

C. H. WEGNER.
 DEVICE FOR OPERATING DOUBLE DOORS.
 APPLICATION FILED JAN. 17, 1912.

1,046,916.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

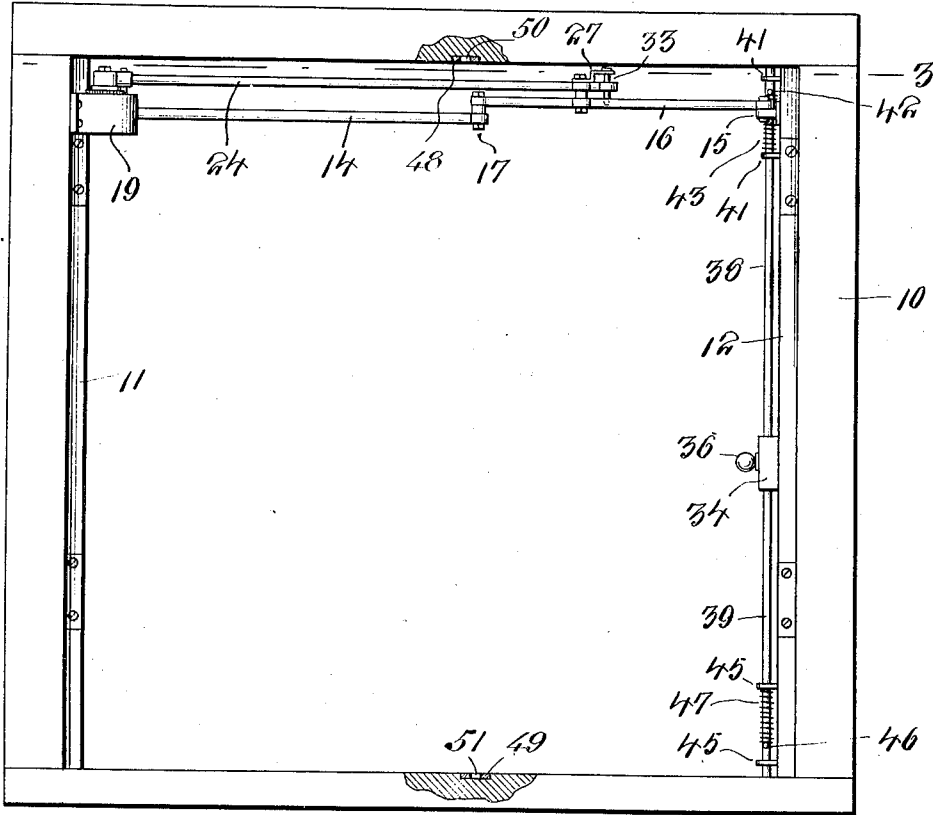
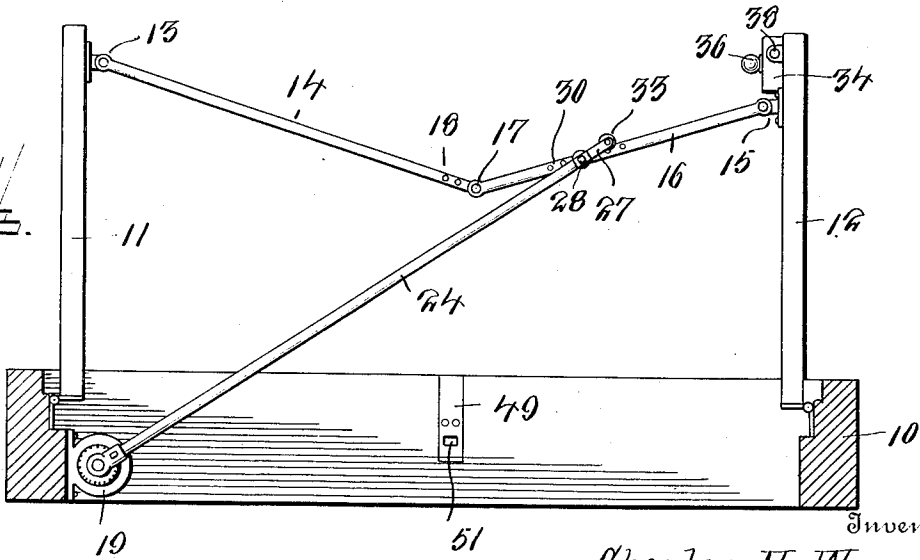


Fig. 2.



