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D. D. PERCIFULL

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PEDESTRIAN GUARD

Filed May 20, 1963

4 Sheets-Sheet 1

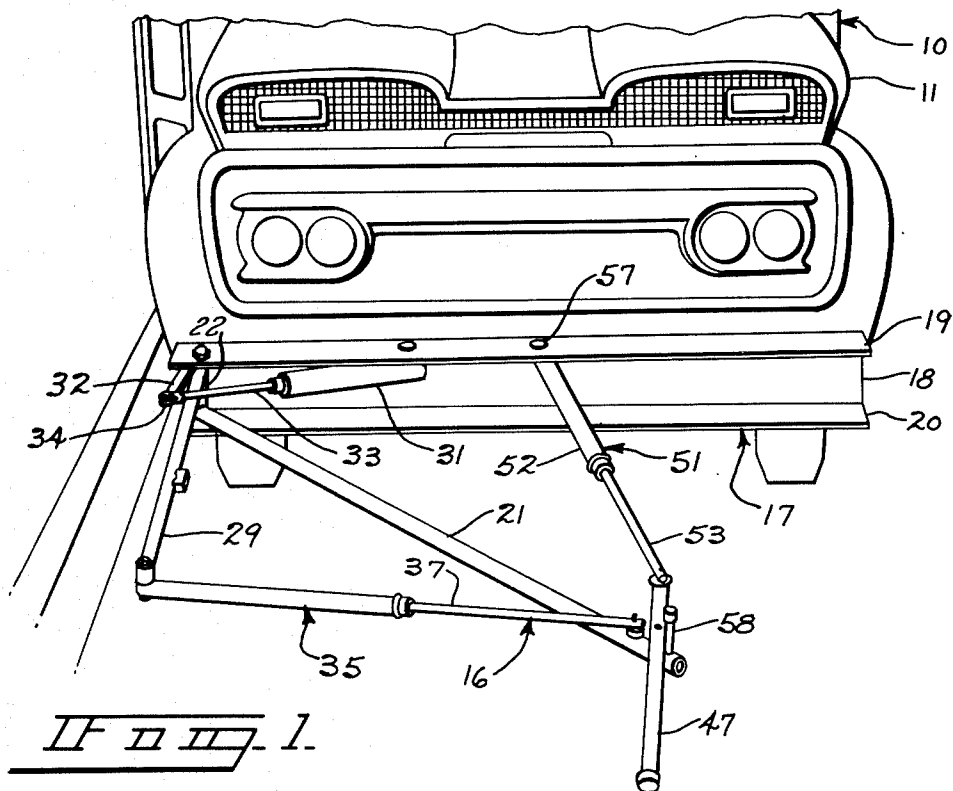


Fig. 1.

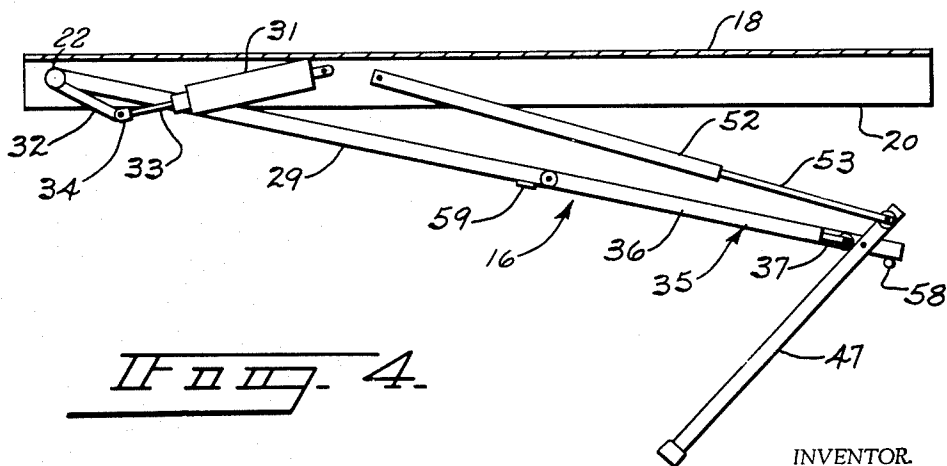


Fig. 4.

