May 13, 1930. O. L. DAUTRICK 1,757,955

OVERHEAD SWINGABLE DOOR FOR GARAGES AND THE LIKE

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Fig. 1

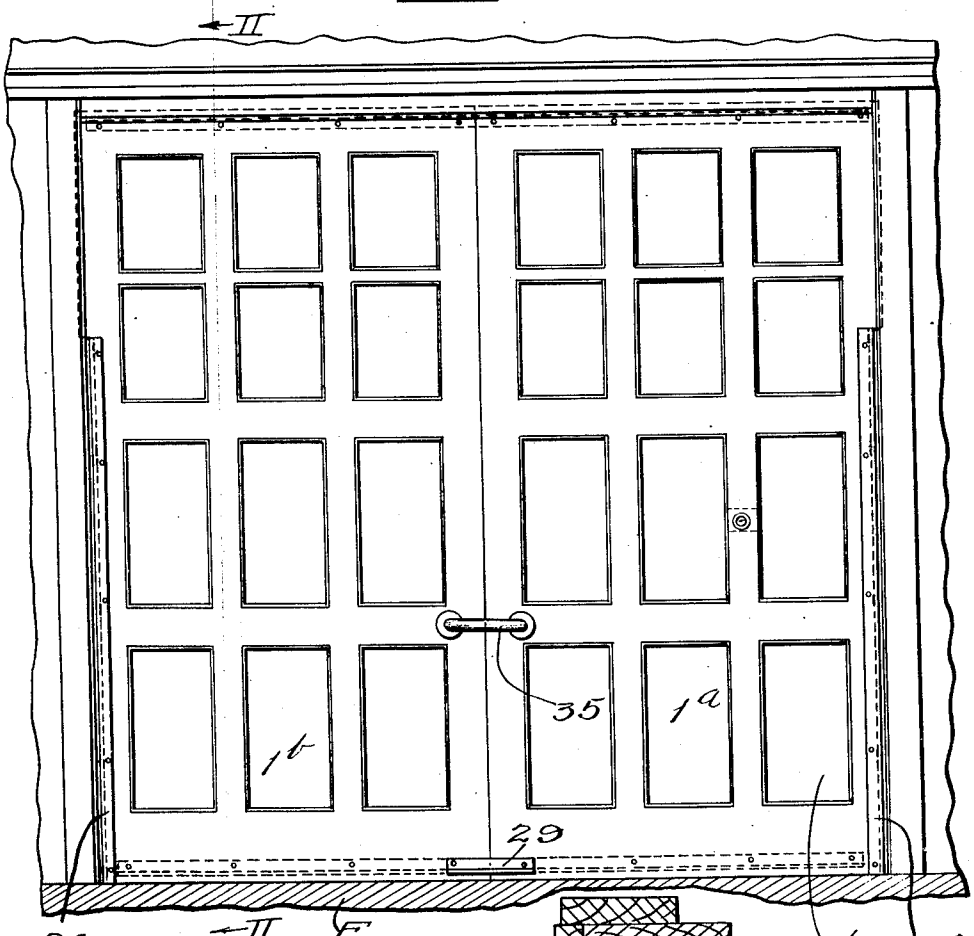
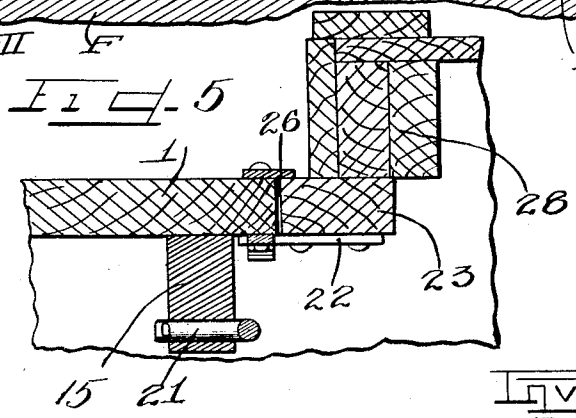


