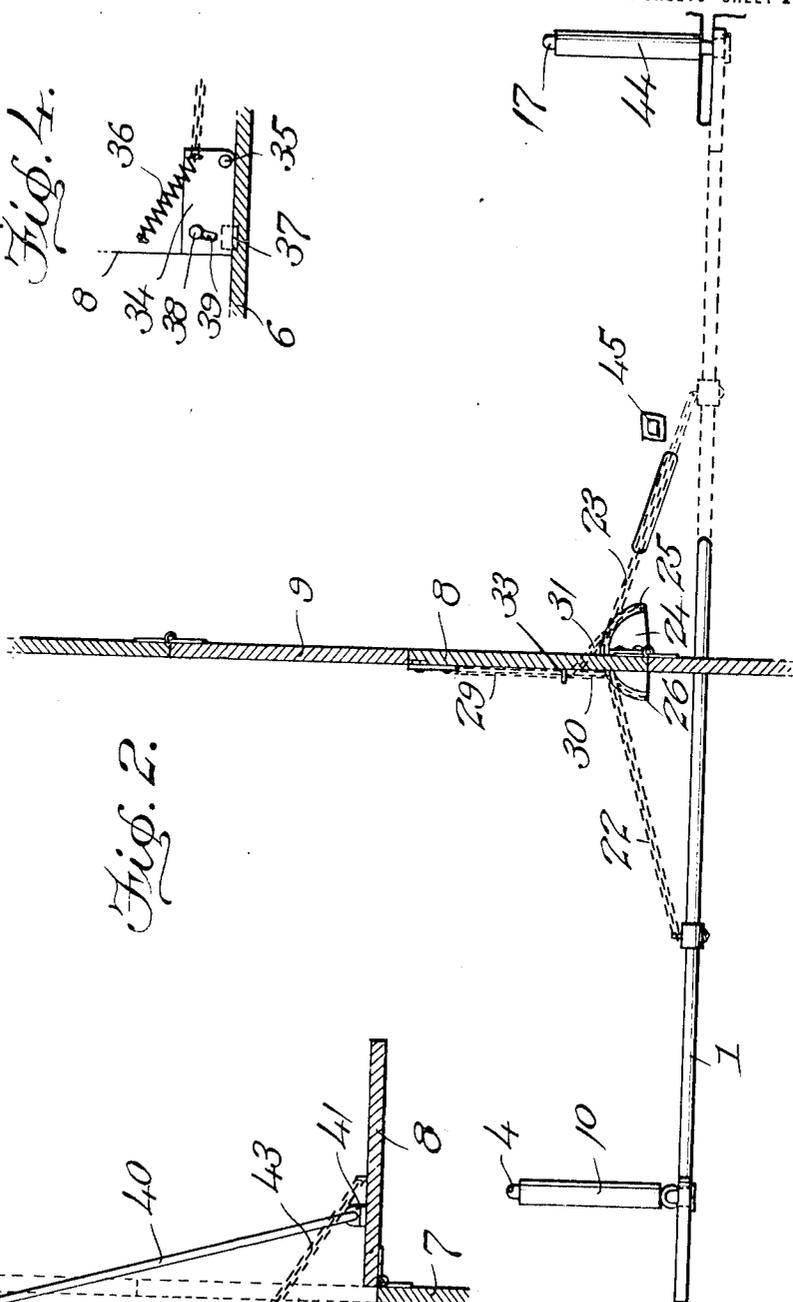
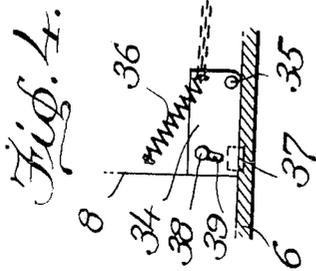
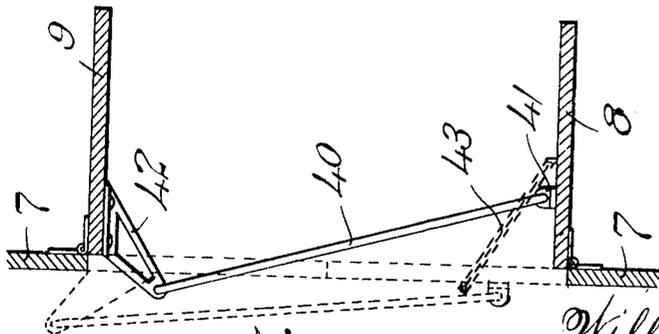


Fig. 2.



