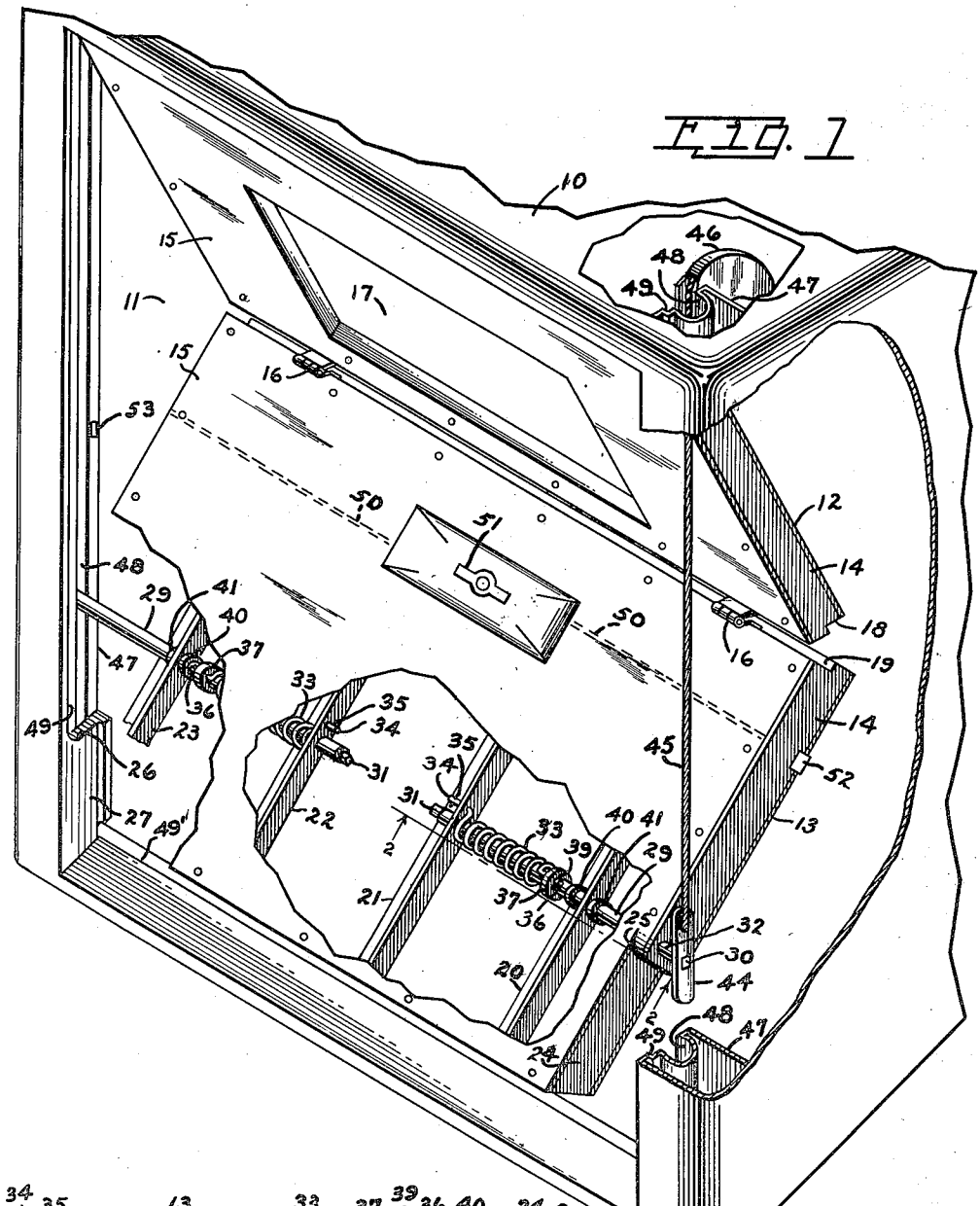
April 8, 1952 C. F. HAGERUP 2,592,027

DOOR FOR TRUCK BODIES

Filed July 13, 1950 2 SHEETS—SHEET 1

FIG. 1



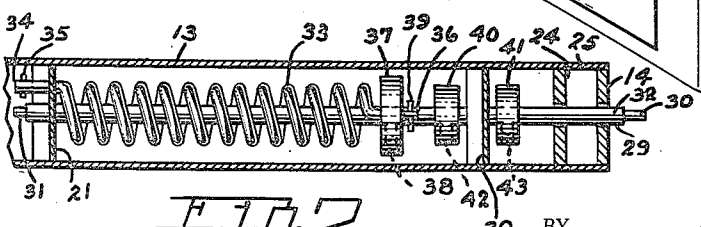


FIG. 2

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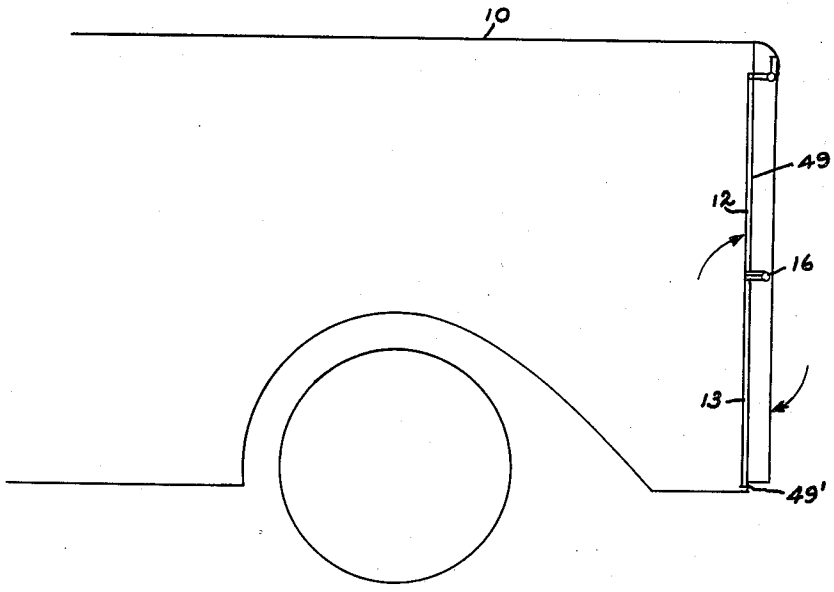

FIG. 3

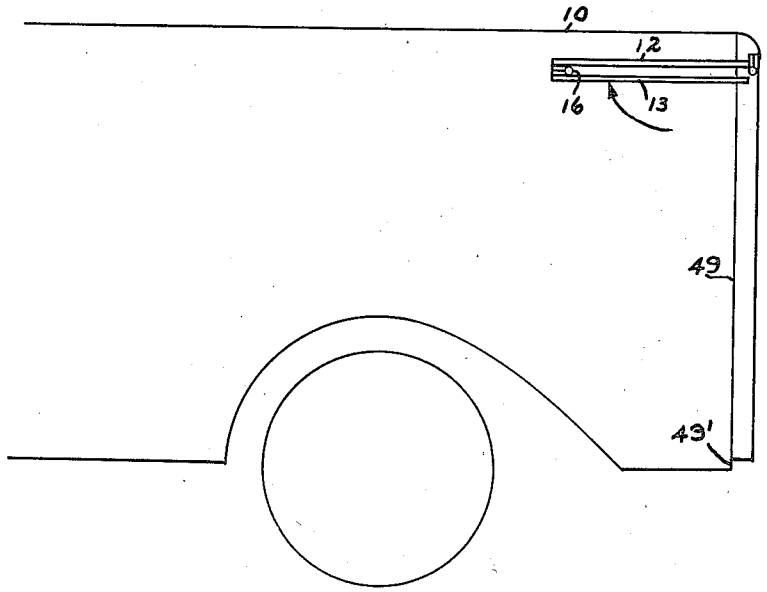

FIG. 4

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DOOR FOR TRUCK BODIES

Carl Ferdinand Hagerup, Juneau,
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Application July 13, 1950, Serial No. 173,497

2 Claims. (Cl. 160—191)

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The present invention relates to a balanced overhead door for the rear of delivery trucks.

