Oct. 1, 1940. M. KREIDLER 2,216,243

AMBULANCE

Filed Sept. 23, 1938

Fig. 1

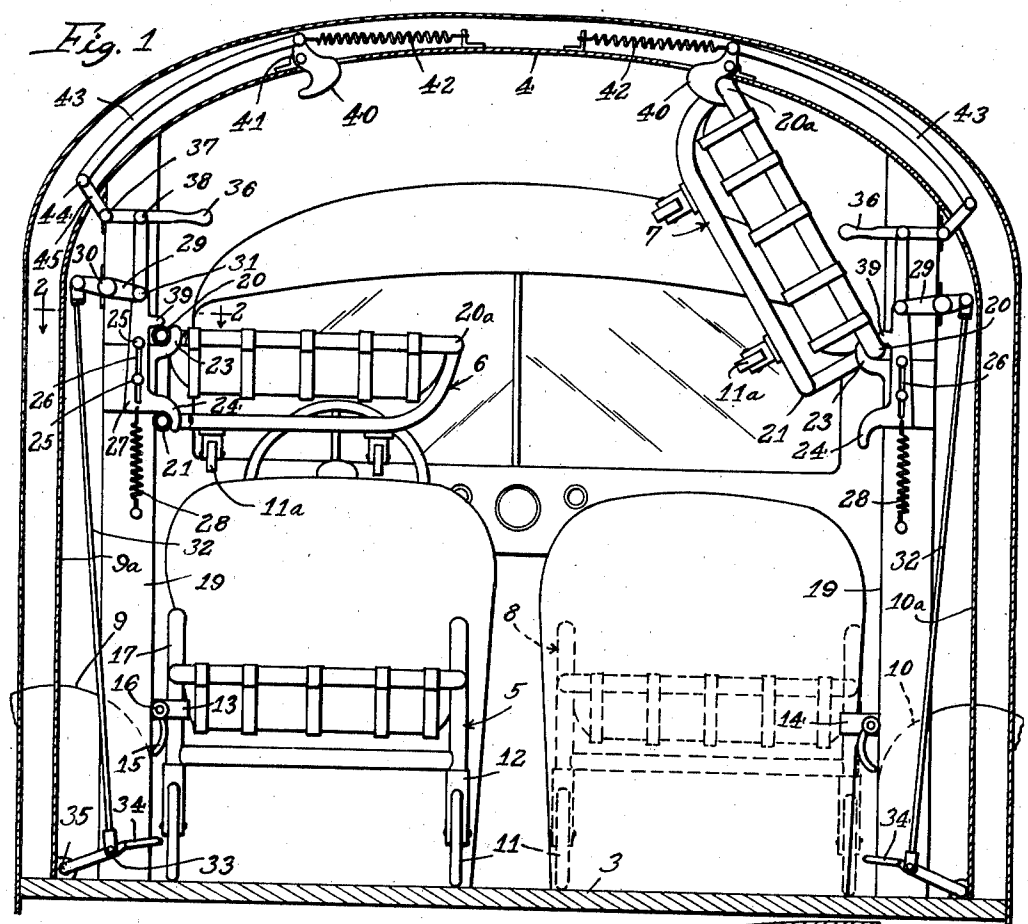


Fig. 2

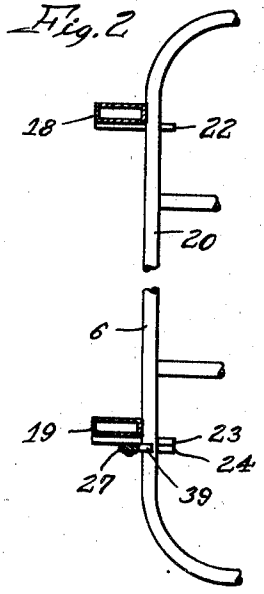
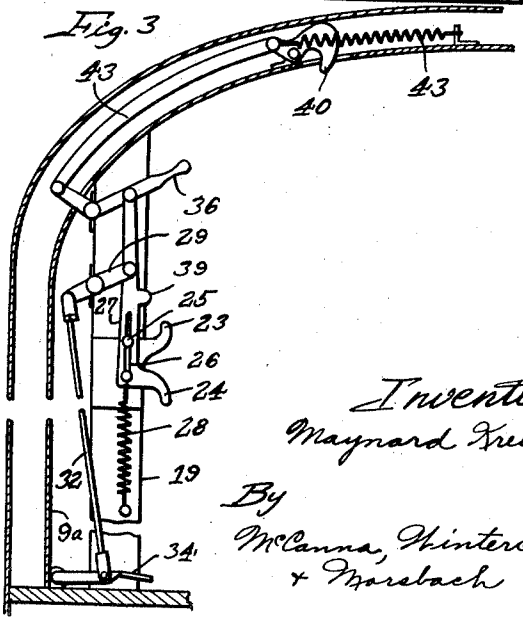


Fig. 3



Inventor:
Maynard Kreidler

By
McCanna, Hintercorn
& Morsbach

Attys.

