United States Patent

[11] 3,559,826

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[54] **AUTOMOTIVE CHASSIS**
8 Claims, 13 Drawing Figs.

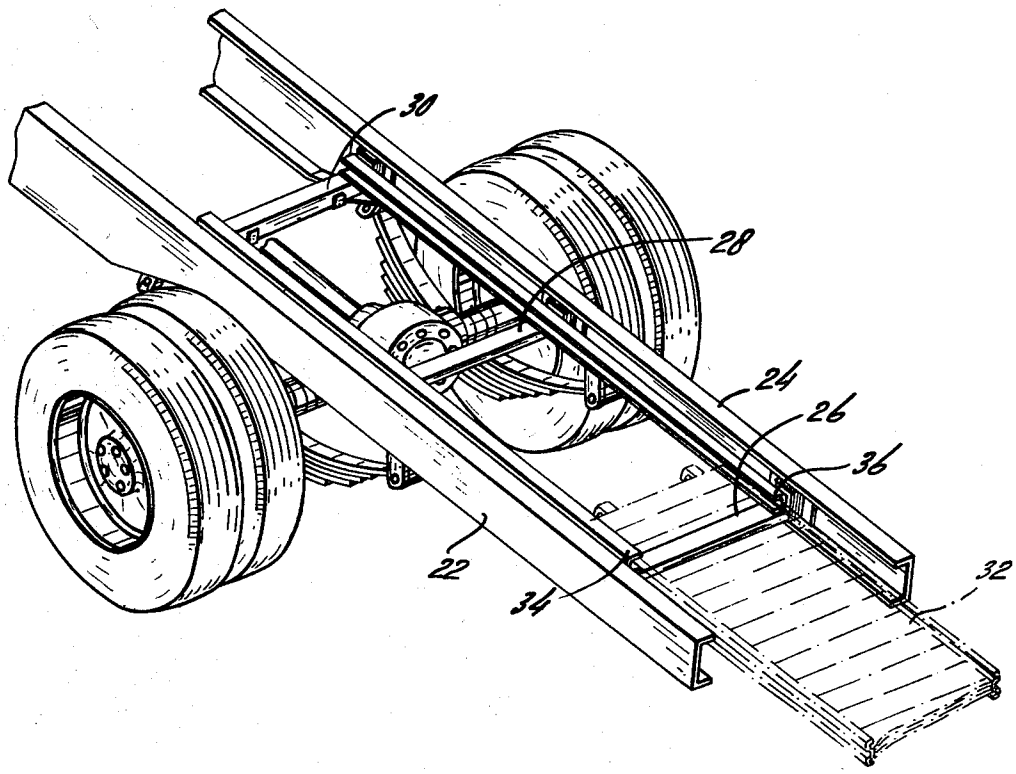
[52] **U.S. Cl.** **214/85,** 296/26, 296/28, 296/61
[51] **Int. Cl.** **B65g 69/28**
[50] **Field of Search** 214/85, 83.24, 83.26, 515, 38.8; 280/166; 296/61, 26, 28

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Primary Examiner—Albert J. Makay
Attorney—David H. Semmes

ABSTRACT: An automotive chassis of the type including a pair of longitudinally extending channels and a plurality of transverse cross members intersecting said channels, the transverse members being of a reduced cross section so as to define a longitudinally extending storage space intermediate the tops of the transverse cross members and the tops of the pair of channels, particularly such a construction used to support a longitudinally extending ramp slidable from the rear end of the chassis to facilitate loading of the truck.



