Sept. 30, 1958 P. GIPSLIS 2,853,745

GARAGE

Filed Aug. 13, 1956 2 Sheets-Sheet 1

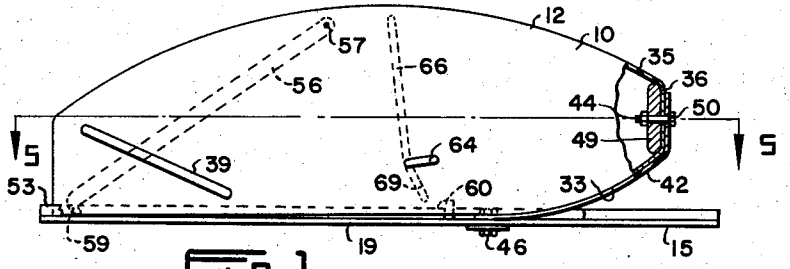


Fig. 1.

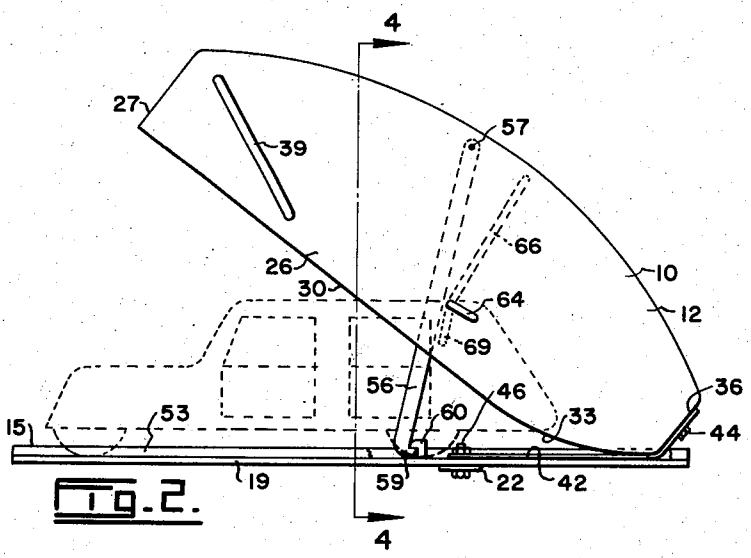


Fig. 2.

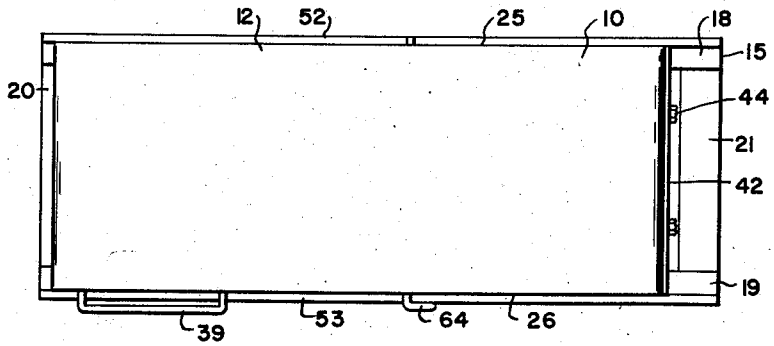


Fig. 3.

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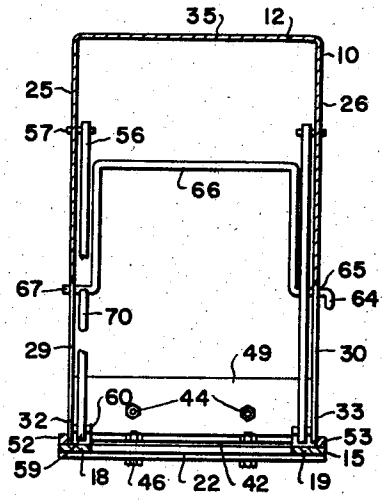


Fig. 4.

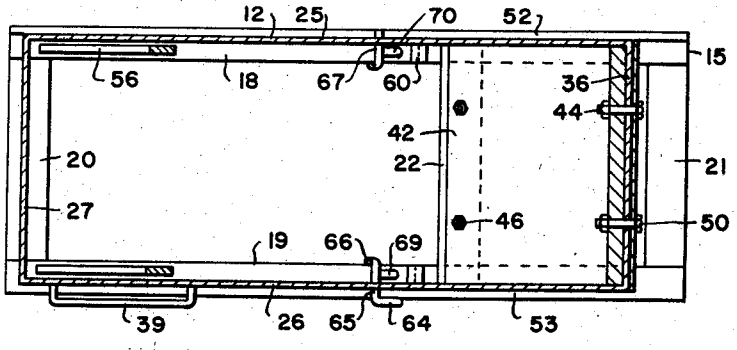


Fig. 5.

