C. S. WOOD.

AMBULANCE.

APPLICATION FILED JUNE 22, 1916.

1,208,260.

Patented Dec. 12, 1916.

3 SHEETS—SHEET 1.

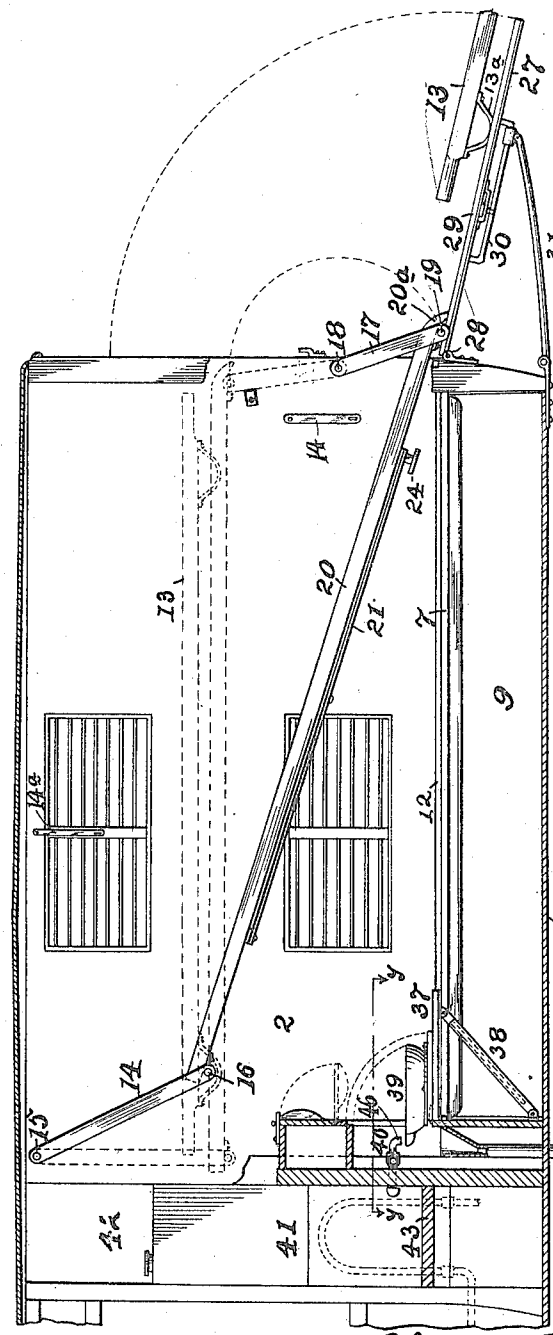


FIG. 1.

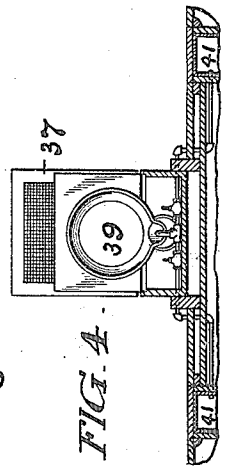


FIG. 4.

