

Sept. 13, 1932.

J. W. REED

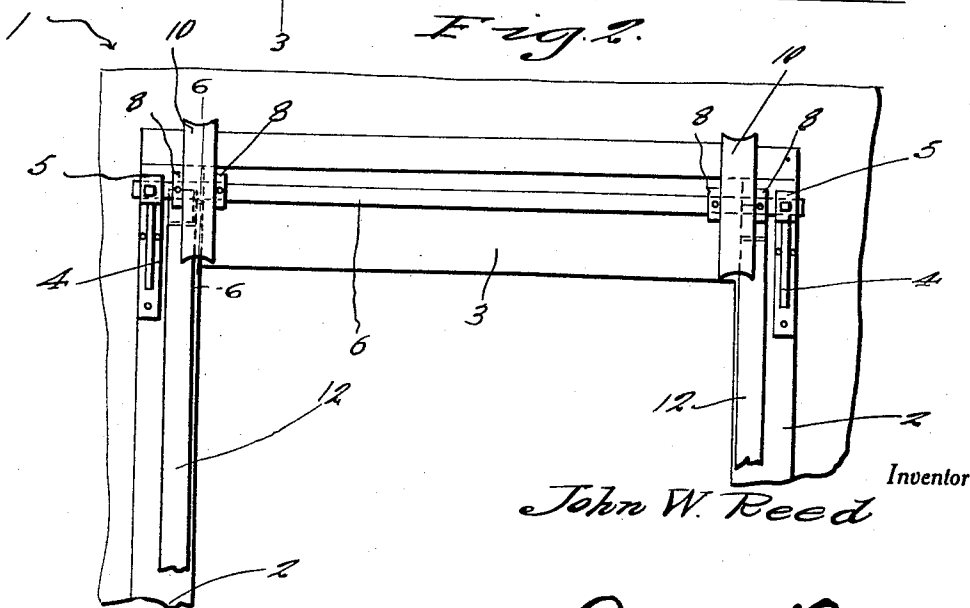
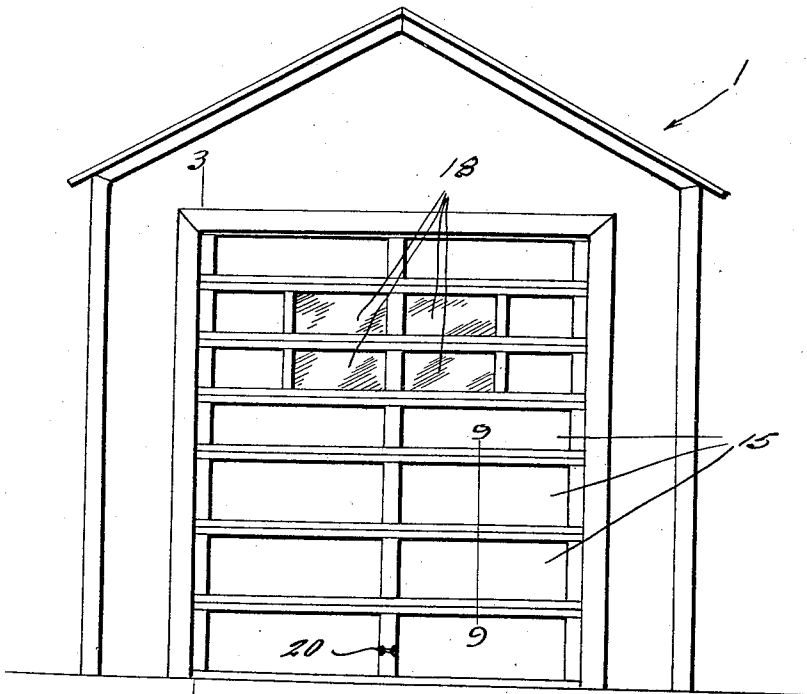
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DOOR

Filed May 21, 1930

3 Sheets-Sheet 1

Fig. 1.



