

Aug. 4, 1931.

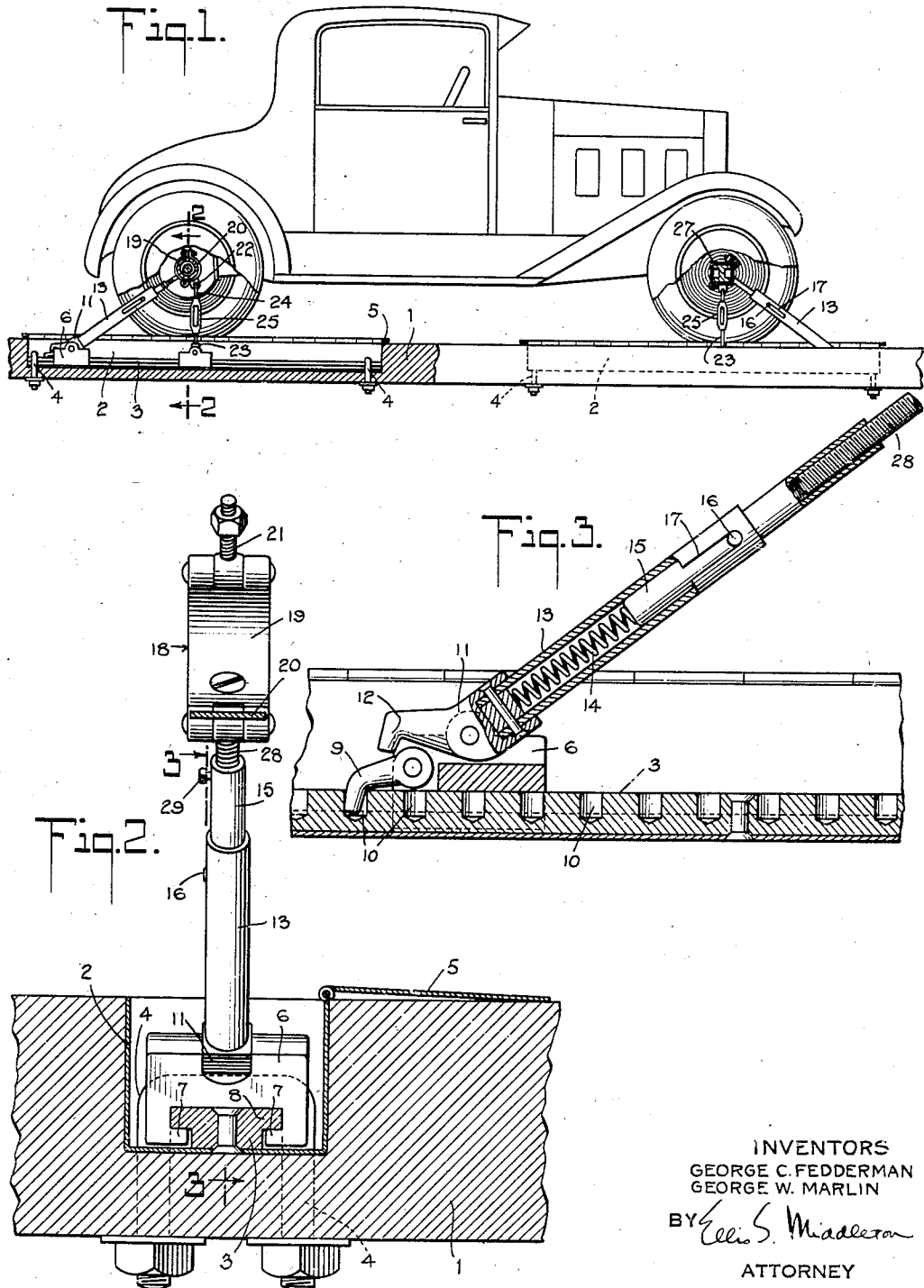
G. C. FEDDERMAN ET AL

1,816,897

LOAD SECURING DEVICE

Filed March 1, 1929

2 Sheets-Sheet 1



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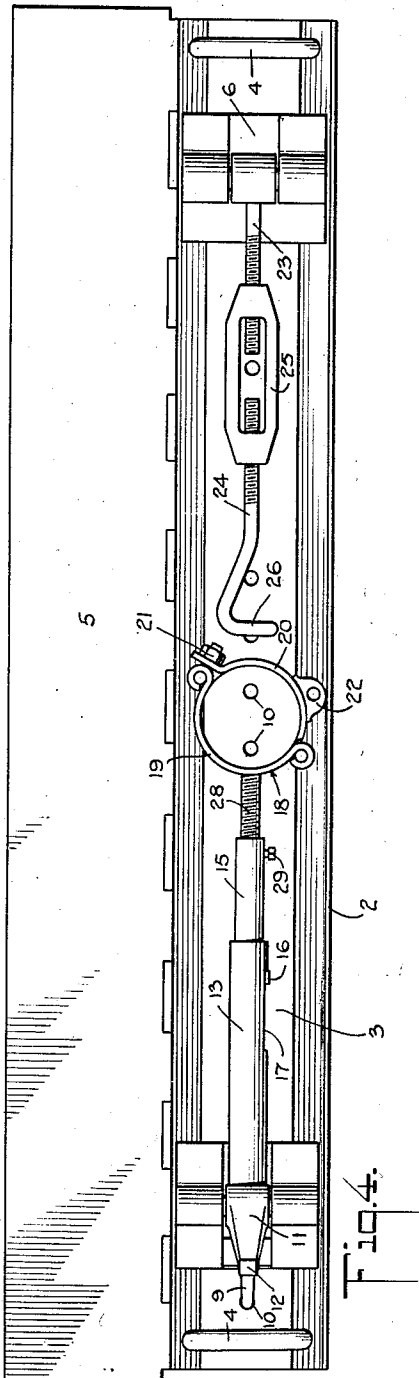
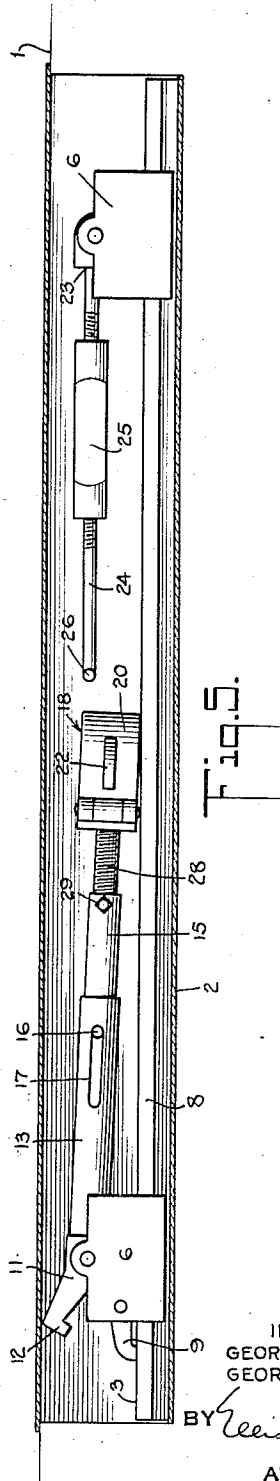
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LOAD SECURING DEVICE

Application filed March 1, 1929. Serial No. 343,617.

This invention relates to a device for facilitating the transportation of vehicles such as automobiles or the like in freight cars.

In this art it is common practice to provide means temporarily attached to the car floor which may be secured to a part of the vehicle being shipped, to hold the same during transit, but as a rule these devices have been found to be very unsatisfactory for the reason that they are designed for single use. As a result, nails have been relied on to attach the device to the car floor, and after a few shipments, the car floor is so severely mutilated by repeated driving and drawing of the nails that the use of this type of device has become a real problem, particularly to the railroad companies.

Other devices have been suggested which were designed to be more or less permanently made a part of the floor, but for the most part they have not been practical due to their complicated mechanism and the cost incident to their manufacture.

This present invention, therefore, is concerned with a device embodying all of the advantages of those heretofore used or suggested with none of their disadvantages.

To this end the device of this invention consists of a rail fixed on top of or below a car floor, and carrying two slidable feet thereon and interlocked therewith. Means are provided for securing each foot to the rail at any one of a plurality of desired points.

Each foot carries a leg pivoted thereto with a fixture at the end thereof for engaging a part of the vehicle to be transported, such as the axle, spring or the like. One of the legs is of a rigid nature but is provided with means whereby its length may be adjusted to suit the circumstances. The other leg is telescopic, with a compression spring rubber or other cushioning element therein, and is provided with means for limiting the outward thrust thereof. Either or both feet may be provided with a finger extension engaging the locking means so that when the legs are in the raised or operative position the finger will prevent accidental displacement in relation to the rail.

In the preferred form, the rail is sunk below the level of the car floor and is contained within a casing having a lid, so that when the device is not in use the legs may be folded down into the casing and the lid closed.

The invention further contemplates the use of a plurality of these devices in a single car. For instance, it may be desirable to use two, three or even four to a single vehicle and any multiple of these in a car.

The invention further consists in the novel arrangement, combination and construction of parts more fully hereinafter described and shown in the accompanying drawings.