Fig. 5



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OVERHEAD SWINGABLE DOOR FOR GARAGES AND THE LIKE

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Fig. 2

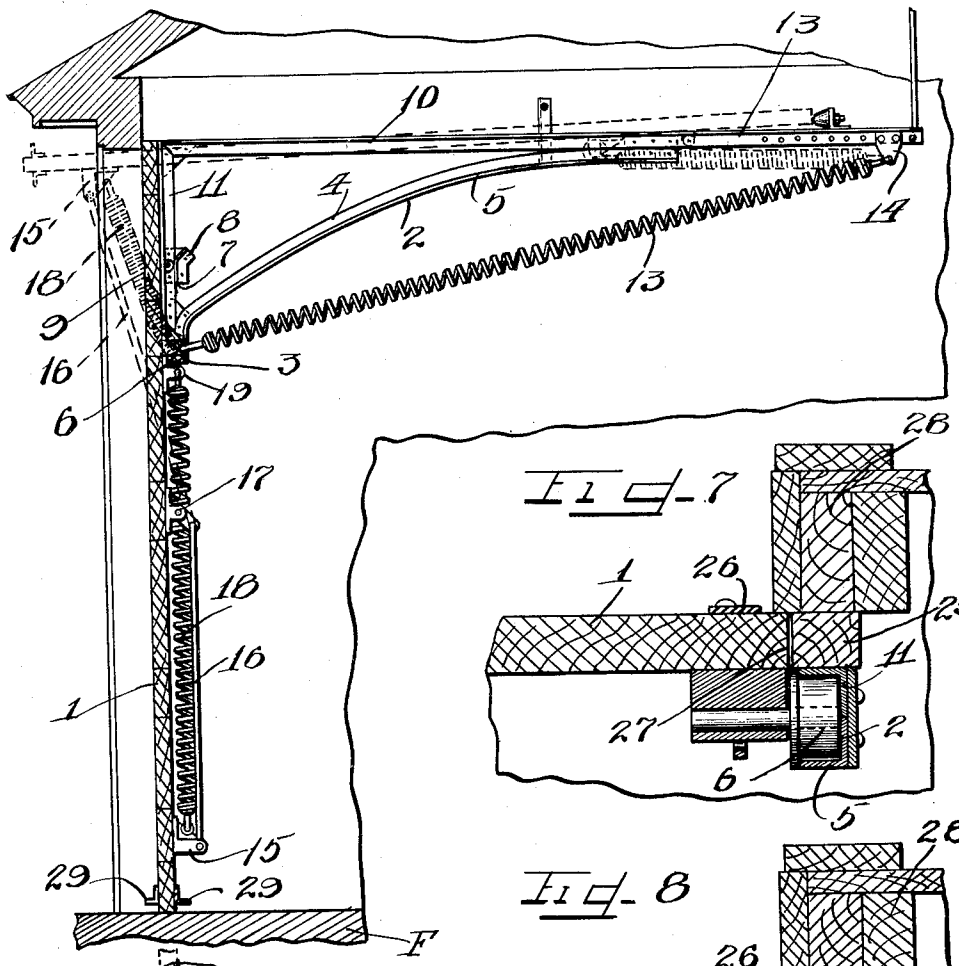


Fig. 7

Fig. 8

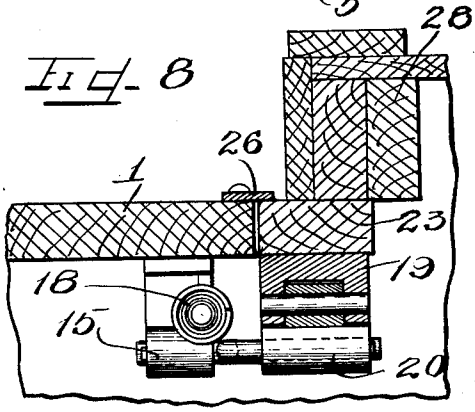
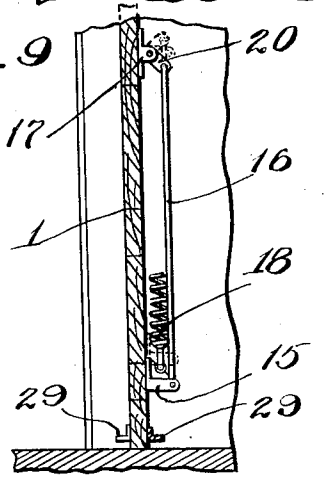


