Jan. 22, 1929.

1,699,560

J. H. BOURGON

DOOR CONSTRUCTION

Filed Aug. 1, 1923

4 Sheets-Sheet 1

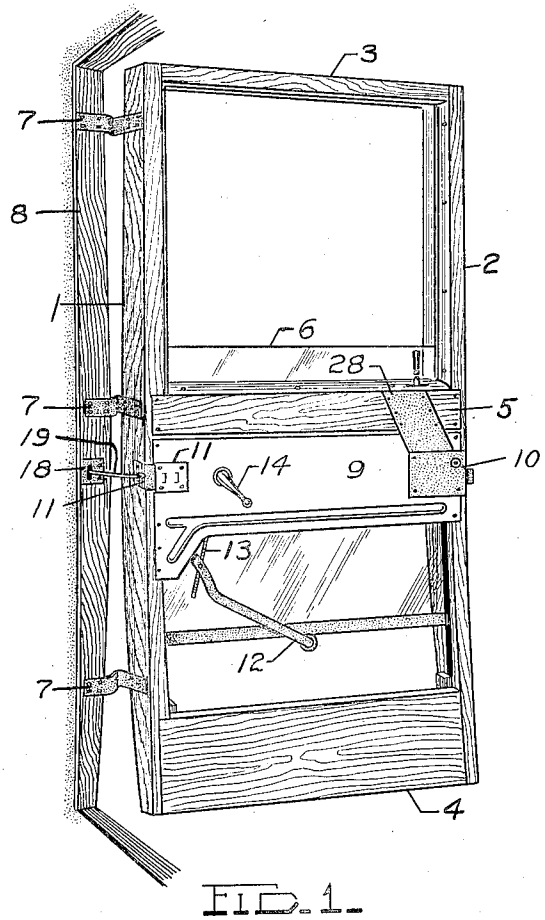


FIG. 1.

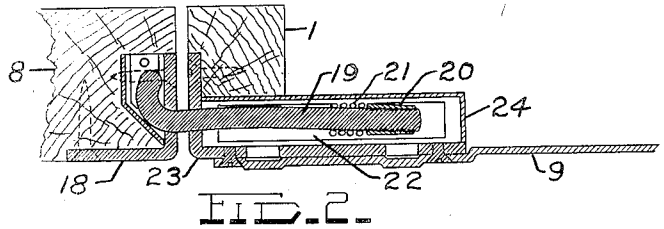


FIG. 2.

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BY R. M. Pomeroy

ATTORNEY

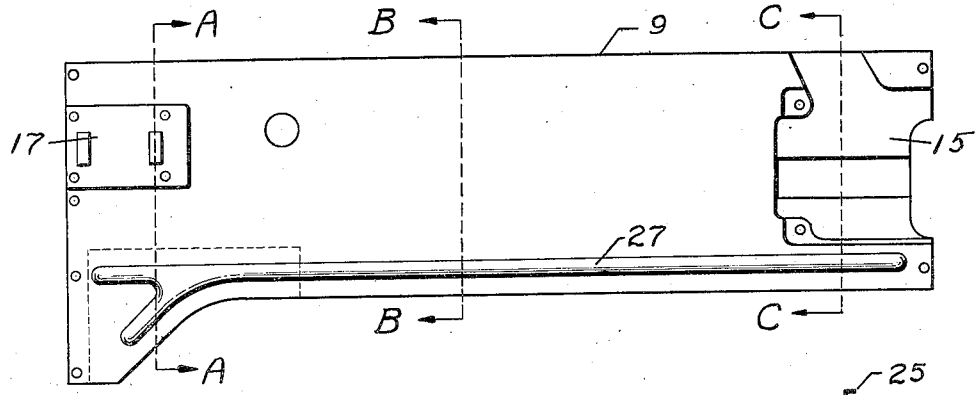
Jan. 22, 1929. 1,699,560

J. H. BOURGON

DOOR CONSTRUCTION

Filed Aug. 1, 1923 4 Sheets-Sheet 2

FIG. 3.



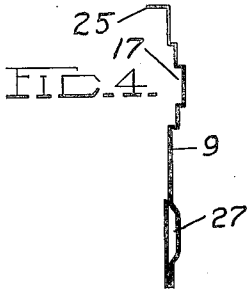


FIG. 4.

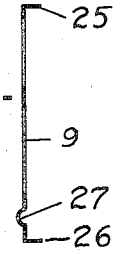


FIG. 5.