INVENTOR
DAVID D. PERCIFULL

BY

Allen & Allen

ATTORNEYS

Feb. 22, 1966

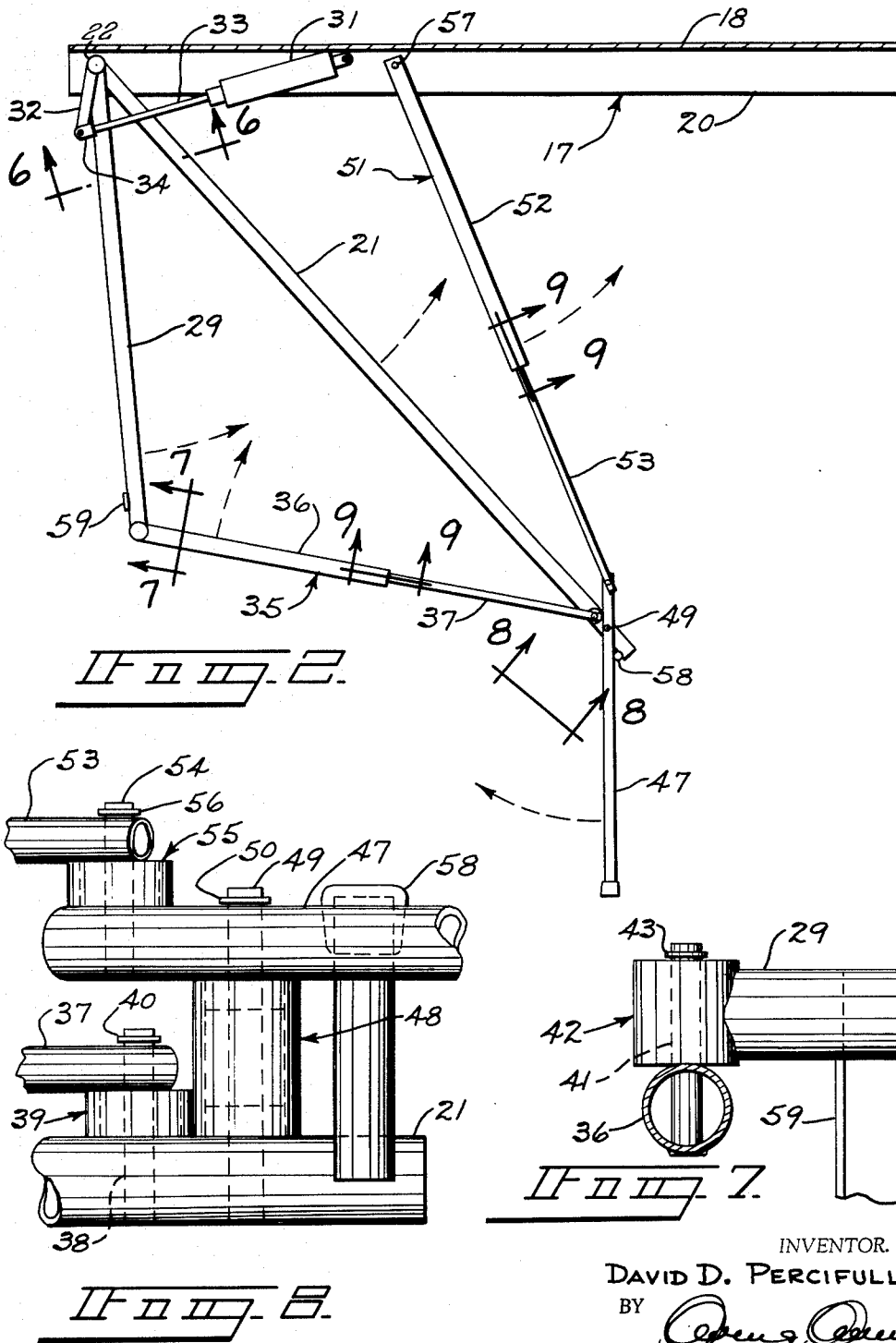
D. D. PERCIFULL

3,236,552

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INVENTOR.
DAVID D. PERCIFULL