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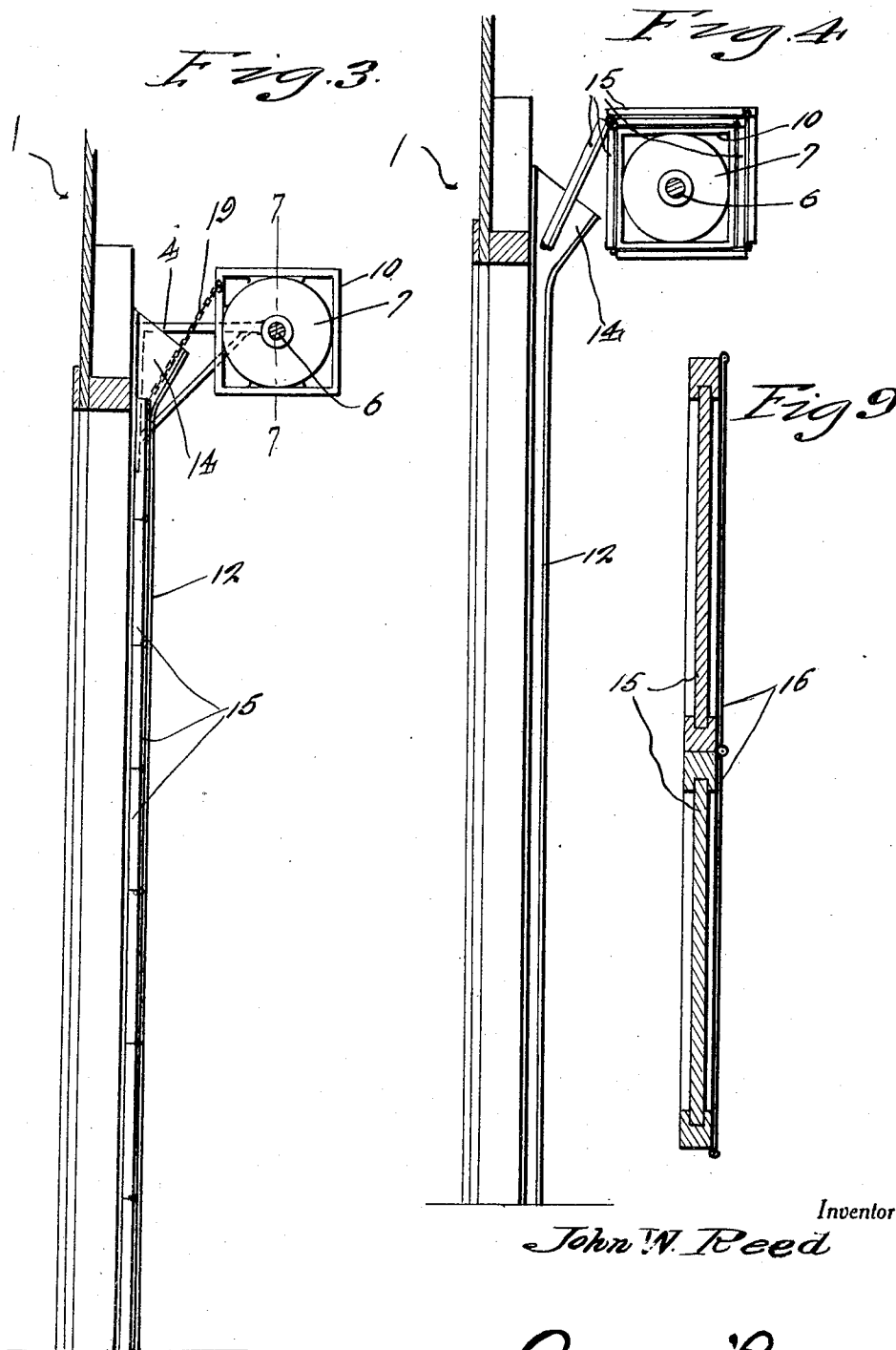
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1,876,750

DOOR

Filed May 21, 1930

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Fig. 5.