Witness

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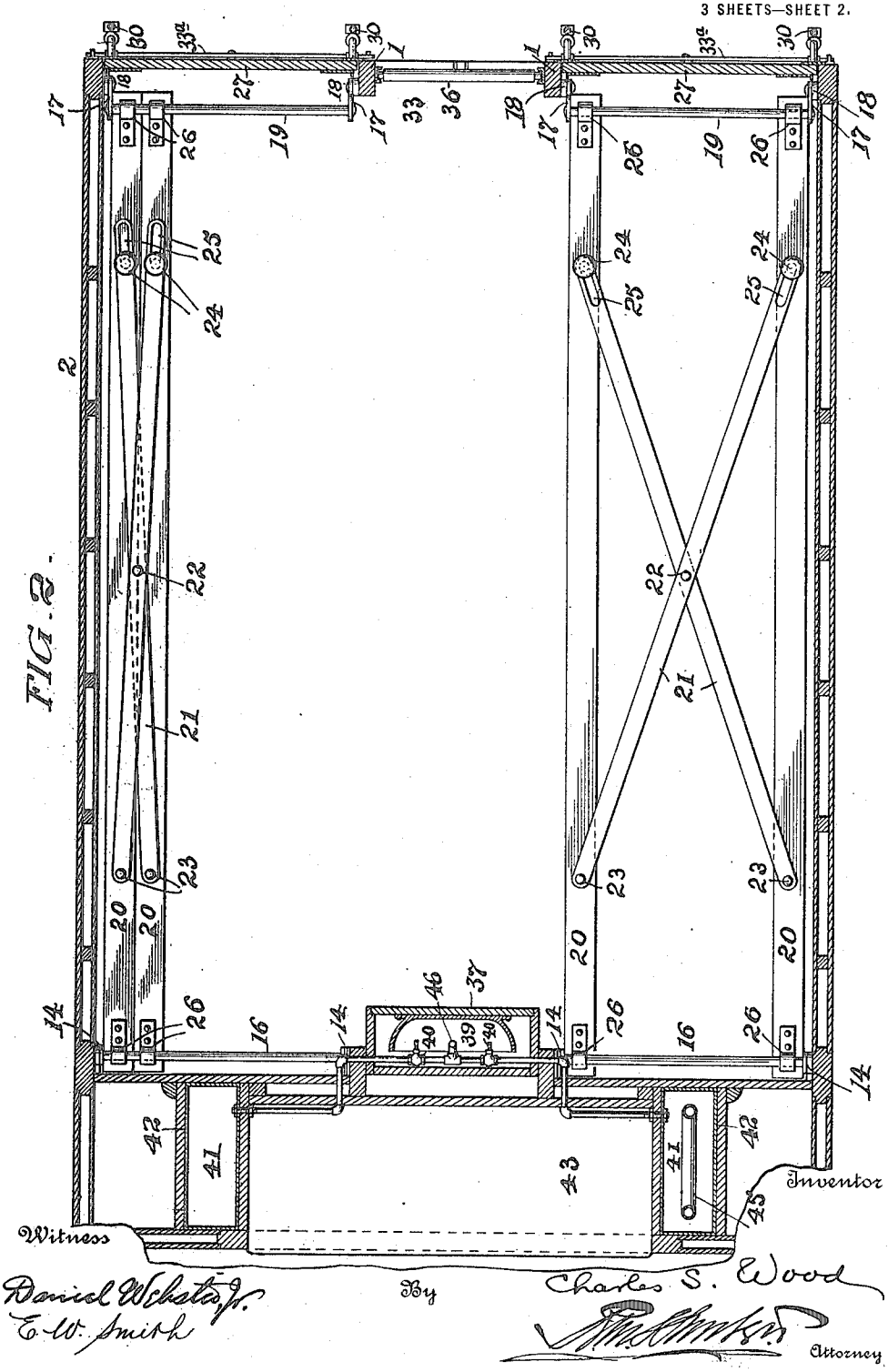


FIG. 2.

Witness

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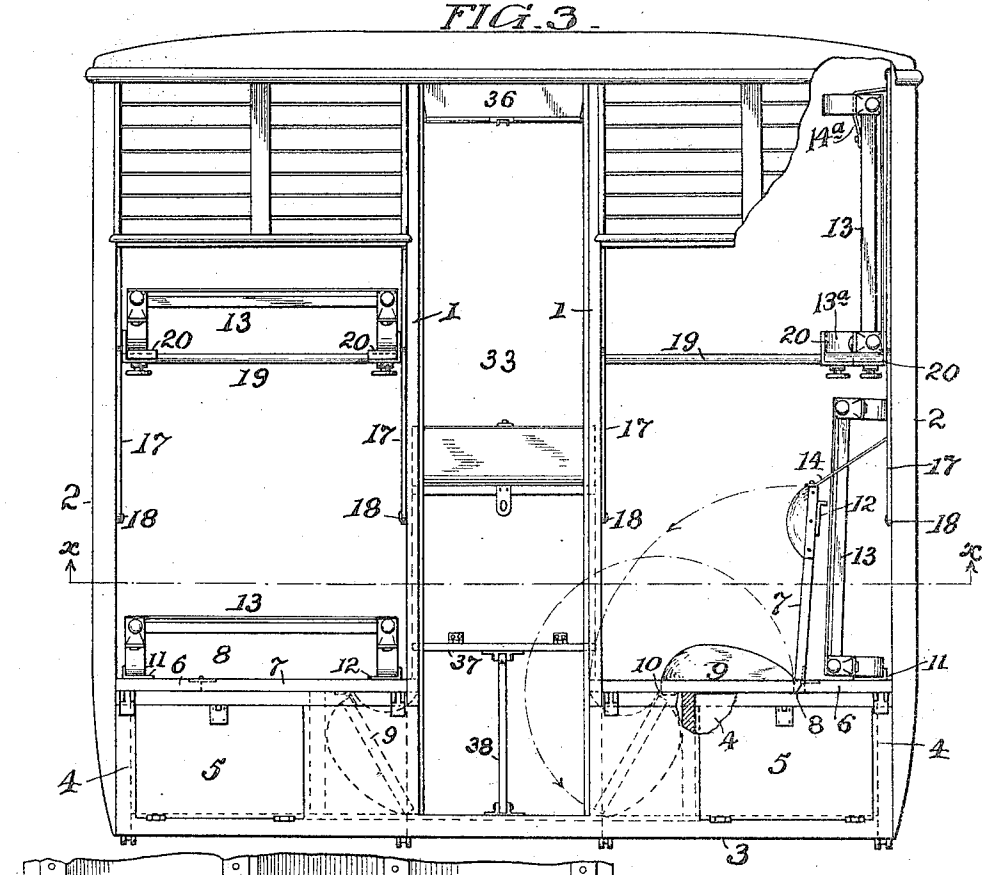
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3 SHEETS—SHEET 3.

