

March 22, 1927.

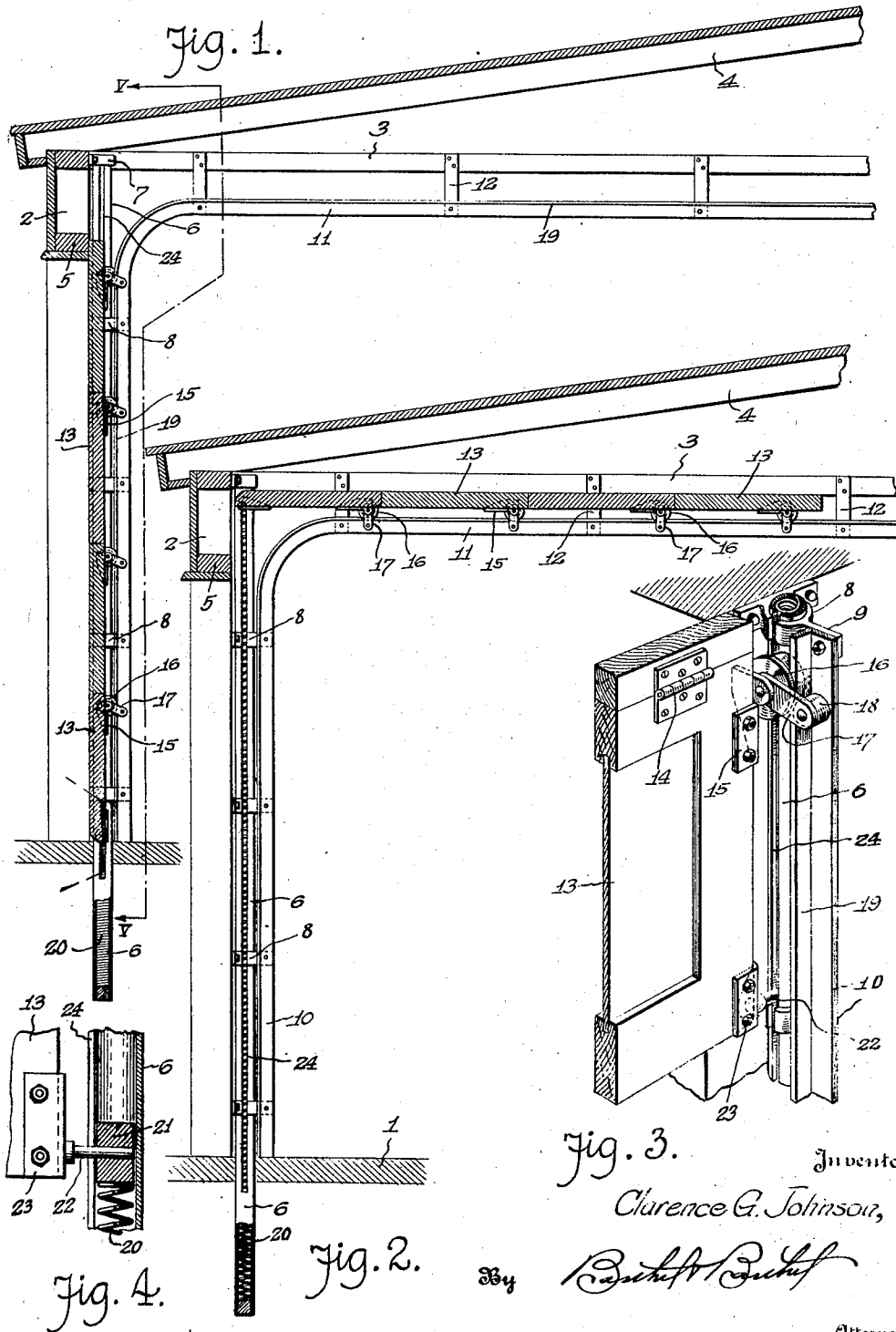
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GARAGE DOOR AND OPERATING MECHANISM THEREFOR