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AMBULANCE

Maynard Kreidler, McAllen, Tex.

Application September 23, 1938, Serial No. 231,317

6 Claims. (Cl. 296—19)

This invention relates to ambulances.

The public in more recent years has been instructed in regard to traffic accidents not to pick up the injured persons and put them in their automobiles to take them to a hospital, because frequently more harm results through awkward handling of the injured, especially in cases of fractures and where internal injuries have been sustained. The thought is that expert handling by ambulance attendants using equipment suited for the purpose is best in the long run, and there is no appreciable saving in time when the privately owned automobile conveys the injured to the hospital, because an ambulance equipped with a siren for use in a run through a densely populated section has the right-of-way and can carry the injured to the hospital more speedily and with much less danger involved. Obviously this practice has greatly increased the number of ambulance calls. In the majority of traffic accidents, there are more than two persons injured, and an ambulance equipped with two cots, which has been the customary equipment, is forced to make two trips or else do a make-shift job of it by assigning the more seriously injured persons to the cots and carrying the rest otherwise. Then, too, in some sections of the country where hospitals are anywhere from fifty to one hundred and fifty miles apart, it is obvious that there is a serious handicap in attempting to operate with an ordinary two-passenger ambulance, and, in those regions, many lives could be saved and much suffering avoided with four-passenger ambulances. It is therefore the principal object of my invention to provide an ambulance equipped with four cots, two of which will be in the nature of upper berths except that they are designed to be swung up to an out-of-the-way position when not in horizontal position for use and are quickly detachable and attachable so that they can be handled like stretchers to carry the injured to and from the ambulance. With this equipment one ambulance can in an emergency carry four patients lying down, thus making it unnecessary to send so many ambulances to the scene of an accident and eliminating the additional traffic hazard involved where so many ambulances are called.

A salient feature of the upper berth cots of my invention is the fact that these cots when disposed in horizontal operative position derive their sole support from the adjacent side walls of the ambulance and there are no upright supports or depending hangers on the ceiling constituting obstructions in the ambulance; all of the space from the floor to the ceiling and from one side wall to the other in the ambulance is kept free of obstructions so that the regular cots that rest on the floor and the upper berths that are supported on the side walls can be removed and replaced with facility.

A special feature of the present invention is the provision of quickly releasable locking means for securing the upper berth cot in either a horizontal operative position or a raised inoperative position, said means permitting quick and easy removal of the cot from the ambulance from either position, but serving to hold the cot securely locked in either position.

Another feature of the locking means of special advantage is the fact that it may be operated interchangeably by means of a hand lever or foot treadle, so that there is no danger of any time being lost by reason of confusion on the part of the operator. The locking means is further simplified by interconnecting for simultaneous operation the latch which releasably secures the cot in raised position and the latch which releasably secures the cot in horizontal position, thus permitting both latches to be operated by hand or foot treadle, whichever is most convenient for the operator.

The invention is illustrated in the accompanying drawing, in which—

Fig. 1 is a cross-section through the body of an ambulance equipped with four cots in accordance with my invention;

Fig. 2 is a horizontal sectional detail on the line 2—2 of Fig. 1, and

Fig. 3 is a fragmentary sectional view corresponding to a portion of Fig. 1, showing a moved position of the upper berth cot fastening means.

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

The reference numeral 3 designates the floor and 4 the ceiling of the ambulance or other vehicle in which the four cots numbered 5, 6, 7, and 8 are carried and suitably secured in place. 9 and 10 designate the rear wheel housings which usually project into the ambulance from the inner side walls 9a and 10a of the ambulance. The cots shown at 5 and 8 are of the conventional design equipped with wheels 11 to permit their being rolled into and out of position on the floor 3 between the rear wheel housings 9 and 10, the wheels being preferably on casters, as indicated at 12, so as to permit sidewise movement at will. 13 and 14 designate cot fasteners adjacent the housings 9 and 10 which may be of any suitable or preferred type, the ones shown being like that

disclosed in Van Deest Patent No. 1,858,530 consisting of front and rear hooks in opposed relation with the rear hook of each pair adapted to be moved toward and away from the front hook by means of a handle 15 and rod 16. The hooks referred to are adapted to engage the corner posts 17 on the front and rear ends of the cot. In the event the rear wheel housings do not leave sufficient floor space between them for two cots with cot fasteners of the Van Deest type, I may mount cot fasteners on the side walls 9a and 10a over the rear wheel housings, using cot fasteners of the type disclosed in the copending application of Donald H. Cox, Serial No. 153,111, inasmuch as such cot fasteners permit the cots to stand closer to the sides of the rear wheel housings.