BY

David D. Percifull

ATTORNEYS

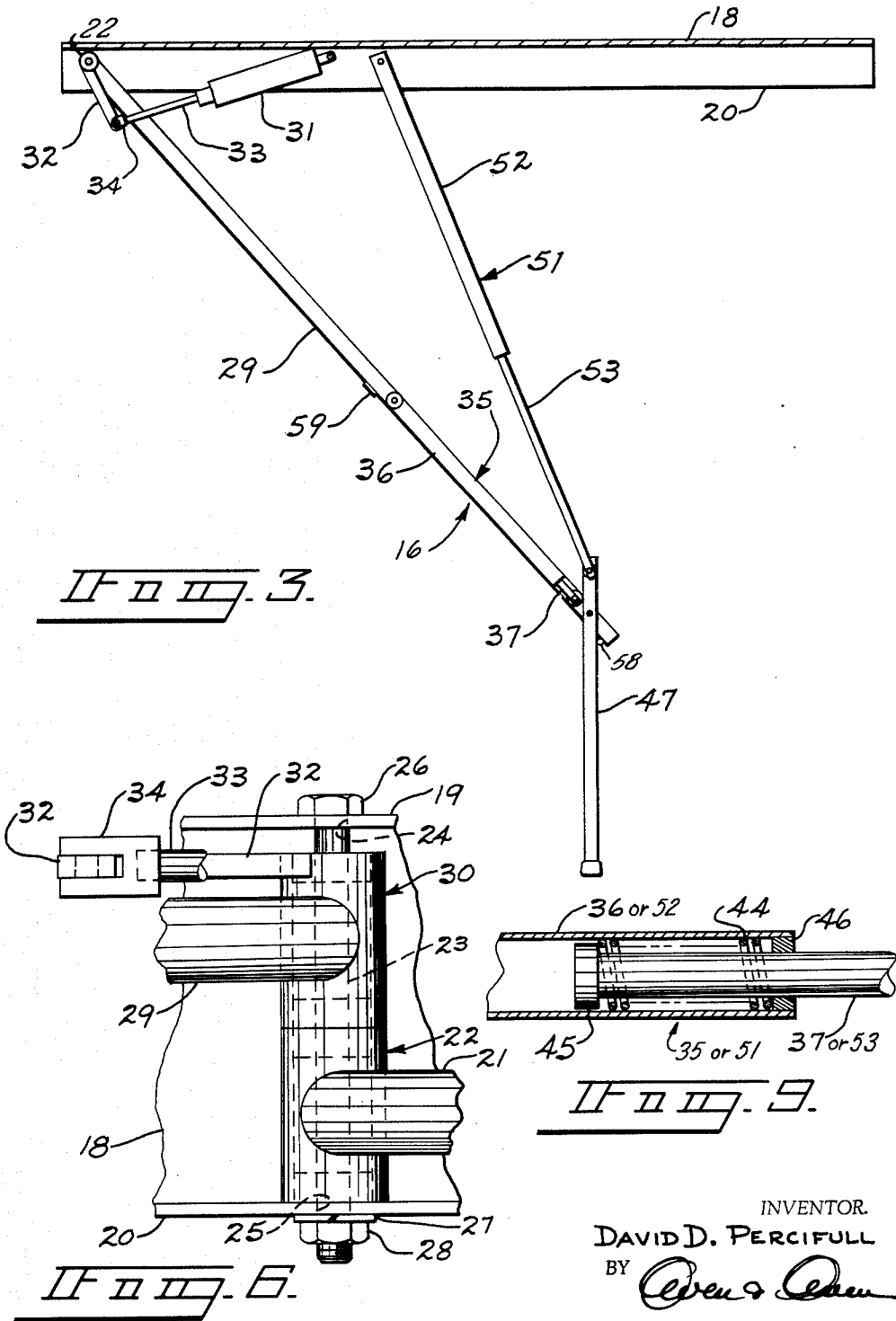
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D. D. PERCIFULL
PEDESTRIAN GUARD