Filed Dec. 8, 1923

3 Sheets-Sheet 1



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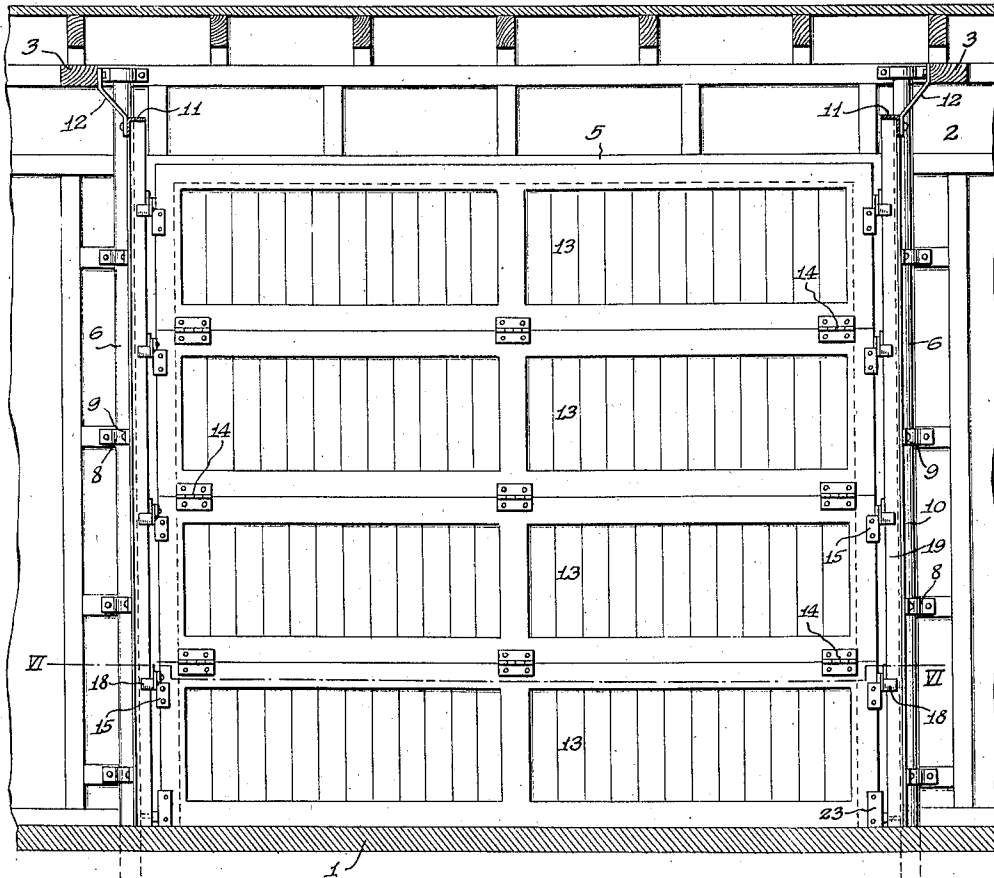


Fig. 5.

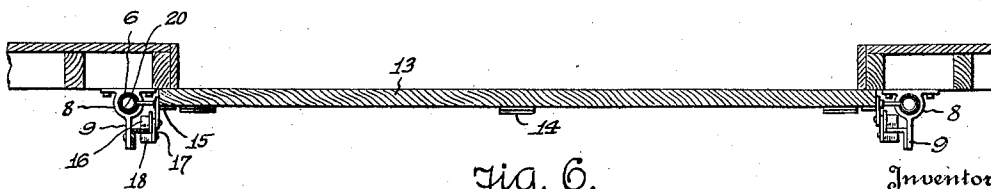


Fig. 6.

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Fig. 7.