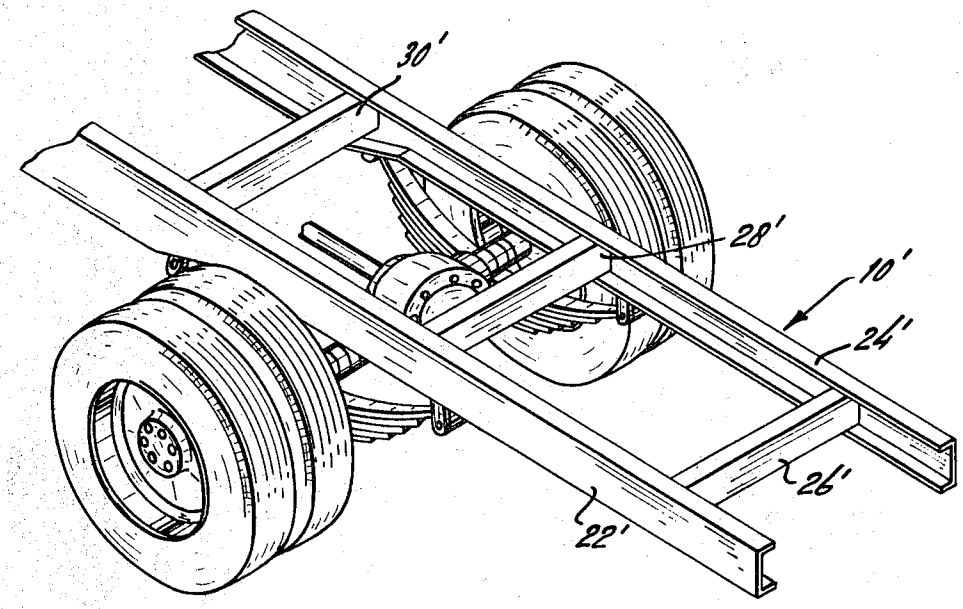


FIG. 1

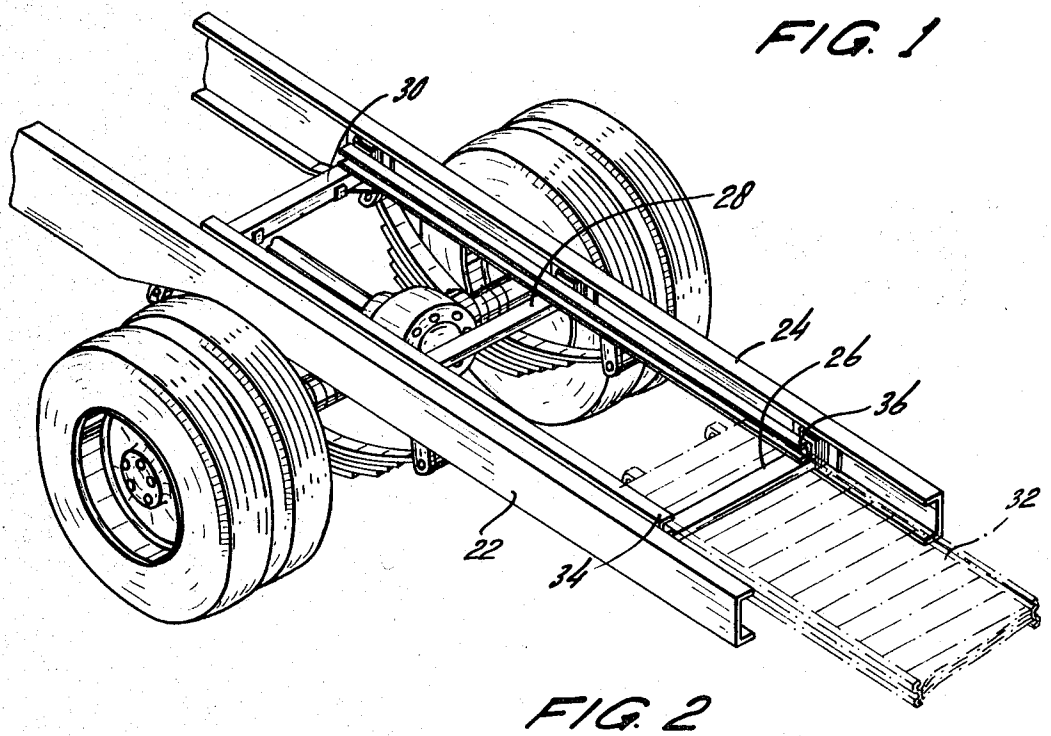


FIG. 2

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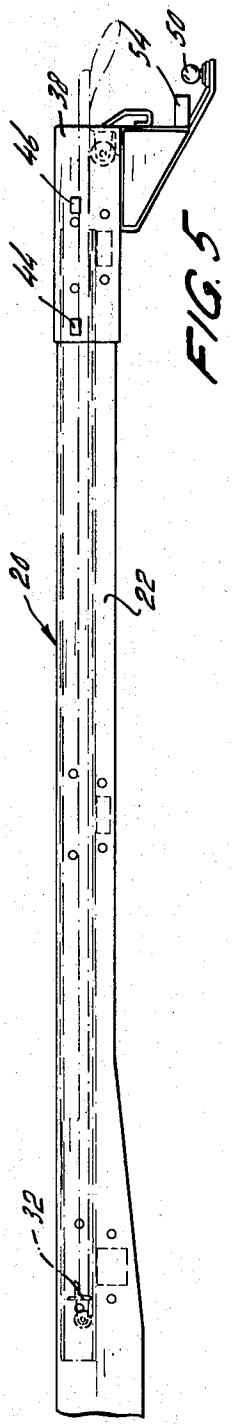