Fig. 9



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OVERHEAD SWINGABLE DOOR FOR GARAGES AND THE LIKE

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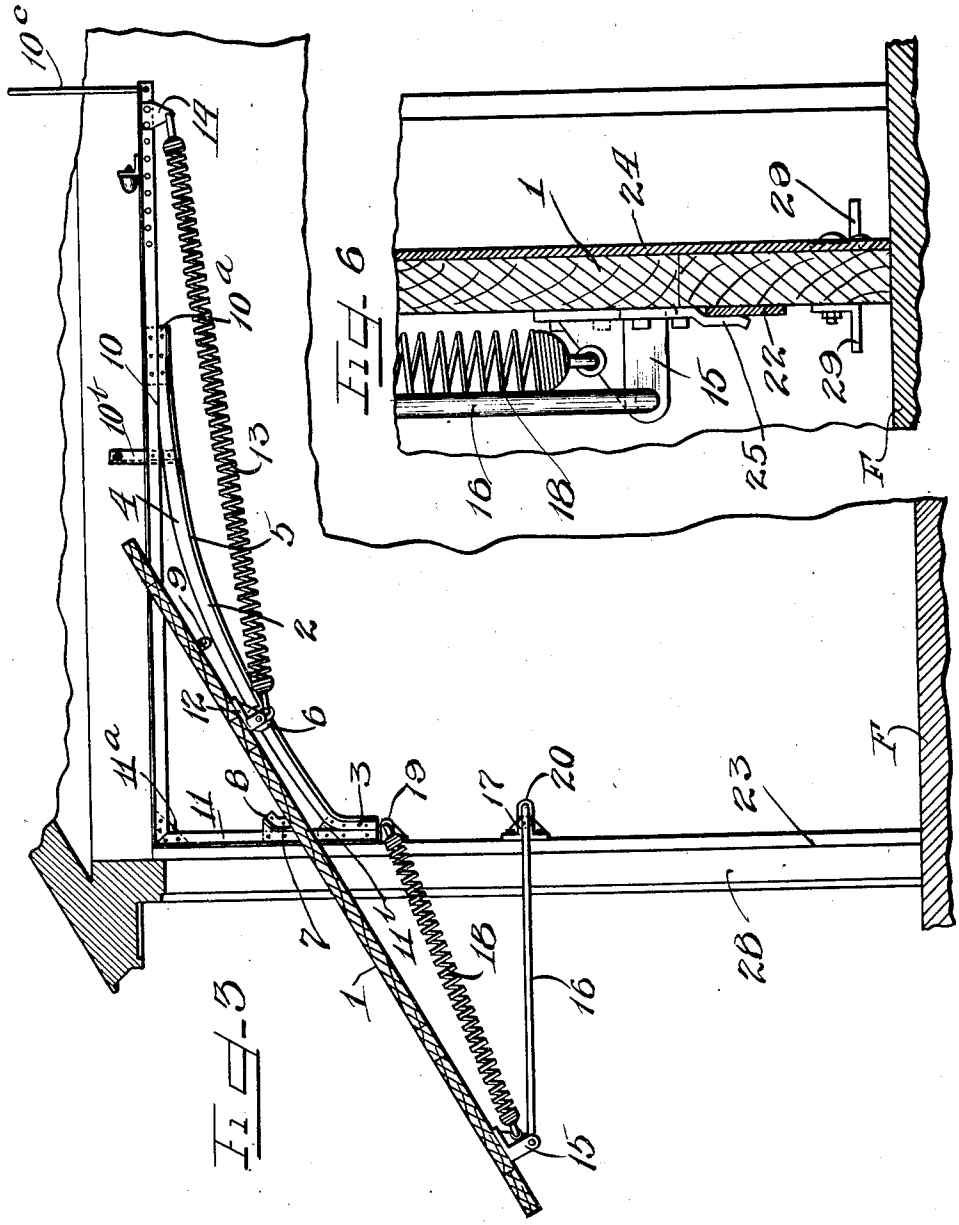