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2 SHEETS-SHEET 2.

Fig. 3.

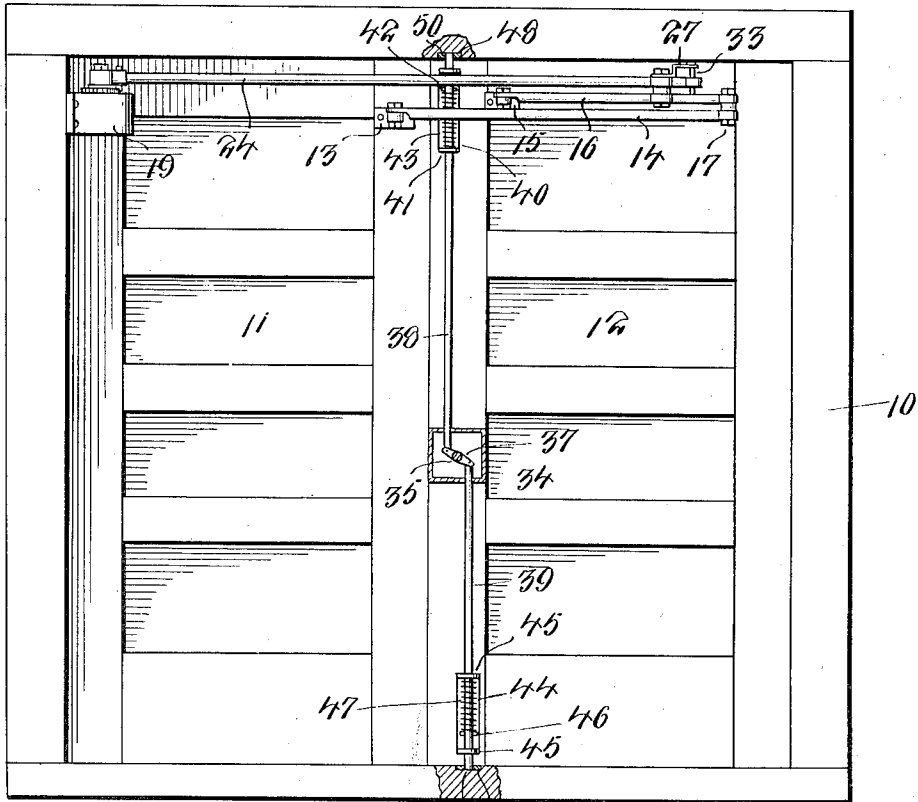


Fig. 4.

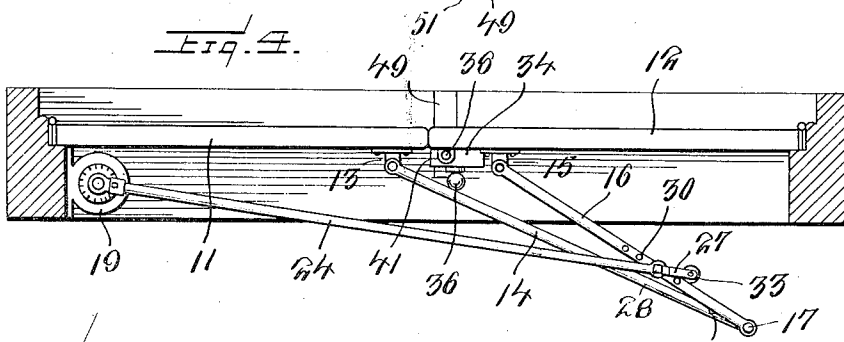


Fig. 5.

