

Feb. 12, 1952

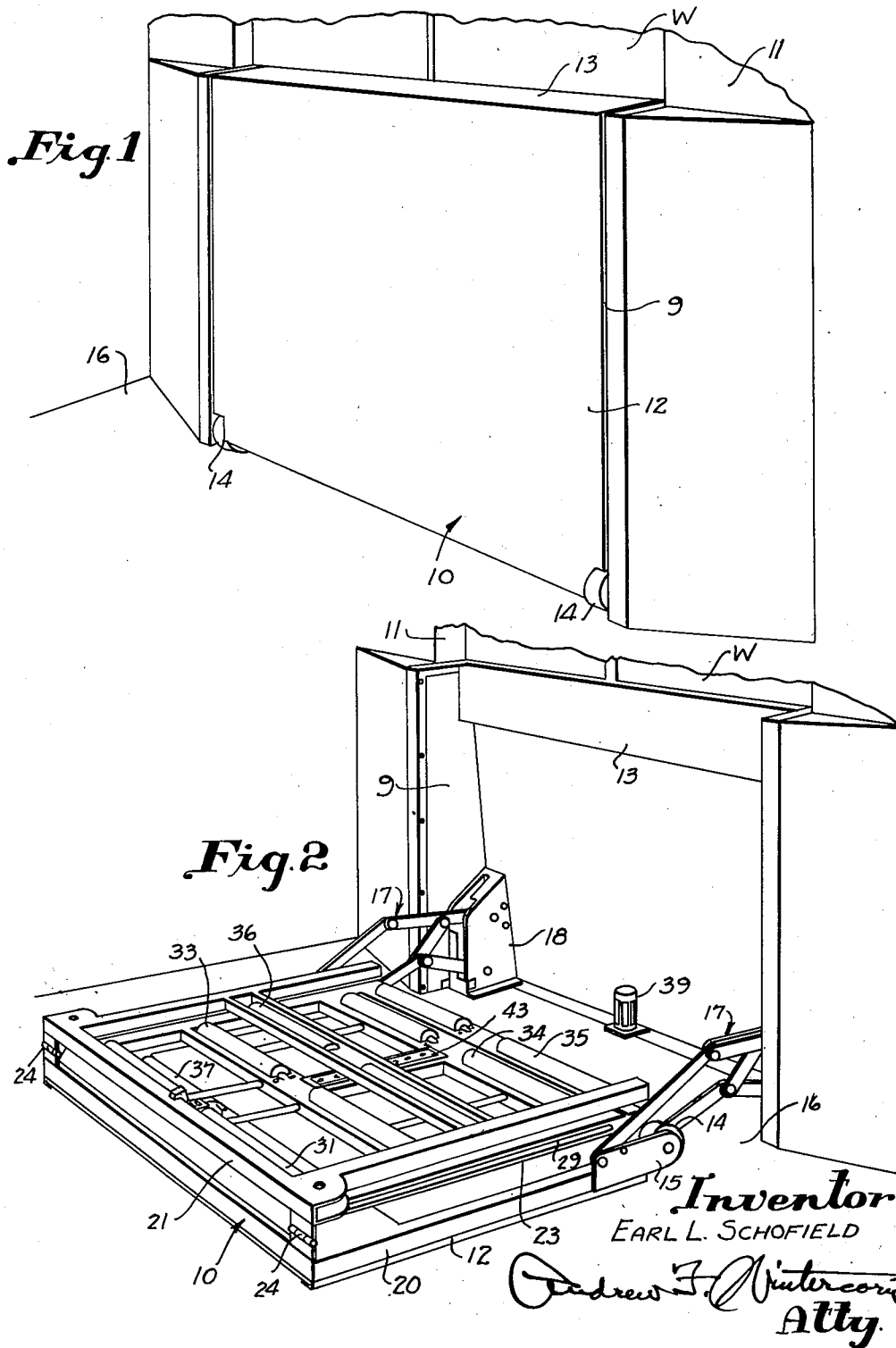
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2,585,046