FIG. 5

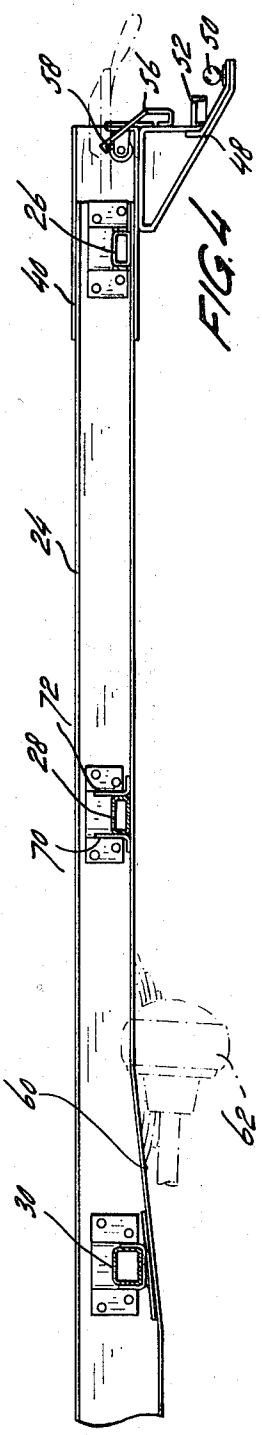


FIG. 4

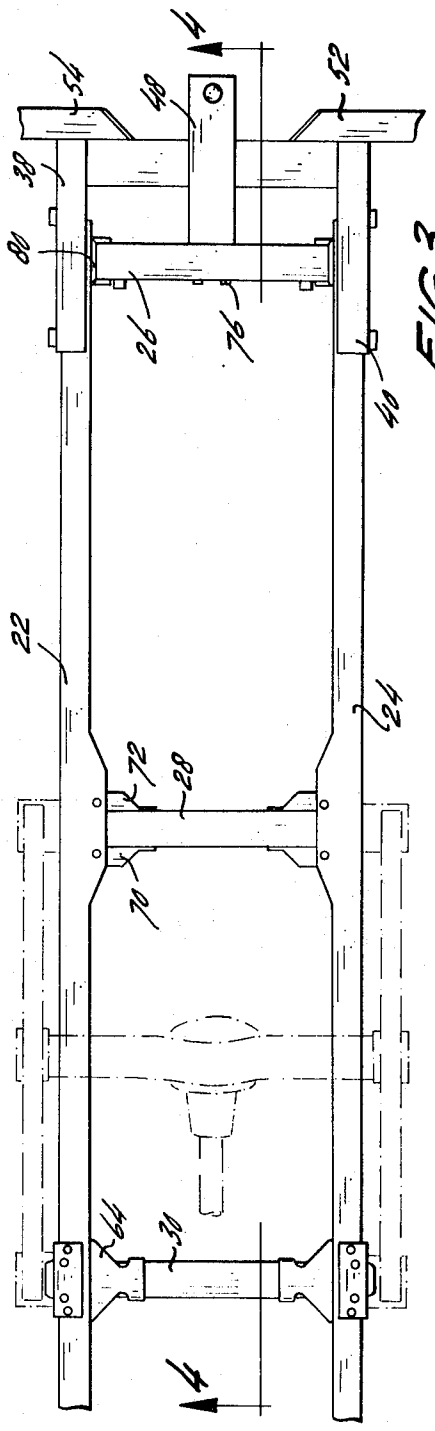


FIG. 3

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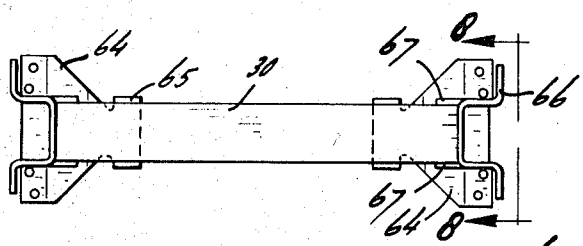


FIG. 6

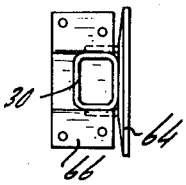


FIG. 8

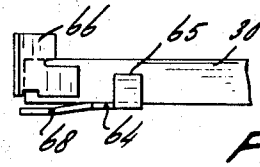


FIG. 7

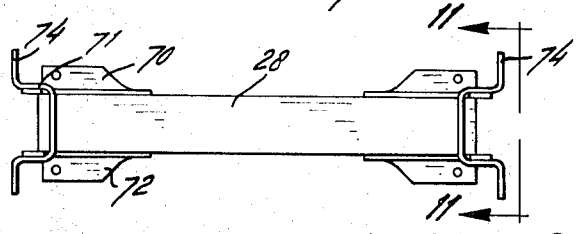


FIG. 9

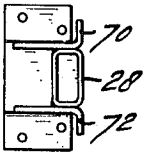


FIG. 11

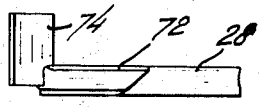


FIG. 10

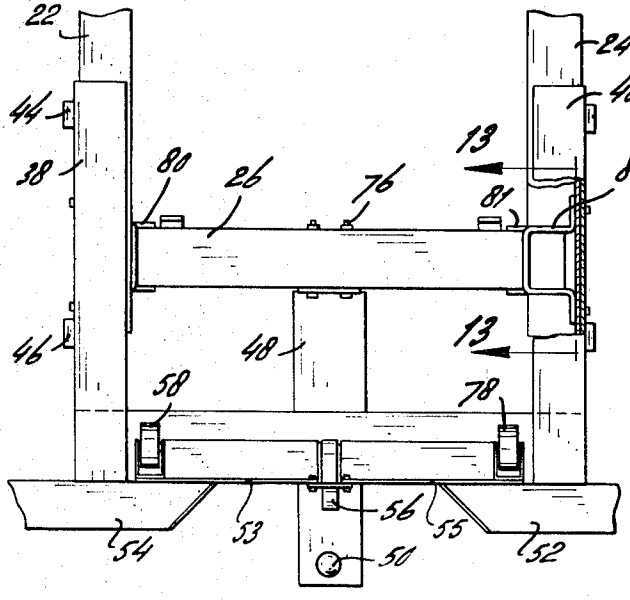


FIG. 12

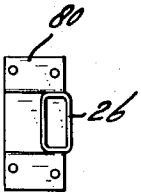


FIG. 13

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AUTOMOTIVE CHASSIS

CROSS-REFERENCES TO RELATED APPLICATIONS

Ramp Assembly (Ser. No. 787,188), filed Dec. 26, 1968.

In the earlier application, there was disclosed a ramp assembly, slidably positioned within a modified truck chassis. The ramp is stored beneath the truck body and within the confines of the chassis, then longitudinally withdrawn from the rear of the chassis. As the ramp is withdrawn, it is pivoted so that the ramp rear end touches the ground, providing an inclined walkway for truck loading.