WITNESSES

Carroll Bailey  
 W. S. Fowler

Fig. 3.

INVENTOR  
 William A. Oleen,  
 Olof H. Oleen,  
 BY Richard O'Brien.

ATTORNEY

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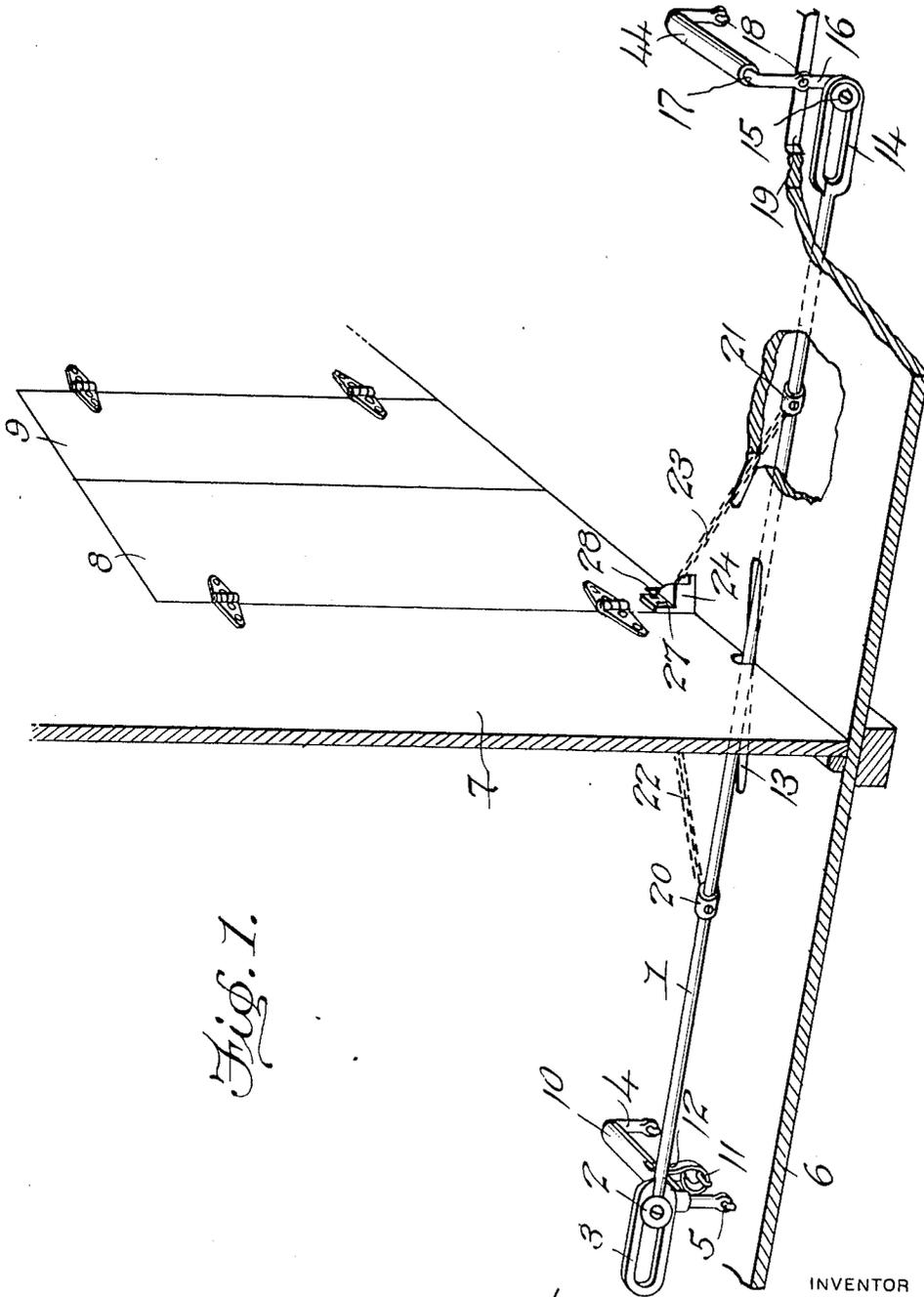


Fig. 1.