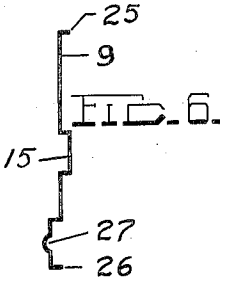


FIG. 6.

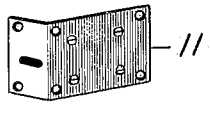


FIG. 7.

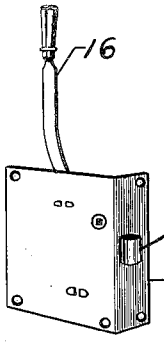


FIG. 8.

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Jan. 22, 1929. 1,699,560

J. H. BOURGON

DOOR CONSTRUCTION

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FIG. 9.

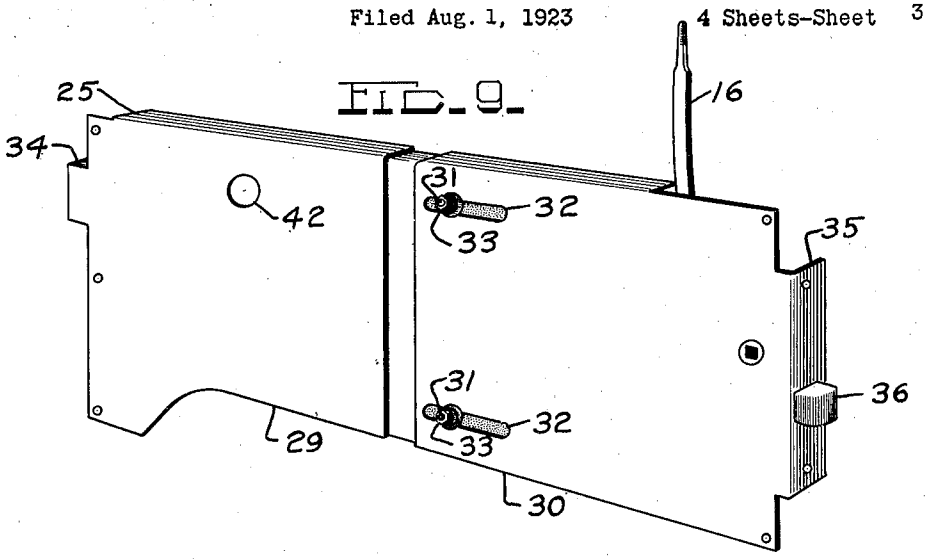
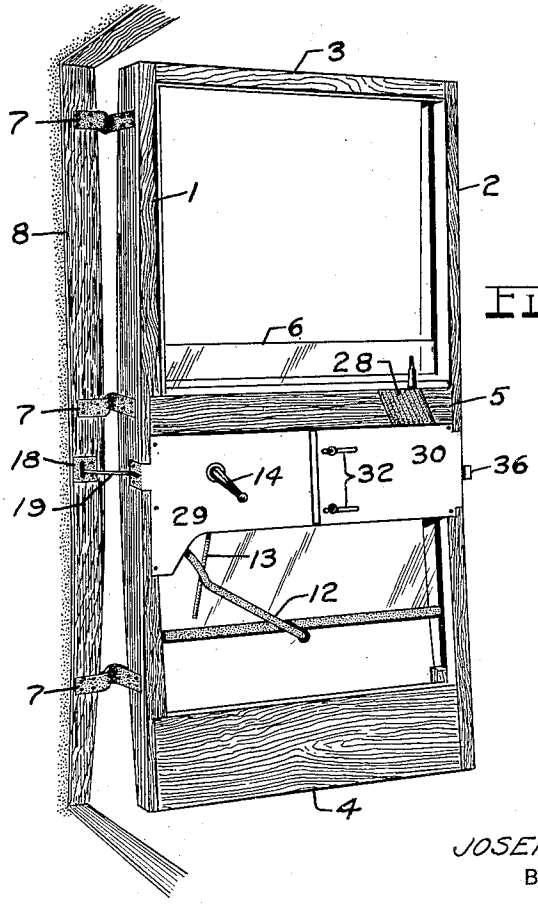


FIG. 10.



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Jan. 22, 1929. 1,699,560

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DOOR CONSTRUCTION

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FIG. 11.

