Sept. 19, 1939. G. E. GRAVENSTINE 2,173,298

ROLLER CONSTRUCTION

Filed April 30, 1938 2 Sheets-Sheet 1

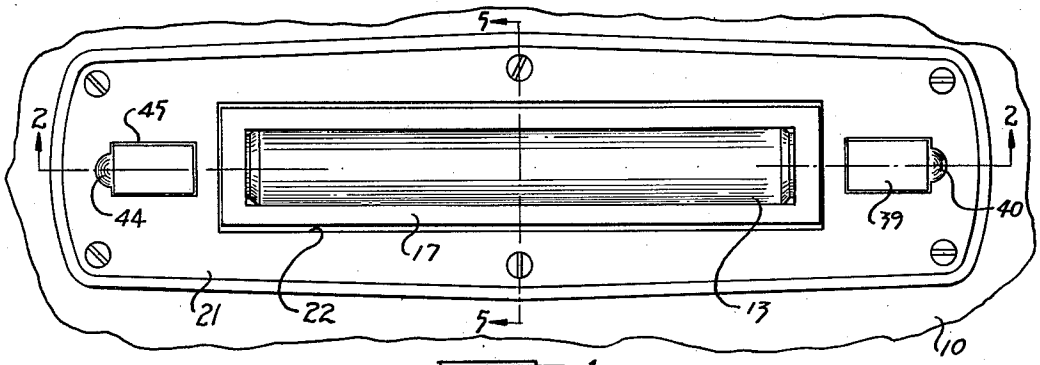


FIG 1

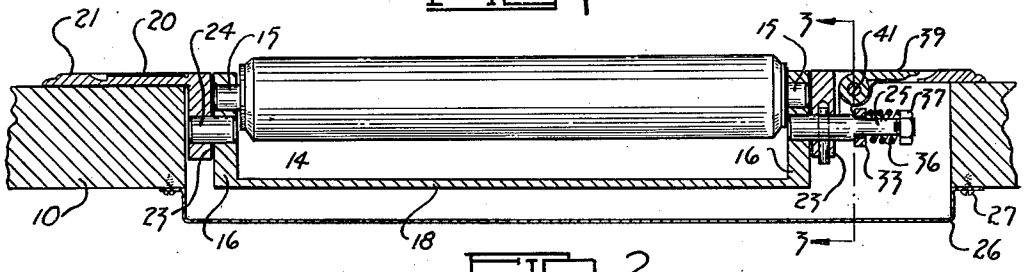


FIG 2

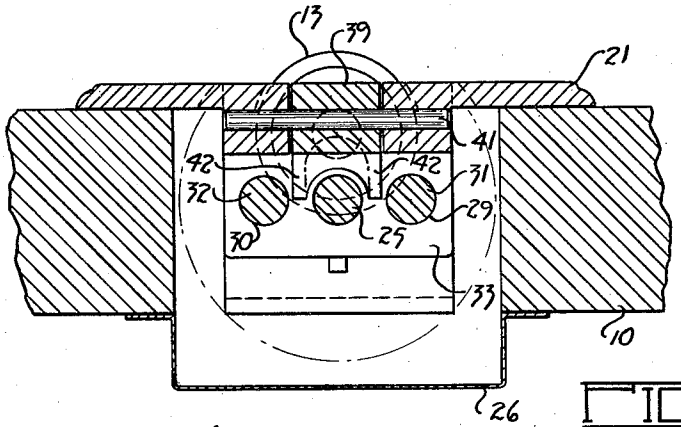


FIG 3

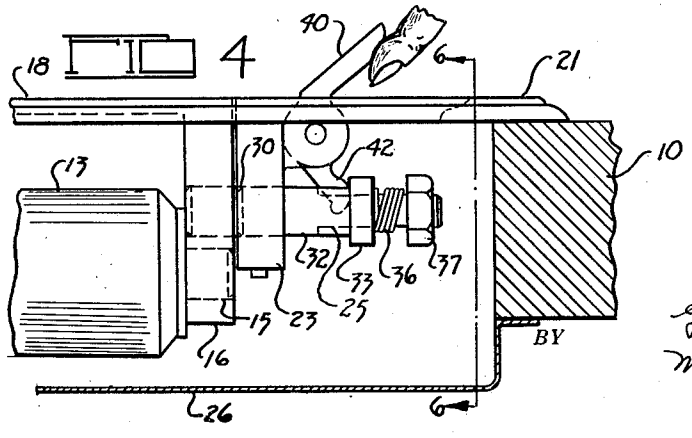


FIG 4

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ROLLER CONSTRUCTION

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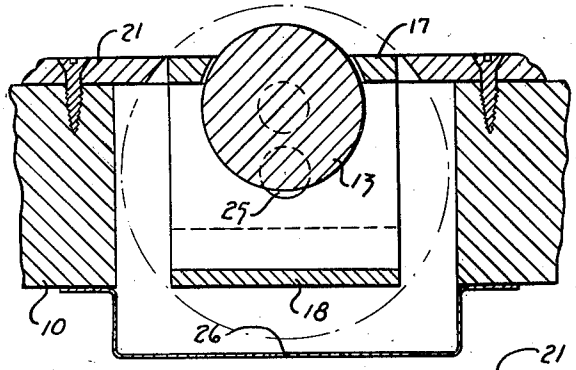


FIG 5

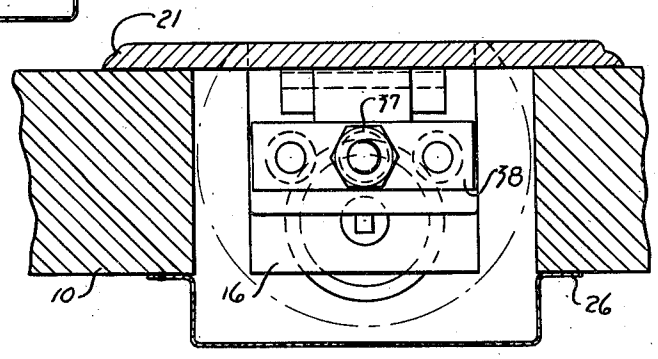


FIG 6

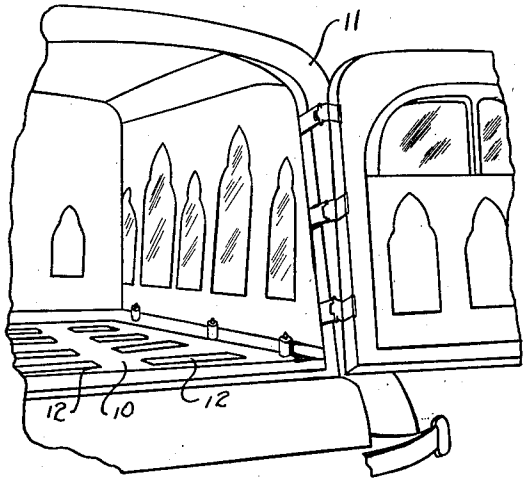


FIG 7

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ROLLER CONSTRUCTION

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Application April 30, 1938, Serial No. 205,150

8 Claims. (Cl. 193—42)

This invention relates to hearses, ambulances or other vehicles or the like in which it is desired that the floor, at times, be provided with rollers projecting upwardly from the floor surface to facilitate the movement of articles into or out of the vehicle body.

One object of the invention is the provision of a roller construction that may be incorporated in the floor of a hearse or other vehicle, and incorporating a roller support that is adjustable to present the roller in an operative position projecting upwardly from the floor level, and arranged so that the roller may be readily moved out of its operative position and be replaced by a surface that will bridge the space through which the roller projected, thus presenting a substantially continuous upper surface and concealing the roller in a retracted position.

Another object of the invention is the provision of a roller construction in which the roller is rotatably mounted on a roller carrier, while the roller carrier is also rotatably mounted on an axis spaced from the roller axis so that the roller may be readily retracted merely by rotational movements of the roller carrier.

Other objects and advantages of the invention will be apparent from the following descriptions, the appended claims, and the accompanying drawings, in which:

Fig. 1 is a top plan view of a roller construction embodying the present invention;

Fig. 2 is a vertical longitudinal section taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical transverse section taken on the line 3—3 of Fig. 2;

Fig. 4 is a view of one end of the roller construction, showing the roller in lowered position;

Fig. 5 is a section on the line 5—5 of Fig. 1;

Fig. 6 is a section on the line 6—6 of Fig. 4, but with the arm 49 lowered; and

Fig. 7 illustrates a portion of an ambulance or hearse with the roller units mounted in position on the floor.