FOLD-AWAY CASKET RACK FOR HEARSE

Filed May 15, 1950

4 Sheets-Sheet 1



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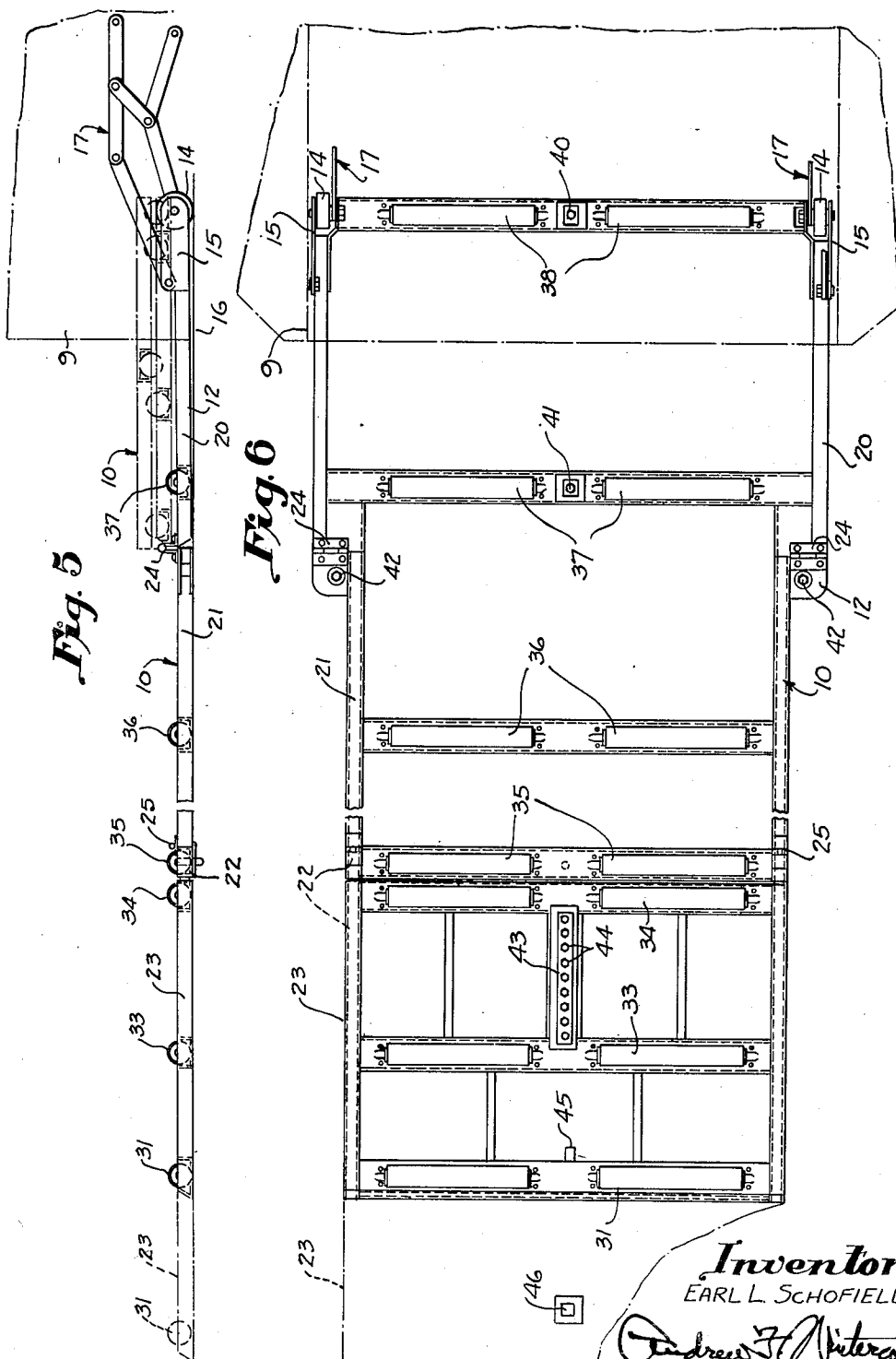