The present application is restricted to the techniques for modifying a chassis to provide for storage of such a ramp or other materials.

BACKGROUND OF THE INVENTION

1. Field of the Invention

In a typical truck chassis, the longitudinally extending beams and transverse interconnecting struts substantially have the same cross section or height. Very little consideration has been given to modifying or reducing the cross section of the transverse members so as to provide a storage space within the vertical confines of the longitudinally extending beams.

2. Description of the Prior Art

Prior art searching has developed the following: Harley 276,685, Leach 860,752, Huwyler 1,346,891, Pflaum 7,758,372, Slater 2,082,663, Ratcliffe 2,169,661, Terry 2,398,730, Kelberer 2,457,380, Ferguson 2,900,094.

The prior art has directed itself principally to modifying the truck bottom, rather than the chassis, to accommodate slidable ramps. Consequently, the truck body had been required to be heightened by the amount necessary to enclose the slidable ramp. Harley, Huwyler (FIG. 2), Kelberer are typical in this respect, the slidable ramp assembly being positioned intermediate the bottom of the truck body and the chassis.

One inventor has positioned his ramp upon a rotatable drum. Ratcliffe and Slater were selected as showing the slidable positioning of ramp elements on top of the truck body, virtually precluding use of the truck body except for ramp storage purpose. Ferguson articulates his ramp at the rear of the truck body (FIGS. 2 and 3). Terry was selected as showing the positioning of slidable structures upon a hinged support on the vehicle body.

SUMMARY OF THE INVENTION

According to the present invention, the transverse members are constructed from rectangular tubing of reduced cross section and supported within the longitudinal channels by special plates which abut the sides and top of the transverse members. In addition, the longitudinal members are downwardly inclined at their fore end, so as to support the entire assembly above the truck or automobile differential. Guide tracks are supported upon the transverse members, so that a slidable ramp may be reciprocated therein.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary perspective of a conventional truck chassis, having longitudinally extending beams and transverse members of substantially similar cross section or height;

FIG. 2 is a fragmentary perspective of a chassis modified according to the present invention so as to provide a ramp storage space within the confines of the longitudinally extending members;

FIG. 3 is a bottom plan of the modified chassis assembly;

FIG. 4 is a longitudinal section, taken along section line 4–4 of FIG. 3;

FIG. 5 is a side elevation;

FIG. 6 is a top plan of the front transverse member and supporting plates;

FIG. 7 is a fragmentary front elevation of one side of the FIG. 6 construction;

FIG. 8 is an end elevation, taken along line 8–8 of FIG. 6;

FIG. 9 is a top plan of the middle transverse member;

FIG. 10 is a fragmentary elevation from one side of the FIG. 9 construction;

FIG. 11 is an end elevation taken along line 11–11 of FIG. 9;

FIG. 12 is a fragmentary top plan of the rear end of the chassis, as extended, and supporting the rear transverse member; and

FIG. 13 is a transverse section, taken along section line 13–13 of FIG. 12.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. 1 a conventional chassis 10′ is illustrated as having longitudinally extending beams or channels 22′ and 24′ with intersecting transverse rear member 26′, middle member 28′, and front member 30′.

In FIG. 2 a chassis, modified according to the present invention, is illustrated as having identical longitudinally extending beams 22 and 24 with reduced cross section transverse rear member 26, middle member 28, and front member 30. Identical tracks or guide channels 34 and 36 may be supported on top of the transverse member ends as a guide for the wheeled ramp 32 stored within the chassis and shown in phantom.

In FIGS. 3—5, the chassis assembly is shown as extended by means of extension channels 38 and 40 secured to the rear of the longitudinal channels 22 and 24 by means of lugs 44 and 46. The rear transverse member 26 may be supported in these extension channels, which also may support ball socket web 48, ball socket 50, and horizontal guard members 52 and 54.