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GARAGE

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Application August 13, 1956, Serial No. 603,489

11 Claims. (Cl. 20—1.13)

This invention relates to improvements in garages primarily for motor vehicles, but which may be used for other purposes.

An object of the present invention is the provision of a garage which may be swung upwardly to an open position to permit a vehicle to be moved into or out of it, whereby the garage may be made only large enough to fit over the vehicle.

Another object is the provision of a garage which may be quickly and easily swung into the open or closed positions by hand.

A further object is the provision of a garage having few moving parts, and which cannot go out of working order.

Most garages today are made large enough to accommodate a motor vehicle with sufficient room around it to enable passengers to get in or out of it while in the garage. This garage is such that it need be made only large enough to accommodate the vehicle, since it may be swung upwardly to an open position which permits access to the vehicle.

A garage according to the present invention comprises an open-bottomed housing having side walls with downwardly and inwardly curving lower edges at one end thereof. The lower edges of the side walls rest on any suitable flat base. It is, however, preferred to provide a platform upon which the side walls rest. The housing is opened and closed by raising and lowering the front thereof to cause it to swing around the side wall curved edges, and counterbalancing means is attached to the back of the housing above the curves of the side walls to assist in the opening of the housing. A plate spring is connected at one end to the back of the housing above the side wall curves and extends in a curve downwardly towards the front of the housing, and means is provided connected to the opposite ends of the spring for anchoring said end. The counterbalancing means of the plate spring retain the housing in the open position and permit it to be easily swung to the closed position. It is preferable, although not absolutely necessary, to extend the plate spring completely across the housing so that it closes the back end thereof when the housing is in the closed position.

An example of this invention is illustrated in the accompanying drawings in which,

Figure 1 is a side elevation of the garage housing in the closed position,

Figure 2 is a side elevation of the housing in the open position,

Figure 3 is a plan view of the garage as shown in Figure 1,

Figure 4 is a cross section taken on the line 4—4 of Figure 2, and

Figure 5 is a horizontal section taken on the line 5—5 of Figure 1.

Referring to the drawings, **10** is a garage which comprises a housing **12**, and, preferably, a base platform **15** upon which the housing is mounted. This platform may

be of any desired construction, but it preferably includes spaced parallel side rails **18** and **19** connected at their opposite ends by cross members **20** and **21**. An intermediate cross member **22** may be provided which is spaced inwardly from the end member **21**, see Figure 5.

The housing **10** is preferably made just large enough to accommodate a motor vehicle. As most motor vehicles in common use today fall into three main sized groups, namely, small, intermediate and large, housings of different sizes may have to be provided for the different groups.

The housing is formed with side walls **25** and **26**, and a front wall **27**. The lower edges **29** and **30** of the side walls normally rest in platform rails **18** and **19**, respectively, and these lower edges curve at one end downwardly and inwardly thereof at **32** and **33**. These curves may extend all the way up to the top **35** of the housing or, as shown, the latter may be provided with a back end wall **36** which extends downwardly from the housing top a short way towards the platform. In this case, the lower edges of the side walls curve upwardly to said back end wall. The side wall curves **32** and **33** extend only a short distance towards the front or end wall **27** of the housing.

As stated above, the lower edges **29** and **30** of the housing normally rest on the platform rails **18** and **19**, at which time the garage housing is in its closed position. The housing may be rocked back on the rails **32** and **33** into an open position, as clearly shown in Figure 2. At this time, the front end of the housing is far enough in the air to permit a vehicle to be driven onto or off the platform into or out of the housing. An inclined handle **39** may be provided on one or both of the side walls to provide a grip by means of which the housing may be raised or lowered.