WITNESSES

Carroll Bailey.  
 W. S. Fowler.

INVENTOR

William A. Oleen,  
 Olof H. Oleen.  
 Richard Owen.

BY

ATTORNEY

# UNITED STATES PATENT OFFICE.

WILLIAM A. OLEEN AND OLOF H. OLEEN, OF COLUMBIA CITY, OREGON.

## DOOR OPENING AND CLOSING MECHANISM.

1,270,052.

Specification of Letters Patent. Patented June 18, 1918.

Application filed November 3, 1915. Serial No. 59,436.

To all whom it may concern:

Be it known that we, WILLIAM A. OLEEN and OLOF H. OLEEN, citizens of the United States, residing at Columbia City, in the county of Columbia and State of Oregon, have invented certain new and useful Improvements in Door Opening and Closing Mechanisms, of which the following is a specification.

This invention has relation to certain new and useful improvements in door opening and closing mechanisms, and has for its primary object, the provision of improved mechanism which will be especially adapted for opening and closing the doors of a garage or the like.

The invention has for another object the provision of an improved door opening and closing mechanism of this character which may be readily operated to open or close the doors from either within the building or outside of the same.

The invention has for another object the provision of improved mechanism of this character which will also include connecting means and door and latch operating means, all of which may be controlled by operation of the wheel operated members.

The invention has for a still further object, the provision of a door opening and closing mechanism of this character which will be extremely simple in construction and operation, as well as highly efficient in use and composed of the minimum number of parts.

With the above and other objects in view, the invention resides in the novel construction, combination, and arrangement of parts as hereinafter set forth in the specification, pointed out in the claims, and shown in the drawings, in which—

Figure 1 is a perspective view of the improved door opening and closing mechanism, showing the same connected with a pair of horizontally swinging doors of a garage or the like;

Fig. 2 is a plan view of the mechanism showing the doors and a portion of the frame for the same in section;

Fig. 3 is a horizontal sectional view of the upper portions of the doors and the frame for the same with the doors shown in open position in full lines and closed posi-

tion in dotted lines to illustrate the operation of the door connecting means;

Fig. 4 is a detail view showing the door latching means.

Referring more particularly to the drawings in which similar reference characters designate corresponding parts throughout the several views, 1 designates the reciprocating operating rod which has the operating link 3 mounted upon its inner end and within which is engaged the roller 2. The roller 2 is secured to one corner of the inverted U-shaped wheel operated member 4 which has its lower ends pivoted, as shown at 5, to the floor 6 of the building a suitable distance from the door frame 7 and to one side of the hinged doors 8 and 9 mounted in said door frame 7. The wheel operated member 4 has a suitable roller 10 loosely mounted on its upper horizontal portion and said wheel operated member 4 is resiliently retained in its normal or upright position by the spring 11 secured to the floor 6 and having its arms 12 engaged against the opposite sides of the main portion of said wheel operated member 4.

The reciprocating operating rod 1 is preferably placed upon an incline and has its central portion engaged through the elongated slot 13 in the floor 6 beneath the door frame 7 and the outer ends of the reciprocating operating rod 1 has the link 14 formed thereon, within which is engaged the roller 15 mounted upon the depending end 16 of one of the legs of the second or outer inverted U-shaped wheel operated member 17 which is also pivoted to the floor 6 outwardly of the door frame 7, as shown at 18, one of the legs being extended through the slot 19 formed for the same in said floor 6, as clearly shown in Fig. 1 of the drawings.