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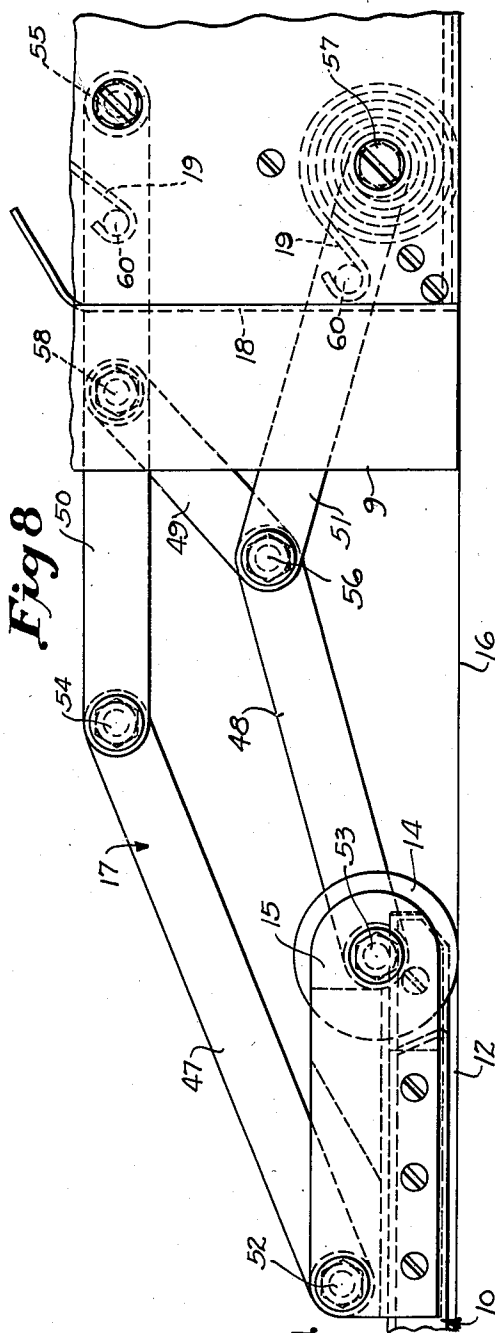
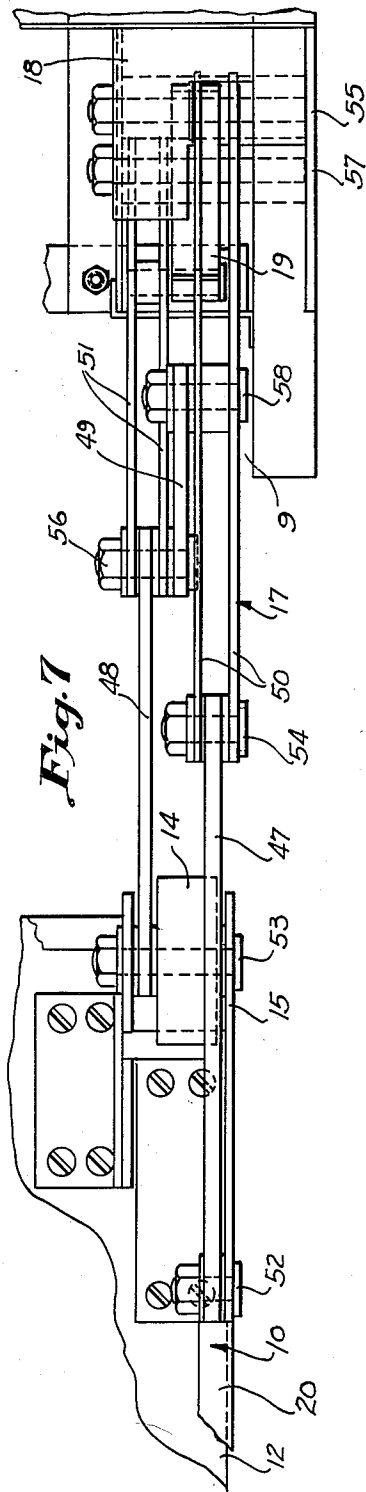
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,585,046

