

July 17, 1951

E. W. VARS

2,561,081

SUSPENDING, LATCHING AND LOCKING MEANS FOR TAIL GATES

Filed Dec. 6, 1946

4 Sheets-Sheet 1

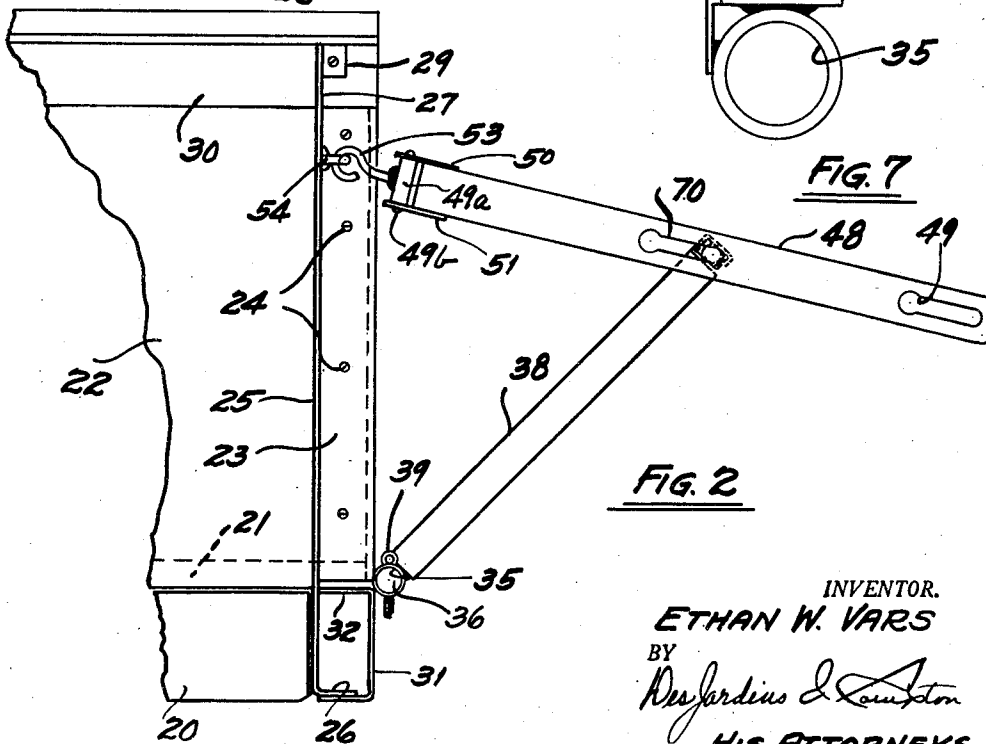
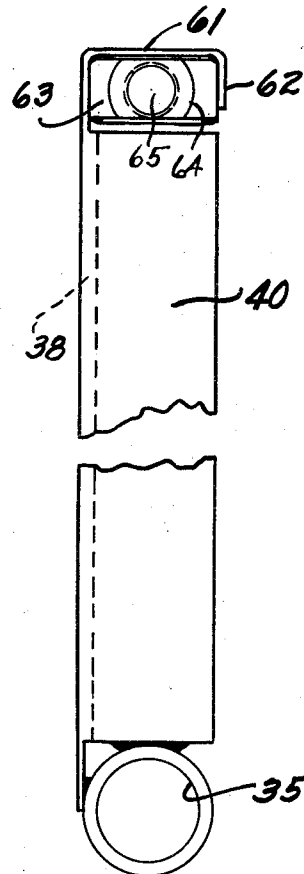
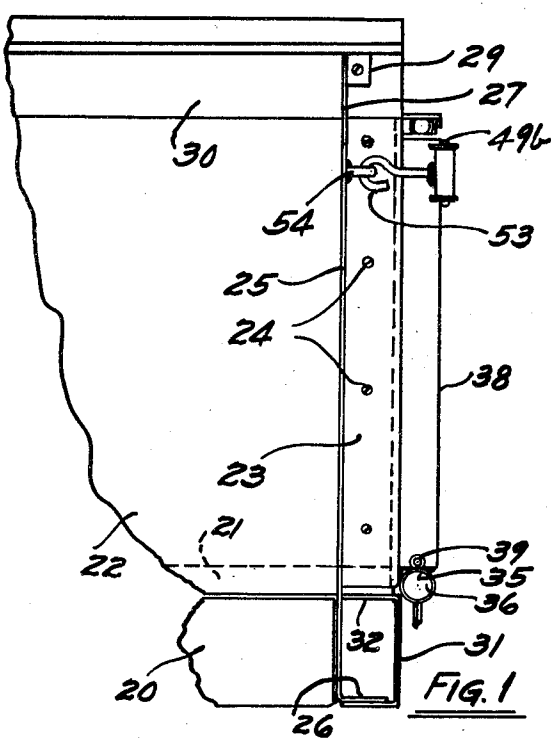