Adjustably mounted upon the reciprocating operating rod 1 are the inner and outer collars 20 and 21, respectively. Secured to the inner collar 20 is a chain 22, while a similar chain 23 is connected with the outer collar 21. The chain 22 is extended around the curved face of the semi-circular casting 24 and secured to the outer vertical edge thereof as shown at 25, while the chain 22 is extended around the curved face of the casting 24 in the opposite direction and secured to the inner and vertical edge thereof

as shown at 26. The casting 24 is secured to the lower inner corner of the door 8, as shown at 27, and a suitable opening 28 is formed in this corner of the door 8 to accommodate the chains 22 and 23.

A latch operating chain 29 has the diverging short connecting chains 30 and 31 connected with one end and also connected, respectively, with the chains 22 and 23. The latch operating chain 29 extends through a suitable guide 33 mounted upon the inner face of the door 8 near the bottom thereof and the remaining end of the latch operating chain 29 is connected with the inner upper corner of the pivoted latch plate 34. The latch plate 34 is pivoted to the inner face of the door 8 at the lower outer corner thereof, by a suitable pivot member 35 extended through the lower inner corner of said latch plate 34. The pivoted latch plate 34 is resiliently retained in its lowermost or operative position by means of a suitable spring 36 connected therewith and with the door 8 and operating against the chain 29. When in its lowermost or operative position, the pivoted latch plate 34 is adapted for engagement with the keeper 37 mounted upon the floor 6 to retain the doors 8 and 9 in closed position, as clearly shown in Figs. 2 and 4 of the drawings. The pivoted latch plate 34 is adapted to be guided in its movement upon its pivot 35 and limited in its movement by the guide pin 38 projecting from the door 8 and engaged in the elongated and slightly curved guide slot 39 in the pivoted latch plate 34.

The doors 8 and 9 are connected at their upper ends by means of a connecting rod 40 which has one end pivoted in the small bracket 41 secured to the inner face of the door 8, while the opposite end of the connecting rod 40 is pivoted in the angularly extended bracket 42 secured upon the inner face of the door 9 and projecting rearwardly from the same. By referring to Fig. 3 of the drawings, it will be readily seen that as the door 8 is swung in either direction, the door 9 is compelled to swing with the same, thereby assuring proper opening and closing of the doors 8 and 9. Movement of the doors 8 and 9 outwardly is limited, however, by the chain 43 which has one end connected to the inner face of the door 8, while the opposite end is secured to the door frame in any suitable manner above said door 8.

It will be understood that a suitable roller 44 is mounted upon the outer wheel operated member 17, and is practically the same as the roller 10 on the wheel operated member 4. It will also be readily seen that should the wheel of an automobile or other vehicle pass over the roller 44 or the roller 10 and swing the wheel operated member carrying said roller toward the door frame 7, the reciprocating operating rod 1 will be

forced forwardly, thereby causing the operating chain 23 to pull the connecting chain 31 and swing the pivoted latch plate 34 to inoperative position against the tension of the spring 36 and also pull upon the semi-circular casting 34 to swing the door 8 upon its hinges to open position, the connecting rod 40 compelling the door 9 to also swing outwardly with the door 8 until both doors are in open position, as shown in Fig. 3. The spring 11 will immediately act to return the wheel operated members 4 to normal position.

As soon as a wheel of the vehicle passes over one of the vehicle operated members 4 and 17 in a reverse direction to swing said member in the opposite direction, the reciprocating rod 1 will be drawn inwardly, causing the chain 22 to pull upon the chain 30 and again swing the latch plate 34 to inoperative position and then pull upon the opposite side of the semi-circular casting 24 to swing the doors 8 and 9 to closed position. As soon as the wheel leaves the wheel operated members, the spring 11 will again act to return the wheel operated member 4. The spring 11 is only for the purpose of returning wheel member 4 to normal position. The outside wheel member 17 is returned to its normal position by the weight of the outer end of the operating bar and link acting as a weight on the roller 15. The operating bar 1 is only operated in conjunction with the doors 8 and 9. As will be noted, the links 3 and 14 are of special importance as to make a simple reverse of the mechanism possible, (which is absolutely necessary) in that the wheel members 4 and 17 can return to a normal position without moving the operating bar, which would also operate the doors 8 and 9.