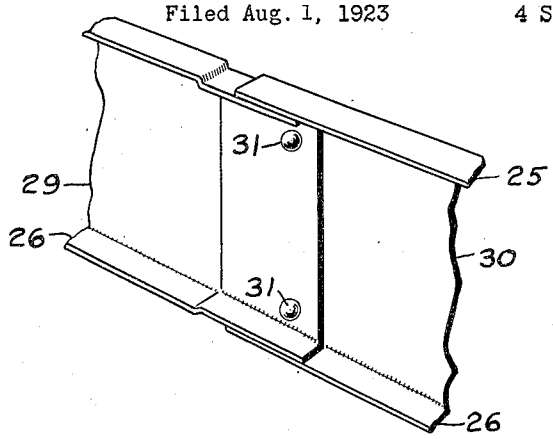


FIG. 12.

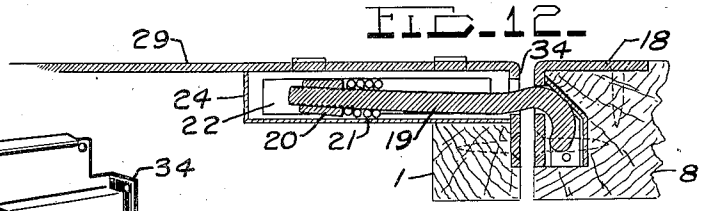
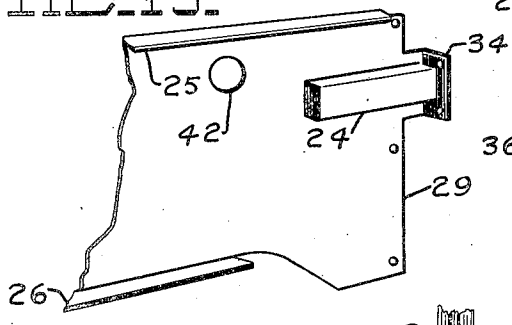


FIG. 13.



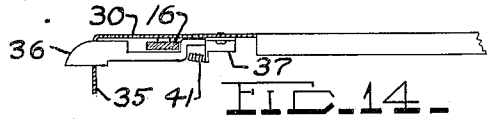


FIG. 14.

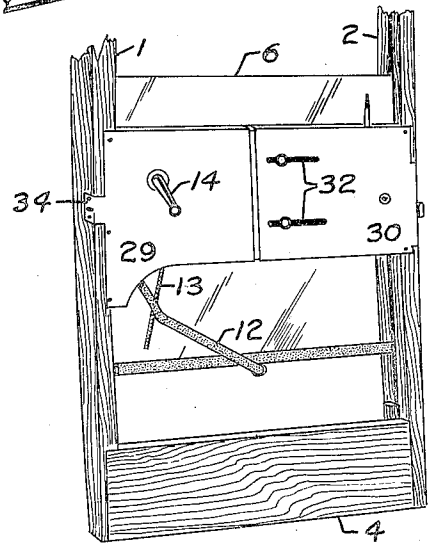


FIG. 15.

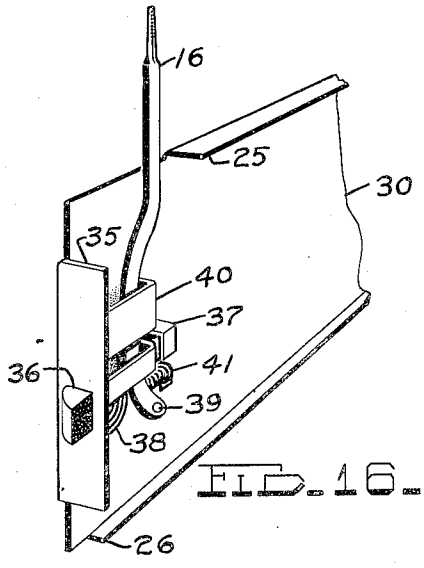


FIG. 16.

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Patented Jan. 22, 1929. 1,699,560

UNITED STATES PATENT OFFICE.

JOSEPH H. BOURGON, OF DETROIT, MICHIGAN, ASSIGNOR TO THE STUDEBAKER CORPORATION, OF SOUTH BEND, INDIANA, A CORPORATION OF NEW JERSEY.

DOOR CONSTRUCTION.

Application filed August 1, 1923. Serial No. 655,113.

This invention relates to door constructions and the like, and deals particularly with those doors provided with a window and means for raising and lowering the same. It is particularly adaptable to automobile door construction.

The principal object is to provide a construction that will facilitate the assembly of doors and decrease the cost thereof, and provide a construction whereby a number of parts to be assembled to and supported by the door, may be assembled together on a bench and then applied to the door as a unit.