This type of door was conceived to eliminate the following inconveniences of the doors now in use. The present types of doors are in the way when open, also, they cannot be safely left open while the vehicle is in motion and, in the closed position, they prevent a sufficient amount of visibility to the rear, especially for backing up.

It is an object of the present invention to provide a door which can be safely left in the open position while the vehicle is in motion.

Another object of the present invention is the provision of counter-balanced doors, with full width window.

A still further object of the present invention is the provision of a break door that is out of the way when in open position.

A still further object of the present invention is the provision of a door having means for imparting a twisting action in the lower door panel as part of the balancing mechanism.

The foregoing and other objects of the present invention should clearly appear from the following detailed description when studied in conjunction with the accompanying drawing, wherein:

Figure 1 is a fragmentary perspective view of the rear of a delivery truck body illustrating the doors in a partial open position, portions being broken away to show the operating mechanism.

Figure 2 is a sectional view taken on line 2—2 of Figure 1.

Figure 3 is a diagrammatic view in side elevation of a truck body and illustrating the pressure of springs holding the doors against the abutments.

Figure 4 is a diagrammatic view in side elevation of a truck body and illustrating the position of the doors when in open position.

Referring to the drawings, the numeral 10 represents the body of a truck, the rear of the body being provided with an opening 11, and within the opening 11 there is provided a pair of doors 12 and 13, each having frames 14 that are covered with sheet steel 15, the doors being secured together by hinges 16. The door 12 is hung on the inside of the body at the top either by hinges or pintles (not shown) and it is provided with a window 17, and a rabbeted lower edge 18 that engages a rabbeted edge 19 in the top of door 13 when the doors are in closed position. The door frames 14 may be of wood or metal and they are each provided with reinforcing angle irons 20, 21, 22 and 23 as shown

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in the broken away portions of door 13. The end edges 24 of door 13 are inset, providing a shoulder 25 that engage the top edges 26 in the side walls 27 of the opening 11. The side walls of the opening 11 are provided with guide channels 48 that may be of wood or metal and these channels will be later described.

Within the door 13 there is mounted a pair of shafts 29 and these shafts are identical, and for clarity, like numerals of reference are applied to both. Each of the angle irons 20, 21, 22 and 23 are provided with apertures that are in horizontal alignment and they receive the shafts 29, the ends of the shafts being provided with squared ends 30 and 31 providing means for engagement with a wrench, the end portion 32 extending beyond the side edge of door 15 adjacent the shoulder 25.

Mounted on the shaft 29 and between angle irons 20 and 21 is a spring 33, one end 34 extending through an aperture in the vertical wall of angle iron 21 anchoring the end of the spring, the end 34 of the spring being provided with a cotter pin 35. The end 36, of spring 33 extends through an aperture in a collar 37 that is mounted on shaft 29, the collar being secured to the shaft by a set screw 38, the end 36 being provided with an aperture that receives a cotter pin 39.

Mounted on shaft 29 on each side of the vertical wall of angle iron 20, are collars 40 and 41, each being secured to shaft 29 by set screws 42 and 43 respectively.

On the squared end 30 of shaft 29, there is mounted a bar 44, which I term a twisting bar, the upper end of said bar having one end of a cable 45 secured thereto, the cable extending upwardly, the other end being secured to a lift balance 46 that is well known in the art.

In each corner of the body 10 there is provided element 47, that may be an integral part of the body, or it may be a separate element made of metal or wood and secured by any suitable means. It is to be noted that the element 47 is offset from the rear and side walls of the body 10. The element 47 is provided with a guide channel 48 and abutment 49. The guide channel 48 houses the bar 44, the abutment 49 engaging the front face of the door 13 adjacent its side edges and serves as a stop to retain the door when in closed position in the opening 11, the guide channel 48 housing the bar 44 and the cable 45, and serving as a guide for these elements in their upward and downward movement.

