Aug. 19, 1947. C. H. RIX 2,426,052

OVERHEAD GARAGE DOOR KEEPER

Filed Dec. 31, 1943 2 Sheets-Sheet 1

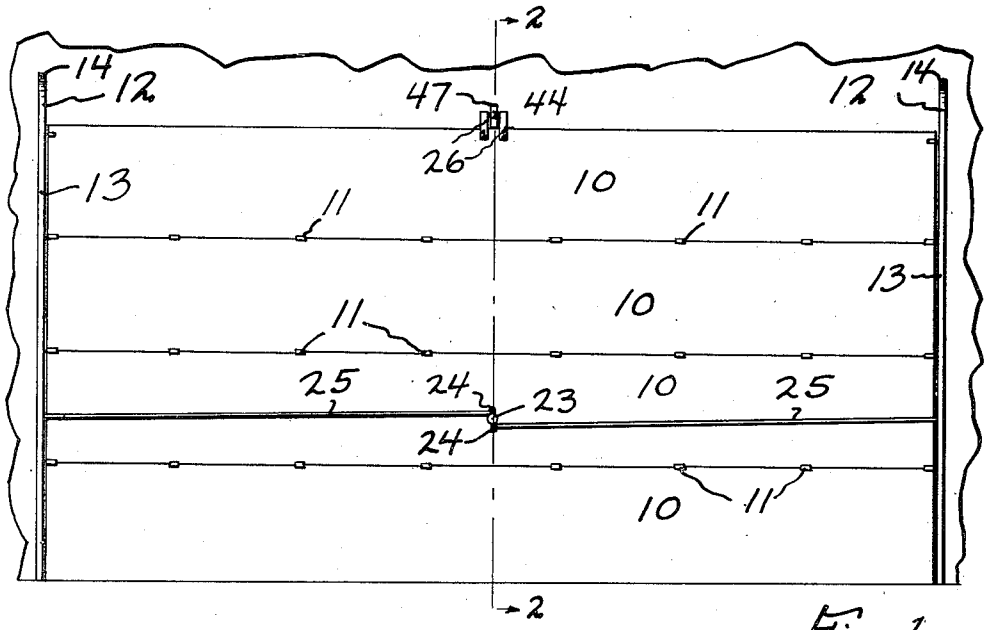


Fig. 1

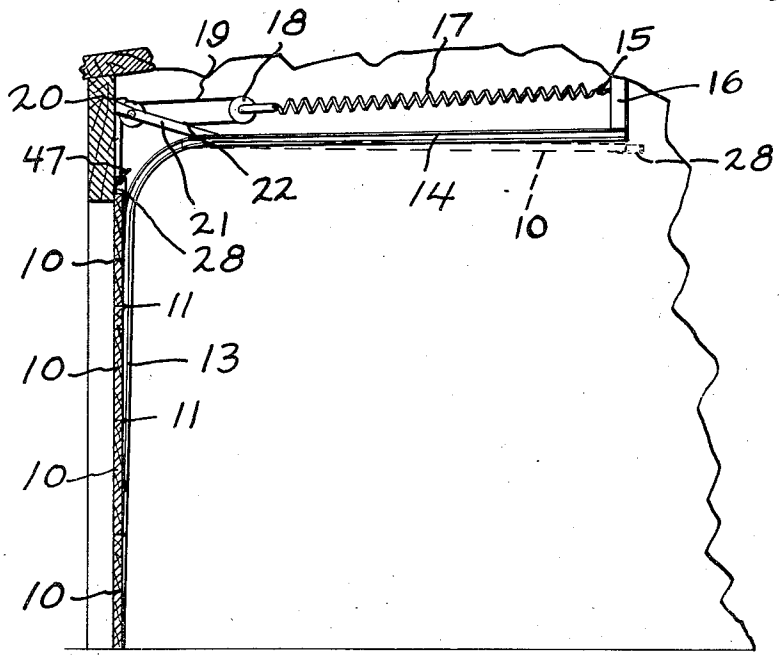


Fig. 2

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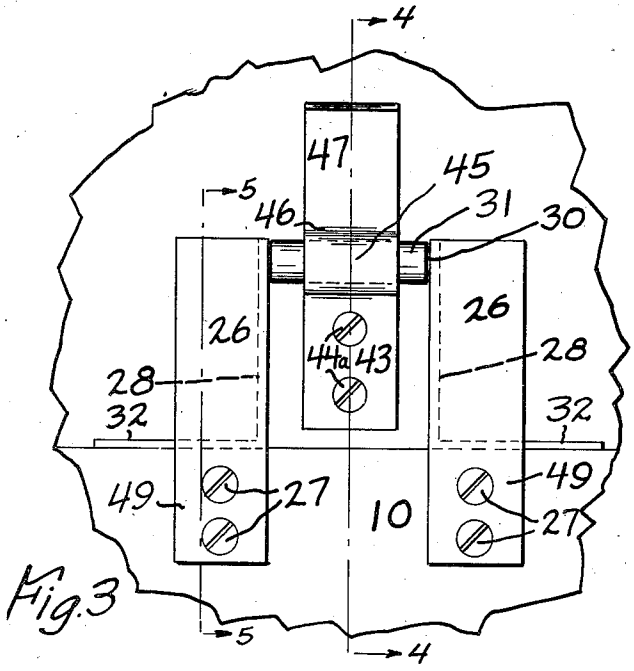


Fig. 3

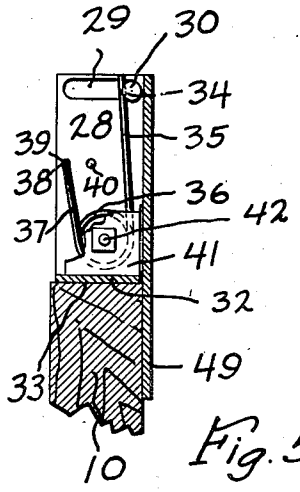


Fig. 5

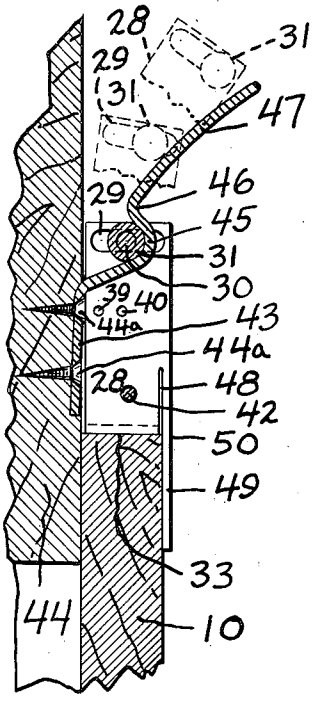


Fig. 4

