Nov. 14, 1933. G. D. RODGERS, JR 1,935,101

DOOR OPERATING MECHANISM

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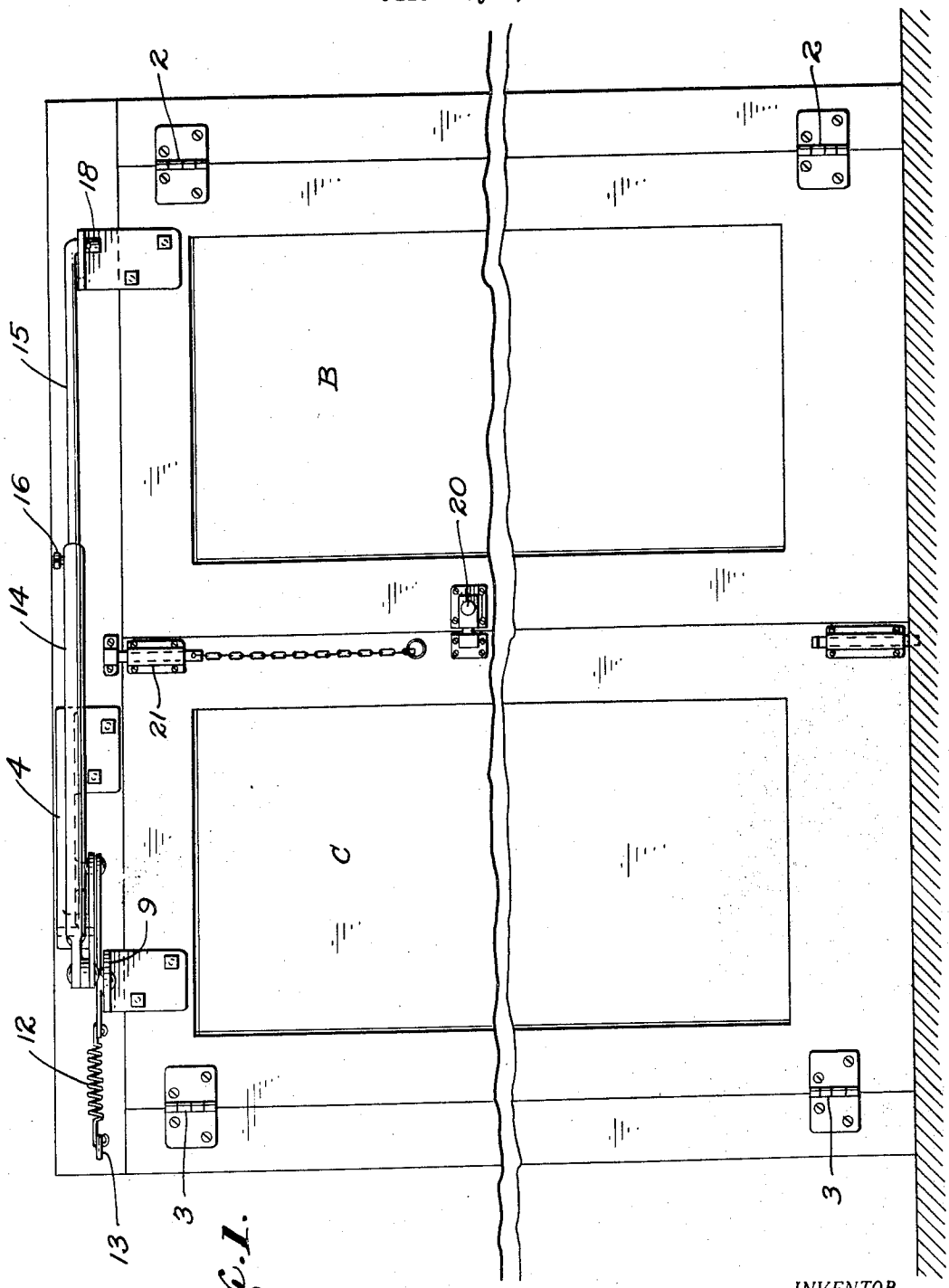



Fig. 1.

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Fig. 2.