FIG. 2

FIG. 7

INVENTOR.  
ETHAN W. VARS  
BY  
*Dee Jardins & Son*  
HIS ATTORNEYS

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E. W. VARS

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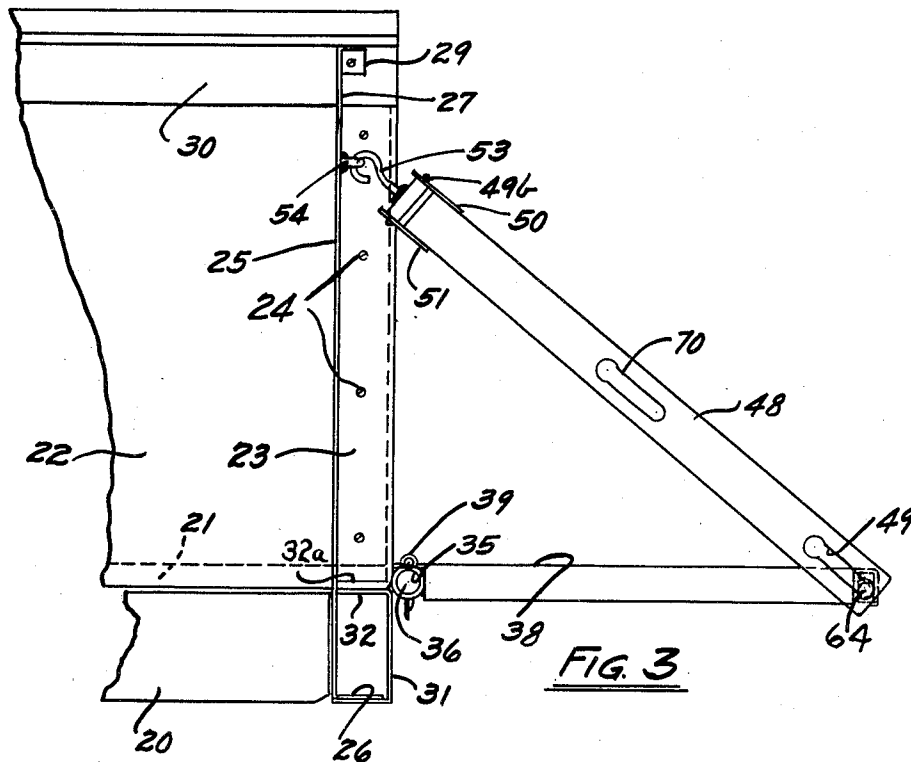