A plate spring **42** is connected at one end to the housing above the side wall curves. In this example, the spring is connected to back end wall **36** by means of suitable fastening means such as bolts **44**. When the housing is closed, the plate spring extends in a curve downwardly towards the front of the garage, and its opposite end is anchored in any convenient manner. In the preferred form of the invention, the forward end of the spring is connected to the intermediate cross member **22** of the platform by any suitable means, such as bolts **46**. This spring preferably extends over the curved surfaces of the side walls to close the back end of the housing when the latter is in the closed position, as shown in Figure 1. However, the spring may not extend the full width of the housing. In fact, parts of it may be cut away so that there would be one or more comparatively narrow plate springs in use. For example, there might be a comparatively narrow plate spring at each side of the housing.

Counterbalancing means is attached to the back of the housing above the curves **32** and **33** of the side walls, In this example, the counterbalancing means comprises a weight **49** secured to the inner surface of back end wall **36** by suitable fastening means such as bolts **50**, said weight preferably extending across the width of the housing.

Suitable means is provided at the side walls of the housing for keeping the latter from shifting laterally on the platform. This may be in the form of side bars **52** and **53** mounted on and projecting upwardly from rails **18** and **19**, respectively, to overlap the outer surfaces of the side walls when the housing is closed. It will be understood, however, that the side walls themselves may be provided with similar side bars which overlap the outer edges of the rails when the housing is closed. In any case, the housing is prevented from shifting laterally even

when it is in the open position since the side rails overlap the portion of the housing still resting on the platform.

It is desirable to provide means for preventing the housing from moving beyond the normal open position. An arm is provided within the housing at one or both sides thereof for this purpose. In the illustrated example, a pair of relatively long arms **56** are pivotally connected to the housing at **57** near the top thereof, each arm extending in an incline towards the housing front and to the platform when the housing is closed, as shown in Figure 1. Each arm has hook means on the free end thereof. This hook means may be in the form of a hook **59** at the free or outer end of the arm, said hook opening towards the back of the housing. A catch **60** is mounted on a platform rail inwardly of and aligned with each arm **56**. The hook of each arm engages a catch when the housing reaches the open position, as clearly shown in Figure 2, to prevent said housing from moving beyond the normal open position. This prevents winds from swinging the housing back too far. When the housing is open, each arm **56** has about reached a vertical position. Therefore, any downward force exerted by the housing on the arms will not force the lower ends of the arms towards the housing front. Any effort to swing the housing downwardly at this time, tends to cause the arm pivots **57** to swing forwardly and downwardly about the fulcrum point which is located at the point of contact of the curves **32** and **33** with the platform rails.

In order to be able to close the housing, the hook ends of arms **56** need to be moved towards the housing front to permit this action, and means has been provided for accomplishing this. A release handle **64** may be provided at each side of the housing. However, in this example, a handle is provided at side wall **26** only. This handle is connected to an inwardly projecting shaft **65** which is journalled in the housing side wall. The inner end of this shaft is connected by a U-shaped connector **66** to another shaft **67** journalled in the side wall **25** in line with shaft **65**. Comparatively long lugs **69** and **70** are connected to and project downwardly and forwardly from shafts **65** and **67**, respectively.

When the garage housing is open, arms **56** are positioned near the lugs **69** and **70**, at which time said lugs extend substantially parallel with the arms, see Figure 2. When the release handle **64** is swung downwardly, the lugs engage the adjacent arms to move the lower ends thereof forwardly. Once these arms have been moved a short distance, pressure of the housing in a downward direction will force the arms to swing forwardly into the position shown in Figure 1.

Any suitable latching means may be used to retain the housing in the closed position. As the latch does not form part of the invention, none has been illustrated or described herein. In fact, the housing will remain in the closed position without any latch.

When it is desired to open housing **12**, it is only necessary to raise the front end thereof. This may be done conveniently by gripping handle **39** and moving it upwardly to cause the housing to swing around the curves **32** and **33** of the side walls thereof. As the housing swings around the curves, the fulcrum around which the housing turns shifts rearwardly towards the back thereof. When the housing first starts to move, the leverage of weight **49** is at a maximum, but this leverage gradually reduces as the fulcrum shifts towards the back of the housing. Therefore, maximum leverage is available when the most effort is required in order to start the front housing moving upwardly. As the housing continues to move, less effort is required, at this time the leverage is reduced. This prevents the housing from reaching its open position while traveling too fast. The hooks **59** of arms **56** engage catches **60** to prevent the housing from going too far. The plate spring **42** also helps to swing the housing upwardly. It also exerts its maximum force at the beginning of the movement since it is under its greatest strain when the housing is closed. As the spring approaches its horizontal position, as shown in Figure 2, its tension lessens. Thus, the spring serves two purpose, it help to open the housing without exerting too much force when the latter reaches the open position, and it closes the the back end of the housing when said housing is moved to its closed position. Furthermore, as the housing moves towards its closed position, there is a natural tendency for the speed of movement to increase, but the tension of spring **42** increases at this time so that it helps to offset this tendency. Therefore, the housing closes gently without the operator having to hold it back during the closing operation.