FOLD-AWAY CASKET RACK FOR HEARSESES

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20 Claims. (Cl. 296--17)

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This invention relates to a fold-away casket rack for hearses.

The principal object of my invention is to provide a fold-away casket rack designed to be locked in a vertical rattle-free position when folded out of the way in a recessed compartment behind the front seat, where it sacrifices no vitally needed body width or height, thereby giving full body space for two-cot ambulance use, no hardware being needed on the floor of the vehicle in connection with the use of the casket rack which might be damaged or suffer deterioration by moisture getting into pockets and recesses whenever it may be necessary to scrub the floor of the vehicle after an ambulance run, particularly in inclement weather.

A salient feature of the present invention is the fact that only three simple and easy unfolding operations are required in placing the fold-away casket rack on the vehicle floor for use, and a full size all steel casket rack with large rubber rollers is afforded, which is adapted to receive the largest caskets or rough boxes, the casket rollers being located at the most advantageous spots on the foldable structure for smooth and easy operation, and the foldable structure presenting the appearance of a one-piece casket rack when unfolded on the vehicle floor and being substantially just as rigid. The rear frame section of the foldable structure includes an extension slide which correctly positions the rear rollers at the extreme rear end of the floor for easiest casket loading. The recessed compartment behind the front seat also affords extra body length to enable handling the longest rough boxes and longest caskets. It is only necessary to handle the ambulance cots themselves when converting from ambulance to funeral car service, and that is definitely only a one-man operation. Furthermore, with the present construction there is no need for handling bulky casket racks and large and cumbersome as well as dirty button-in carpets in connection with the conversion of the vehicle from one use to the other, because the present fold-away casket rack works equally well with a carpeted or linoleum covered floor.

Another feature of the fold-away casket rack of my invention is the provision of special toggle hinges attached to the cover panel for the rack compartment, designed to move the panel and the rack structure carried thereby rearwardly away from the compartment in the first unfolding operation and move the structure in the other direction into the compartment in the final

folding operation, the hinges including assist spring means which so nearly counterbalance the weight of the structure that the operation of unfolding the same from and returning the same to the compartment is made much easier and does not involve any danger of the operator dropping the structure onto his feet accidentally in the first unfolding operation, regardless of how unskilled or inexperienced the operator may be. Rollers provided on the lower end of the closure panel for the compartment run on the floor in the back and forth movement, so that the operation is thereby further facilitated. The assist springs maintain the structure under sufficient spring tension both in the folded and unfolded positions to eliminate likelihood of rattling.

The invention is illustrated in the accompanying drawings, in which:

Fig. 1 is fragmentary perspective view of a fold-away casket rack compartment when closed, housing the folded rack;

Fig. 2 is a similar view illustrating the first step in the unfolding of the rack;

Fig. 3 is another perspective illustrating the second step in the unfolding of the rack;

Fig. 4 is still another perspective illustrating the rack in the fully unfolded position, ready for use;

Figs. 5 and 6 are a side view and plan view, respectively, of the casket rack in its unfolded condition, except that the slidable rear section is shown in full lines before extension and in dotted lines in the extended position, an intermediate portion of the side members of one of the sections being broken away to enable showing the whole structure on a larger scale, and Fig. 5 further illustrating in dotted lines the sections in folded relationship as they appear in Fig. 2, and

Figs. 7 and 8 are a plan view and side view, respectively, of the special toggle hinges employed in connection with the foldable rack structure to move it bodily to the rear, away from the recessed compartment, automatically in the first unfolding operation and, of course, return the structure into said compartment in the final folding operation.

The same reference numerals are applied to corresponding parts throughout the views.

Referring to the drawings, the reference numeral 9 designates the recessed compartment behind the front seat of the vehicle for the fold-away casket rack, indicated generally by the reference numeral 10, the reference numeral 11 indicating the back wall of the driver's compartment. A panel 12 forms a closure for the open

back of the compartment 9, and there is a top panel 13 suitably hinged to the wall 11 to swing downwardly to a depending out-of-the-way position when the rack structure is unfolded for use, but which neatly closes the open top of the compartment when the rack structure is folded away in said compartment, as illustrated in Fig. 1. Any suitable catch means may be provided either between the outer edges of the panels 12 and 13 or between the edges of the panel 12 and the side walls of the compartment 9 to lock the rack structure securely in its folded-away position. Rollers 14 carried on brackets 15 attached to the bottom corners of the panel 12 run on the floor 16 of the vehicle for rolling support of the structure 10, so that it may be moved easily out of and back into the compartment 9. Special toggle hinges, indicated at 17, are mounted in housings 18 fastened in the lower corners of the compartment 9 and have connection with the lower corners of the panel 12 to move the structure 10 bodily rearwardly away from the compartment 9 in the unfolding of the structure and pull the structure back into the compartment in the folding thereof. These hinges 17, as will later appear, also include assist spring means, as indicated at 19 in Figs. 7 and 8, which so nearly counterbalance the weight of the rack structure 10 that the unfolding and folding operations are made much easier, and there is no danger of the operator dropping the rack structure on his feet accidentally in the unfolding thereof, regardless of how inexperienced or unskilled the operator may be. The toggle hinges 17 are illustrated in Figs. 7 and 8 and will be described more fully hereinafter.