In the door 13 there is mounted latch bars 50 that are connected to a link (not shown) on a

handle 51, the end of the bars being provided with a bolt head 52 that engages an aperture 53 in the element 47.

When the springs 33 are assembled on shafts 29 and the ends 35 positioned in the apertures in the vertical wall of the angle irons 21 and 22, a wrench is applied to the squared ends 31 and turned until the proper tension is obtained, and when the springs 33 have the proper tension, the bar 44 is positioned on the squared ends 30 of shafts 29, thus holding the spring tension.

In operation of the doors, when the handle 51 is turned, the latch bars 50 are pulled toward each other releasing the bolt heads 52 from apertures 53. Upon release of the bolt heads, the doors 12 and 13 will break and open completely by pushing the doors inward about four inches to pass the point of balance, this action being due to the springs 33. Doors 12 and 13 during this break action move upward due to the pair of lift balances 46.

The action of springs 33 work in opposition to lift balances 46 and when the doors are almost closed springs 33 gain enough lever action over the lift balances 46 to close the doors and hold them against the abutments 49 and 49'.

The springs 33 also support the door 12 which folds against the roof of a truck when in open position. The twisting action of springs 33 is least when the doors are closed and increases as the doors move to the open position. The necessity for an increased twisting action also increases as the door is opened. Lift balances 46 are able to overcome the increased tension on springs 33 because of the angle of the doors which gives balances 46 a greater lever action.

In the diagrammatic views, Figure 3 shows the doors 12 and 13 in closed position, the arrow indicating pressure of springs 33 holding the doors against abutments 49 and 49'.

Figure 4 shows the doors 12 and 13 in open position, the arrow indicating pressure of springs 33 supporting door 12.

It can be seen that I have provided a device that is simple and one in which the doors when open are completely out of the way so that loading and unloading of the body 10 is accomplished without regard to the doors.

It will be understood that the above description and the accompanying drawings comprehend only the general and preferred embodiment of my invention, and that various minor changes in details of construction may be made without departing from the scope of the invention and the claims hereto appended.

What is claimed is:

1. A truck body having an opening, a pair of doors for said opening, said doors being hinged together, one of said doors being hingedly connected to the roof of the truck body, one edge of each of said doors being rabbeted, said rabbets being in opposed relation to each other for locking engagement when said doors are closed, means in one of said doors for supporting a pair of shafts, shafts mounted in said means, resilient tension means mounted on said shafts and having one end secured in the means supporting the shafts, means mounted on and locked to said shafts, the opposite end of said resilient tension means secured in said last named means, means connected to one end of said shafts for maintaining a twist action of said resilient tension means, and means connected to said last named means for lifting said doors to an open position, a channel in each side edge of said opening, said channel housing the said means on one end of said shafts and the means connected to the last named means, said opening having an abutment for engagement by the marginal edge portions of said doors, and lock rods having a handle for securing said doors when in closed position.

2. A truck body having an opening, a pair of doors for said opening, said doors hinged together, one of said doors being hingedly connected to the roof of the truck body, one edge of each of said doors being rabbeted, said rabbets being in opposed relation to each other for locking engagement when said doors are closed, vertical supports in one of said doors, a pair of shafts carried by the vertical supports, a spring mounted on each shaft and having one end secured in the vertical supports, a collar locked on each shaft, the opposite end of each spring secured in said collars, a pair of collars carried by each shaft and spaced from the vertical wall of one of said vertical supports, a bar mounted on one end of each shaft, a cable having one end connected to said bar, a lift balance in the top of said body, the opposite end of said cable secured to said lift balance, a guide channel in the side wall of said opening, said bar and cable being housed in said channel, said opening having an abutment for engagement by marginal edge portions of said doors, and lock rods having a handle for securing said doors when in closed position.

CARL FERDINAND HAGERUP.

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