Another object is to provide a member which forms a portion of each of said parts and which forms part of the door, which member may be adjustable so as to be applicable to doors of different widths, which will provide a strengthened and improved construction, and which will simplify the construction of the same.

A further object is to provide a board or plate forming a part of the door, the board or plate being preferably of metal, such for example, as a metal stamping, and forming a support for the window regulator mechanism, a preferable construction also forming a support for the door latch, door check and other parts which may be supported thereon. In such a construction the different parts may be fastened to the board by screws, rivets, or by welding or the like, before being fastened to the door as a unit.

A further object is to provide a construction in which the board is made adjustable as to width so as to be applicable to doors of different widths.

A still further object is to provide a construction in which the different parts are built into the board, that is, one in which the board actually forms a portion, such as a side or end, of the parts to be supported thereon. In such a construction not only is time saved by the ease of handling such a small unit in comparison to the entire door, but a stronger, more economical and more desirable construction is obtained.

Other objects, and objects relating to details of manufacture and construction will definitely appear from the detailed description to follow.

In order to more fully describe my invention I will refer to the accompanying drawings which illustrate embodiments of my present invention: in which—

Figure I is a perspective view of a partially finished door with the plate and accompanying mechanism mounted thereon.

Figure II is a horizontal section taken centrally through the plate and door check of Figure I showing the manner in which door check is mounted on the plate.

Figure III is a side view of the plate only of Figure II.

Figure IV is a section of the plate shown in Figure III taken on the line A—A of Figure III.

Figure V is a section of the plate shown in Figure III taken on the line B—B of Figure III.

Figure VI is a section of the plate shown in Figure III taken on the line C—C of Figure III.

Figure VII is a perspective view of that portion of the door check member shown in Figure I which is adapted to be secured to the plate shown in Figure III.

Figure VIII is a perspective view of the door latch shown in Figure I which is adapted to be secured to the plate shown in Figure III.

Figure IX is a perspective view of a preferable construction of the metal board in which the board forms an integral portion of parts to be supported thereon and which is adjustable in width so as to be applicable to doors of different widths.

Figure X is a perspective view of an automobile door on which the metal board shown in Figure IX is mounted.

Figure XI is a perspective view showing the other side of the metal board to that shown in Figure IX and illustrating the manner in which the two halves of the metal board are adjustably secured to each other.

Figure XII is a horizontal section taken centrally through one end of the metal board of Figure IX showing the door check applied thereto.

Figure XIII is a rear perspective view showing a part of the door check forming an integral part of the metal board.

Figure XIV is a horizontal section taken centrally through an end of the metal board and the door latch which is formed integral therewith.

Figure XV is a perspective view of a door to which is secured a metal board similar to that of Figure IX but which is deeper and which forms the sole intermediate cross member between the two side members of the door frame.

Figure XVI is a perspective view of the metal board illustrated in Figure IX showing the door latch formed integral therewith.

Like numerals refer to like parts throughout the several views, and the sectional views are taken looking in the direction of the arrows at the ends of the section lines.

Referring to the drawings, the door is composed of side members 1 and 2, top member 3, bottom member 4 and center member 5. The lower portion of the door has a chamber formed therein for the purpose of allowing the window 6, which is slidable up and down between the side members 1 and 2, to be lowered therein when it is desired to open the window. The door as a whole is supported by the hinges 7 to the side member or pillar post 8 of a door frame or opening.

As illustrated in Figures I to VIII inclusive a plate member 9, preferably of metal, extends between the side members 1 and 2 below the center member 5 and supports the window regulator, door latch 10, and a portion 11 of the door check. The window regulator has an arm 12 pivoted and supported by the plate member 9, the arm 12 being raised or lowered by the screw 13 operated by any suitable means which may be controlled by the handle 14 also mounted on the plate member 9.

The right hand end of the plate 9 shown in Figure III has a depression 15 formed therein in which the door latch 10 is adapted to fit and be secured, the depression being so formed that it will allow the door latch handle 16 to move as required. The left hand end of the plate 9 shown in Figure III is formed with a depression 17 in which the portion 11 of the door check is adapted to fit and be secured. The one portion 18 of the door check is secured to the pillar or post 8 and a rod 19 is pivotally secured by its bent-end in the portion 18 and slidably secured in the other portion 11. A nut 20 is provided on the end of the rod 19 in the portion 11 of the door check to limit the amount the door may open, and a coil spring 21 placed around the rod 19 between the nut 20 and the end of the face member 23 has a cushioning effect on the door as the same is swung open. A flat spring 22 within the portion 11 bears against the nut 20 and acts to prevent rattling of the nut 20, rod 19 and spring 21. The body or shell of the portion 11 of the door check is formed with a face member 23 and a back or cover member 24. The face member 23 is fastened by screws or other means to the metal board 9. Although I have shown and described a particular type of door check I do not limit my invention to the use of the form shown as any suitable type of door check may be used, a number of which are now on the market.