The upper berth cots 6 and 7 provided in accordance with my invention may be supported directly on the side walls 9a and 10a, but I have shown front and rear uprights 18 and 19 as special supports associated with each of the cots. Inasmuch as there are substantially identical fastening and supporting means provided in connection with both cots, a description of the fastening and supporting means for cot 6 will serve for both. Each of the cots has a pair of vertically spaced horizontal longitudinal side members 20 and 21 on that side of the cot toward the adjacent side wall of the ambulance. Front and rear hooks 22 and 23 are carried on the upright supports 18 and 19 for engagement under the front and rear ends of the upper longitudinal member 20 of the cot to provide pivotal support therefor. A single downwardly facing hook 24 is mounted for vertical sliding movement on the rear support 19 by means of the pins 25 working in the slot 26 in the attaching shank portion 27 of the hook, and this hook when engaged over the rear end of the lower longitudinal member 21 on the cot serves to lock the cot releasably in horizontal operative position. A coiled tension spring 28 on the support 19 tends normally to urge the hook 24 downwardly, but the hook is adapted to be raised by means of a rocker-arm 29 pivoted on the support 19, at 30, and pivotally connected at 31 to the attaching shank portion 27 of the hook and arranged to be operated by means of a pull rod 32 pivotally connected at 33 to a foot treadle 34 pivotally mounted near the floor of the ambulance, as at 35. If desired, the hook may also be raised by means of a hand lever 36 pivoted at 37 on the support 19 and pivotally connected at 38 to the upper end of the attaching shank portion 27 of the hook 24. The hand lever 36 is in close proximity to the cot and therefore easily visible to the attendant about to unfasten the cot. However, in most cases, it is believed that the operator will prefer to release the cot by depression of the treadle 34, because in that way both hands are left free to handle the cot. A projection 39 on the attaching shank portion 27 of the hook 24 cooperates with the hook 23 when the hook 24 is in locking relation to the cot to lock the upper longitudinal member 20 of the cot securely in engagement with the hook 23. This projection also serves to make more certain the proper engagement of the cot on the hook 23 before the hook 24 moves to locking position, because it is obvious that if the upper longitudinal member 20 is not seated properly on the hook 23, the projection 39 will prevent homeward movement of the hook 24.

Another hook 40 is pivotally mounted on the ceiling 4, as at 41, in such spaced relation to the hooks 22 and 23 to permit interlocking engagement with the outer longitudinal member 20a on the cot when the cot is unlocked from the hook 24 and swung upwardly about its longitudinal member 20 as a center to an inoperative position like that occupied by the cot 7. A coiled tension spring 42 on the ceiling 4 tends normally to swing the hook 40 toward locking engagement with the cot, but the hook may be moved positively in the opposite direction by means of a link 43 pivotally connected at 44 to a bellcrank arm 45 on the hand lever 36. The link 43 can be pulled either by depression of the treadle 34 or by raising the hand lever 36.

In operation, it should be clear that both of the upper berth cots 6 and 7 when disposed in horizontal operative position derive their sole support from the sides of the ambulance on the hooks 22 and 23 on which they are securely locked by the hooks 24. That leaves the inside of the ambulance clear of all obstructions and facilitates getting cots out or putting them in the ambulance. Any upright supports reaching from the floor, or hangers depending from the ceiling, would be a nuisance. Both of the cots 6 and 7 can be removed and replaced without difficulty, and there is not apt to be any confusion and consequent loss of time in the handling of these cots, because of the fact that they can be locked and unlocked either by hand, using the hand lever 36, or by foot depression of treadle 34. It is also of considerable advantage to have the cots swing upwardly to out-of-the-way positions as herein disclosed, because they then do not interfere with the easy handling of the regular floor cots 5 and 8. That is to say, while the present ambulance is designed for four-passenger use, it can be used as a two-passenger ambulance the same as any ordinary unimproved ambulance, and the upper berth cots 6 and 7 are then in the nature of stand-by equipment to be used in any emergency. There is, of course, an appreciable saving in expense in operating with an ambulance of such design, which, whenever the emergency calls for it, can be made to do the work of two ambulances. It should also be clear that the cots will be interchangeable, cot 7 being adopted to be mounted where cot 6 is shown, and vice versa. The cots 6 and 7 may be equipped with supporting legs or casters like those indicated at 11a, which are preferred because they facilitate handling the cots, especially loading the same into the ambulance or removing the same. Two persons can easily handle one of these cots.