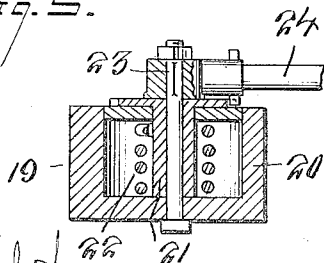
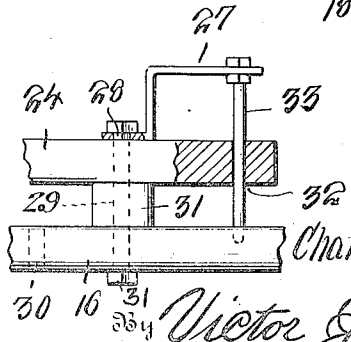


Fig. 6.



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DEVICE FOR OPERATING DOUBLE DOORS.

1,046,916.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed January 17, 1912. Serial No. 671,546.

To all whom it may concern:

Be it known that I, CHARLES H. WEGNER, a citizen of the United States, residing at the city of Baltimore and State of Maryland, have invented new and useful Improvements in Devices for Operating Double Doors, of which the following is a specification.

An object of the invention is to provide a device for simultaneously operating double doors.

The invention embodies among other features a device which, when mounted in connection with double doors will cause one of the doors to open when the other is opened, will retain both doors in relative open position and will cause both doors to close simultaneously.

My invention further embodies a mechanism whereby when one of the doors is manually opened, the other door operating with the first door will be actuated simultaneously therewith, the doors when moved to open position being automatically locked and movable simultaneously to close when a slight pressure is exerted against one of the doors to release the locking mechanism.

In the further disclosure of the invention, reference is to be had to the accompanying drawings constituting a part of this specification, in which similar characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a front elevation of a door casing and doors having my device applied thereto, the doors being in open position. Fig. 2 is a similar front elevation showing the doors in closed and locked position, parts being broken away to disclose the underlying structure. Fig. 3 is a horizontal sectional view taken on line 3—3 in Fig. 1. Fig. 4 is a horizontal sectional view taken on the same line as Fig. 3, the doors being in closed position. Fig. 5 is an enlarged vertical sectional view taken through the cushioning member. Fig. 6 is an enlarged vertical sectional view of the locking member.

Referring more particularly to the views I employ a double door casing 10 having mounted to swing thereon door sections 11, 12, the mentioned door sections being adapted to close the door opening in the casing when the door sections are moved into closed position relatively to the casing

thereof. Secured to the inner side of the door section 11 is a bearing 13 on which is mounted to swing a door rod 14 and secured to the inner side of the door section 12 is a bearing 15 similar to the bearing 13 and mounted to swing on the bearing 15 is a door rod 16 having mounted to extend through the free end thereof, a bolt 17, extending through one of a plurality of openings 18 formed in the free end of the door rod 14, the door rods 14 and 15 being sufficiently long and relatively connected so that when the door sections 11, 12, are swung into open position to lie at right angles to the door casing 10, the door rods 14 and 16 will not prevent the door sections from being opened to their fullest extent, as shown in Fig. 3.

Secured to a side of the casing 10 is a spring actuated cushioning member 19, consisting of a casing 20 in which is mounted to turn an arbor 21 having secured thereto one end of a coiled spring 22, mounted within the casing to encircle the said arbor with the other end of the said spring secured to the casing, a squared shank 23 of the said arbor being arranged to extend exteriorly of the casing and having connected thereto to turn therewith one end of an actuating rod 24.

Although I show a particular form of cushioning member 19, in the further disclosure of the invention and the operation thereof, it will be seen that any well known type of cushioning member can be employed in place of the cushioning member 19.

The free end of the actuating rod 24 terminates in a flattened portion on which is mounted a locking member, consisting of an S-shaped spring 27 provided with a squared opening 28 through which is extended a bolt 29 arranged to extend through a square opening in the flattened portion 25, thus rigidly retaining the spring 27 in engagement with the flattened portion 25, the lower end of the bolt 29 being circular in cross section to extend through one of a plurality of openings 30 formed in the door rod 16, thus pivotally connecting the door rod 16 to the actuating rod 24, a nut 31 being preferably threadedly engaged with the lower end of the bolt 29 to prevent the door rod 16 from becoming disengaged from the bolt. The outer extremity of the S-shaped spring 27 is spaced a distance from the flattened por-

tion and mounted to extend through the said spring and an opening 32 in the flattened portion is a locking bolt 33, the said locking bolt being rigid with the spring 27 so that the locking bolt will be prevented from turning relatively to the spring, while at the same time the locking bolt can be moved vertically relatively to the flattened portion 25 of the actuating rod 24. The lower end of the locking bolt 33 is preferably rounded to permit the locking bolt of riding over the door rod 16 as will be hereinafter more fully disclosed.