FIG. 3

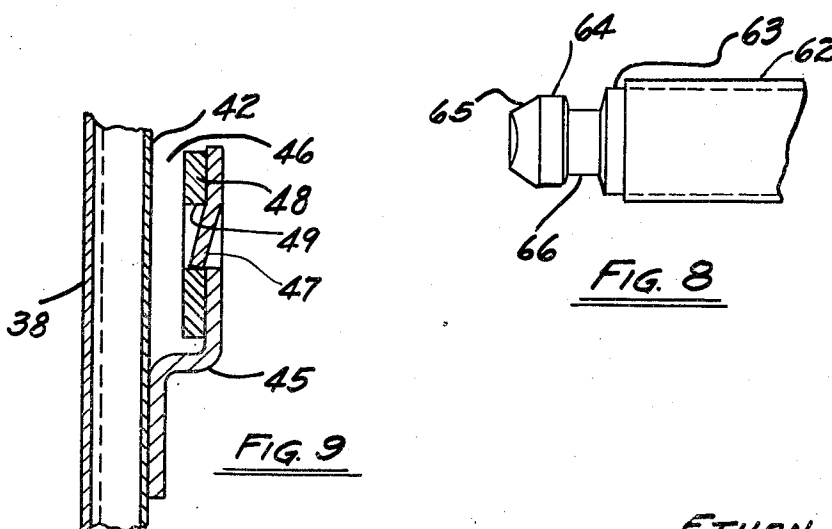


FIG. 8

FIG. 9

INVENTOR.  
**ETHAN W. VARS**  
 BY  
*Desjardins & Campbell*  
 HIS ATTORNEYS

July 17, 1951

E. W. VARS

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4 Sheets-Sheet 3

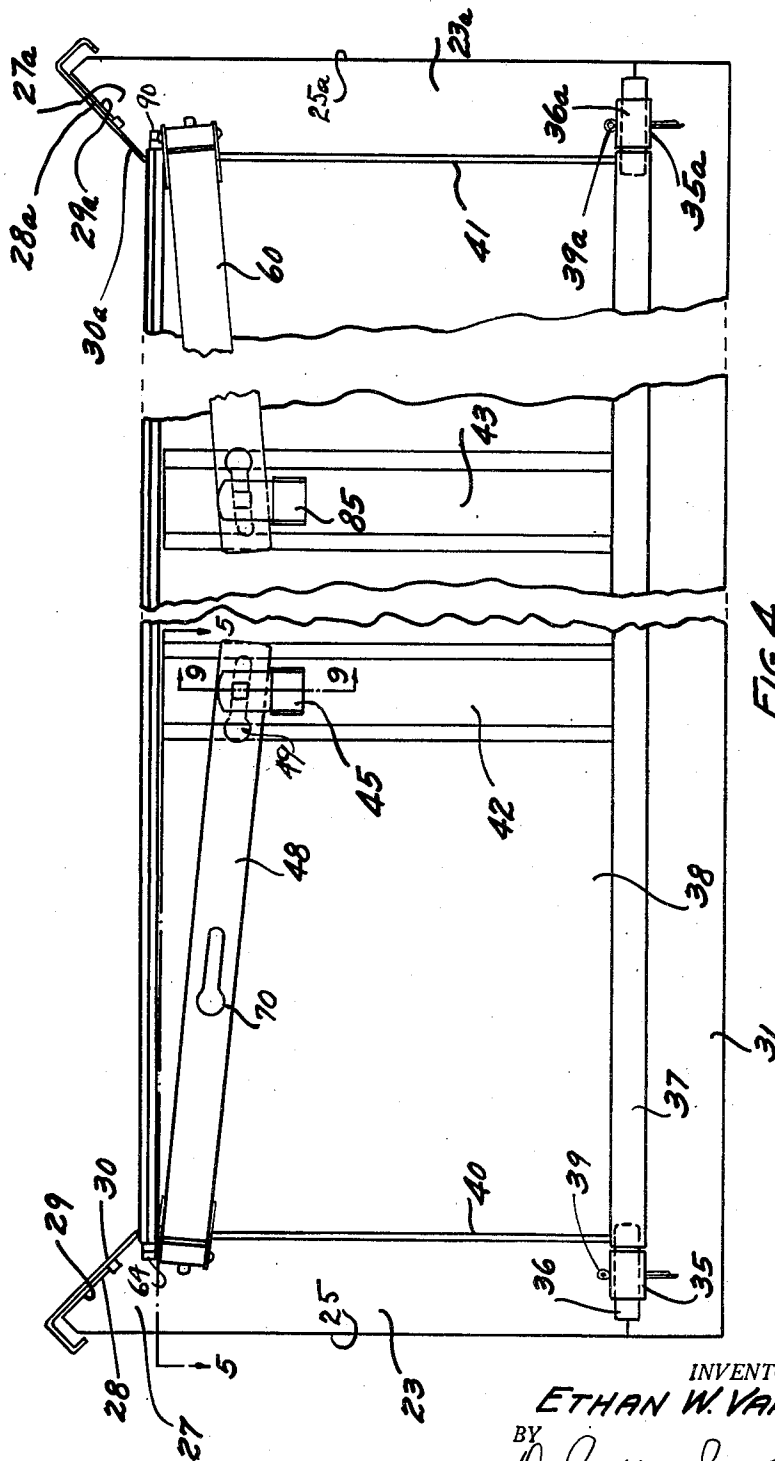


FIG. 4

INVENTOR.  
**ETHAN W. VARS**  
BY  
*Res. Jardine & Lupton*  
HIS ATTORNEYS

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E. W. VARS

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4 Sheets-Sheet 4

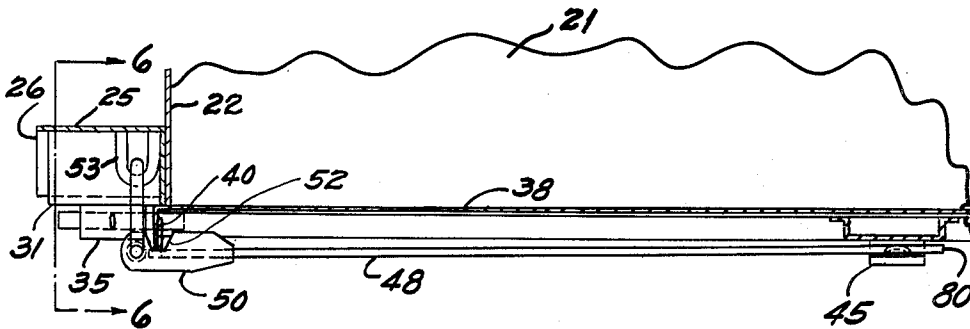


FIG. 5

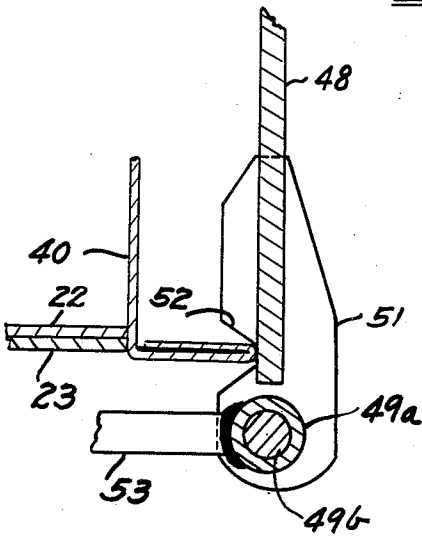


FIG. 10

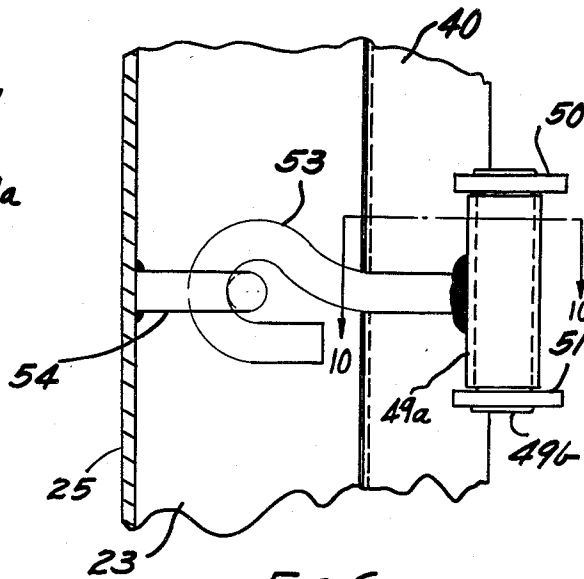


FIG. 6

INVENTOR.  
**ETHAN W. VARS**  
BY  
*Desjardins & Son*  
HIS ATTORNEYS

## UNITED STATES PATENT OFFICE

2,561,081

SUSPENDING, LATCHING, AND LOCKING  
MEANS FOR TAIL GATES

Ethan W. Vars, Duncannon, Pa., assignor, by  
mesne assignments, to George Harold Bell &  
Associates, York, Pa., a partnership

Application December 6, 1946, Serial No. 714,365

1 Claim. (Cl. 292—268)

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This invention relates to suspending, latching and locking means for a tail gate swingable about a horizontal hinge located on the rear end of a bed of a vehicle, and more particularly pertains to such a device wherein a portion of the latching and locking means also provides the suspending means by which the tail gate may be held in a selected one of various positions as it is swung outwardly and downwardly on its hinges.

