B. STEVENS.

DOOR.

APPLICATION FILED JULY 23, 1912.

1,068,540. Patented July 29, 1913.

Fig. 1.

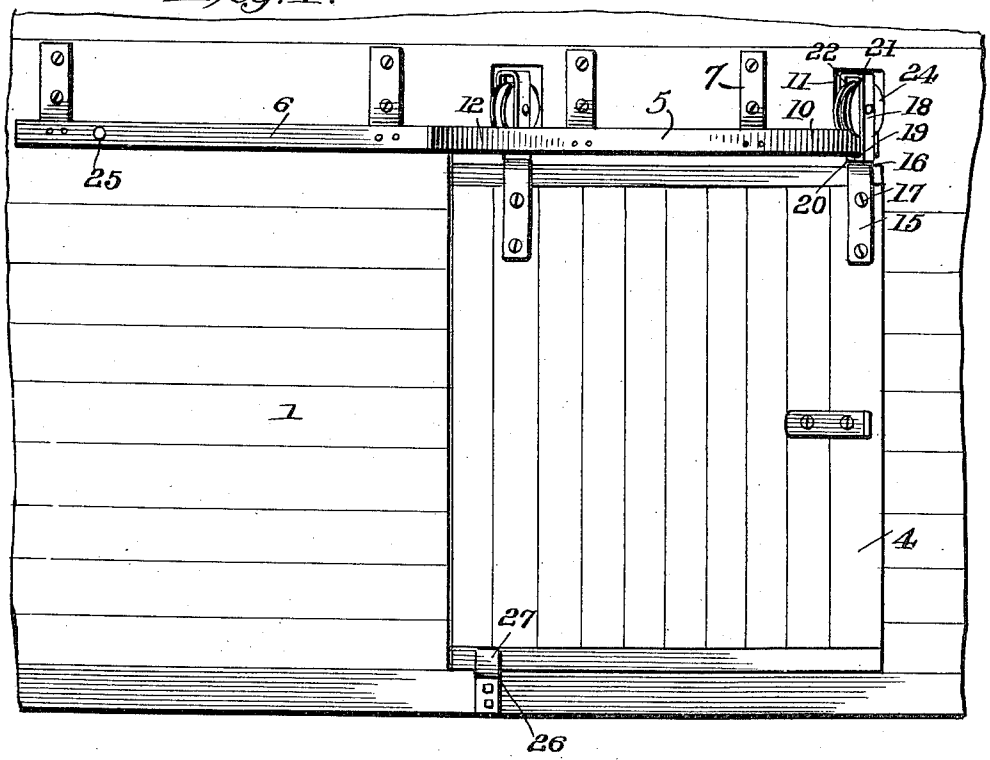


Fig. 2.

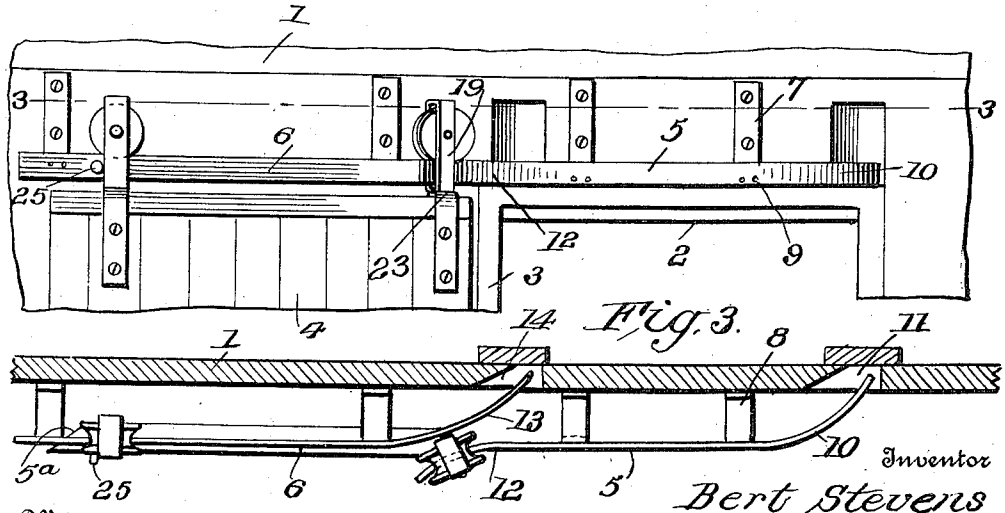


Fig. 3.

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DOOR.

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To all whom it may concern:

Be it known that I, BERT STEVENS, a citizen of the United States, residing at Harrison, in the county of Clare and State of Michigan, have invented certain new and useful Improvements in Doors, of which the following is a specification.

This invention relates to sliding doors and has as its object to provide a door of this type which, when closed, will be flush with the wall of the barn or car, or other structure, the doorway of which it is designed to close. Such doors, as ordinarily constructed, are supported from two tracks, one of which is arranged to extend above the door-frame and the other to extend at one side of the door-frame and in alinement with the first mentioned track, two rollers being mounted upon the door and arranged to travel each upon one of the tracks. The tracks ordinarily have corresponding ends curved inwardly toward the door-frame and terminating at each side thereof so that the rollers may travel toward the door-frame as the door is moved into the frame. A disadvantage presented by such doors as previously constructed is that the roller which travels upon the first mentioned track must be supported at the end of a long bracket or hanger which extends from one upper corner of the door, and as a result the door is not suspended directly from the hangers in which the rollers are mounted.