The upper and lower edges of the plate 9 are flanged inwardly as at 25 and 26, and a rib 27 is formed longitudinally of the plate 9 to give strength and stiffness to the same. The window regulator mechanism, portion 11 of the door check, and door latch 10 may be fastened to the plate 9 by any suitable means including screws, rivets or by welding or the like. The center member 5 has a portion cut out to allow proper movement of the handle 16 of the door latch 10 and a plate 28 is fastened over the cut-out portion to conceal the same.

The method I prefer to follow in using the embodiment of my invention as above described and shown in Figures I to VIII inclusive is to first assemble the door as shown in Figure I, with the exception of the plate 9, portion 11 of the door check, door latch 10 and window regulator mechanism. I prefer to make a bench assembly of the plate 9 and its accompanying parts and attach the same as a unit to the door. It will be evident that such a method of building a door makes for faster assembling, decrease in cost, and stronger and more suitable construction throughout.

Figures IX to XIV inclusive and Figure XVI show a slightly different embodiment of my invention from that shown in Figures I to VIII inclusive. As in Figures I to VIII inclusive the door is composed of side members 1 and 2, top member 3, bottom member 4 and center member 5, window 6 operable as before described, hinges 7, pillar or post 8, window regulator arm 12, screw 13 and handle 14, door latch handle 16, portion 18 of the door check member, rod 19, nut 20, coiled spring 21, flat spring 22, and back cover 24 of the door check device, flanges 25 and 26 on the plate member, and plate 28. In this embodiment however I have supplied a metal board which is formed to two main members 29 and 30 instead of the one-piece board 9 shown in Figure III. These two main members 29 and 30 are joined intermediate of the side members 1 and 2 of the door, the joining end of the member 29 being reduced in size sufficiently to allow it to fit between the flanges 25 and 26 of the member 30. Studs 31 fastened to the member 29 project through slots 32 formed longitudinally in the member 30 and nuts 33 threaded on the studs 31 are adapted to secure the two members 29 and 30 in adjusted position. This adjustable feature allows the board made up of these two parts to be fitted to doors of different widths, thereby allowing the use of but one size of board for all doors in which the lock and check are placed in corresponding positions. In this embodiment of my inven-

tion, instead of forming depressions in the members 29 and 30 to receive the door check and door latch 15 and 17 in the board 9, I have built the different parts, into the members 29 and 30 so that the members 20 and 30 actually form a part of said parts. The member 29 which I have shown as supporting the door check, has a flanged end portion 34, shown in Figures XII and XIII, which forms the end of the check member, a portion of the member 29 also forming the face of the check member. Thus a portion of the member 29 replaces the face member 23 illustrated in Figure II, because in this construction the member 29 and the flanged end 34 form two of the walls for the door check. Also, as is best shown in Figures IX, XIV, and XVI, I have provided a flange 35 at the outer end of the member 30 to form the end face of the door latch, which with a portion of the member 30 form two walls for the door latch. The door latch herein shown is composed essentially of the bolt 36 slidable longitudinally in an opening in the flanged portion 35 of the member 30 and under the U-shaped member 37 which is secured to the member 30. The bolt 36 is urged towards its projected position by the spiral spring 38 and is actuated by the handle 16. A coiled spring 41, suitably supported, tends to return the handle 16 to normal position and prevent rattle of the same. Although I have shown and described a specific form of latch I wish it to be understood that I do not restrict myself to form, as any type, size or construction of door latch may be adapted for use in connection with my present invention.

In Figures IX and XIII, a hole 42 is shown through which the handle 14 is adapted to be connected to the window regulator mechanism. It is entirely evident that, as in the cases of the check and lock mechanisms, the particular type, size or construction of the window regulator mechanism may be left to one's choice as almost any type now on the market may be adapted for use in connection with my present invention. As also in the case of the check and latch mechanism it is desirable that the window regulator mechanism be so constructed as to use either of the members 29 or 30 as an integral part thereof.