Fig. 6

Fig. 5

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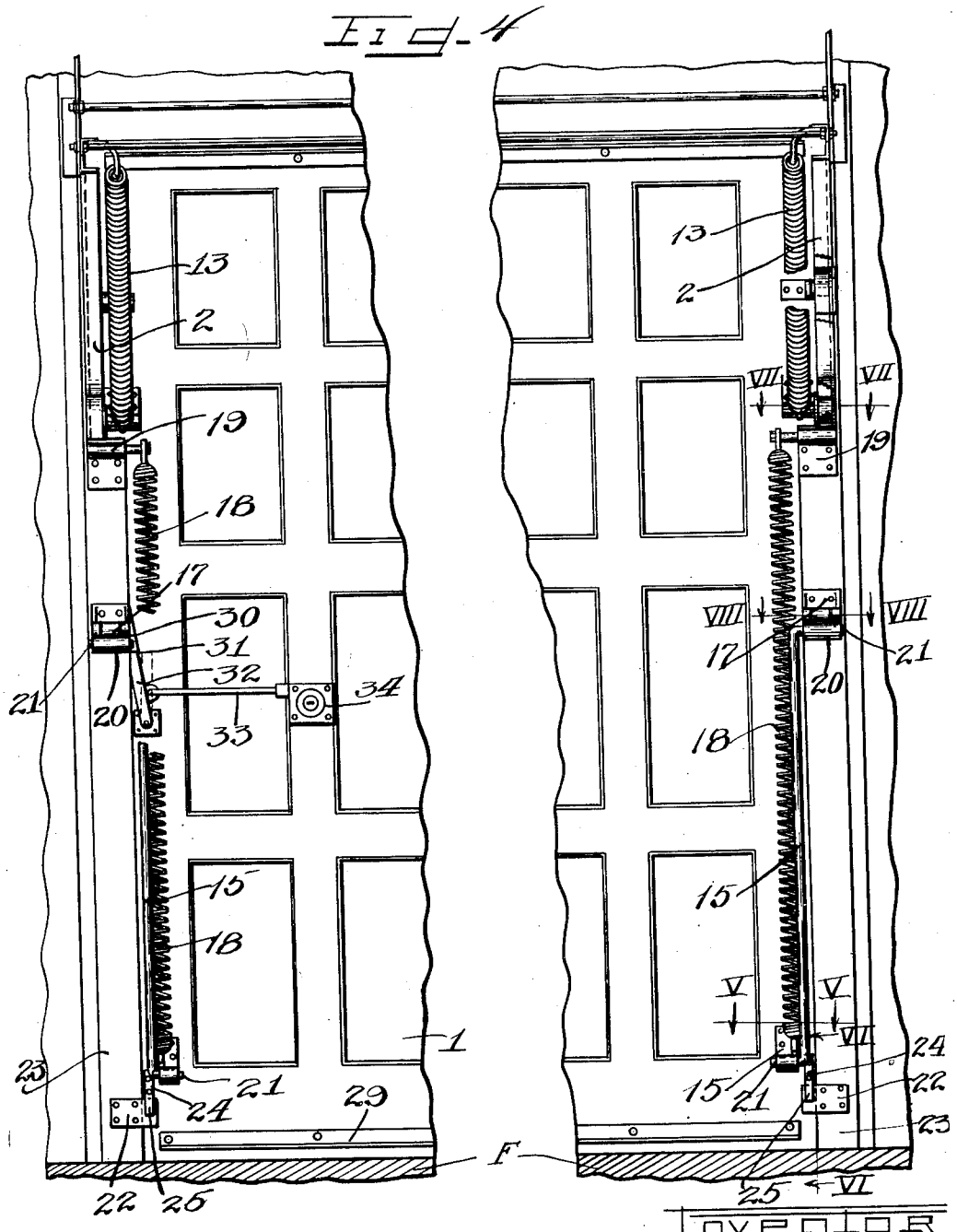
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OVERHEAD SWINGABLE DOOR FOR GARAGES AND THE LIKE

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Fig. 4



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Patented May 13, 1930 1,757,955

UNITED STATES PATENT OFFICE

OWEN L. DAUTRICK, OF DETROIT, MICHIGAN

OVERHEAD SWINGABLE DOOR FOR GARAGES AND THE LIKE

Application filed October 31, 1927. Serial No. 229,966.