What I claim as my invention is:

1. A garage comprising an open-bottomed housing having side walls with downwardly and inwardly curving lower edges at one end thereof, said end being the back of the housing, counterbalancing means attached to the back of the housing above the curves of the side walls, said housing being opened and closed by raising and lowering the front thereof to cause it to swing around the side wall curved edges, and a plate spring connected at one end to the back of the housing above the side wall curves and extending in a curve downwardly towards the front of the housing, and means connected to the opposite end of the spring for anchoring said end, said counterbalancing means and the plate spring retaining the housing in the open position and permitting it to be easily swung to the closed position.

2. A garage as claimed in claim 1 in which the plate spring extends over the curved surfaces of the side walls to close the back of the housing when the latter is in the closed position.

3. A garage comprising a supporting platform, an open-bottomed housing having side walls normally resting on the platform with downwardly and inwardly curving lower edges at one end thereof, said end being the back of the housing, counterbalancing means attached to the back of the housing above the curves of the side walls, said housing being opened and closed by raising and lowering the front thereof to cause the side wall curved edges to roll on the platform, and a plate spring connected at one end to the back of the housing above the side wall curves and extending in a curve downwardly toward the front of the housing, and means connecting the opposite end of the spring to the platform for anchoring said end, said counterbalancing means and the plate spring retaining the housing in the open position and permitting it to be easily swung to the closed position.

4. A garage as claimed in claim 3 including means at the side walls of the housing for keeping the latter from shifting laterally on the platform.

5. A garage as claimed in claim 3 in which the plate spring is wide enough to close the back of the housing when the latter is in the closed position.

6. A garage as claimed in claim 3 including at least one relatively long arm pivotally connected to the housing near the top thereof and extending in an incline towards the housing front and to the platform when said housing is in the closed position, hook means on the free end of the arm, and a catch on the platform inwardly of and aligned with the arm, the hook means of the arm engaging the catch when the housing reaches the open position to prevent said housing from moving beyond the normal open position.

7. A garage as claimed in claim 6 in which the arm has about reached a vertical position when the housing is open, and including means on the housing for moving the hook means end of the arm towards the housing front when it is desired to close the housing.

8. A garage comprising a supporting platform including spaced parallel side rails, an open-bottomed housing having side walls normally resting on the side rails with downwardly and inwardly curving lower edges at one end thereof, said end being the back of the housing, counter-

balancing means attached to the back of the housing above the curves of the side walls, said housing being opened and closed by raising and lowering the front thereof to cause the side wall curved edges to roll on the rails, means at the side walls for keeping the housing from shifting laterally on the rails, and a plate spring connected at one end to the back of the housing above the side wall curves and extending in a curve downwardly toward the front of the housing, and means connecting the opposite end of the spring to the platform for anchoring said end, said counterbalancing means and the plate spring retaining the housing in the open position and permitting it to be easily swung to the closed position.

9. A garage as claimed in claim 8 in which the means for keeping the housing from shifting laterally comprises side bars on the rails between which the housing side walls are located.

10. A garage as claimed in claim 8 including a pair of relatively long arms pivotally connected to the housing near the top thereof and extending in an incline towards the housing front and to the rails when said housing is in the closed position, hook means on the free ends of the

arms, and catches on the rails inwardly of and aligned with the arms, the hook means of the arms engaging the catches when the housing reaches the open position to prevent said housing from moving beyond the normal open position.

11. A garage as claimed in claim 10 in which the arms have about reached a vertical position when the housing is open, and including means on the housing for moving the hook means ends of the arms towards the housing front when it is desired to close the housing.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,853,745 September 30, 1958

Peter Gipslis

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, lines 2 and 12, and in the heading to the printed specification, lines 3 and 4, name of assignee of one-half interest, for "Erwin Henchert" read -- Erwin Heuchert --.

Signed and sealed this 12th day of April 1960.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents