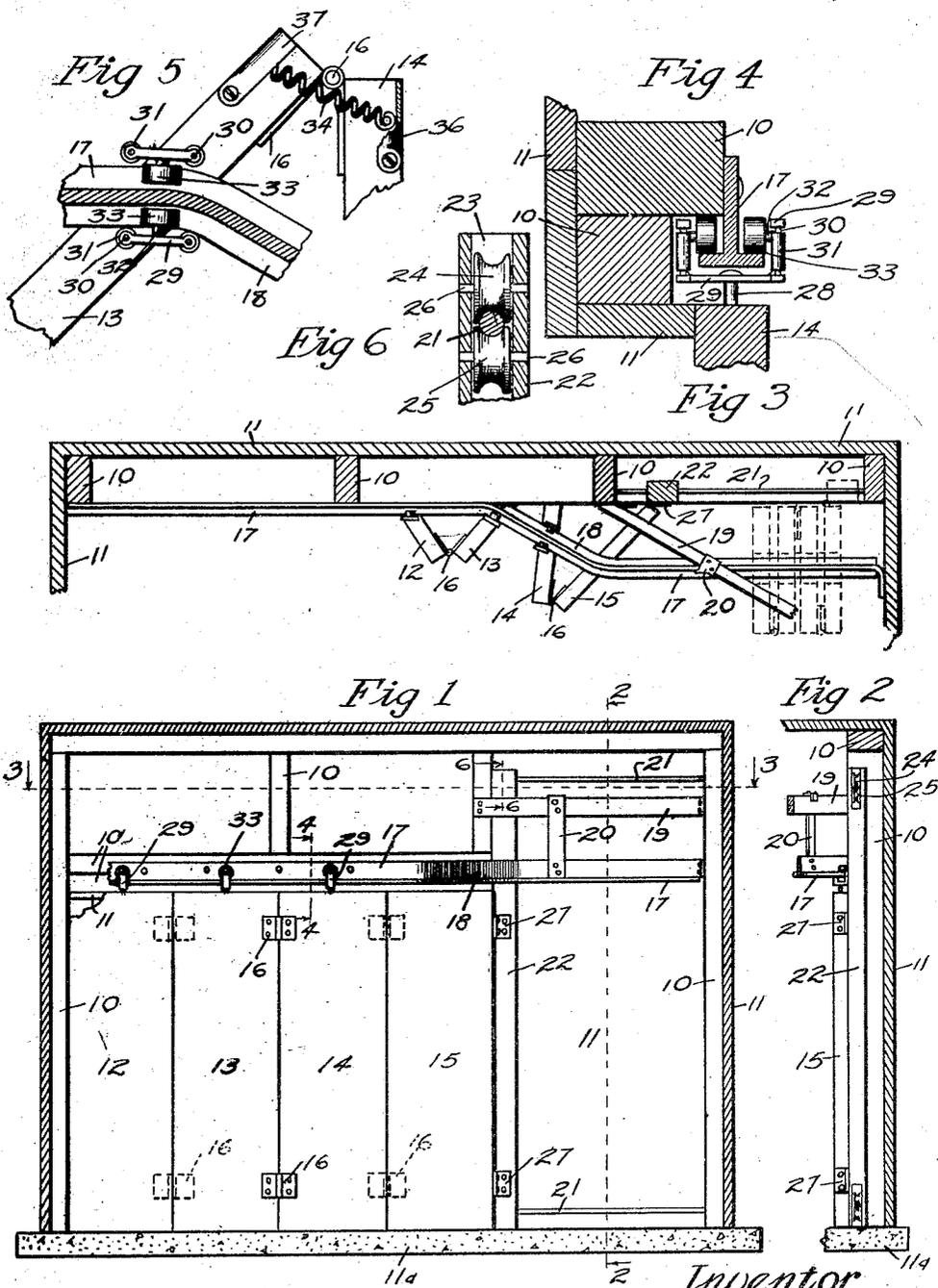


1,381,744.

Patented June 14, 1921.



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# UNITED STATES PATENT OFFICE.

LEO A. RIGGS, OF AUDUBON, IOWA.

## COLLAPSIBLE DOOR.

1,381,744.

Specification of Letters Patent. Patented June 14, 1921.

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*To all whom it may concern:*

Be it known that I, LEO A. RIGGS, a citizen of the United States, and a resident of Audubon, in the county of Audubon and State of Iowa, have invented a certain new and useful Collapsible Door, of which the following is a specification.

The object of my invention is to provide a collapsible door of simple, durable and inexpensive construction.

More particularly it is my object to provide a collapsible door capable of being moved to position so that the entire door opening will be clear and unobstructed by any parts of the door.

Still a further object is to provide in such a device a collapsible door made up of a plurality of door sections hinged together and supported on a track device. The moving of the door sections on the track device causes them to rotate substantially a quarter turn and have their sides rest against each other when in inoperative position.

Still a further object is to provide yielding means for either holding the door sections in their inoperative positions or in operative position.

Still a further object is to provide a support to which is fixed the door sections, the support being designed to slide to position, where the entire door opening will be free and clear.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a front view of my collapsible door taken from the inside of the building to which it is attached.

Fig. 2 shows a vertical, central, sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 shows a horizontal, sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 shows a detail, sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 shows a detail view of the track and means for holding the door sections together, and:

Fig. 6 shows a detail view of a portion of the supporting bar.

In the accompanying drawings I have used the reference numeral 10 to indicate the or-

inary frame construction of a garage, barn or other building, which is provided with the ordinary weather boards 11, and the floor 11<sup>a</sup>.

My door comprises a plurality of door sections 12, 13, 14 and 15. The door sections are hinged together. The door sections 12 and 13 are hinged on the outer side of the sections, as shown in dotted-lines in Fig. 1 of the drawings. The reference numeral 16 indicates the hinges.