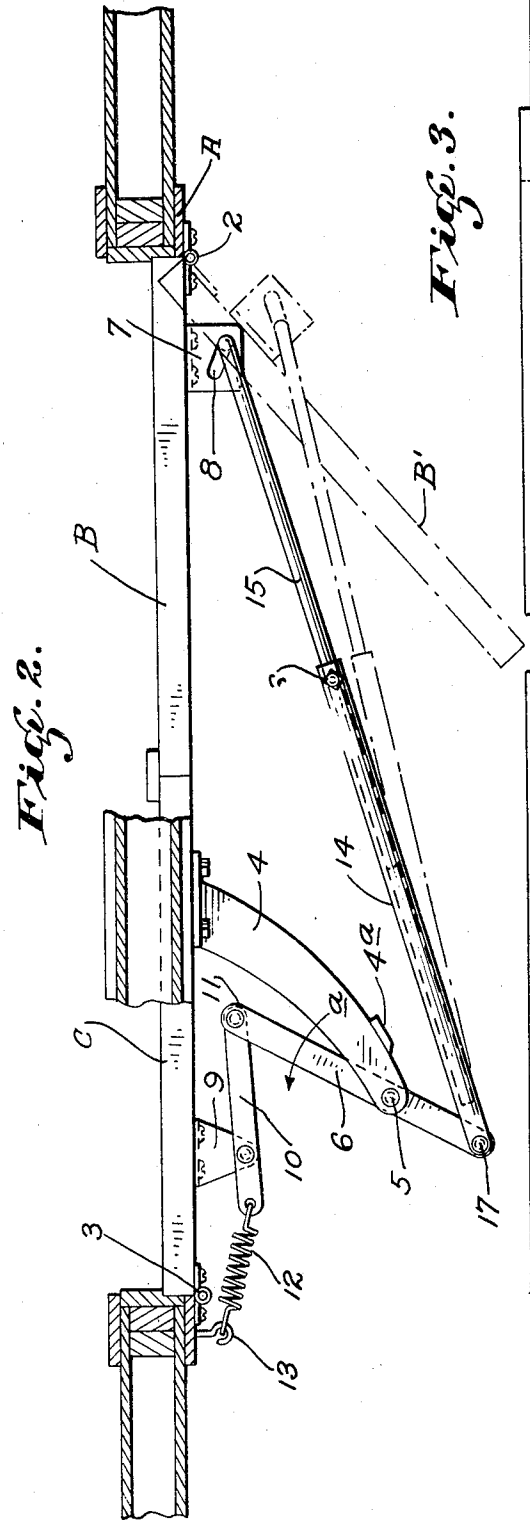
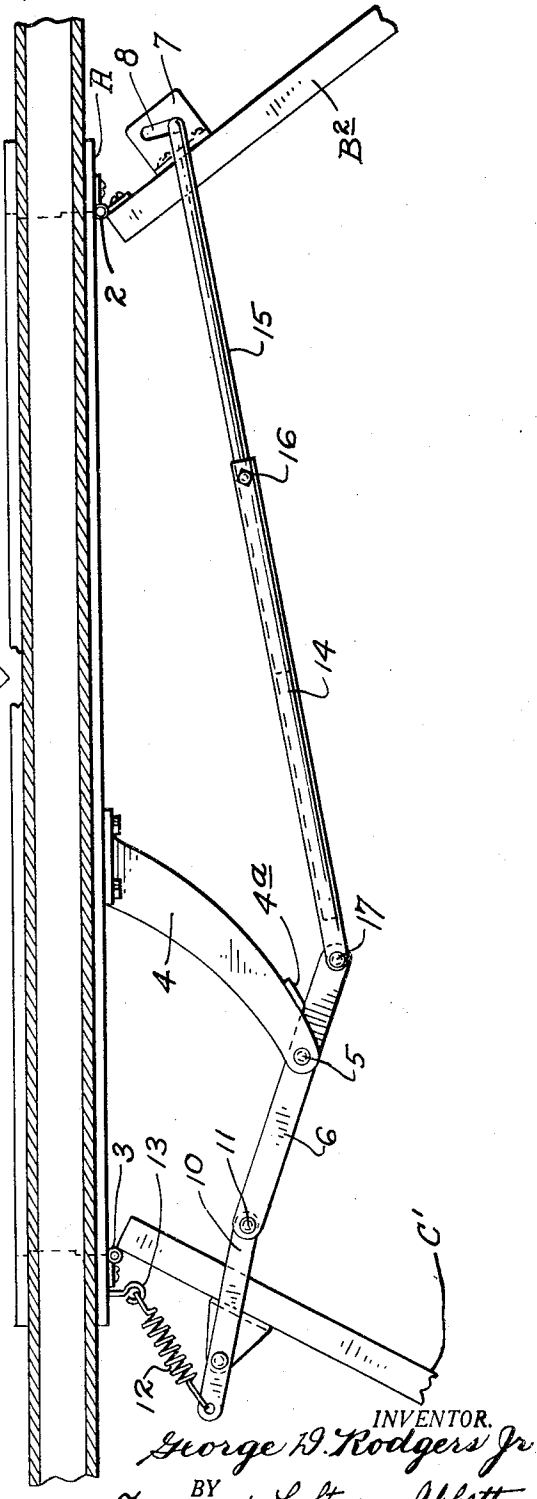