The fold-away casket rack structure 10, as best appears in Fig. 4, is made up of four rectangular frame sections, numbered 20 to 23. Frame section 20 is fastened directly to the back of the panel 12 and is wider than the other three sections, and is hingedly connected at opposite sides at one end, as indicated at 24, to the section 21, so as to permit 180° unfolding of section 21 into coplanar relationship with section 20, as shown in Figs. 3, 4, 5, and 6. Frame section 21 is, in turn, hingedly connected at its other end, as at 25, with the frame section 22, so that section 22 is unfoldable through 180° into coplanar relationship with section 21, as shown in Figs. 4, 5, and 6. Then, when frame section 22 has been unfolded, frame section 23, which is in telescoping relation to section 22, is adapted to be slid endwise with respect thereto to reach to the extreme rear end of the vehicle to a point directly in front of the rear door opening 26, as indicated in Fig. 4. All of the frame sections 20-23 are preferably of light channel iron construction, the frame section 22 being of a size small enough so that the side members 27 thereof fit slidably inside the side members 28 of section 23. Slots 29 extending lengthwise of the webs of the channel side members 28, as indicated in Fig. 3, receive pins 30 that extend outwardly from the webs of the channel side members 27 of frame section 22 positively to limit the extension of frame section 23. It should be clear from Fig. 4 that when the rack is unfolded and section 23 is extended as far as it will go, the large rubber casket rollers 31 provided on the outer end of section 23 on its cross-portion 32 are located close enough to the door opening 26 for easy casket loading. Frame section 22 carries two other pairs of casket rollers, as indicated at 33 and 34, because a large share

of the load must be assumed on this section 23 in the initial portion of the loading of a casket in the hearse. Another pair of rollers 35 is provided on the front end of section 22, and still another pair of rollers 36 is provided in the middle portion of section 21, and, in addition, there are two pairs of rollers 37 and 38 provided on the opposite ends of the front section 20. When the casket has been rolled forward, it contacts a bier pin 39 that is set in a suitable receptacle in the bottom of the compartment 9, but this pin may be set in either of two receptacles 40 and 41 provided in the opposite end portions of the front section 20 in case of a shorter casket. Receptacles are also provided at 42 in the opposite sides of the front portion of section 21 to accommodate bier pins to limit sidewise movement of a casket. A bier pin receptacle plate 43 having a plurality of longitudinally spaced receptacles 44 therein is provided in the middle of the rear section 23 to accommodate another bier pin set behind the casket. Any suitable means may be provided for fastening to the floor the extensible rear section 23 in its fully extended position, as, for example, the catch 45, indicated in Figs. 3 and 4 as projecting downwardly from the rear portion of said section for engagement in a suitable receptacle 46 provided therefor in the floor of the vehicle near the rear door opening 26. This receptacle 46, then, is the only bit of hardware needed on the floor for use in connection with the casket rack, and, of course, it is such a small item that it is hardly noticeable and is certainly not objectionable. The connection of the catch 45 with the receptacle 46 makes the whole casket rack structure quite rigid and it cannot shift its position in relation to the floor, but will be substantially as rigid as a rack of one-frame construction. When viewed from the rear of the hearse, the present rack structure very closely resembles in appearance other conventional racks, and there is nothing in its appearance to suggest its foldability or its sectional construction. It is also manifest from the description that even though the fold-away rack folds into and out of a front compartment behind the front seat, there is no waste space, inasmuch as the open compartment permits the front end of a large casket or large rough box to project into that space. Also, it is evident that inasmuch as the foldable rack folds into the compartment 9 in the front end of the vehicle body, instead of utilizing storage space in a compartment on either one or both side walls, as certain prior designs did, the full inside width of the body is left available for ambulance use, and, as a result, two cots may be placed therein instead of only one, as with certain earlier designs. Due to the novel construction of the casket rack, the compartment 9 need be only of a height less than about one-third the length dimension of the floor 16, because, even though there are four rack sections 20-23, sections 23 and 22 telescope on one another. Consequently, the compartment 9 need be only about as high as the back of the driver's seat, thus leaving good rear vision through windows W. The compactness with which the sections fold onto another also enables storage of the folded rack in a fairly shallow compartment.