The door sections 13 and 14 are hinged on their inner surfaces, while the sections 14 and 15 are hinged together on their outer surfaces.

The purpose of hinging the sections in this particular manner will be hereinafter more fully described.

Supported on the frame work 10 is the track device 17, which is provided with a curved portion 18.

A portion of the track 17 is slightly spaced away from the frame work 10, as is shown in Fig. 3 of the drawings, and in order to support the track device a bracket 19 is fixed to the frame work 10 and is provided with a downward extension 20, which is fixed to the track 17 for supporting it.

Mounted within the frame work 10 are the two spaced rods 21, upon which is slidably mounted the supporting bar 22. The supporting bar 22 is provided near its upper and lower ends with recesses 23 in which are mounted the grooved wheels 24 and 25 upon the shafts 26.

Received between the grooved wheels 24 and 25 are the rods 21. The door section 15, which has one edge adjacent to the supporting bar 22, is hinged thereto by means of the hinges 27.

The door sections 12, 13 and 14 are supported from the track device 17.

The track device 17 is substantially the shape of an inverted T. The mechanism used for supporting the door sections on the track device will now be described.

Fixed substantially in the center of the upper edge of the door sections is a pin 28, on to which is pivotally fixed the member 29. The member 29 is provided with vertical shafts 30, on which are the rollers 31. Horizontal shafts 32 are fixed on the member 29 and are provided with the rollers 33.

The rollers 33 rest upon the track device while the rollers 31 are disposed on either side of the track device.

The supporting bar 22 is slidably mounted on the rods 21 so that when the door sections are desired to be moved for opening the door, the sliding of the door sections on the track device will cause them to travel on to the curved portion 18 of the track device, thus causing the door to collapse and move to the position as shown in solid lines on Fig. 3 of the drawings.

If either of the sections are brought with their side surfaces substantially together, the supporting bar 22 will be caused to move or slide longitudinally on the rods 21. The devices for supporting the door sections on to the track 17 will travel on to the portion of the track which is spaced away from the frame work 10, and cause the entire number of door sections to be moved to position shown in dotted-lines in Fig. 3 of the drawings.

When in this position it will be seen that the door way is entirely free and unobstructed. The entire door being moved behind the front wall of the building.

The arrangement of the hinges on opposite sides of the door sections will permit the collapsing of the door, the curved portion 18 of the track 17 causing the doors to swing from the position in which they are when the door is operative, or in closed position to the position the door sections are in when the door is in inoperative position.

In order to hold the doors either in operative or inoperative position, a spring 34 is provided which has its ends fixed to the door sections near their adjacent edges.

Guards 36 and 37 are provided in which the spring will normally rest when the door sections are in their operative position. Yet when the door is collapsed the springs 34 will tend to yieldingly hold the sections against each other, and when the door sections are in operative position the springs 34 will tend to hold the abutting edges of the sections against each other.

It will be seen that with my device access of free passageway is had, yet the door sections will rest against the frame work of the building, and form an absolute weather-joint.

In Fig. 4 it will be seen that the door sections rest against the weather boards 11, thus forming a weather-joint. The sliding movement of the supporting member 22 being capable of longitudinal movement makes it possible to collapse the doors and have them behind the front wall of the building.

Some changes may be made in the construction and arrangement of the parts of my improved device without departing from the essential features and purposes of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which

may be reasonably included within their scope.

I claim as my invention:

1. A collapsible door comprising a plurality of door sections hinged together, a support adjacent to one edge of said door sections, said support being designed to slide longitudinally, the door section adjacent to said support being hinged thereto, a track device for supporting the remainder of the door sections, the parts being so arranged that movement of the door sections will cause them and the support to slide longitudinally and then cause the door sections to collapse one against the other so that the entire doorway may be clear, and means for yieldingly holding said door sections in their collapsible position.

2. A collapsible door comprising a plurality of door sections hinged together, a support adjacent to one edge of said door sections, said support being designed to slide longitudinally, the door section adjacent to said support being hinged thereto, a track device for supporting the remainder of the door sections, said track device having a curved portion formed therein for causing the door sections to turn substantially a quarter revolution when they are slid on said track device, and means for yieldingly holding said door sections against undesired movement.

3. A collapsible door comprising a plurality of door sections hinged together on their abutting edges, a pair of spaced guide rods and a support slidably mounted on said guide rods, a track device for supporting said door sections, one of said sections being hinged to said support, the parts being so arranged that the door sections may collapse one against the other and means for yieldingly holding the door sections against each other either when in operative or inoperative positions.

4. In combination with a door frame, a plurality of door sections hinged together on their abutting edges, a track device fixed to said door frame, a support adjacent to the door frame and capable of sliding movement therefrom when the door is opened, one of said door sections being hinged thereto, the remainder being supported from said track device, said track device being bent outward intermediate of its ends so that sliding movement of the door sections will cause each of them to revolve a quarter revolution and move to position where the door sections will have their sides rest against each other instead of their edges, a spring having its ends fixed to the adjacent ends of the door sections for holding the sections in either of their positions and guard members for holding said spring.

5. In combination with a door frame a

plurality of door sections hinged together on their abutting edges, a track device fixed to said door frame, a support adjacent to the door frame and capable of sliding movement therefrom when the door is opened, one of said door sections being hinged thereto, the remainder being supported from said track device, said track device being bent outward intermediate of its ends so that sliding movement of the door sections will cause

each of them to revolve a quarter revolution and move to position where the door sections will have their sides rest against each other instead of their edges, and a spring having its ends fixed to different door sections adapted to yieldingly hold the door sections in either of their positions.

Des Moines, Iowa, July 14, 1920.

LEO A. RIGGS.