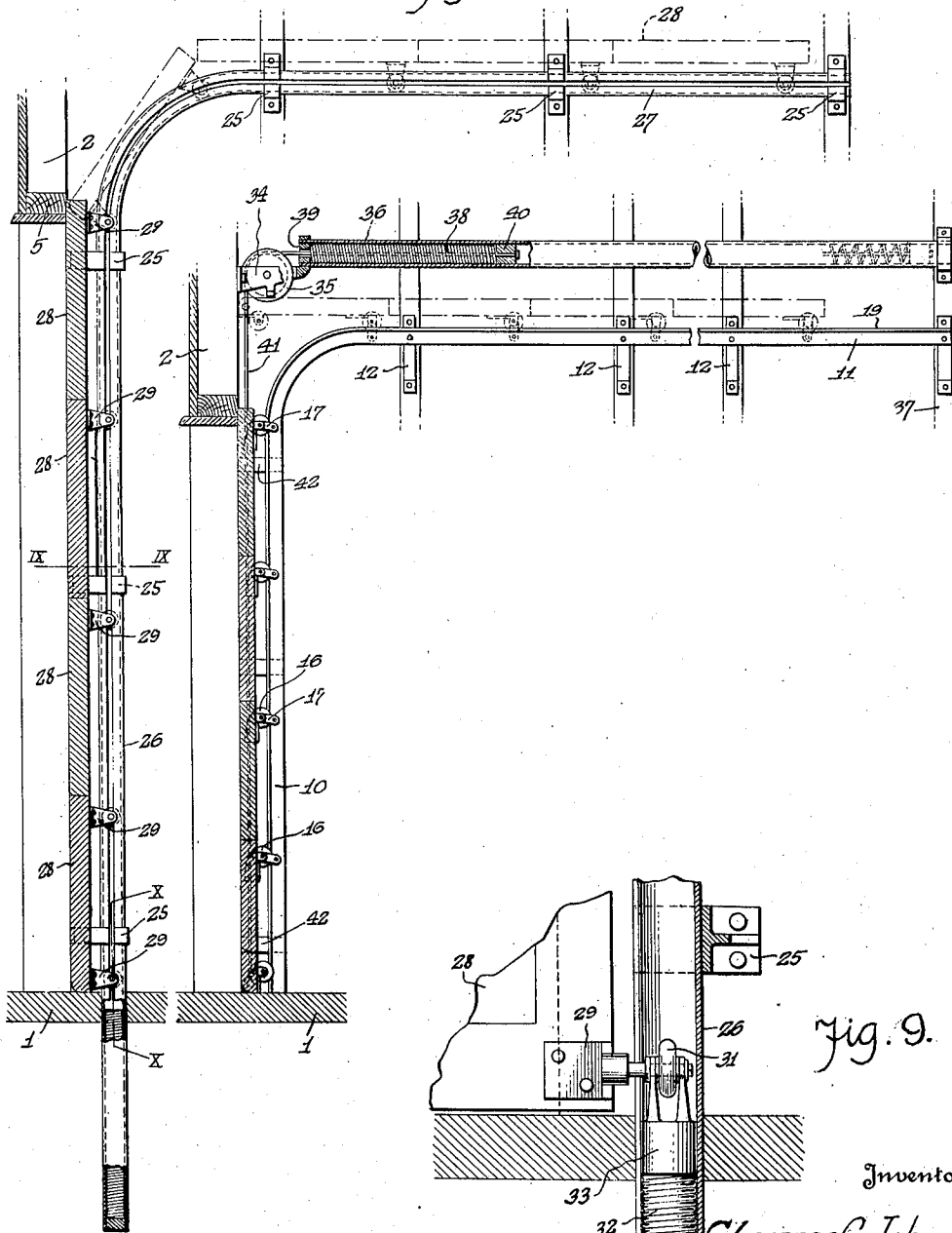


Fig. 9.

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Patented Mar. 22, 1927.

1,621,669

UNITED STATES PATENT OFFICE.

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GARAGE DOOR AND OPERATING MECHANISM THEREFOR.

Application filed December 8, 1923. Serial No. 679,345.

In the pending application filed Aug. 1, 1921, Ser. No. 488,773 and another application filed Oct. 16, 1922, Ser. No. 594,725 there are disclosed garage or overhead doors of the sectional, slatted or flexible type adapted to be shifted to an overhead horizontal position in a garage above an automobile or other vehicle placed therein; the second application contains certain improvements in connection with the construction disclosed in the first application, and this application is directed to further improvements, particularly in the door operating mechanism.

One of the objects of this invention is to furnish a door frame, jamb or door rails with guides or housings for a counterbalance used in connection with a slatted or flexible door adapted to completely close the door frame and be shiftable from such closed position to an overhead horizontal open position. A guide or housing is placed at each side of the doorway within a garage and a counterbalance is placed in each guide or housing so that said counterbalance cannot become accidentally displaced and will be more or less protected from the elements.

Another object of my invention is to utilize counter balance housings as guides for the various slats or sections of a door shiftable relative to a doorway and rails adjacent said doorway, said rails affording a support for the door when in an open horizontal position contiguous to the roof of a garage.

The above and other objects are attained by the constructions to be hereinafter described and then claimed, and reference will now be had to the drawings wherein—

Figure 1 is a vertical sectional view of a portion of the garage showing the door thereof in a closed position;

Fig. 2 is a similar view showing the door in an overhead horizontal open position;

Fig. 3 is a perspective view of a portion of the door, rail and counterbalance housing;

Fig. 4 is a vertical sectional view of a portion of the housing for the counterbalance;

Fig. 5 is a longitudinal view of the garage taken on the line V—V of Fig. 1;

Fig. 6 is a horizontal sectional view taken on the line VI—VI of Fig. 5;

Fig. 7 is a vertical sectional view of a portion of the garage illustrating a modification of my invention;

Fig. 8 is an enlarged horizontal sectional view taken on the line IX—IX of Fig. 7, and

Fig. 9 is an enlarged vertical sectional view taken on the line X—X of Fig. 7.

Reference will first be had to Figs. 1 to 6 inclusive showing one form of my invention and in these views the reference numeral 1 denotes a floor, ground or foundation on which the garage is supported and includes, among other things, a front wall 2, joists or rafters 3, and a roof 4. The front wall 2 is provided with a wide doorway or door frame 5 so that an automobile or other vehicle can easily enter the garage.