FIG. 3.



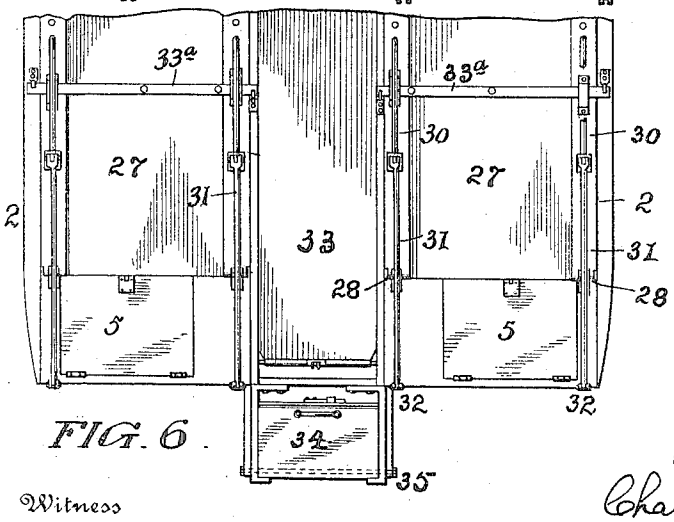
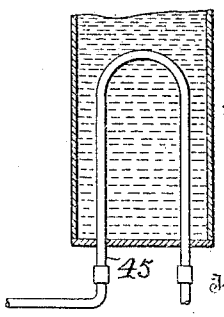


FIG. 6.

FIG. 5



Witness

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UNITED STATES PATENT OFFICE.

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AMBULANCE.

1,208,260. Specification of Letters Patent. Patented Dec. 12, 1916.

Application filed June 22, 1916. Serial No. 105,112.

To all whom it may concern:

Be it known that I, CHARLES S. WOOD, a citizen of the United States, and resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Ambulances, of which the following is a specification.

The object of my invention is to provide a suitable construction of ambulance by which the injured may be speedily, and with facility, placed in the ambulance or removed therefrom, said handling being accomplished with the least possible jar or disturbance to the patient and requiring the services of only two attendants, thereby reducing the number of necessary persons in the ambulance corps.

More particularly, my object is to provide special means for introducing the stretcher and the occupant into the ambulance and raising them into an elevated position for transportation, and inversely for lowering them and facilitating their discharge when the occupant is to be removed from the ambulance at the hospital.

My improved loading and unloading means in the ambulance body is of such nature that great facility is afforded to the attendants in manipulating the stretcher with its burden, whereby rapid operation may be accomplished with the least discomfort to the injured.

With the above and other objects in view, the nature of which will be more fully understood from the description hereinafter, the invention consists in the novel construction of ambulance as hereinafter more fully described and defined in the claims.

Referring to the drawings:—Figure 1 illustrates a sectional side view of an ambulance body embodying my improvements; Fig. 2 is a horizontal sectional view looking up toward the roof and taken on line x—x of Fig. 3; Fig. 3 is a rear view of the ambulance; Fig. 4 is a sectional view looking down upon the means for lavatory purposes, taken on line y—y of Fig. 1; Fig. 5 is a sectional view of a portion of one of the water tanks; and Fig. 6 is an elevation of the lower portion of the rear of the ambulance when provided with doors.