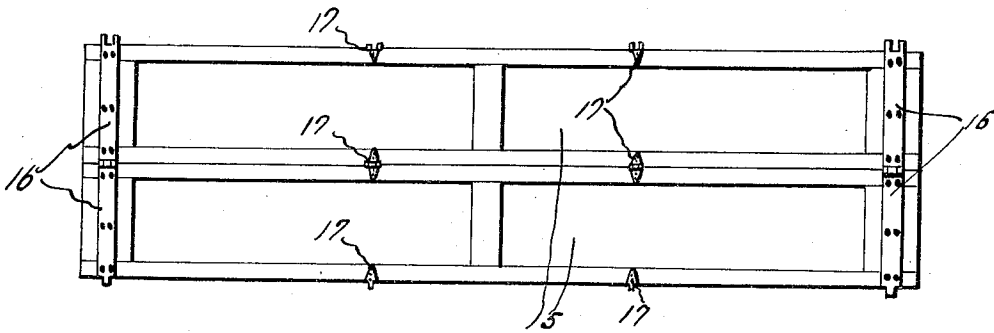


Fig. 6.

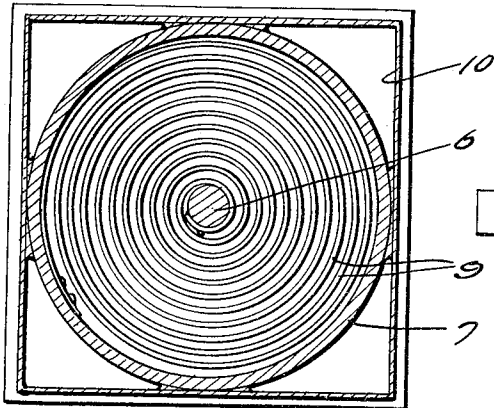


Fig. 7.

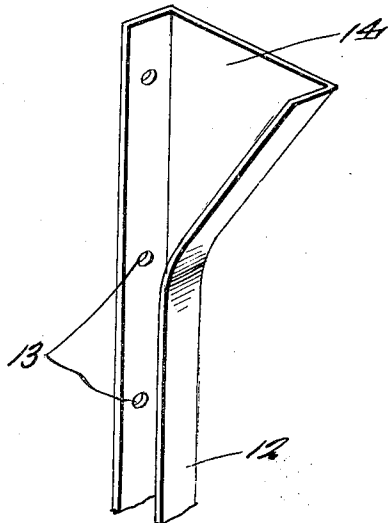
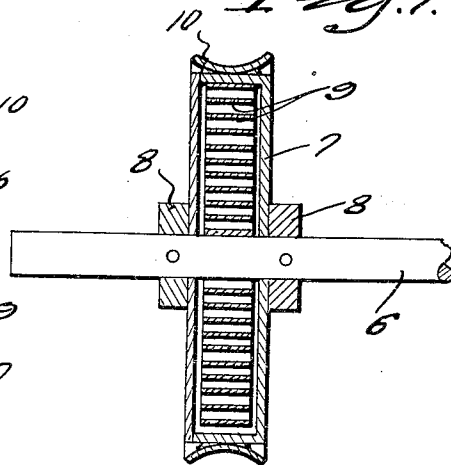


Fig. 8.

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UNITED STATES PATENT OFFICE

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DOOR

Application filed May 21, 1930. Serial No. 454,321.

This invention relates to new and useful improvements in doors of the type usually employed in the construction of garages or similar buildings but it is to be understood that a door in accordance with this invention may be utilized for any purpose for which the same is found adapted and desirable.

A primary object of this invention is to provide, in a manner as hereinafter set forth, a door of the aforementioned character embodying a plurality of horizontally disposed hingedly connected sections which are operatively connected for winding off a spring controlled supporting structure disposed above the door opening in the building.

Other objects of the invention are to provide a door of the character described which will be comparatively simple in construction, strong, durable, efficient in its use and which may be manufactured and installed at low cost.

All of the foregoing and still further objects and advantages of the invention may become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in front elevation of a door constructed in accordance with this invention in closed position on a garage.

Figure 2 is a fragmentary view in front elevation showing the supporting means disposed within the garage and above the door opening upon which the door is supported and windable.

Figure 3 is a vertical sectional view taken substantially on the line 3—3 of Figure 1 with the door in closed position.

Figure 4 is a vertical sectional view showing the door in open position and wound on the supporting structure.

Figure 5 is an enlarged detail view showing a pair of the sections and the hinge means for connecting said sections together.

Figure 6 is a detail sectional view taken substantially on the line 6—6 of Figure 2.

Figure 7 is a sectional view taken at right

angles to Figure 6 and on the line 7—7 of Figure 3.

Figure 8 is a fragmentary detail view in perspective showing the upper end portion of one of the guides.