In accordance with the present invention, a hearse may be readily converted to be used as an ambulance, or vice versa, by so rearranging the floor as to provide rollers to facilitate loading and removal of a coffin, when the vehicle is to be used as a hearse, and by providing a substantially flat continuous floor, by lowering the rollers and replacing them with continuous plate portions, when the vehicle is to be used as an ambulance. As shown in Fig. 7, 10 designates the floor of a convertible hearse and ambulance 11, the floor being provided with a series of roller units 12 which are shown in Fig. 7 with the rollers lowered and the spaces through which the rollers may project closed by the closure plates.

Each roller unit, as shown in Figs. 1 and 2 for example, comprises a roller 13 rotatably supported for movement about its own axis in a roller carrier 14, in which it is mounted by means of suitable pivot pins 15. The roller carrier, which is preferably a metal casting, includes end walls 16 and upper and lower plate members 17 and 18 respectively. The lower plate member, which integrally connects the lower ends of the end walls 16 is a flat continuous surface extending horizontally below the roller when the roller is arranged in its normal operative position with its top projecting above the top of the plate 17, which is provided with an opening for that purpose. In the normal operative position of the roller, the upper surface of the plate 17 is substantially flush with the top of the supporting member 20 which forms a support for the roller carrier 14.

The supporting member 20 is provided with rather thin outwardly extending plate portions 21 adapted to overlie the floor of the vehicle and projecting beyond the opening in the floor in which the roller and roller carrier are arranged. An opening 22 is provided in the supporting member to receive either the roller and the plate portion 17 of the roller carrier, or the continuous plate portion 18. Adjacent opposite ends of the walls 16 of the roller carrier, the supporting member 20 is provided with downwardly extending arms 23. The roller carrier 14 at one end is provided with a pivot pin 24 which rotatably supports the roller carrier on one of the arms 23, the other arm being pivotally connected to the opposite end wall of the roller carrier by means of a stud 25. The axis of pin 24 and stud 25 are coincident, and spaced from the axis of rotation of the roller, and so associated with the roller carrier as to position the flat surface 18 flush with the upper surface of the supporting member 20 when the roller carrier is moved so as to arrange the roller in a lowered position. The space or cut-out opening in the floor in which the roller carrier operates is closed by a sheet metal cover 26 so as to protect the interior of the vehicle against the entrance of dust and dirt, and to protect either the roller or the flat surface 18 when in a lowered position. Screws 27 serve to removably hold the pan 26 to the lower side of the floor 10.

One arm 23 of the supporting member 20 is provided with a plurality of holes 29 and 30

equally spaced on opposite sides of the stud 25. Two lock pins 31 and 32 are engageable with these holes 29 and 30 and with a pair of aligned holes provided in the end wall 16 of the roller carrier when the roller is arranged in its normal operative position or when it is arranged in its lowered position. The pins 31 and 32 are rigidly interconnected by a tie bar 33 which is guided on the stud 25 and which is normally urged to the left as viewed in Fig. 2 by means of a coil spring 36 engageable with the outer side of the bar 33 and with the nut 37 provided on the end of the stud 25. This spring therefore normally urges the pins 31 and 32 into locking position engaged with the end wall 16 of the roller carrier. To move the pins to retracted position, as shown in Fig. 4, and thus permit the roller carrier to be rotated, accomplished by pushing downwardly on one side of the exposed portion of the roller carrier, a manually operable device is provided, accessible from the top of the supporting member 20. This device includes a finger operated release plate 39 recessed in the member 20 with its upper surface normally flush with the upper surface of that member, the latter being provided with a recess 40 so that the end of a person's finger can be inserted below the end of the release plate 39 and the latter tilted upwardly into the position shown in Fig. 4 against the action of the spring 36, the plate 39 being pivotally supported on a pin 41 carried by the supporting member 20 and having a pair of downwardly projecting arms 42 which may be pressed against the bar 33 so as to push the bar towards the right into the position shown in Fig. 4 so that the roller carrier may then be swung into the position illustrated in that figure, presenting the flat surface 18 uppermost and horizontal, flush with the upper surface of the supporting member 20. When the release plate 40 is permitted to lower, the spring 36 pushes the locking pins 31 and 32 into the two holes in the end wall 16, which are then opposite the pins, and the roller carrier is thus securely held in position so that the flat surface 18 forms part of the substantially horizontal floor over which a wheeled cot may be rolled without bumping the occupant and thus adapting the vehicle for use as an ambulance. To again adapt the same vehicle for use as a hearse or for some other purposes where the rollers are to be used, it is merely necessary to pull upwardly on the release plates 39 of the different units and turn the rollers so as to bring them up into operative positions, where they project above the surface of the supporting members 20 and thus form rotatable carriers over which a coffin or other heavy object may be rolled.