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4 Sheets-Sheet 3



INVENTOR
DAVID D. PERCIFULL

BY *David D. Percifull*

ATTORNEYS

Feb. 22, 1966

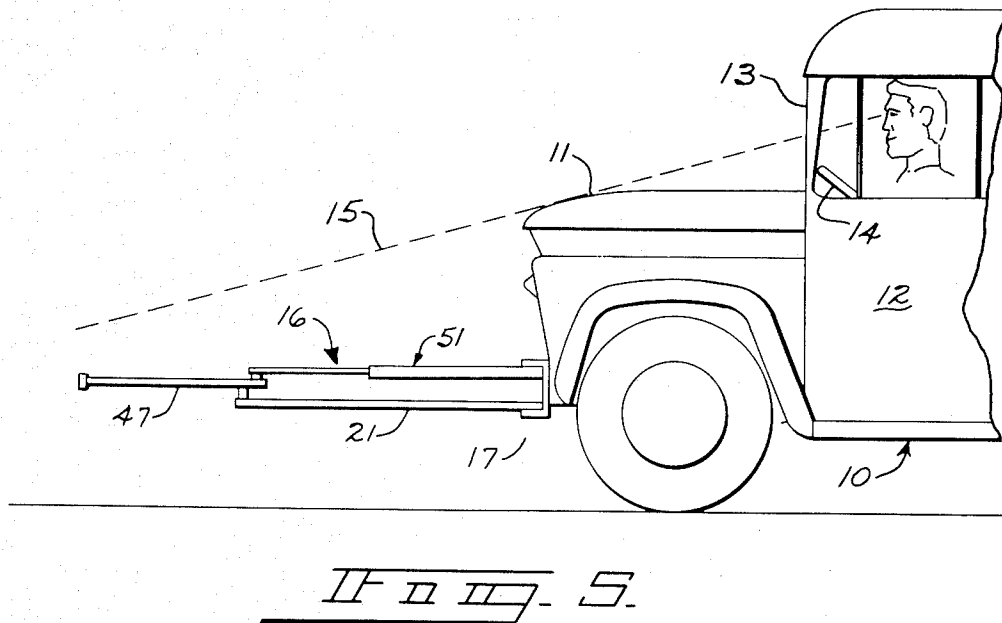
D. D. PERCIFULL

3,236,552

PEDESTRIAN GUARD

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4 Sheets-Sheet 4



INVENTOR.
DAVID D. PERCIFULL

BY

Quinn Quinn

ATTORNEYS

1

3,236,552

PEDESTRIAN GUARD

David D. Percifull, Jonesboro, Ark., assignor to Superior Coach Corporation, Lima, Ohio, a corporation of Ohio
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4 Claims. (Cl. 293-9)

The present invention relates to school buses and the like of the type having a hood which obscures the road immediately in front of the bus from the driver's vision; and more particularly to a pedestrian guard for such a bus which requires children to cross the road far enough ahead of the bus so that they can be seen by the operator.

One type of bus which is commonly used for a school bus has a hood structure which projects forwardly ahead of the portion of the body in which the driver sits to obscure the road immediately ahead of the front of the bus. The hood structures which are used are usually so high as to prevent the operator of the bus from seeing small children standing immediately in front of the bus. Inasmuch as it is customary for school children to cross the road in front of a school bus when the operator of the bus indicates that it is safe for the children to cross the road, a very great danger exists that a small child standing closely adjacent the front of the bus will be unobservable by the operator, and that the operator will start up the bus before the child has removed himself from the path of the bus.

An object of the present invention therefore is the provision of the new and improved school bus arrangement wherein an obstruction is provided on the bus which can be moved into position ahead of the bus to prevent children from crossing the road in the region closely adjacent the front of the bus where they cannot be observed by the operator.

Another object of the invention is the provision of a new and improved school bus arrangement of the above described type in which the obstruction can be retracted into the front of the bus.

A more particular object of the invention is the provision of the new and improved school bus arrangement of the above mentioned type in which the obstruction retracts into the front bumper of the bus.

Further objects and advantages of the invention will become apparent to those skilled in the art to which the invention relates from the following specification described with reference to the accompanying drawings forming a part of this specification, and in which:

FIG. 1 is an oblique view looking downwardly at the front of a school bus to show a pedestrian guard gate structure projecting forwardly from its front bumper;

FIG. 2 is a plan view of the pedestrian guard gate structure shown in FIG. 1 and in which the pedestrian guard gate structure is shown after it has started to retract slightly from the position shown in FIG. 1;

FIG. 3 is a plan view of the gate structure showing it in a further stage of retraction from that shown in FIG. 2;

FIG. 4 is a plan view of the gate structure showing it in a further stage of retraction from that shown in FIG. 3;

FIG. 5 is a side view showing the front of the bus with the gate structure fully extended;

FIG. 6 is a fragmentary sectional view taken approximately on the line 6-6 of FIG. 2;

FIG. 7 is a fragmentary sectional view taken approximately on the line 7-7 of FIG. 2;

FIG. 8 is a fragmentary sectional view taken approximately on the line 8-8 of FIG. 2; and

FIG. 9 is a fragmentary sectional view taken approxi-

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mately on the lines 9-9 of FIG. 2 showing the construction of two identical telescopic connections.

Referring to the drawings there is shown therein a school bus 10 of the type having a hood structure 11 which projects forwardly from the portion 12 of the body in which the operator of the vehicle sits. The operator of the vehicle sits in a seat, not shown, which is positioned rearwardly of the hood structure 11, and the operator looks out over the hood structure 11 through a front windshield 13 that is located above the rear end of the hood 11. The steering wheel 14 and other controls for the vehicle are located in fixed positions behind the windshield 13, and the seat on which the operator sits is so positioned that the average person can reach these controls and can look out through the windshield to view the road ahead. In the type of school bus with which we are concerned, the top of the hood 11 may be between four and five feet above the surface of the road, and the front of the hood may be six to seven feet ahead of the driver's seat. Although the height of individual operators may vary somewhat, the position of the eyes of the operators with respect to the windshield will not vary greatly, so that there exists a lower limit for the line of sight 15 for all operators which is limited by the front top of the hood 11 and which intersects the road approximately twelve feet ahead of the bus. There exists a blind spot therefore for all operators wherein small children standing immediately in front of the hood cannot be seen.

According to the objects of the invention, it is desired to provide structure on the front of the bus 10 which will require the children to cross in front of the standing bus, far enough ahead of the hood 11 so that at least the heads of the smallest school children will project above the lower limit 15 of the line of sight of the operator of the vehicle. This structure must be retractable into the body of the vehicle, preferably the bumper, so that there is no protruding structure while the vehicle is in motion and so that it is protected and housed except while it is in use.

The bus shown in the drawing is provided with a pedestrian guard 16 which is retractable into the front bumper 17 of the bus. The front bumper 17 is of channel cross section having a closed back 18 and top and bottom forwardly extending flanges 19 and 20 respectively. The pedestrian guard 16 comprises a main arm or tube 21 having a bearing structure 22 welded to one end, and by means of which it is pivotally attached to the right hand side of the front bumper 17. The bearing structure 22 rests upon the bottom flange 20 and is pivoted about a headed bolt 23 which extends downwardly through aligned openings 24 and 25 in the top and bottom flanges respectively. The head 26 of the bolt 23 rests upon the top flange 19 and the lower end of the bolt is secured by the washer 27 and nut 28.