Fig. 3.




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# UNITED STATES PATENT OFFICE

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## DOOR OPERATING MECHANISM

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Application May 4, 1931. Serial No. 534,789

4 Claims. (Cl. 268—62)

This invention relates to a door operating mechanism especially constructed to assist in the opening and closing of double hung doors and particularly to retain the doors in an open position.

The object of the present invention is to generally improve and simplify the construction and operation of door operating mechanism of the character described; to provide a door operating mechanism particularly intended for application to double hung garage doors and the like; to provide a door operating mechanism which can be quickly and readily applied to garage doors and which is adjustable to take care of doors of varying width; to provide a door operating mechanism which connects both doors so that the opening of one door will be transmitted to open the other and vice versa; to provide a door operating mechanism which connects the doors but permits partial opening of one door without transmitting opening movement to the other; and, further, to provide a door operating mechanism which will retain the doors in open position so that they will not accidentally close due to wind puffs, faulty hanging, or otherwise, thereby eliminating any danger of damaging either the doors or an automobile when entering or leaving a garage.

The door operating mechanism is shown by way of illustration in the accompanying drawings, in which—

Fig. 1 is a front view of a pair of garage doors showing the application of the door operating mechanism.

Fig. 2 is a plan view of the same partially in section showing the doors in closed position.

Fig. 3 is a similar view showing the doors and operating mechanism in open position.

Referring to the drawings in detail, A indicates the main frame of a door on opposite sides of which is hung by hinges 2 and 3 a pair of doors generally indicated at B and C. Secured to the door frame A above the doors is a bracket 4 and pivotally mounted as at 5 in the outer end of the bracket is a lever 6. Secured to the door B at the upper end thereof and adjacent the hinge 2 is a bracket 7 in which is formed an angularly disposed slot 8. Similarly secured to the door C is a bracket 9 and pivotally mounted therein is a link 10. One end of the link is pivotally attached to the lever 6 as at 11 while the opposite end of the link is connected to a spring 12, the opposite end of the spring being secured to an anchor member 13. The lever 6 is provided with a second link which is made in two sections as indicated at 14 and 15. These sections telescope so as to form a link which is adjustable as to length, the sections of the link when adjusted being secured in any suitable manner as by means of a set screw 16. One end of the link is pivotally attached as at 17 to the lever 6 while the opposite end is provided with a downwardly turned pin member 18 which extends through the slot 8 in the bracket 7.

The mechanism as illustrated is simple and substantial in construction and can be readily applied to garage doors or the like in a comparatively short time as it is only necessary to secure the brackets 4, 7 and 9 to the main frame and the doors respectively by means of bolts or screws such as shown in Fig. 1, and then to adjust the link comprising the sections 15 and 14 to take care of varying width of doors and to vary the position of both or either door when open. With the mechanism installed as described, the operation will be as follows:

If a person desires to merely enter the garage, for instance to pick up a tool or whatever the case may be, he merely unlocks the door, for instance by means of a lock such as shown at 20, see Fig. 1, and then pushes inwardly on the door B. The door is free to swing during such inward movement from the full line position shown in Fig. 2 to the dotted line position indicated at B′ thereby providing ample space for one or more persons to enter or leave the garage without opening the other door. The free opening movement of the door B is permitted as the pin extension 18 of the link 15 will ride freely from one end of the slot 8 to the other.