Referring now to Figs. 7 and 8 in particular, for a better understanding of the toggle hinges 17, it will be seen that each hinge consists of five links 47-51, of which links 47-49 are single

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links, and links 50-51 double links. Links 47 and 48 are pivotally connected at one end to the panel 12, as indicated at 52 and 53, pivot pin 53 being used as an axle for the roller 14 also. The link 47 is pivotally connected at its other end, as at 54, to one end of the double link 50, which at its other end is pivoted, as at 55, to the upper portion of housing 18. The other link 48 is pivotally connected at its other end, as at 56, to one end of the double link 51, which at its other end is pivoted, as at 57, to the lower portion of housing 18. The short link 49 is pivotally connected at one end to pin 56 and at its other end is pivotally connected, as at 58, to double link 50 intermediate the ends thereof. Counterbalancing springs 19 are connected, as indicated at 60, to the links 50 and 51 near their inner ends that are pivoted in housing 18. In the operation of these hinges 17, it is clear that the toggle links 48 and 51 with the help of link 49 serve to push the panel 12 rearwardly as the rack structure 10 is unfolded. The toggle links 47 and 50 swing the panel 12 rearwardly about pivot 53 as the rack structure moves rearwardly from compartment 9, the rearward travel being combined with the hinging motion as a result of the link connection 49. Springs 19 are loaded by the downward movement of links 50 and 51 incident to the unfolding of the rack structure 10, and serve to prevent accidental dropping of the rack structure in unfolding, and help to make it easier to unfold and fold the structure. Besides that, these springs serve to keep the structure 10 under enough tension in folded and unfolded condition to reduce likelihood of rattling to a minimum.

It is believed the foregoing description conveys a good understanding of the objects and advantages of my invention. The appended claims have been drawn to cover all legitimate modifications and adaptations.

I claim:

1. In a hearse adapted to be converted to other uses, the hearse comprising a floor, side walls, and an end wall, the end wall having an open storage compartment provided therein that is of a height which is a fraction of the fore and aft dimension of said floor and is adapted to accommodate a folded casket rack structure, a fold-away casket rack for use on the floor of said hearse comprising a plurality of rectangular rack frame sections each of a width corresponding substantially to the width of the rack, the sections being hingedly connected together at adjoining ends to fold onto one another in substantially parallel abutting relationship, one of said rack frame sections being hinged at its one end in said compartment to swing upwardly into said compartment so as to carry the rest of the folded rack with it into said compartment, each of said sections having casket supporting and conveying means on the upper face thereof, and a closure for said compartment.

2. In a hearse adapted to be converted to other uses, the hearse comprising a floor, side walls, and an end wall, the end wall having an open storage compartment provided therein that is of a height which is a fraction of the fore and aft dimension of said floor and is adapted to accommodate a folded casket rack structure, a fold-away casket rack for use on the floor of said hearse comprising a plurality of rectangular rack frame sections each of a width corresponding substantially to the width of the rack, the sections being hingedly connected together at ad-

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joining ends to fold onto one another in substantially parallel abutting relationship, one of said rack frame sections being hinged at its one end in said compartment to swing upwardly into said compartment so as to carry the rest of the folded rack with it into said compartment, each of said sections having casket supporting and conveying means on the upper face thereof, and a closure for said compartment fixed to the back of the last named rack frame section and unfoldable with it to rest on the floor under said section.

3. In a hearse adapted to be converted to other uses, the hearse comprising a floor, side walls, and an end wall, the end wall having an open storage compartment provided therein that is of a height which is about one-third the fore and aft dimension of the floor and is adapted to accommodate a folded casket rack structure, a fold-away casket rack for use on the floor of said hearse comprising three rectangular rack frame sections each of a width corresponding substantially to the width of the rack, the sections being hingedly connected together at adjoining ends to fold onto one another in substantially parallel abutting relationship, the one end section being hinged at its unattached end in said compartment to swing upwardly into said compartment, the other end section being foldable onto the middle section and these together being foldable onto the first named end section so that in the latter's swinging upwardly into said compartment the other sections folded thereon are carried with it into said compartment, each of said sections having casket supporting and conveying means on the upper face thereof, and a closure for said compartment.

4. In a hearse adapted to be converted to other uses, the hearse comprising a floor, side walls, and an end wall, the end wall having an open storage compartment provided therein that is of a height which is about one-third the fore and aft dimension of the floor and is adapted to accommodate a folded casket rack structure, a fold-away casket rack for use on the floor of said hearse comprising three rectangular rack frame sections each of a width corresponding substantially to the width of the rack, the sections being hingedly connected together at adjoining ends to fold onto one another in substantially parallel abutting relationship, the one end section being hinged at its unattached end in said compartment to swing upwardly into said compartment, the other end section being foldable onto the middle section and these together being foldable onto the first named end section so that in the latter's swinging upwardly into said compartment the other sections folded thereon are carried with it into said compartment, each of said sections having casket supporting and conveying means on the upper face thereof, and a closure for said compartment fixed to the back of the first named end section and unfoldable with it to rest on the floor under the said section.