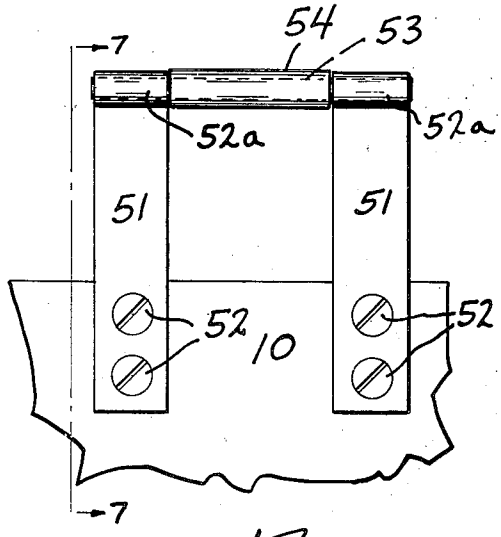


Fig. 6

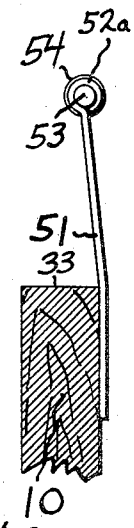


Fig. 7

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OVERHEAD GARAGE DOOR KEEPER

Charles H. Rix, Storm Lake, Iowa

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1 Claim. (Cl. 20—19)

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My invention pertains to a device usable with garage doors.