The invention is adapted to be used in connection with vehicular bodies having side panels against which such tail gate may be swung upwardly to form a bed end closure. The invention is particularly novel in the simplicity of its operation, in the fact that the parts constituting the latching, locking and suspending means are permanently attached to the vehicle so that the danger of their loss is avoided, in the fact that the device is rattleproof, and in the fact that the device is cheap to manufacture and install.

In general my device includes two rigid but resilient metal straps, one strap being hinged to a swivel on one side panel of the vehicle at its rear end and the other strap being hinged to a swivel attached in a corresponding position on the other side panel at its rear end. The straps are used to lever the tail gate to closed position and to latch it in place, keepers for the straps being provided for that purpose. The straps have keyhole apertures at variously spaced intervals, along their lengths, corresponding to gate opening positions, to engage studs extending laterally from the outer edge of the tail gate. The last of said apertures on the outer ends of the straps also cooperate with keeper and latching devices which are located on the rear face of the tail gate as it is swung upwardly to closed position, so that the straps are retained in place against the forces, caused by the bouncing of the vehicle on a road, which tend to displace them. The hinge straps are provided with notched plates which are specifically adapted to cooperate with vertical portions of the tail gate, as it is moved near closed position, to center the straps horizontally and prevent movement of them after the forcing of the straps to home position and springingly inserting the ends thereof into the keepers to hold the tail gate closed.

Therefore, it is the principal object of this invention to provide novel latching, locking, and suspending means for a tail gate hingedly mounted on the rear end of a vehicular body.

Another object of the invention is to provide means, attached to a vehicular body, which act both in the capacity of a tail gate suspension

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means, whereby the tail gate may be suspended in any one of a plurality of open positions, and also as a tail gate closing, locking and latching means which is operable to hold the tail gate swung upwardly and closed against the side panels to form a closed end vehicle bed.

Further objects, and objects relating to details of construction and economies of operation, will readily appear from the detailed description to follow. In one instance I have accomplished the objects of my invention by the devices and means set forth in the following specification. My invention is clearly defined and pointed out in the appended claim. A structure, constituting a preferred embodiment of my invention, is illustrated in the accompanying drawings forming a part of this specification, in which:

Fig. 1 is a view in side elevation of the left rear-end of a vehicle body, showing a tail gate swingable about a horizontal hinge fastened to the bed of the body, the tail gate being in upwardly swung closed position and locked.

Fig. 2 is a view similar to Fig. 1 but showing the tail gate swung open to an intermediate position between vertical and horizontal, and suspended by means of my novel device.

Fig. 3 is a view similar to Figs. 1 and 2, showing the tail gate swung open to a horizontal position and suspended there by means of my novel device.

Fig. 4 is an elevation of the rear end of the vehicle body shown in Fig. 1, with certain parts broken away for convenience, showing the tail gate in upwardly swung, closed position, and latched in place by my novel device.

Fig. 5 is a view of the substance of a part of Fig. 4, on the line 5—5 thereof, looking in the direction of the arrows at the ends of the section line.

Fig. 6 is a view of a part of the substance of Fig. 5, on the line 6—6 thereof, looking in the direction of the arrows at the ends of the section line.

Fig. 7 is a left end elevation of the tail gate. Fig. 8 is a detail view showing one of the studs projecting laterally from the free edge of the tail gate, which stud is provided to engage keyhole apertures in the suspending strap associated therewith.

Fig. 9 is a view of a part of the substance of Fig. 4 on the line 9—9 thereof, looking in the direction of the arrows at the ends of the section line.

Fig. 10 is an enlarged detail of one of the strap hinges taken on the line 10—10 of Fig. 6.

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In the drawings, the same reference numerals refer to the same 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 Figs. 1, 2, 3 and 4, there is shown a typical vehicle body, having sill members such as a left sill member 20, and a right sill member, not shown, which support a body bed 21, to form the base frame work of the vehicle body. Extending upwardly on either side of the bed are side panels, like left side panel 22. On the rear vertical edge of each side panel is secured an angle piece, like angle piece 23 secured to left side panel 22, by means of bolts or rivets 24. A similar angle piece 23a is secured to the rear end of the right side panel. A left flange 25 and a right flange 25a (Fig. 4) extend below the bed and turn rearwardly, as at 26 (Fig. 3). Each angle piece has an upward extension, 27 and 27a (Fig. 4) chamfered, as at 28 and 28a, and bent over, as at 29 and 29a, to support the flared edges 30 and 30a respectively of the side panels. Secured to the rearwardly extending flanges, like flange 26 and the corresponding flange on the right side, is a rear channel member 31 whose top side 32 is directly under the rear end of bed 21.

Secured to a plate 32a (Fig. 3) fastened to member 23, is a collar 35, through which pin 36 extends into the open end of a pipe 37 (Fig. 4) welded to the bottom edge of a tail gate 38. Pin 36 is held in place by cotter pin 39 which extends through holes in the collar 35 and pin 36. A similar collar 35a and pin 36a support the right end of the tail gate (Fig. 4). The tail gate, as viewed in closed position shown in Fig. 4, has a rearwardly extending left vertical flange 40 and a rearwardly extending right vertical flange 41. Vertical battens 42 and 43, secured on the tail gate, are positioned on either side of the central vertical line of the tail gate, and each has near the top thereof a keeper, in the form of a bracket, each keeper having an upwardly extending mouth to receive a latching strap. Referring to Fig. 9, batten 42 has the keeper bracket 45 secured thereto, said bracket having an upwardly extending mouth 46 into which an inwardly and downwardly extending tongue 47 extends. Latching strap 48 has an aperture 49 which, when the strap is placed in the mouth of the bracket 45 and pushed downwardly, is engaged by the tongue 47 in a locking manner. Secured to the edges of strap 48, near the end, are plates 50 and 51 which have the contour shown in Fig. 5, which contour provides a notch 52, used for a purpose to be described. The plates 50 and 51 have between them a cylinder 49a which with pin 49b forms a hinge. Extending from cylinder 49a is a hook 53 (Fig. 2) which engages a staple 54 secured to flange 25. The hook and staple connection 53—54 and the hinge and pin coupling 49b and 49a provide a swivel effect for the strap 48, enabling it to be swung up and down in the plane of the side panel 22, or to be swung around in a horizontal plane to the rear of the tail gate, when it is swung upwardly to closed position, as is shown in Figs. 1, 4 and 5. Strap 60 (Fig. 4), for the right side, is coupled in a like manner to the flange 23a on the right side of the vehicle body.

Referring to Fig. 7, there is shown the left end of the tail gate, wherein it is seen that the left flange 40 does not extend to the top of the tail gate and that the top of the plate which forms

the tail gate is bent over as at 61 and downwardly as at 62 to form a rim in which is carried a metal bar 63 (see also Fig. 8) having on its left end a stud 64 having a conical tip 65 and a neck 66. Referring to Fig. 3, it is seen that the aperture 49 is of keyhole shape, the enlarged part of the hole being adapted to receive the stud as far as the neck 66 after which the neck portion of the stud may travel in the narrow part of the keyhole slot. Other keyhole slots such as slot 70 may be provided along the length of the strap to engage with the stud 64 in the manner explained. Preferably, the outermost slot 49, when engaged by the stud 64, causes the tail gate to be positioned horizontally in line with the bed 21. By swinging the tail gate upwardly the stud may be engaged in the slot 70, for instance, to hold the tail gate in an intermediate position between the horizontal position as shown in Fig. 2, and the fully closed position shown in Fig. 1. Although only two slots are shown in the strap 48, it is evident, and it is contemplated, that more than two slots may be placed in a strap according to the need, in order to get finer adjustment.

Details of the swivel for the left side of the vehicle are shown in Figs. 6 and 10, wherein the hinge, formed at the end of the strap 48 is shown vertical because the strap has been moved to horizontal position and swung around the rear surface of the closed tail gate. A plan view of this condition is shown in Fig. 5, wherein the cooperation of the plate 50 and notch 52 with the flange 40 is shown. Plate 51 (Fig. 6) serves the same function. As the strap 48 is brought to the position shown in Fig. 5, the strap at the bottom of the notch 52 exerts a powerful force against flange 40 of the tail gate, drawing the tail gate snug against the side plate 22. At the same time the sides of the notch prevent horizontal shifting of the strap so that the latch means to be described is centered. At this point, strap 48 is resiliently bent slightly so that the end 80 thereof can be lowered into the mouth of the bracket 45 and latched therein by reason of the aperture 49 being engaged by the tongue 47 when the strap 48 moves outwardly to the rear of the bracket to locked position under tension. The right strap 60 (Fig. 4) performs the same function in connection with the bracket 85 so that the tail gate may be latched and locked from both sides, in a balanced manner.

The right strap 60 is used also to balance suspension of the gate in open position by engagement of slots therein by the stud 90 (Fig. 4) on the right end of the tail gate.

It will be understood from the foregoing that, in operation, assuming the tail gate is in closed position, as shown in Fig. 4, the operator will lift straps 48 and 60 out of the brackets 45 and 85, open the tail gate to the desired position, and adjust the projecting studs 64 and 90 on the end of the tail gate into the required apertures in the associated straps to hold the tail gate suspended in the desired position. It will be evident, that the placement of the brackets should be such that the tongues therein will engage with the associated strap when in latching position, in one of the apertures therein, preferably the outermost one. It will be also be evident that it is desirable that the apertures in the two straps be placed in equivalent paired positions in the straps so that they both may function as supports and suspension for the tail gate for each possible position thereof, to prevent warping.

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Throughout the drawings the material contemplated for use for the various parts is metal, and the parts are secured together by welding where not otherwise noted. It will be apparent that wood or other material, and other fastening means may be used for the vehicle bed without departing from the principle of the invention.

I am aware that the particular embodiment of my invention, shown and described herein, can be varied considerably without departing from the spirit thereof and, therefore, I claim my invention broadly as indicated by the appended claim.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent, is:

A latching and locking device for an outwardly and downwardly swinging tail gate for a vehicular body having side panels, including, in combination, a swivel device attached to the rear end of each side panel above the points at which said tail gate is swingable; a resiliently bendable strap for each swivel, hinged at one end to its associated swivel and having an aperture near its other end, and a bracket for each strap fastened on the outer face of the tail gate slightly toward the associated vertical edge of the tail gate from

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the vertical center line thereof and each bracket having an upwardly opening mouth to receive the free end of the associated strap, and each bracket having an inwardly and downwardly projecting tongue in its mouth, whereby to hold the tail gate locked and latched when the straps are held in the mouths of the brackets the tongues thereof engaging the apertures in said straps.

ETHAN W. VARS.

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