This invention relates to a garage door and primarily concerns itself with means for supporting and counter-balancing the door so that the same can be easily and quickly opened in a vertical direction and shifted to a horizontal position in which position it will be completely out of the way and unsusceptible of being interfered with.

The invention comprises the novel structure and combination of parts hereinafter described and more particularly pointed out and defined in the appended claims.

In the accompanying drawings which illustrate a preferred embodiment of this invention and in which similar reference numerals refer to similar features in the different views:

Figure 1 is a fragmentary front elevational view of a garage equipped with a door that is supported and operates according to this invention.

Figure 2 is a sectional view taken upon the line II—II of Figure 1 showing the means at one end for supporting the door in its opening and closing movements and showing the door in open position in dotted lines.

Figure 3 is a view substantially similar to Figure 2 showing the door in partly open position.

Figure 4 is a broken elevational view of the interior of the door showing the floor in section.

Figure 5 is an enlarged sectional view taken upon the line V—V of Figure 4.

Figure 6 is an enlarged fragmentary sectional view taken upon the line VI—VI of Figure 4.

Figure 7 is an enlarged fragmentary sectional view taken upon the line VII—VII of Figure 4.

Figure 8 is a fragmentary sectional view taken upon the line VIII—VIII of Figure 4.

Figure 9 is a fragmentary sectional view through the lower portion of the door showing in dotted lines the movement of certain parts during the initial opening of the door.

As shown on the drawings:

As illustrative of this invention, there is shown a portion of the front part of a garage having a floor F and an opening thereabove which is closed by a door 1 which in the present instance is shown as consisting of two sections, 1^a and 1^b which are adapted to be bolted or secured together in any suitable manner in order that the two sections may operate and function as a single unit. The purpose of illustrating the two sections is due to the reason that a section corresponds to the standard door that is now being manufactured. The two sections 1^a and 1^b which are secured or bolted together constitute a single door within the terms of the specification.

In alignment with each margin of the door opening there extends a track 2 as shown in Figures 2 and 3. This track is substantially of arcuate or curved formation throughout its main contour. The forward ends of these tracks are however bent downwardly as indicated at 3 parallel with the door in its closed position. It will be noted that this track is in the form of an angle having a vertical flange 4 and a horizontal flange 5. The flange 4 serves as a guide while the flange 5 serves as a track for supporting a roller 6 secured upon the door. Adjacent the bent portion 3 of the track there is an upwardly extending locking guide 7 which is provided with a flange 8. The flange 8 is directed inwardly at its upper terminal to provide a ready entrance for a roller 9 on the margin of the door. An angle member 10 is horizontally supported at one end by means of a tie rod 10^c which may be attached to the ceiling just above the track 2 and the outstanding flange thereof cooperates with the flange 5 at the rear terminal of the track 2. A small vertical angle member 11 extends downwardly from the front end of the angle member 10 and its outstanding flange cooperates with the flange 8 on the locking guide 7 and also with the flange 5 at the bent portion of the track 2. Consequently, when the door is in its closed position, the roller 9 will be confined between the flange 8 and the outstanding flange on the member 11 while the roller 6 on the door will be confined between the flange 5 on the bent portion of the track 2 and the outstanding flange of the member 11 whereby the door will be securely retained in closed position against lateral movement.

The aforementioned angle member 11 is securely bolted to the inner surface of the door jamb 23 and a gusset plate 11^a connects the angle member 10 with the angle member 11 and a gusset plate 11^b connects the track 2 with the angle member 11. The track is also connected by means of the plates 10^a and 10^b with the angle member 10. It will be understood that a similar track and construction extends inwardly from the opposite margins of the door as shown in Figure 4.