If it is desired to open both doors, for instance when entering or leaving the garage with an automobile, door B is swung beyond the dotted line position indicated at B′ to the full line or open position shown at $B^2$ in Fig. 3. In doing so a pull is exerted on the link comprising the members 14 and 15 and pivotal movement is transmitted to the lever 6 causing it to swing in the direction of arrow *a*. This movement is transmitted to the link 10 and door C is swung about its hinges 3 to assume the full open position shown at C′ in Fig. 3, and both doors are held in this open position due to the fact that spring 12 has been extended and as such exerts a pull on the inner end of the link 10, and a pushing action on link 15, the force of the spring being sufficient to retain the doors in open position against wind puffs, gravitational movement if poorly hung, and so on, but the force is not so great as to hinder closing of the doors when this

is necessary. It should be understood that the opening movement can be accomplished by the opening of either door.

In closing the doors either door may be grasped and swung to closed position. In doing so, motion is transmitted through lever 6 and the links to the opposite door and they are both swung to closed position where they may be locked by the mechanism shown at 20 and by a standard form of latch or bolt such as shown at 21. The latch 21 is normally maintained in engagement with its keeper as it is not always necessary to open the door C, but when it is necessary to open it latch 21 is retracted in the usual manner. Swinging movement of the doors beyond the open position shown in Fig. 3 is prevented by a downwardly extending lug 4a formed on the bracket 4. This engages one side of the lever 6 and thereby stops further swinging movement of the same during opening of the doors.

While the invention has been described in connection with garage doors, it is obvious that it may be applied to double hung closures of any similar character and while certain features of the invention have been more or less specifically described, I wish it understood that various changes may be resorted to within the scope of the appended claims. Similarly, that the materials and finish of the several parts employed may be such as the manufacturer may decide, or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a door operating mechanism the combination with a pair of hingedly supported doors adapted to normally close a door opening, of a bracket rigidly secured to the frame of the doors and above the same, a lever pivotally mounted on said bracket, a bracket secured to each door, a link pivoted intermediate its ends to one of said brackets, a spring connected to one end of said link and with an anchor member, a pivotal connection between the oposite end of said link and one end of the pivoted lever, and a link connected with the opposite end of the pivoted lever and the bracket on the other door.

2. In a door operating mechanism the combination with a pair of hingedly supported doors adapted to normally close a door opening, of a bracket rigidly secured to the frame of the doors and above the same, a lever pivotally mounted on said bracket, a bracket secured to each door, a link pivotally mounted on one of said brackets, a spring connected to one end of said link and with an anchor member, a pivotal connection between the opposite end of said link and one end of the pivoted lever, and an adjustable link connected with the opposite end of the pivoted lever and with the bracket on the other door, said bracket having a slot formed therein to permit a limited independent movement of the door about its hinges without transmitting movement to the connected link.

3. In a door operating mechanism the combination with a pair of hingedly supported doors adapted to normally close a door opening, of a bracket rigidly secured to the frame of the doors and above the same, a lever pivotally mounted on said bracket, a bracket secured to each door, a link pivoted intermediate its ends to one of said brackets, a spring connected to one end of said link and with an anchor member, a pivotal connection between the opposite end of said link and one end of the pivoted lever, a link connected with the opposite end of the pivoted lever and the bracket on the other door, and means on the first named bracket for limiting swinging movement of the lever pivotally mounted thereon in one direction.

4. Operating mechanism for a pair of swinging doors, which comprises a bracket secured to the door frame, a lever pivotally carried by said bracket, a link pivoted intermediate its ends with respect to one door, a spring connecting one end of said link to an anchor member, a pivotal connection between the opposite end of the link and the pivoted lever, a link connected with said lever and pivotally supported with relation to the other door, and a stop member on said bracket to limit pivotal movement of said lever and thereby limit swinging movement of both doors.

GEORGE D. RODGERS, JR.