5. A hearse as set forth in claim 1, including an extensible rack frame section slidably guided for limited endwise movement on the rack frame section that is remote from said compartment in the unfolded condition of said casket rack.

6. A hearse as set forth in claim 1, including an extensible rack frame section slidably guided for limited endwise movement on the rack frame section that is remote from said compartment in the unfolded condition of said casket rack, and means for detachably securing the extensible

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rack frame section to the floor in extended condition.

7. A hearse as set forth in claim 3, including an extensible rack frame section slidably guided for limited endwise movement on the rack frame section that is remote from said compartment in the unfolded condition of said casket rack.

8. A hearse as set forth in claim 3, including an extensible rack frame section slidably guided for limited endwise movement on the rack frame section that is remote from said compartment in the unfolded condition of said casket rack, and means for detachably securing the extensible rack frame section to the floor in extended condition.

9. A hearse as set forth in claim 1, including means for detachably securing to the floor the section that is remote from said compartment in the unfolded condition of said rack.

10. A hearse as set forth in claim 3, including means for detachably securing to the floor the section that is remote from said compartment in the unfolded condition of said rack.

11. A hearse structure as set forth in claim 1, including bier pin receptacles provided on at least certain of the rack frame sections and, therefore, concealed therewith when the rack is folded away in said compartment.

12. A hearse structure as set forth in claim 3, including bier pin receptacles provided on at least certain of the rack frame sections and, therefore, concealed therewith when the rack is folded away in said compartment.

13. A hearse as set forth in claim 1, wherein the storage compartment is wider than the rack and adapted to accommodate the end portion of a casket or rough box when extra length of floor space is needed in carrying a large sized casket or rough box.

14. A hearse as set forth in claim 3, wherein the storage compartment is wider than the rack and adapted to accommodate the end portion of a casket or rough box when extra length of floor space is needed in carrying a large sized casket or rough box.

15. As an article of manufacture, a foldable casket rack for hearses comprising a plurality of generally rectangular rack frame sections arranged so as to lie in end to end coplanar relationship on the floor of a hearse when unfolded for use, the first two adjoining sections having a pair of hinges projecting upwardly from the plane of the top surfaces thereof on the opposite side portions at adjoining ends hingedly connecting these ends so that the second section is foldable into spaced parallelism with the first section, and a third section hingedly connected at one end to the adjoining end of the second section so as to be foldable into superposed abutting relationship to the second section, the first,

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second and third sections each having casket supporting and conveying means on the upper face thereof, the third section being of a thickness to lie between the first and second sections when the folded second and third sections are folded on the first section, the aforesaid pair of projecting hinges being spaced far enough apart in relation to the width of the third section to accommodate the latter therebetween.

16. An article of manufacture as set forth in claim 15, including a fourth rack frame section in slidable telescoping relation to said third section and extensible therefrom to a predetermined limited extent, said fourth section also having casket supporting and conveying means on the upper face thereof.

17. An article of manufacture as set forth in claim 15, including a fourth rack frame section in slidable telescoping relation to said third section and extensible therefrom to a predetermined limited extent, said fourth section also having casket supporting and conveying means on the upper face thereof, the fourth section also carrying means for detachably connecting the same to the floor of the hearse in the unfolded extended position thereof.

18. An article of manufacture as set forth in claim 15, including a fourth rack frame section in slidable telescoping relation to said third section and extensible therefrom to a predetermined limited extent, said fourth section also having casket supporting and conveying means on the upper face thereof, certain of the sections, including the fourth, carrying bier pin receptacles.

19. An article of manufacture as set forth in claim 15, including a fourth rack frame section in slidable telescoping relation to said third section and extensible therefrom to a predetermined limited extent, said fourth section also having casket supporting and conveying means on the upper face thereof, certain of the sections, including the fourth, carrying bier pin receptacles, the fourth section also carrying means for detachably connecting the same to the floor of the hearse in the unfolded extended position thereof.

20. An article of manufacture as set forth in claim 15, including bier pin receptacles provided on at least certain of the foldable sections.

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REFERENCES CITED

The following references are of record in the file of this patent:

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