The pedestrian guard 16 includes an actuating arm 29 which has a bearing structure 30 which is journaled about the bolt 23 above the bearing structure 22. The actuating arm 29 is adapted to be swung between a position lying in the bumper 17 and the position shown in FIG. 1 wherein it is generally at right angles to the bumper 17 by fluid motor actuating means including a hydraulic cylinder 31, and crank arm 32. One end of the hydraulic cylinder 31 is pivotally connected to the bumper 17, and the end of its piston rod 33 is provided with a clevis 34 which is pinned to the end of the crank arm 32. The other end of the crank arm 32 is welded to the bearing structure 30 to rotate the same.

Pivotal movement of the actuating arm 29 is transferred to the main arm 21 by means of a telescopic mem-

ber 35. The telescopic member 35 comprises a tube 36 which telescopically receives one end of a rod 37 whose projecting end is pivoted to a pin 38 that is welded to the outer end of the main arm 21. A bearing block 39 (see FIGURE 8) is positioned between the main arm 21 and the rod 37, and the rod 37 is held in place by a snap ring 40. The other end of the tube 36 (see FIGURE 7) is welded to a pin 41 which projects up through, and is received in, a bearing structure 42 that is welded to the end of the actuating arm 29. The structure is held together by a snap ring 43 seated in a groove in the upper end of the pin 41. Separation of the tube 36 and rod 37 is prevented by a coil spring 44 (FIG. 9) positioned around the rod 37 between a collar 45 on the end of the rod and an annular guide bearing 46 in the end of the tube.

The pedestrian guard 16 further includes a member 47 which is pivoted to the outer end of the main arm 21, so that a major portion of the member 47 projects forwardly of the main arm 21 in the open position of the pedestrian guard 16. The member 47 includes a bearing structure 48 which fits around a pin 49 welded to the main arm 21, and the member 47 is held onto the pin 49 by a snap ring 50.

The telescopic members 51 and 35 are substantially identical. Pivotal movement of member 47 around its pivot pin 49 is produced by a telescopic member 51 which connects the short end of the member 47 with the top flange 19 of the bumper 17. The telescopic member 51 has a tube 52 which telescopically receives a rod 53. The free end of the rod 53 is pivoted to a pin 54 that is welded to the end of the member 47. A bearing structure 55 is positioned between the rods 53 and member 47, and the structure is held together by a snap ring 56 that is seated in a groove in the upper end of the pin 54. The guide and retention structure between the tube 52 and rod 53 is identical to that between the tube 36 and rod 37, and the free end of the tube 52 is pivoted to the top flange 19 of the bumper as at 57.

The pedestrian guard 16 is shown fully extended in FIG. 1 and is shown in progressive stages of retraction into the bumper 17 in FIGS. 2 through 4 respectively. When the pedestrian guard is fully extended, the spring 44 supplies tension between the tube 52 and rod 53 to swing the member 47 counterclockwise around the pin 49 to hold the guard bar against a stop 58 on the outer end of main bar 21. In the extended position of the pedestrian guard, the children stand in front of the telescopic member 35 well clear of the member 47 until the pedestrian guard is retracted slightly to an intermediate position to permit the children to cross the road. During the initial retractile movement of the pedestrian guard from its extended position to an intermediate position, the member 47 is rotated from its forwardly extended or actuated position to a normal position generally parallel with the bumper 17. In the intermediate position of the pedestrian guard, the guard is still sufficiently extended to hold the children in a position where they can still be seen. Movement of the member 47 is used by the driver of the vehicle to indicate to the children when it is safe to cross in front of the bus. Movement of the pedestrian guard from the intermediate position to the retracted position, of course, collapses the telescopic members 35 and 51 and folds the structure into the bumper 17.