2 is the body and may be made in any suitable manner to embody lightness with strength, and at the rear it is provided with a central doorway 33 bounded by vertical posts 1. The space between the posts 1 and the sides of the body at the rear constitute openings through which the stretcher and its burden may be introduced and removed. These openings may be left uncovered or may be provided with doors 27 hinged to the vehicle framing as at 28 (Fig. 6). In the most approved form of my ambulance, I prefer to employ the doors as shown in Figs. 1, 2 and 6, but they may be omitted where lightness and economy are required, and for that reason these doors have been omitted from the rear view shown in Fig. 3. In city hospital service, the doors 27 would usually be employed; but in ambulance work for army service, the doors may be omitted and any curtain or fabric covering may be employed if so desired, such as indicated at 36, though I do not restrict myself in this respect. When the doors 27 are employed, they may be locked in closed position by a suitable locking bar 33^a, and the extent to which said doors may be swung downward about their hinges 28 is clearly indicated in Figs. 1 and 6, said means comprising iron guides 30 upon the doors and radial struts 31 having a sliding connection therewith at one end and hinged at the other end at 32 to the bottom of the vehicle body. In this way, the doors may be swung upward into closed position, as indicated in Figs. 2 and 6, the upper ends of the radial struts sliding down upon the guides 30. When the doors are turned down, as in Fig. 1, the struts slide to the upper end of the guides 30 until they meet with the abutment ends thereof, and then the doors remain in the inclined position shown, being supported in said positions by the strut bars 31. The doors may be provided with angle-iron guides 29 for receiving the feet 13^a of the stretchers 13 when introducing or removing the stretchers from the ambulance.

Each side of the interior of the body and adjacent to the side walls thereof may have a longitudinal compartment 4 having at the rear end of the body doors 5 for providing access thereto (Fig. 3), and the upper portions of these compartments may be partly closed by longitudinal boards 6 extending from the side walls, and the remaining portions of the upper openings may be closed by hinged boards 7 which are hinged at 8 and so that they may be turned down to form a floor, as indicated at the left-hand

side of Fig. 3, or turned upward to form a seat back as indicated at the right-hand side of Fig. 3. When they are turned upward to form a seat back, they may be held in upright position by a suitable fastener or link 14.

Hinged to the upper parts of the longitudinal compartments 4 adjacent to the inner sides, are seat boards 9 which may be provided with suitable cushions, and these may be turned upward over the compartments 4 as indicated at the right-hand part of Fig. 3 to form seats, or may be dropped down as indicated in dotted lines when the boards 7 are turned down into horizontal position, as shown at the left-hand side of Fig. 3. In this manner, the parts 7 and 9 may be utilized not only as covers for the compartment 4, but also as a seat and back when desired, or in the case of the part 7 acting as a floor for the stretcher. In this manner, the construction is more or less universal in its adaptation in use. The hinged seat portion 9 is narrower than the back portion 7, so that when it is turned upward and backward about its hinge 10 to form a seat (Fig. 3), it provides a clearance space in the middle of the body almost up to the compartment 4 thereby giving the desired clearance between the opposite seats, and especially in case the adjustment is to provide seats only at one side of the vehicle, the other side being occupied by stretchers; whereas portion 7 when turned down not only bridges the distance occupied by the part 9 as a seat, but also extends nearer to the middle of the vehicle body to provide a wide stretcher support and which naturally reduces the clearance space in the middle of the vehicle.

The boards 6 adjacent to the sides of the body are provided with angle-iron strips 11, and similar strips 12 are arranged upon the hinged boards 7 so that when said boards are closed down, longitudinal metal guides 11 and 12 are provided for the feet of the stretcher 13, as clearly indicated in the left-hand part of Fig. 3. These angle-iron strips 11 and 12 are in alinement with the guide metal strips 29 on the doors, so that the stretcher may be pulled out of the body on to the guides on the doors, or vice versa, and the upright flanges of these guides insure the stretcher sliding in a proper direction within the ambulance.

In addition to the lower supports for the stretchers above described, there are adjustable supports hung from the upper part of the body upon which additional stretchers may be sustained. These adjustable supports are indicated in position for loading or unloading in Fig. 1, and in their loaded positions in dotted lines in Fig. 1 and in full lines at left-hand part of Fig. 3. I will now describe these adjustable loading means as applied to one side of the body.