Now assuming that the door sections 11, 12 are in closed position as shown in Figs. 2 and 4, when it is desired to open the doors, an outward pressure is exerted upon the door section 11 to swing the same into open position and this action will cause the door section 12 to move into open position simultaneously with the door section 11, this result being obtained through the medium of the pivotally connected door rods 14, 16, it being understood that the actuating rod 24, pivotally connected to the door rod 16, will swing therewith thus imparting a tension to the spring 22 of the cushioning member 19 and when the door sections have been moved to a position slightly short of their extreme open position, the locking bolt 33 will engage the door rod 16 and as the outward pressure is still being exerted on the door section 11, the locking bolt will be moved vertically against the downward action of the spring 27 so that the locking bolt will ride over the door rod 16 and at the moment that the doors reach their extreme open position the locking bolt will engage the other side of the door rod 16, owing to the downward pressure of the spring 27, thus retaining the door sections 11, 12 in open and locked position and against the action of the spring 22 which has been placed in tension by the swinging movement of the actuating rod 24, movable with the door rod 16. Thus it will be seen that when a pressure is exerted against the door section 11 to swing the same into open position, the door section 12 will swing simultaneously with the door section 11 and when the door sections reach their extreme open positions they will be automatically retained in open and locked position by the locking member. Now when it is desired to release the door sections 11, 12 to permit the same to move into closed position, an outward pressure is exerted against the door section 11 to move the door sections 11, 12 a slight distance beyond their extreme open position and at the moment that the outward pressure is released, the force of the spring 22 tending to impart a swinging movement to the actuating rod 24 will cause the door sections 11, 12, through the medium of the door rods 14, 16, to swing inwardly and the

momentum given to the door sections 11, 12 as they swing inwardly will cause the locking bolt 33, when the same engages the door rod 16 to move upwardly against the downward pressure of the spring 27 and ride over the door rod 16, thus unlocking the door sections 11, 12 from their open locked position so that the actuating rod 24 operated by the spring 22 and connected to the door rod 16, will cause the door sections to swing inwardly and assume a closed position as shown in Figs. 2 and 4. By providing the openings 18 in the door rod 14, the door rod 16 can be adjusted relatively to the door rod 14 and in a similar manner by providing the openings 30 in the door rod 16, the actuating rod 24 can be adjusted relatively to the door rod 16, this procedure being provided to permit of attaching my device to large or small door casings and the door sections thereof.

In Figs. 2, 3 and 4 I disclose a locking mechanism, mounted on one of the door sections and embodying a casing 34 secured to the inner side of the door section 12 and turnably mounted within the casing 34 is a rod 35 provided with an exterior knob 36 and having secured rigidly thereto, within the casing 34, oppositely extending wings 37, having pivotally connected thereto locking rods 38, 39, the locking rod 38 being arranged to extend upwardly a distance beyond the upper end of the door section 12 and the rod 39 being adapted to extend downwardly a distance beyond the lower end of the door section 12. Secured to the inner side of the door section 12 is a plate 40 provided with apertured flanges 41 through which the rod 38 is arranged to slidably extend, a pin 42 being mounted to extend through the rod 38 and adapted to abut against one of the flanges 41 to limit the vertical movement of the rod 38, the said rod being encircled by a spring 43 having one end abutting against the other flange 41 and the other end of the spring abutting against the pin 42 to normally retain the rod 38 in its uppermost position so that the mentioned rod will extend upwardly beyond the upper edge of the door section 12. In a similar manner a plate 44 is secured to the inner side of the door section 12 and provided with apertured flanges 45 through which the rod 39 is adapted to slidably extend, a pin 46 being mounted to extend transversely through the rod 39 and abut against one of the flanges 45 to limit the vertical movement of the rod 39, a spring 47 being mounted to encircle the rod 39 with one end of the spring abutting against the other flange 45 and the other end of the spring abutting against the pin 46 to normally retain the rod 39 in its lowermost position so that the lower end of the rod will project beyond the lower edge of the door section 12. Now by referring to Figs. 1 and