When hydraulic pressure is communicated to the outer end of hydraulic cylinder 31 to collapse the cylinder, its piston rod 33 is pulled inwardly to rotate the crank arm 32 and actuating arm 29 counterclockwise as seen in the drawings. The outer end of the actuating arm 29 has a depending lug 59 which contacts the main arm 21 when the telescopic member 35 overlies the main arm 21 (see FIG. 3). After the spring 44 in telescopic member 51 is expanded, rod 53 pushes on the member 47 to rotate the member 47 clockwise. This occurs before the mem-

bers 35 and 21 have moved any appreciable distance toward the bumper so that the children are caused to remain well ahead of the bus.

The bus will normally be moved between school bus stops with the pedestrian guard folded into the bumper 17. When the bus is stopped at a road crossing point, hydraulic pressure is supplied to the inner end of the cylinder 31 to rotate the actuating arm 29 and extend the telescopic member 35. Thereafter the telescopic member 35 pulls the main arm 21 out of the bumper 17 to extend the telescopic member 51, and then swing the guard arm 47 counterclockwise against the stop 58. When the telescopic member 51 is fully expanded the gate structure will be in its fully extended position shown in FIG. 1.

It will be apparent that the objects heretofore enumerated as well as others have been accomplished and that there has been provided a school bus and the like having an extensible structure on the front end of the bus which requires children to pass far enough ahead of the bus to be seen by the operator of the vehicle.

While the invention has been described in considerable detail, I do not wish to be limited to the particular embodiment shown and described, and it is my intention to cover hereby all novel adaptations, modifications, and arrangements thereof which come within the practice of those skilled in the art to which the invention relates.

What I claim is:

1. A pedestrian guard for a school bus and the like having a body with a normally used passenger exit door on one side of the vehicle, and comprising: a guard structure supporting on one end of the vehicle, said guard structure being movable from a retracted position adjacent the body through an intermediate position to an extended position wherein at least a portion of said guard structure projects forwardly of the door side of the body, means for moving said guard structure between said extended and retracted positions through said intermediate position, a movable member mounted adjacent the outer end of said guard structure, said movable member having normal and actuated positions viewable from the door side of said structure, and means for moving said movable member between said normal and said actuated positions when said guard structure is moved out of its retracted position.

2. The structure of claim 1 wherein mechanical means is provided for moving said movable member between said normal and actuated positions, said mechanical means being constructed and arranged to utilize movement of said guard structure from said extended position to said intermediate position for moving said movable member from said actuated position to said normal position.

3. A school bus and the like having a normally used passenger exit door on one side of the vehicle, and comprising: a bumper extending horizontally across the front of said vehicle, said bumper having a horizontal recess extending across its front face, a guard structure hinged to said front bumper, said guard structure being movable from a retracted position wherein said guard structure is housed within said horizontal recess through an intermediate position to an extended position wherein at least a portion of said guard structure projects forwardly of the door side of the vehicle, means for moving said guard structure between said extended and retracted positions, a movable member mounted adjacent the outer end of said guard structure, said movable member having normal and actuated positions viewable from the door side of said structure, and linkage means actuated by movement of said guard structure from said extended position to said intermediate position for moving said movable member from said actuated position to said normal position.

4. A pedestrian guard for a school bus and the like having a body with a normally used passenger exit door on one side of the vehicle, and comprising: a main gate

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arm the inner end of which is pivoted to the door side of the front end of the body, an actuating arm the inner end of which is pivoted to the door side of the front end of the body and arranged to move forwardly of said gate arm, a first telescopic member connected between the outer ends of said main gate arm and said actuating arm, a member pivoted to the outer end of said main gate arm at a point between the ends of said member, a second telescopic member connecting one end of said member to the front end of said body, means for moving said actuating arm from a position across the front end of said body to a position extending forwardly of said body, first stop means limiting the extension of said first telescopic member to pull said main gate arm to an open position wherein it forms an acute angle with the front of said body when said actuating arm is in its forwardly extending position, and second stop means limiting the extension of said second telescopic member to swing said member to a forwardly extending position when said main gate arm is in its open position.

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ARTHUR L. LA POINT, *Primary Examiner.*LEO QUACKENBUSH, MILTON BUCHLER,
Examiners.