At the forward end of the body and near the roof, two links 14 are hinged at 15 and are connected at the bottom by a transverse rod 16, so that they may swing about the pivotal connections 15, the extreme positions being indicated in Fig. 1. At the opposite or rear end of the body, two additional links 17 are hinged to the sides of the body at a lower elevation, and the free ends of these links are connected by a transverse rod 19. These last mentioned links 17 and their rod 19 are adapted to swing about 18 for approximately 180°, as indicated in Fig. 1. 20, 20 are two longitudinal angle-iron bars having their ends resting upon the transverse rods 16 and 19 and hinged thereto as at 26. When the bars 17 are turned upward into the dotted position, Fig. 1, these angle-iron bars 20 are horizontal, but when the bars 17 are turned outward and downward as indicated in solid lines in Fig. 3, the rear ends of the bars 20 are lowered so that they come into alinement with the guide strips 29 on the hinged doors 27. The angle iron bars 20 are adapted to slide toward or from each other upon the bars 16 and 19, and their relative positions are governed by means of the crossing brace bars 21. These bracing bars are jointed together at 22 and are hinged at their forward ends to the under side of the angle iron bars 20, as indicated at 23, and the opposite ends are slotted as at 25, and through which clamping bolts 24 pass to hold them tightly to the longitudinal bars 20. When the bars 20 are fully separated and the clamping screws 24 tightened, the angle iron guide bars 20 act as supports for the feet of the stretcher, as indicated at the left-hand part of Fig. 3. When the ambulance is to be used with persons sitting upright, then the bars 20 may be moved together and the clamping screws 24 tightened to hold them in such position, as indicated at the upper part of Fig. 2 and right-hand part of Fig. 3.

The stretchers 13 are of ordinary construction and will need no description beyond the statement that their feet portions 13^a are adapted to slide upon the longitudinal angle-iron bars 20 when loading or unloading, and to be supported thereby when the ambulance is loaded and in transport.

It will be understood from examination of Fig. 1 that the loading or unloading may be done with great facility. Assuming that the parts are in the position indicated, it is manifest that the stretcher may have its forward end placed upon the guides 29 of the door, and then slid along said guides 29 and upward upon the angle iron bars 20. This sliding motion would be continued until the stretcher was wholly upon the angle-iron bars 20, and in which position the patient would be slightly inclined

with the head at the forward end and upward. The rear ends of the angle-iron bars 20 are lifted, and being connected to the transverse rod 19, they rise in the arc of a circle as the links 17 swing about their hinge points 18 from the solid line position to the dotted line position, Fig. 1, and when the latter position has been reached, the links 14 will be vertical and the links 17 slightly inclined forward at the top. The bars 20 and the stretcher 13 will then be horizontal, and when the door 27 is lifted up and closed and locked, the bars and links are held against swinging. The ambulance is then in condition for transporting the patients. To remove the stretcher with its burden, it is only necessary to reverse the operation, that is to say, first lower the door 27, then draw back the bars 20 and the links 17 and revolving the latter about their pivots 18 down to the position indicated in full lines in Fig. 1. The stretcher may then be drawn down the guiding and supporting bars 20 on to the guide strips 29, as indicated, where it will be in position to be readily handled by the two attendants. By this construction, it is manifest that a minimum amount of labor is required to handle a stretcher and its load, and that two men may be able to perform the work which formerly required four, when the stretcher as a whole was required to be lifted up bodily and pushed into a fixed support or upper tier. Moreover, the operation of loading and unloading of the stretcher and occupant is less trying upon the patient in an ambulance of my construction, than where the supports for the stretcher are rigid; and furthermore, there is less liability of injury from accident in the handling, all of which is very important where great speed is required to save the life of the injured.

In the particular construction of ambulance shown, there is provision for four stretchers, two on each side of the central passage 33, which may be utilized in attending to the patients or when the ambulance is used for injured who can sit up on the seats provided, as hereinbefore described. The rear entrance to the passageway 33 may be provided with a drop curtain 36 if so desired. Furthermore, the rear of the body may be provided with an adjustable step 34 hinged at 35 (Fig. 6) to swing downward, if so desired.