In these drawings:

Fig. 1 is a side elevation showing a plurality of the devices in use.

Fig. 2 is a view along the line 2—2 of Fig. 1.

Fig. 3 is a view along the line 3—3 of Fig. 2.

Fig. 4 is a plan view of the device in the inoperative or folded position.

Fig. 5 is a longitudinal view of Fig. 4.

Referring now to the embodiment illustrated, there is shown at 1 the timbers of a car floor into which has been sunk a casing 2 carrying a rail 3 secured to the bottom thereof. The casing and rail are made fast to the floor by means of U bolts 4 which pass over the rail 3 and extend below the floor proper.

The casing 2 may conveniently consist of a sheet-iron or steel box or the like, having a cover 5 hinged to one longitudinal edge thereof, so that when the device is in an inoperative position, the lid may be closed and the car floor restored substantially to its initial condition for use other than the accommodation of vehicles, and such as is shown in Fig. 5.

Slidably engaging the rail 3 are two feet 6, each of which is provided with downwardly and inwardly projecting portions 7 underlying the projecting head 8 of the rail 3. This construction permits of each foot being slid to any desired position on the rail, yet upward movement is resisted due to the interlocking feature.

Either or both feet 6 may be provided with pivoted locks 9 which are adapted to enter

sockets 10 provided at frequent intervals in the top of rail 3. Thus, by depressing lock 9 either or both feet may be definitely positioned on the rail at the desired location and sliding movement is prevented between the parts.

One of the feet is provided with a resilient leg comprising a lower portion 11, pivoted thereto and having an outwardly and downwardly projecting finger 12 which, when the leg is in the raised or operative position as shown in Figs. 1 and 3, lies in proximity to the lock 9 and prevents the same from being displaced from its socket, accidentally.

Secured to the pivoted element 11 is a tubular sleeve 13, containing a cushioning element such as a compression spring 14, bearing against one end of a rod 15 which telescopically engages the sleeve 13. A stud 16 on the rod 15 and riding in a slot 17 in the sleeve, limits the outward movement of the rod and consequently the thrust of the spring. Other cushioning means such as a rubber may be used in place of the spring.

To the upper end of the rod 15 there is detachably secured a bracket 18 comprising two complimentary shapes 19 and 20, hinged together so as to swing over and enclose a part of the vehicle to be secured to the car floor, such for instance, as the axle as shown in Fig. 1. A pivoted bolt 21 is carried by one of the complimentary parts 19, the shank of the bolt being adapted to lie in the bifurcated end of the other part 20. Thus, when the members are in the position shown in Fig. 1 the bracket may be secured in place by means of the bolt. The complimentary part 20 is provided with an eye 22 for a purpose described hereinafter.

The other leg may conveniently comprise a lower portion 23 pivoted to its foot 6, and having a finger 12 to insure engagement of the lock 9 with its socket. The leg is further provided with an upper portion 24, connected as by a turn buckle 25 to the lower portion so that the over all length of the leg may be adjusted at will. The upper end of the member 24 is hook-shaped as at 26 to engage the eye 22.

As thus shown, it will be seen that by suitably separating the feet on the rail and locking the same in that position, the two legs, one rigid and the other resilient, may be arranged to grasp the axle of a vehicle positioned thereover. The automobile or other vehicle may then be drawn tightly against the floor by manipulation of the turn buckle on the rigid leg.

Where desirable a similar operation may be performed with a duplicate device on the front axle, and the invention contemplates the provision of a plurality of brackets for attachment to the spring or axle conforming to the shape of that part. For instance, in Fig. 1 the bracket grasping the front axle

is shown at 27 to be substantially rectangular in its complete configuration.

In order to take up any slack in the resilient leg after the vehicle has been placed in position, the brackets 19 and 27 are secured to a threaded rod section as at 28, threaded into the end of rod 15. Thus, by suitably rotating the rod section 28 and bracket, the over all length of the resilient leg may be adjusted to either take up slack or to even put the cushioning element 14 under initial tension as desired. A set screw 29 may be used to lock the rods 15 and 28 in the desired relation.

By reversing the location of the legs at the front and rear of the car it will be seen that the compression spring in the resilient legs permits a certain fore and aft movement, although this movement is definitely limited by the rigid legs.

The turn buckle leg serves the purpose of taking up any upward thrust, yet being pivoted, allows the vehicle a restricted floating action fore and aft on its pneumatic tires. The shock absorbing leg effectively cushions this fore and aft movement and takes up end thrust, so that the single device allows the vehicle a certain amount of flexible movement yet this movement is cushioned in all directions.