The roller 6 on the door is mounted in a suitable bracket 12 to which one end of a coiled spring 13 is connected. The other end of the coiled spring 13 is connected to a lug 14 depending from the angle member 10.

Adjacent the lower end of the door and adjacent each side thereof there is a bracket 15 to which a link 16 is connected at one end. The other end of the link 16 is pivoted to a bracket 17 which is secured upon the interior front wall of the garage adjacent the door opening. A suitable coiled spring 18 is attached at one end to the bracket 15. The other end of the spring 18 is attached to a bracket 19 secured upon the interior front wall of the garage. With reference to Figure 9 it will be noted that a short link 20 connects the link 16 with the bracket 17 to allow proper swinging movement. It might be mentioned that the link 16 has oppositely extending and right angled terminal portions which form trunnions 21, one trunnion extending through the bracket 15 (Figure 4) and the other trunnion extending through the link 20. The trunnion extending through the link 20 is such that the link 16 may swing through the door opening.

In referring to Figure 4 it will be noted that a clip 22 is secured upon the inner side of each door jamb 23 and overlaps the door opening. The lower lateral margin of the door is provided with metal keepers 24 having offset portions 25 that fit over the clips 22 as shown more clearly in Figure 6. It will be noted that when the offset ends of the keepers 24 engage over the clips 22 as shown in Figure 6, the lower edge of the door will be locked against lateral movement and it will be necessary to elevate the door above the clips 22 before it can be tilted to the position shown in Figure 3.

The lateral edges of the door are provided with weather strips 26 which overlap the joints between the door and the jamb 23. These weather strips extend substantially three-fourths of the distance to the top of the door as shown in Figure 1. Above the weather strips 26 the jamb 23 is cut away as indicated at 27 in Figure 7. The door 1 is wider above the weather strips 26 in order to overlap the corner post 28 of the door opening as shown in Figure 7. It should be noted that the door jambs 23 are sufficiently reduced to allow the weather strips 26 to pass through the door opening when the door is moved to overhead position as will later more fully appear.

Upon the lower edge of the door are longitudinally extending angle members 29, the outstanding flanges of which provide ledges under which a person may insert his toes or fingers for sliding the door upwardly in order to unlock the same with respect to the aforementioned clips 22.

When the door is in closed position, it may be securely locked against unauthorized opening. To this end there is a locking abutment 30 (Figure 4) on the door jamb. The lower end of the abutment 30 is provided with a shoulder 31 under which a swinging locking arm 32 pivoted upon the door is adapted to engage. A link 33 is pivoted to the locking arm 32 and extends into a lock casing 34. A suitable key is adapted to be inserted in the lock casing 34 for actuating rod 33 for either swinging the same under the shoulder 31 or removing the same therefrom. A suitable handle 35 is secured upon the outside surface of the door whereby the operator may grasp the same for elevating and opening the door.

In opening the door from the position illustrated in Figures 1 and 2, the operator will elevate the same either by grasping the handle 35 or by inserting his toes under the ledge 29 until the link 20 swings from its lowermost full line position as shown in Figure 9 to its uppermost dotted line position. This movement will be sufficient to elevate the keepers 24 above the clips 22 and the rollers 6 and 9 above their locking channels, allowing the door to be swung outwardly into the position shown in Figure 3. During this movement of the door, the rollers 6 will of course roll upon the tracks 2 and the rollers 9 will ride out of the locking guides 8 to the position shown in Figure 3. From the position shown in Figure 3 the door may be shifted rearwardly upon the tracks 2 into the position shown in dotted lines in Figure 2. During this movement of the door, the link 16 will serve as a radius rod for elevating the door and the springs 18 and 13 will be effective for drawing the door rearwardly into this open overhead position, as illustrated in Figure 2. It will be noted that the upper cut away or reduced widths of the door jambs 23 will allow sufficient space for the weather strips 26 to pass through the door opening.

When it is desired to close the door, it is merely necessary to swing the same forwardly and downwardly. During such movement of the door, it will of course be guided by the radius rod 16 into proper position. The roller 6 will pass into the channel formed by the flange 5 on the bent portion of the track 2 and the outstanding flange of the angle 11

while the rollers 9 will pass into the channel formed by the flange 8 and the flange of the angle member 11 while the door slides downwardly to engage the keepers 24 over the clips 22.