Figure 9 is a sectional view taken through a pair of the hingedly connected door sections substantially on the line 9—9 of Figure 1.

Referring to the drawings in detail, it will be seen that the reference numeral 1 designates generally a garage or other building provided with a door opening of appropriate size which is surrounded by a frame of conventional construction including the vertical side portions 2 and the upper cross members 3.

Rigidly secured on the interior of the garage adjacent the opposite side of the door opening and at the upper end thereof is a pair of brackets 4 which project inwardly and have formed integrally on their free ends the horizontally aligned eyes 5 through which extends the opposite end portion of a fixed shaft 6.

Hollow pulleys 7 are rotatably mounted on the opposite end portion of the fixed shaft 6 adjacent the brackets 4 and said pulleys may be retained against longitudinal sliding movement on said shaft 6 by any suitable means, such as the stop collars 8 which are fixed on said shaft on opposite sides of each of said pulleys 7. A spring 9 is disposed under tension in each of the pulleys 7 and has one end anchored to the shaft 6 and its opposite end anchored to the inner peripheral wall of its respective pulley 7 in a manner to yieldingly urge said pulley in one direction. A rectangular frame 10 the members of which are of arcuate cross section is rigidly mounted on the periphery of each of the pulleys 7, as illustrated in Figures 6 and 7 of the drawings. The frame 10 may be secured to the pulleys 7 in any suitable manner.

Rigidly secured on opposite sides of the door on the interior thereof and extending from the bottom to the top of the door opening is a pair of opposed channelled guides 12 having the spaced openings 13 in one side thereof for the passage of securing elements for mounting the same in position. As illustrated to advantage in Figure 8 of the draw-

ings, the upper end portion of each of the guide members 12 has one side flared inwardly in a manner to provide a mouth portion 14.

The door per se comprises a plurality of elongated, horizontally disposed panel sections 15 the opposite end portions of which have rigidly mounted thereon the strap hinges 16 which extend from the lower to the upper edges of each panel and constitute means for hingedly connecting the same together. Hinges 17 are also mounted in spaced relation on intermediate portions of each of the sections 15 for securing the same together intermediate the opposite ends thereof. As illustrated to advantage in Figure 1 of the drawings, certain of the sections 15 have mounted therein windows 18. The opposite end portions of each of the sections 15 which project beyond the strap hinges 16 are adapted for vertical sliding movement in the channeled guides 12.

The uppermost of the sections 15 has its opposite end portion connected to the adjacent rectangular winding frame 10 through the medium of suitable flexible chains or other connecting devices 19 which are adapted to lay in the concaved upper base of said winding frame. As illustrated to advantage in Figures 3 and 4 of the drawings, the width of the sections 15 constituting the door progressively increases from the uppermost of said sections to the lowermost thereof. This is for the purpose of permitting the sections to be properly wound on the winding frames or reels 10 as will be apparent.

In use, the lowermost section 15 of the door is disposed in the mouth portion 14 of the side members 12 substantially in the position illustrated in Figure 4 when the door is in open position. When it is desired to close the door, the lowermost section is pulled downwardly in a manner to unwind the sections from the polygonal winding frames 10, said sections trailing into the guide members 12. This operation winds the springs more tightly in the pulleys 7 and thus said springs will materially assist in elevating the sections of the door when said door is again opened. In fact, the springs 9 are so regulated that it is only necessary to exert a slight lift manually on the door in order to raise the same to open position. To facilitate the opening of the door, a handle 20 may be secured on the lowermost section 15.

It is believed that the many advantages of a door constructed in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction may be had which will fall within the scope of the invention as claimed.

What is claimed is:—

A door of the class described comprising a

plurality of panel door sections hingedly connected together, a fixed shaft, a number of hollow pulleys rotatably mounted in spaced relation to each other on the shaft, a coiled spring disposed in said pulleys each having one end connected to a pulley and the other end connected to the shaft, a polygonal winding frame fixed on the periphery of each pulley, each frame being composed of a number of members having concaved outer faces to form a groove in the outer face or edge of the frame and flexible members connected with the upper section of the door and with the winding frame, whereby the flexible members will be wound in the groove at the beginning of the lifting operation and then the door section will be wound around the frames.

In testimony whereof I affix my signature.

JOHN W. REED.