An object of my invention is to provide a retaining member or keeper positioned at the proper location which member will automatically securely maintain the central door portions against the frame when the door is closed, and in the same manner will correct any tendency of warpage or sagging in the door which normally occurs in wider doors at the central portions thereof.

A further object of my invention is to provide a retaining member which, besides correcting the aforesaid sagging tendency, will also apply a firm downward pressure on a vertically positioned door so that the spring tension is maintained at its most efficient length, this feature pertaining to the spring urged type of garage door which is forced upwardly and to a horizontal position.

A further object of my invention is to provide an automatic device which is very simple in structure, thereby not requiring replacements of its parts, and which will operate uniformly and satisfactorily without attention.

A further object of my invention is to provide a device of this character which applies a firm pressure or tension against the upper central portion of the door so that it will abut snugly against the adjacent portions of the door frame.

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

Figure 1 is an elevation of a substantially wide garage door as it appears from the inside of a garage,

Figure 2 is a sectional view of Figure 1 taken along the lines 2—2 thereof,

Figure 3 is a forward detail view of the retaining member or keeper,

Figure 4 is a sectional view of Figure 3 taken along the lines 4—4 thereof,

Figure 5 is a sectional view of Figure 3 taken along the lines 5—5 thereof,

Figure 6 is a forward elevation of a modification, and

Figure 7 is a sectional view of Figure 6 taken along the lines 7—7 thereof.

My invention contemplates principally the provision of a device, or any modification of such device which will automatically apply pressure against the upper central portion of a slidable garage door, and against the frame of the door adjacently thereto, when the door is brought down from its horizontal to its vertical position. My invention also contemplates the feature of applying pressure downwardly parallel to the door itself when in such vertical position, and maintaining such pressure.

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I have used the character 10 to designate the several sections of an overhead type of garage door which sections are joined by means of the hinges 11, it being understood, however, that the device about to be explained can be attached to a solid door without the sectional formation. The character 12 designates the two outer channels through which suitable rollers, which are attached to the sections 10, pass in order to raise the door to its horizontal position or to cause it to be guided to its vertical position. The channels 12 include vertical portions 13 and the substantially horizontal portions 14 and attached at 15 to suitable brackets 16 are the springs 17 which are attached to the pulleys 18 about which pulleys pass the cables 19 which cables 19 pass about the stationary pulleys 20, the cables 19 thence passing downwardly to the bottom of the door, it being understood that there are a pair of such springs, pulleys, etc., one group for each channel. The pulleys 20 are suitably braced by means of the member 21 and the cable 19 is attached at 22. The door consisting of the sections 10 is locked by means of the rotatable member 23 to which are attached eccentrically at 24 the locking bars 25 which engage suitable slots within the channels 12 to lock the door.

The details of the keeper member are necessarily shown smaller in Figures 1 and 2 in order to show their relationship with the door, however Figures 3 to 7 show considerably enlarged details and illustrate the function of the arrangement. The tension member comprises a pair of brackets 26 which are attached by means of the flat head machine screws 27 directly at the center of the door which brackets extend a substantial distance upwardly and which brackets include the inner flanges 28 which flanges include the horizontal slots 29, and received within the slots 29 is the horizontal shaft or pin 30 upon which is rotatably mounted the roller 31. Extending from the flanges 28 are the further horizontal flanges 32 which are firmly secured at the top 33 of the door 10. The ends of the shaft 30 include the small indentation 34 in which is received the vertical portion 35 of the coiled spring 36 which coiled spring terminates in the portion 37 which again extends into the horizontal portion at 38 which is received within either one of the open-

ings 39 or 40, which openings are located in the vertical flanges 28.