The present invention therefore aims to provide, in a door of this type, an arrangement of the supporting tracks which will permit of the door being directly suspended from its hangers and which will obviate the necessity of providing a hanger projecting beyond one lateral edge of the door. As before stated, the supporting tracks of structures of this class are curved inwardly at corresponding ends toward the door-frame and the supporting hangers are ordinarily swiveled to the door so that the rollers may follow the curvature of the tracks.

The present invention has as a further aim to so arrange the tracks that the hangers for the door will be turned upon their swivels as the rollers leave the curved portions of the tracks.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a view in elevation of the door embodying the present invention. Fig. 2 is a similar view showing the door open. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

In the drawings, the wall of the structure upon which the door is arranged, is indicated by the numeral 1, and the door frame is indicated at 2, the frame at one side being beveled as at 3 for a purpose to be presently explained.

The door is indicated by the numeral 4 and at one lateral edge is beveled as at 5^a to fit against the beveled side of the door frame, it being understood that the door is to be seated when closed, within the said frame and flush with the wall 1. As above stated, the door is supported by two tracks, one of which extends above the door-frame and the other to one side of the said frame and of these tracks, the first mentioned one is indicated by the numeral 5 and the other by the numeral 6. Each of these tracks is formed from a length of bar-metal and these tracks are supported by means of brackets each of which includes an attaching portion 7 which is secured to the wall 1 and an arm 8 which projects outwardly from the wall and is secured at its end as at 9 to the straight portion of the respective track. The track 5 is curved at one end as at 10 toward the wall 1 and has its said end projecting into the recess 11 provided in the said wall at one upper corner of the door-frame. The opposite end of the track 5 is curved outwardly as at 12 as will be apparent from inspection of Fig. 3 of the drawings, and the object in view in curving this end of the track will be presently fully explained. The track 6 at its end corresponding to the curved end 10 of the track 5 is curved inwardly toward the wall 1, as indicated at 13 and has its extremity projecting into a recess 14 formed at the upper corner of the door-frame. Except for this curved portion the track is straight throughout.

By referring to Fig. 3 of the drawing,

it will be observed that the curved end 12 of the track 5 is located directly opposite the curved end 13 of the track 6, convex sides of the curved portions of the tracks being presented toward each other. It will also be observed upon inspection of this figure that the straight portions of the tracks are in alinement. As before pointed out, in previously patented structures, similar to the one herein shown and described, the track corresponding to the track 5 is straight except for its end which corresponds to the end 10 and at its opposite end terminates short of the adjacent end of the track which corresponds to the one indicated in the drawings by the numeral 6. The hangers for the door each include an attaching clip which is formed from a length of bar-metal bent to form attaching portions 15 and a connecting portion 16, the said clips straddling the upper end of the door and being secured in place by bolts or other suitable fastening devices 17. Each hanger also includes a yoke formed from a length of bar-metal, bent to form a shank 18, the lower end of which is bent at right angles as at 19 and thence upwardly at right angles to its portion 19, as at 20. The upper end of the shank 18 is bent as at 21 parallel to its portion 19 and thence downwardly as 22 in vertical alinement with its portion 20. The ends of the portions 20 and 22 are however, spaced, so as to permit the hanger to pierce the brackets which support the tracks 5 and 6. The portion 19 of the yoke is swiveled as at 23 to the connecting portion 16 of the respective clip and a grooved wheel 24 is journaled between the portions 18 and 22 of the yoke and is arranged to travel upon the upper edges of the tracks 5 and 6, as the case may be. It will be understood that when the door is in closed position, the rollers 24 will rest upon the curved portions 10 and 13 of the tracks 5 and 6, respectively and within the recesses 11 and 14 into which the extremities of these tracks project. In this position, the rollers and their hangers are protected. As the door is slid to open position, the rollers will move onto straight portions of the tracks except that the roller which is traveling upon the track 5 will rest upon the curved portion 12 of this track when the door is in full open position. As the door is slid to closed position, the rollers will travel in a reverse direction upon the tracks and as that roller which moves along the track 6 reaches the curved portion 13 of this track its hanger will strike against the curved end 12 of the track 5 and the yoke will be turned upon its swivel so as to direct the roller into the said curved portion 13.

It will now be understood that by extending the track 5 beside the curved end 13 of the track 6, the hangers of the door may be made of counterpart form and so connected with the door as to directly suspend the same from the tracks 5 and 6 and that due to the curvature of the track 5 this track at its overlapping end in no way interferes with the proper travel of the roller upon the track 6, but in fact serves, as above pointed out, to direct this roller onto the curved portion 13 of the said track 6.

In order to limit the movement of the door to open position, a stop-pin 25 is secured at one end in the track 6 and at its other end in the wall 1 there is arranged to be engaged by the yoke of the hanger which is located at the adjacent side of the door, as clearly shown in Fig. 2 of the drawing, in order to hold the door, when open, against outward swinging movement, a bracket arm 26 is secured at one lower corner of the door-frame and has at its end an upstanding portion 27 against which the lower edge of the door may abut.

Having thus described the invention what is claimed as new is:—

The combination with a door frame having a door opening and provided above the door opening at opposite sides thereof with recesses, of a door arranged to fit within the frame when in closed position, tracks for supporting the door, one of said tracks extending above the door frame and the other track extending beyond one side of the frame, corresponding ends of the tracks projecting each into one of the recesses in the door frame and resting at its said end upon the bottom wall of the recesses whereby to be supported as against downward displacement, the said track having straight portions located in alinement and the other end of one track being curved outwardly at a point opposite the inwardly curved first mentioned end of the other track, and rollers carried by the door and arranged to travel each upon one of the tracks.

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

BERT STEVENS. [L. S.]

Witnesses:
WM. MURPHY,
P. ROSE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."