It will be appreciated that the springs 18 and 13 are under tension when the door is in closed position and form a sort of counterbalance and as soon as the door is released by elevating the same to bring the keepers 24 above the clips 22 and the rollers 6 and 9 above their locking channels, the springs become effective for exerting a strong pull upon the door for shifting it into its horizontal and overhead position.

I am aware that many changes may be made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. In a building having a doorway, a door for closing said doorway, a pair of spaced rollers adjacent the lateral margins of said door, guide locking channels for receiving said rollers when said door is in closed position for preventing lateral movement of said door, a track extending from one of said locking channels, connections between said door and buiding, said connections allowing said door to be elevated to disengage said rollers from said locking channels and serving as a radius rod for causing an upward tilting of said door to overhead position and resilient means acting on said door for assisting in moving the same to overhead position.

2. In a building having a door opening, a door closing said opening, arcuate tracks extending inwardly from the upper part of said doorway, rollers on said door for engaging said tracks, a pair of springs connecting said door with said building and links connecting said door with said building, each link having a bodily shiftable connection with the building for the purpose set forth.

3. In a building having a doorway, a door for closing said doorway, cooperating locking means between said door and the walls of the doorway for locking said door against lateral movement, swingable means connecting said door with said building and having linked connection with the building whereby said door may be elevated above its locking position and tilted upwardly into horizontal position and yielding means acting on said door for shifting the same to overhead position.

4. In a building having a doorway, a door for closing said doorway, cooperating means between the door and the walls of the doorway for locking said door against lateral movement, a pair of links pivotally connected to said door and a pair of second links connecting said first mentioned links with the walls of said doorway, said second links allowing said door to be elevated above said lateral locking means and guiding said door in its upward tilting movements to an overhead position with respect to said doorway and supporting and guiding means for sustaining said door during the aforesaid movements.

5. In a garage having a door opening, a door for closing said opening, said door having weather strips overlapping the lateral margins of said doorway and said doorway having walls overlapping said door above said weather strips, curved tracks extending inwardly adjacent the upper part of said doorway, said door having rollers for engaging said tracks, links connecting said door with the walls of the doorway and tension means connecting said door with said building for the purpose set forth.

6. In a building having a doorway, a door for closing said doorway, radius rods pivoted to said door and linked to the walls of said doorway, an inwardly extending track for supporting and guiding said door to an overhead position within said building and yielding means acting on said door for urging the same inwardly to said overhead position.

7. In a building having a doorway, a door for closing said doorway, an inwardly extending track, said door having means for engaging said track and means connecting said door and the walls of said doorway for causing a predetermined tilting movement of said door to overhead position upon said track, said last named means being in the form of swinging members having link connections with the building to permit initial bodily shiftable movement of the door vertically in the doorway.

8. A garage door having rollers, tracks upon which said rollers are movable to guide the door between an upper horizontal open position and a lower vertical closed position, counter-balancing means permitting ready swinging movement of the door between said positions, means to hold the door against swinging movement when in the closed vertical position, and links engaging the door to assist in guiding the same, said links having yieldable means permitting initial vertical shifting of the door to free said holding means.

9. A garage door disposed vertically in closed position and having rollers intermediate its ends, guide tracks for said rollers, means to hold the door against swinging movement when closed, and swinging connections constraining the door to tilting movement during shifting along the tracks, said connections permitting initial vertical movement of the door to disconnect said holding means.

10. In a building having a doorway, a door

for closing said doorway, overhead guide tracks therefor, said door having rollers intermediate its upper and lower ends for engaging said track, co-acting means between said door and the walls of said doorway including said rollers for preventing tilting movement of the door in its closed position, link connections between said door and building for allowing said door to be elevated for disengagement from said co-acting means and for allowing the door to be tilted and elevated into a horizontal position above said doorway.

In testimony whereof I have hereunto subscribed my name at Detroit, Wayne County, Michigan.

OWEN L. DAUTRICK.