Mounted in the floor 1 at the inner side edges of the doorway 5 are tubular slotted housings or guides 6 which may have the lower ends thereof extend some distance below the floor 1, while the upper ends of said housings are held by straps or brackets 7 carried by the front wall 2. In addition to the straps or brackets 7 there may be a plurality of slotted brackets 8 provided with rail supporting arms 9 for angle rails 10 disposed parallel to the slotted housings 6. The angle rails 10 extend from the floor 1 upwardly in proximity to the upper ends of the housings 6 and rearwardly from the front wall 2 to provide overhead horizontal rails 11. These horizontal rails are in a plane above the plane of the doorway lintel and said rails are supported by hangers 12 from the joists 3.

The door for the garage is composed of a plurality of slats or panels 13 hingedly connected together, as at 14, with the hinges at the inner side of the door so that the panels of the door may be swung inwardly or rearwardly during its movement from a vertical closed position, as shown in Fig. 1, to a horizontal open position as shown in Fig. 2. The upper end edges of the door panels 13 are provided with angle brackets 15 supporting flanged rollers 16 and links 17 provided with rollers 18. The rollers 16 and 18 engage opposite sides of the flanges 19 of the rails 10 and 11, thus connecting the door panels to the rails so that the door may be bodily shifted on said rails without any danger of the door becoming accidentally displaced. When the door is in a horizontal open position, as shown in Fig. 2, the brackets 15 sustain the weight of the door relative to the rails 11 and the lower or bottom panel of the door is adapted to have its bottom edge supported by counterbalancing devices in the tubular housings 6. The counterbalancing devices are in the form of

coiled springs 20 supporting guide blocks 21 into which extend pins 22, carried by brackets 23 attached to the lower end edges of the lowermost panel 13 of the door, as best shown in Figs. 3 and 4. The pins 22 extend through the longitudinal slots 24 of the housings 6 and the expansive force of the springs within said housings is adapted to facilitate manual elevation of the entire door. When the door is closed as shown in Fig. 1 the springs 20 are under their greatest compression and the weight of the door is sufficient to hold the springs so compressed. As the door is raised the springs gradually expand and as the uppermost panels travel on to the rails 11 and thus reduce the weight of the door the work to be performed by the springs is somewhat reduced, and irrespective of any position of the door it is nicely counterbalanced and in this connection differs from counterbalancing devices composed of weights. With the springs within the tubular housing 6 there is no danger of said springs becoming accidentally displaced and the springs are more or less protected from the elements.

The rails 10 are attached to the bracket arms 9 and together with the housings 6 constitute inverted L-shaped side units that may be easily and quickly installed at the sides of a garage doorway, and if the joists or rafters 3 do not form part of the building, such supporting members can be easily and quickly installed.

Locks, handles, and other accessories may form part of the door so that the same may be conveniently manipulated, particularly from an open overhead position to a closed vertical position.

Reference will now be had to Figs. 7, 8 and 9, showing an installation which includes slotted wall or ceiling brackets 25 for tubular slotted housings 26 having overhead horizontal ends 27. Door panels 28 are provided with brackets 29 having pins 30 extending through the slots of the housings

26 and provided with rollers 31 to engage the inner walls of the housings, so that the housings may guide the door panels when being shifted. In the lower ends of the housings 26 are springs 32 engaging blocks or abutments 33 supported from the pins 30 of the lowermost brackets 29, and all of this construction obviates the necessity of using angle rails as tracks for the door.

While in the drawings there are illustrated the preferred embodiments of my invention, it is to be understood that the structural elements are susceptible to such modification and changes as fall within the scope of the appended claims.

What I claim is:—

1. In a garage having a doorway, a slatted shiftable door for the doorway, tubular slotted housings, means carried by the slatted door engaging said housings and adapted to guide said door when shifted, and an expansible and retractible spring in each housing counterbalancing said door in all of its positions.

2. In a garage having a doorway, a slatted vertically shiftable door for the doorway, tubular slotted housings, at the sides of said doorway extending above and below the garage doorway; abutments in said housings connected to one of the slats of said door, and an expansible and retractible spring in each housing counterbalancing said door and between said abutments and the lower ends of said housings.

3. In a garage having a doorway, a slatted shiftable door for said doorway, housings at the sides of said door and extending away from the doorway, means movable in said housings adapted to guide said door when shifted, and expansible and retractible springs in said housings cooperating with the first mentioned means in counterbalancing the door in all of its positions.

In testimony whereof I affix my signature.

CLARENCE G. JOHNSON.