In Figure XV I have shown a slightly modified construction from that shown in Figure X, the difference being that the members 29 and 30 are made deeper and replace the cross member 5, doing away with the same entirely. It will be evident from the foregoing that I have provided a new construction whereby a strong, simple door may be produced in more economical and faster manner.

Although I have limited my description and drawings to a door it will be apparent that such a construction may be adapted to places other than doors, and in the specification and claims the word, door, is used only by way of illustration and not limiting my invention to that particular use.

It is also understood that formal changes may be made in the specific embodiment of the invention described without departing from the spirit or substance of the broad invention, the scope of which is commensurate with the appended claims.

Having thus described my invention, what I wish to claim and secure by Letters Patent is:

1. A unitary assembly for automobile doors, comprising a plate, window regulator and door latch mechanism mounted on and supported by said plate, said plate, window regulator and door latch mechanism being adapted to be installed as a unit on the vehicle door.

2. A unitary assembly for automobile doors, comprising a plate, window regulator, door latch mechanism and door check mechanism being mounted and supported by said plate, said plate, window regulator, door latch, and door check mechanism being adapted to be installed as a unit on said vehicle door.

3. A unitary assembly for automobile doors, comprising a plate, a window regulator and door latch mechanism mounted on and supported by said plate, said plate constituting at least a portion of the door latch housing, said plate, window regulator, and door latch mechanism being adapted to be installed as a unit on the vehicle door.

4. A unitary assembly for automobile doors comprising a plate, window regulator and door latch mechanism mounted on and supported by said plate, said plate being provided with an inturned portion constituting the end face of the door latch, the plate, window regulator, and door latch mechanism being adapted to be installed as a unit on the vehicle door.

5. A unitary assembly for automobile doors comprising an elongated metallic plate, window regulator and door latch mechanism mounted on and supported by said plate, an operating handle for said latch, said plate being provided with inturned marginal flanges, one of said flanges constituting the end face for the door latch, and another of said flanges being provided with a cut-out portion for accommodating the movement of the operating handle for the door latch, said elongated metallic plate, window regulator and door latch mechanism being adapted to be installed as a unit on the vehicle door.

6. A unitary assembly for automobile doors comprising an elongated metallic plate, window regulator, door latch and door check mechanism mounted on and supported by said plate, said plate constituting a part of

the door check mechanism, the plate, window regulator, and door check being adapted to be installed as a unit on the vehicle door.

7. A unitary assembly for automobile doors comprising an elongated plate, window regulator, door latch and door check mechanism being mounted on and supported by said plate, said plate having an inturned marginal slotted portion for the reception of the door check mechanism, the plate, door latch and door check elements being adapted to be installed as a unit on the vehicle door.

8. A unitary assembly for automobile doors comprising a plate, window regulator, door latch and associated operating parts for the door mounted on and supported by said plate, said plate, window regulator, door latch and associated parts being adapted to be installed as a unit on the vehicle door.

9. A unitary assembly for automobile doors comprising a plate, window regulator and door latch mechanism being mounted on and supported by said plate, said plate being longitudinally adjustable and being adapted to be installed as a unit on vehicle doors of differential sizes.

10. A unitary assembly for automobile doors comprising an elongated metallic plate recessed near its opposite ends, door latch and door check mechanism, respectively, being mounted in and supported by the recessed portions of the plate, a window regulator mounted on said plate, said plate, window regulator, door latch and door check mechanism being adapted to be installed as a unit on said vehicle door.

11. A unitary assembly for automobile doors, comprising an elongated plate and window regulator and door latch mechanism secured to said plate, said door latch mechanism being secured to the inner face of said plate and at least partially housed thereby, said plate, window regulator, and door latch mechanism being adapted to be installed as a unit on the vehicle door.

12. A lock board assembly for automobile doors including in combination a metal lock board of a length substantially equal to the width of the door, one end of said lock board being bent at right angles to form a face plate adapted to fit over an edge of the door, lock parts assembled directly on said lock board and face plate and window regulator parts directly assembled on said lock board.

13. The herein described process of making a vehicle door which consists in assembling the side, top and bottom elements of the door frame; in assembling, upon a common plate, window regulator mechanism and door latch mechanism; and in thereafter applying said plate, window regulator mechanism and door latch mechanism, as a pre-assembled unit, to said automobile door frame.

Signed by me at Detroit, Michigan, U. S. A. this 25th day of July, 1923.

JOSEPH H. BOURGON.