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

I claim:

1. An ambulance comprising a body having a floor, side walls, and a top, said body adapted to support removable cots on said floor longitudinally thereof, fixed hooks for supporting one or more other cots above the first cots, said hooks projecting laterally and upwardly from the side walls in horizontally spaced relation near the top, one or more removable cots having upper side rails for pivotally and detachably engaging said hooks for support and having lower side rails in vertical alignment with said upper side rails for abutment with the side walls whereby to support the cots against downward displacement solely by the side rails thereof on said side walls

in horizontal positions above the first cots, and manually operable means for releasably retaining said upper side rails on said hooks.

2. An ambulance as set forth in claim 1, including other hooks movably mounted on the top and projecting downwardly and laterally toward the side walls for detachable engagement with outer side rails provided on the adjacent cots when said cots are swung upwardly relative to their supporting hooks on the side walls to inoperative out-of-the-way positions, and manually operable means for operating said movable top hooks.

3. An ambulance as set forth in claim 1, including other hooks mounted for vertical movement on the side walls projecting laterally and downwardly from the side walls below the fixed hooks thereon and arranged to have detachable engagement with the lower side rails of the adjacent cots when the same are in substantially right angular operative relationship to the side walls, whereby to prevent upward displacement of the upper side rails from the fixed hooks, and means for operating said movable hooks.

4. An ambulance as set forth in claim 1, including other hooks movably mounted on the top and projecting downwardly and laterally toward the side walls for detachable engagement with outer side rails provided on the adjacent cots when said cots are swung upwardly relative to their supporting hooks on the side walls to inoperative out-of-the-way positions, other hooks mounted for vertical movement on the side walls projecting laterally and downwardly from the side walls below the fixed hooks thereon and arranged to have detachable engagement with the lower side rails of the adjacent cots when the same are in substantially right angular operative relationship to the side walls, whereby to prevent upward displacement of the upper side rails from the fixed hooks, means interconnecting the correlated movable side and top hooks so that when the movable side hooks are retracted the correlated top hooks are also retracted to permit movement of the adjacent cots upwardly to out-of-the-way positions, spring means for moving the movable hooks in one direction, and manually operable means for moving the same in the opposite direction.

5. An ambulance comprising a body having a floor, side walls, and a top, said body adapted to support removable cots on said floor longitudinally thereof, fixed hooks for supporting one or more other cots above the first cots, said hooks projecting laterally and upwardly from the side walls in horizontally spaced relation near the top, one or more removable cots having upper side rails for pivotally and detachably engaging said hooks for support and having lower side rails in vertical alignment with said upper side rails for abutment with the side walls whereby to support the cots against downward displacement solely by the side rails thereof on said side walls in horizontal positions above the first cots, members slidable vertically on the side walls relative to the fixed hooks having lateral projections over the fixed hooks for releasably retaining said upper side rails on said hooks and having other hooks projecting laterally and downwardly therefrom for detachable engagement with the lower side rails to prevent upward displacement of the upper side rails from the fixed hooks, spring means tending normally to move the slidable members downwardly, and manually operable means for moving said members upwardly, the cots being removable from the fixed hooks and movable hooks when said slidable members are raised to retracted position.

6. An ambulance comprising a body having a floor, side walls, and a top, said body adapted to support removable cots on said floor longitudinally thereof, fixed hooks for supporting one or more other cots above the first cots, said hooks projecting laterally and upwardly from the side walls in horizontally spaced relation near the top, one or more removable cots having upper side rails for pivotally and detachably engaging said hooks for support and having lower side rails in vertical alignment with said upper side rails for abutment with the side walls whereby to support the cots against downward displacement solely by the side rails thereof on said side walls in horizontal poistions above the first cots, members slidable vertically on the side walls relative to the fixed hooks having lateral projections over the fixed hooks for releasably retaining said upper side rails on said hooks and having other hooks projecting laterally and downwardly therefrom for detachable engagement with the lower side rails to prevent upward displacement of the upper side rails from the fixed hooks, spring means tending normally to move the slidable members downwardly, manually operable means for moving said members upwardly, the cots being removable from the fixed hooks and movable hooks when said slidable members are raised to retracted position, said cots being also swingable upwardly relative to the fixed hooks when said slidable members are raised, and means on the top for detachably engaging the cots to releasably secure the same in folded out-of-the-way positions.

MAYNARD KREIDLER.