It is contemplated that it may be necessary or desirable to use four of these devices to a single vehicle, although it may be found that three or even two will suffice.

It is customary to ship a plurality of automobiles in a single car and, therefore, there may be a number of groups of these assemblies arranged on the car floor so as to accommodate as many automobiles as there is room for them in the car.

In folding the device it will only be found necessary to remove the locking member 9 from its recess or socket and slide the feet to the end of the rail whereupon the legs may be folded down upon the top of the rail and the cover closed.

What is claimed is:

1. A hold down device comprising a fixed rail having a head, a foot slidably engaging and straddling the head, a leg pivotally engaging the foot, and means on the leg for engaging a part of a vehicle.

2. A hold down device comprising a fixed rail, a foot slidably engaging the same, a telescopic resilient leg pivotally engaging the foot, and means on the leg for engaging a part of a vehicle.

3. A hold down device comprising a fixed rail, a foot slidably engaging the same, a leg pivotally engaging the foot, means on the leg for engaging a part of a vehicle and enclosed resilient means between the vehicle engaging means and the foot.

4. A hold down device comprising a fixed rail, a foot slidably engaging the same, means

pivoted to the foot for engagement with the rail to prevent sliding movement of the foot, a leg pivotally engaging the foot, and means on the leg for engaging a part of the vehicle.

5 5. A hold down device comprising a fixed rail, a foot slidably engaging the same, the locking means pivoted to the foot for engagement with the rail to prevent sliding movement of the foot, a leg pivotally engaging
10 the foot, means on the leg for engaging a part of the vehicle, and means on the leg to prevent movement of said locking means when the leg is in operative position.

15 6. A hold down device comprising a fixed rail, a foot engaging the same, a telescopic leg pivotally engaging the foot, and means on the leg for engaging a part of the vehicle.

20 7. A hold down device comprising a fixed rail, a foot engaging the same, a compressible leg carried by the foot and having means for engaging a part of a vehicle, a second foot engaging the rail, a rigid leg carried by the foot, said leg engaging the vehicle engaging means.

25 8. A hold down device comprising a fixed rail, a plurality of feet slidably engaging the same, a compressible leg carried by one foot, a rigid leg carried by another foot and vehicle engaging means carried by both legs.

30 9. A hold down device comprising a fixed rail, a foot slidably engaging the same, a rigid leg pivotally engaging the foot, means to adjust the length of the leg, and means for attaching the leg to a part of a vehicle.

35 10. In combination with a vehicle, a fixed rail and resilient means connected with the rail and with the vehicle and extending at an angle between the vertical and horizontal to take up end thrust of the vehicle during
40 shipment, and rigid adjustable means also connected to the rail and the vehicle, extending substantially vertically, to draw the vehicle down toward the rail to prevent upthrust.

45 11. In combination with a vehicle, a fixed rail, a foot slidable on said rail, resilient means connected with the foot and the vehicle and extending at an angle between the vertical and horizontal to take up end thrust
50 when the vehicle is shipped, a second foot slidably engaging the rail and rigid adjustable means connected to this foot and the vehicle extending substantially vertically, to draw the vehicle down toward the rail to
55 prevent upthrust.

12. In combination with a floor on which vehicles are transported having a counter-sunk depression therein, two legs adapted to engage a portion of the vehicle, means to
60 maintain one end of each leg in the depression in a plurality of horizontal positions, said legs being foldable down into the depression and entirely below the floor level and a cover for covering the same to restore the continuity of the floor surface.
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13. In combination with a vehicle and a supporting surface, hold-down means comprising two resilient legs extending between the vehicle and the supporting surface and substantially at right angles to each other
70 to take up end thrust, and a vertical leg extending between the vehicle and supporting surface to prevent upthrust.

14. In combination with a vehicle and a supporting surface, a hold-down at the front
75 and the rear of said vehicle, each hold-down comprising two feet fixed in relation to the supporting surface, one foot carrying a rigid leg extending substantially vertically and engaging the vehicle and adapted to draw
80 the vehicle downwardly toward the supporting surface, the other foot carrying a resilient leg engaging the vehicle and arranged at an angle between the horizontal and vertical, to take up end thrust of the vehicle, the resilient leg at one end of the vehicle extending
85 substantially at right angles to the resilient leg of the other.

15. A hold-down device comprising two feet adapted to be fixed in relation to a vehicle supporting surface, one foot carrying
90 a rigid leg, means to adjust the length thereof, the other foot carrying a resilient leg, both legs being adapted to be secured to a vehicle.
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In testimony whereof, we have hereunto subscribed our names this 23rd day of Feb., 1929.

GEORGE C. FEDDERMAN.
GEORGE W. MARLIN.

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