The coiled spring member 36 is held in position by means of the plates 41 which are secured by means of the nuts and bolts 42. Attached securely between the bracket members 26 is a keeper which includes the lower portion 43 which portion 43 is recessed within the central door frame portion 44 to provide a flush surface and which portion 43 is held by means of the wood screws 44*a*. The portion 43 extends into the further arcuate portion at 45, the curvature of which is adapted to snugly receive the roller 31, the portion 45 extending into the inwardly bent portion 46 which portion 46 then continues into the integral outwardly bent portion 47 which portion 47 is bent to a suitable angle and curvature to properly receive the roller 31. A pair of slots such as at 48 can be cut in the flanges 28 so that the device can be adjusted for various door thicknesses by moving the lower attaching portion which is indicated by the character 49 outwardly and bending at 50.

The device operates in the following manner. It will be noted that the bracket members 26 which support the roller 31 etc. are mounted on the door itself, while the keeper member 47 etc. is attached to the frame. Figure 2 shows the door in its horizontal position, as indicated by the dotted lines and in such a position the tendency is for the door to sag in the central portions thereof, and this sagging tendency is more noticeable in correspondingly wider doors, thus requiring substantially heavier doors and bracing to correct any tendency for such sagging. However, regardless of the strength of the door, there is a pronounced tendency for sagging which if not corrected will cause a certain amount of curvature of the door and warpage, which will cause mis-alignment with the balance of the structure and faulty operation, and will also cause the objectionable feature of an open portion at the top of the door when the door is closed.

However, as will be explained, it will be noted that a relatively light door can be employed with the retaining members correcting any sagging while the door is in its vertical position. As the door is pulled over toward its vertical position the rollers will travel along the channel portions 14 and then the channel portions 13 and toward the termination of its travel the members 28 and the roller 31 will occupy the position shown substantially by the dotted lines in Figure 4 with the roller 31 being positioned between the member 47 and the frame. As the door reaches its true vertical position the roller 31 will start to contact the member 47 whereby spring tension will be exerted against the shaft 30 due to the springs 36, and the roller 31 will then travel down to the position shown by the solid lines in Figure 4 where it will snap into the arcuate portion 45 of the keeper. The tension thus applied against the keeper is transmitted to the upper portion of the door 10 and against the portion 44 of the frame thereby providing a tight engagement at the central portion of the door, and at the same time since the roller 31 is locked against upward movement by means of the portion 45, the pressure is thus maintained downwardly against the door so that it will be kept in its lowest position. This latter feature is important in that it maintains the tension in the springs 17 so that when the door is unlocked the tension will be still maintained so that the door can be readily lifted toward its horizontal position. Otherwise, if the door is unlocked and it starts to travel upwardly a slight distance, the effort to raise the door must be considerably increased since the maximum spring tension will not be applied. In the present instance, however, all that is necessary is a slight pull upwardly so that the roller 31 will be forced out of engagement with the arcuate portion 45 and past the portion 46.

It will be thus noted that the device provides that feature of maintaining a tight closure in the central portions of the door with respect to the frame and provides the feature of correcting sagging etc. as above described.

The arrangement can be made of any suitable material providing a resilient effect is obtained and could be provided in modified forms, it being understood that the principle, however is the same. Figure 6 illustrates a further modification wherein the brackets 26 are replaced by means of a pair of leaf spring members 51 which are attached by means of the screws 52 to the door top which spring members 51 include the curled portions 52*a* which receive a pin 53 upon which is mounted the central roller 54. In this type of structure the resilient effect is obtained through the members 51, the keeper 47 etc. being the same. The openings 39 and 40 are provided so that the tension of the spring 35 can be adjusted, wherein placing of the portions 38 in the opening 40 will increase the tension of the coil spring.

It will now be seen that I have provided the various advantages stated in the objects of my invention with further advantages being readily apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

In combination with an overhead type garage door and a garage door frame, a roller attached at the upper central portion of said garage door, a keeper attached to said frame, said keeper including an indented portion for receiving said roller whereby tension against said keeper will cause snug abutment of the upper central portion of the door against the adjacent frame portion, upstanding brackets attached to the door at the upper central portion thereof, said roller being positioned between said brackets, a shaft upon which said roller is mounted, said upstanding brackets having slots receiving the ends of said shaft, springs bearing against the shaft ends, said keeper member including an angular portion extending angularly from said frame adapted to receive and guide said roller thereon into said indented portion when the door is closed.

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