3 it will be seen that strike plates 48, 49 are mounted in the upper and lower portions of the door casing 10 respectively, a strike plate 48 being provided with an opening 50 adapted to receive the upper end of the rod 38 and the strike plate 49 being provided with an opening 51 adapted to receive the lower end of the rod 39 so that when the rods 38 and 39 move into the openings 50, 51 respectively, the door section 12 will be retained in closed and locked position and in order to release the door section 12 the knob 36 must be operated to actuate the rod 35 and impart a turning movement to the wings 37, thus operating the rods 38, 39 against the action of the springs 43, 47 to move the rods 38, 39 out of engagement with the plates 48, 49. Now assuming that the door sections 11, 12 are in open position as shown in Figs. 1 and 3, when the door sections are released as described heretofore to simultaneously move into closed position, the swinging movement imparted to the door sections 11, 12 by the spring 22, through the medium of the actuating rod 24 and the door rods 14, 16, the force with which the door sections move into closed position will cause the rods 38, 39, when they engage the strike plates 48, 49 to operate against their respective springs 43, 47 and then move into their respective openings 50, 51 of the strike plates 48, 49 when the door sections 11, 12 assume a closed position so that when the door sections are released from open and locked position they will, through the action of the spring 22 and the rods 14, 16 and 24, swing simultaneously in a closed position and automatically operate the rods 38, 39 to engage the strike plates 48, 49 and lock the door section 12 in closed position. Now it will be remembered that when one of the door sections 11 is swung into open position the other door section 11 will be simultaneously operated so that one of the door sections cannot be operated without operating the other door section and when the door section 12 moves into closed position and is locked in closed position by the automatic action of the rods 38, 39, the door section 11 will also be retained in closed and locked position by the rods 38, 39, through the medium of the connected door rods 14 and 16 and the actuating rod 24 connected to the door rod 16.

Thus from the foregoing description it will be readily understood that when one of the door sections is swung into open position the other door section will operate simultaneously therewith, both door sections being retained in open and locked position and

movable simultaneously into closed position when released from open position, the said door sections being simultaneously retained in closed and locked position by the action of the locking mechanism on the door section 12 and the connection between the door sections 11 and 12, which in the operation of one of the door sections results in the simultaneous relative movement of the other door section.

I claim:—

1. In combination with a casing having door sections mounted to swing thereon, a rod connected to one of the door sections, a second rod connected to the other door section and pivotally connected to the first mentioned rod to move one of the door sections simultaneously with the other, a spring actuated rod mounted on the said casing and connected with the first mentioned rod to simultaneously swing the said door sections from open to closed position and locking means mounted on the said actuating rod to releasably retain the said door sections in open and locked position.

2. In combination with a casing having door sections mounted to swing thereon, a rod connected to one of the said door sections, a second rod connected to the other door section and pivotally connected to the first rod, an actuating rod mounted on the said casing and connected with the first mentioned rod to simultaneously swing the said door sections from open to closed position and a locking bolt mounted on the actuating rod and adapted to engage the first mentioned rod to releasably retain the said door sections in open and locked position.

3. In combination with a casing having door sections mounted to swing thereon, a rod connected to one of the said door sections, a second rod connected to the other door section, means adjustably connecting the said rods for moving one of the door sections simultaneously with the other, a spring actuated actuating rod mounted on the said casing and adjustably connected to the first mentioned rod to simultaneously swing the said door sections from open to closed position and locking means mounted on the said actuating rod to engage the first mentioned rod and releasably retain the said door sections in open and locked position.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. WEGNER.

Witnesses:

HENRY F. SLEEPACK,
AMELIA C. WEGNER.