It is necessary that the wheel members 4 and 17 be able to assume a normal position without moving the operating bar 1. For instance, the front wheel of a car entering would press the wheel member 17 downwardly and said wheel member 17 would assume a normal position as the wheel of the car leaves it. The rear wheel of the car would then pass over the wheel member 17, but this would not operate the mechanism, because of the link 14 which allows the wheel member 17 to be pressed downwardly any number of times in the same direction and returned to its normal position without operating the mechanism after the first time. This also holds good in the reverse movement of a car over said wheel member 17.

It will also be understood that when the wheel operated members 4 and 17 are returned to normal position, the strain upon the latch operating chain 29 is relieved and the spring 36 permitted to act to return the pivoted latch plate 34 to normal position, so that it may again engage the keeper 37

to lock the doors 8 and 9 against movement when the doors 8 and 9 are in closed position. When the doors 8 and 9 are in open position, however, and the strain upon the latch operating chain 29 is relieved by a return of the wheel operated members 4 and 17 to normal position, the spring 36 serves to return the pivoted latch plate 34 to its lowermost or normal position and permit the same to engage the outer keeper 45 secured to the floor 6 outwardly of the doors 8 and 9 and the frame 7.

While the preferred embodiments of the invention have been shown and described, it will be understood that minor changes in the details of construction, and arrangement of parts may be resorted to within the scope of the appended claims without departing from the spirit of the invention or sacrificing any of the advantages of the same.

What is claimed is:

1. In a door opening and closing mechanism, the combination of pivotal wheel engaging members adapted to be placed on opposite sides of a door, each member pivoted at one end to a fixed support, a lever arm projecting from one of said members on the opposite side of its pivotal axis, a rigid operating rod extending continuously between said members and having a longitudinal slot in each end, a pivot projecting from one of said members into the slot at one end of said rod for operating the same, a like pivot on the lever arm of the other member engaging the slot in the opposite end of the rod, resilient means for holding the first member in operative position, the second named member being operatively maintained through the weight of said arm and the end of the attached operating rod, the slots in said rod being sufficiently long to permit the wheel engageable members to return to position after being operated without moving the rod and also permit the rod when moved to slide inactively on the pivot of the non-operating member, a pivoted door, an arcuate plate fixed to said door having its axis in line with the pivotal axis of the door, a flexible connection fastened to each end of said arcuate plate, said connections extending in opposite directions around said plate to opposite sides of the door and then to the operating rod to which they are attached at a distance from the door and on opposite sides of the same.

of the non-operating member, a door, and independent flexible connections between the door on each side and the operating rod on the same side.

2. In a door opening and closing mechanism, the combination of pivotal wheel engaging members adapted to be placed on opposite sides of a door, each member pivoted at one end to a fixed support, a lever arm projecting from one of said members on the opposite side of its pivotal axis, a rigid operating rod extending continuously between said members and having a longitudinal slot in each end, a pivot projecting from one of said members into the slot at one end of said rod for operating the same, a like pivot on the lever arm of the other member engaging the slot in the opposite end of the rod, resilient means for holding the first member in operative position, the second named member being operatively maintained through the weight of said arm and the end of the attached operating rod, the slots in said rod being sufficiently long to permit the wheel engageable members to return to position after being operated without moving the rod and also permit the rod when moved to slide inactively on the pivot of the non-operating member, a pivoted door, an arcuate plate fixed to said door having its axis in line with the pivotal axis of the door, a flexible connection fastened to each end of said arcuate plate, said connections extending in opposite directions around said plate to opposite sides of the door and then to the operating rod to which they are attached at a distance from the door and on opposite sides of the same.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM A. OLEEN.  
OLOF H. OLEEN.

Witnesses:

D. T. GERDES,  
NORA S. GERDES.