As illustrated in FIG. 12, a locking lever 56 may be pivoted in the plates 53 and 55 which are supported above plates 52 and 54 and a pair of wheels 58—78 may be rotatably supported at either side as a guide for the underside of the extended ramp.

As particularly illustrated in FIGS. 4 and 5, the forward portions of longitudinal beams 22 and 24 may be vertically downwardly extended or inclined so that the plane of ramp support will extend above the differential and drive shaft (illustrated in phantom in FIG. 4).

The front transverse member 30 is illustrated in FIGS. 6—8 as being constructed of rectangular tubing 30 resting at either end upon plates 64 which are secured to the longitudinal channel bottom by means of machine bolts or the like. Plate 64 includes vertical extension 65 which extends along the front and rear sides of the member 30. A gusset member 66 is secured to the vertical web of the channel by means of machine bolts or the like and extends over the top ends of member 30 and includes flange member 67, also extending along the front and sides of member 30. As illustrated in FIG. 7, plate 64 may include a downwardly inclined leaf 68 which raises the entire storage assembly above the differential.

The middle transverse member 28 is illustrated in FIGS. 9—11, as having identical plates 70 at 72, each supported upon the bottom of the chassis channels and extending front and rear along the sides of member 28. A slot 71 enables a gusset member 74 secured to the chassis web to extend through the plates 70 and 72 and abut the top of member 28.

In FIGS. 12 and 13, the rear transverse member 26 is illustrated as supported at either end upon the bottom of the channels 22 and 24. A gusset member 80 is secured to the web of the channel and the gusset extension extends over the top of the member 26 end, gusset fingers 81 extending on either side fore-and-aft thereof.

As will be apparent, the transverse members may be variously configured and various types of ramp tracks and locking elements may be employed without departing from the spirit of the invention.

We claim:

1. In an automotive chassis of the type embodying a pair of longitudinally extending beams and a plurality of transverse members interconnecting said beams, the improvement comprising:

a. reduced cross section transverse members abuttingly supported at either end upon said beams;

b. a pair of longitudinal guide channels supported above and upon said cross members, such that the combined height of said cross members and said guide channels is less than the height of said beams; and

c. a ramp having a wheeled member at one end engaging said guide channels and slidably supported on said cross members, so as to be extensible from one end of said chassis.

2. An automotive chassis as in claim 1, said pair of channels being downwardly inclined at their forward end, so as to support a front transverse member above the automotive differential and drive shaft.

3. An automotive chassis as in claim 1:

said front transverse member including at each end;

i. a bottom plate secured to the bottom of said longitudinal channels and extending beneath and on either side of said transverse member;

ii. a gusset member secured to the vertically upstanding web of said longitudinal channel and extending on either side and above said front transverse member;

a middle transverse member including at each end;

i. a pair of plates secured to the bottom of said channel and extending on either side of said middle transverse member;

ii. a gusset member secured to the web of said longitudinal channels and extending through said plates and above said middle transverse member; and

a rear transverse member resting upon the bottom of said longitudinally extending channels and including at each end;

i. a gusset member secured to the web of said channels and extending on top of the rear transverse member ends and on the sides thereof.

4. An automotive chassis as in claim 3, said front transverse member plates being downwardly and outwardly inclined so as to support said transverse member above the level of said longitudinal channel bottoms and above the differential of said automotive vehicle.

5. An automotive chassis as in claim 4, wherein:

said ramp has a wheeled yoke pivoted to its front end such that the wheels of said yoke engage said guide channels so as to be extensible from the rear of said chassis, the ramp when extended being pivotable downwardly with respect to said yoke and said guide channels.

6. An automotive chassis as in claim 5, including a pair of extension channel secured to the rear end of said longitudinal channels so as to extend the length of said channels and said rear transverse member being supported at its ends upon said extension channels.

7. An automotive chassis as in claim 6, including:

a pivoted ramp locking member and a ball socket assembly supported at the end of said extension members.

8. An automotive chassis as in claim 7, including:

a pair of wheeled members supported in said extension channels, so as to rotatably engage the underside of said ramp while being extended through the rear of said chassis.