To provide a symmetrical appearance to the top of the supporting member 20, a depression 44 and grooves 45 are provided in the upper surface of the member, of symmetrical outline corresponding to the appearance of the groove 40 and the release plate 39 at the other end of the supporting member, as shown in Fig. 1.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A roller construction for a vehicle of the character described comprising a supporting member adapted for connection to the vehicle floor and having a roller receiving opening, a roller carrier having a flat surface adapted to be positioned in said opening substantially flush with the top of said supporting member, and a roller in spaced relation with respect to said flat surface rotatably mounted on said roller carrier and adapted for positioning in said opening to project substantially above the top of said supporting member.

2. A roller construction for a vehicle of the character described comprising a supporting member having a roller receiving opening, a roller carrier pivotally supported on said supporting member and having a flat surface adapted to be positioned in said opening substantially flush with the top of said supporting member, a roller rotatably mounted on said roller carrier and adapted to project in said opening substantially above the top of said supporting member, and means for holding said roller carrier with either the flat surface or the roller uppermost.

3. A roller construction for a vehicle of the character described comprising a supporting member, a roller carrier pivotally supported on said supporting member and having a flat surface adapted to be positioned substantially flush with the top of said supporting member, a roller rotatably mounted on said roller carrier and adapted to project substantially above the top of said supporting member, means for holding said roller carrier with either the flat surface or the roller uppermost, and means normally recessed in the top of said supporting member for operating said holding means.

4. A roller construction for a vehicle comprising a supporting member adapted for connection to the vehicle floor and having a roller receiving opening, a roller carrier having a flat surface adapted to be positioned in said opening substantially flush with the top of said supporting member, a roller, means rotatably mounting said roller on said roller carrier so that the roller projects above the top of the supporting member in one position of the roller carrier, said roller carrier being rotatable to present said flat surface uppermost and lower said roller.

5. A roller construction comprising a supporting member adapted for connection to the floor of a vehicle and having a roller receiving opening, a roller carrier rotatably supported on said supporting member for movement on a substantially horizontal axis, said roller carrier having a continuous surface substantially coextensive with said opening and adapted to fill the opening in one position of the roller carrier, and a roller rotatably mounted on said roller carrier and adapted in one position of the roller carrier to project substantially above the top of said supporting member.

6. A roller construction comprising a supporting member adapted for connection to the floor of a vehicle and having a roller receiving opening, a roller carrier rotatably supported on said supporting member for movement on a substantially horizontal axis, said roller carrier having a continuous surface substantially coextensive with said opening and adapted to fill the opening in one position of the roller carrier, a roller rotatably mounted on said roller carrier and adapted in one position of the roller carrier to project substantially above the top of said supporting member, locating holes in said roller carrier equally spaced from the axis of rotation of the roller carrier, and releasable locking means car-

ried by said supporting member and engageable with said holes.

7. A roller construction of the character described comprising a supporting member adapted for connection to a vehicle floor and having a roller receiving opening, a roller carrier having a continuous surface adapted to be positioned substantially flush with the top of said supporting member and substantially fill said opening, means adjustably supporting said roller carrier on said supporting member, a roller rotatably mounted on said roller carrier and adapted in one position of the adjustment of the roller carrier to project upwardly through the opening in the supporting member, locking means for securing said roller carrier in a plurality of adjusted positions with either the roller or the continuous surface presented in said opening, and means carried by said supporting member for releasing said locking means.

8. A roller construction comprising a supporting member having a roller receiving opening, a roller carrier pivotally supported on said supporting member, a roller rotatably mounted on said roller carrier on an axis spaced from the axis of rotation of the roller carrier and adapted to project through said opening in one position of the roller carrier, said roller carrier having a flat surface adapted to substantially fill said opening, means for locking said roller carrier in a plurality of positions on said supporting member with either the roller or said flat surface presented in said opening, and means accessible at the top of said supporting member for operating said locking means.

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