For general hospital work in cities, the ambulance may be provided with a lavatory equipment such as indicated. In the particular illustration, there is a cupboard at the forward end of the passage 33 in which is arranged a spigot 46 and a drain pipe 44. The front 37 of this cupboard is hinged and may be turned up to close the cupboard or turned down into a horizontal position and supported by an adjustable strut 38 as indicated. When turned down it may act as a seat for the attendant. A basin 39 may be fastened to an inner cover also hinged, and thereby be able to be closed up into the cupboard or to be turned down to rest upon the front cover 37, as shown. The basin 39 may assume a position such that it may receive the water from the spigot or may drain the waste water into the waste pipe. Immediately in front of the lavatory is arranged a seat 43 for the driver or chauffeur, and upon either side thereof the body is formed with recess 42 in which are placed tanks 41 for containing water. One of these tanks may be employed to hold cold water and the other to hold hot water. In the latter case, the tank may be provided with a heating coil 45 through which heated products from any suitable source may be passed to heat the water of the tank. These tanks are connected by suitable pipes with the spigot 46, each of which is provided with a suitable valve 40 for controlling the hot and cold water. These details may be varied to suit the wishes of the designer.

At the right-hand lower side of Fig. 3, is shown the storing of the stretcher 13 and against which the seat back 7 rests, and similarly the stretcher for the upper tier is shown in its stored position in which it is reversed from the lower stretcher and placed upon the longitudinal angle-iron bar 20 next to the side of the body and locked in that position by the other angle-iron bar 20 coming up against its feet 13^a, and by the strap 14^a at the top which is hooked over the stretcher to hold it in position. The stretcher may be supported in any other suitable manner to be found desirable.

The compartments 4 under the seats are intended for additional stretchers and other purposes which may be required under special conditions, and these compartments may also carry the necessary supplies.

It is manifest that so far as the loading and unloading of the stretchers are concerned, it is not at all essential that the attendants shall enter the body of the vehicle, as the manipulation may be done wholly from the outside from the rear, and it is therefore evident that where the ambulance is only to carry the injured without giving them any attendance during transportation, the space 33 between the stretcher supporting means at each side may be dispensed with, as also the lavatory features. It will be manifest that if the body is narrowed to this extent, there would still be sufficient space between the compartments 4 to enable the seat portions 7 and 9 to be employed just as has been described.

I have shown the ambulance body without running gear as it is manifest that this body

may be placed upon any suitable running gear such as adapted for use with horses or motive power. Any of the ordinary automobile chassis may be used in connection with my improved body, but as said running gear forms no part of my invention, I have not deemed it necessary to illustrate the same.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that I do not restrict myself to the details, as the same are susceptible of modification in various particulars without departing from the spirit or scope of the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In an ambulance, a body having an adjustable stretcher-support comprising a longitudinal frame structure upon which the stretcher may rest, hinged connections jointed at their upper ends to the body and at their lower ends to the longitudinal frame structure adjacent to one end, additional hinged connections having their upper ends jointed to the longitudinal frame structure adjacent to the other end thereof and having their lower ends hinged to the body, said additional hinged connections adapted to swing from an upright position to a depending position for lowering one end of the lingitudinal frame structure, whereby it assumes an inclined position for permitting loading or discharging of the stretcher and its load.

2. In an ambulance, a body having an adjustable stretcher-support comprising a longitudinal frame structure upon which the stretcher may rest, hinged connections jointed at their upper ends to the body and at their lower ends to the longitudinal frame structure adjacent to one end, additional hinged connections having their upper ends jointed to the longitudinal frame structure adjacent to the other end thereof and having their lower ends hinged to the body, said additional hinged connections adapted to swing from an upright position to a depending position for lowering one end of the longitudinal frame structure, whereby it assumes an inclined position for permitting loading or discharging of the stretcher and its load, combined with a hinged door on the body adjacent to the last mentioned additional hinged connections and providing a continuation of the guiding portions of the adjustable support for receiving the stretcher in the act of loading or unloading in respect to the said support.

3. In an ambulance, a body having an adjustable stretcher-support comprising a longitudinal frame structure upon which the stretcher may rest, hinged connections jointed at their upper ends to the body and at their lower ends to the longitudinal frame structure adjacent to one end, additional hinged connections having their upper ends jointed to the longitudinal frame structure adjacent to the other end thereof and having their lower ends hinged to the body, said additional hinged connections adapted to swing from an upright position to a depending position for lowering one end of the longitudinal frame structure, whereby it assumes an inclined position for permitting loading or discharging of the stretcher and its load, combined with a hinged door on the body adjacent to the last mentioned additional hinged connections and providing a continuation of the guiding portions of the adjustable support for receiving the stretcher in the act of loading or unloading in respect to the said support, and means for holding the door in an inclined position when lowered and in a locked position when raised, said door in said latter position preventing the lowering of the stretcher support.

4. In an ambulance, a body having an adjustable stretcher-support comprising a longitudinal frame structure having side guide portions upon which the stretcher may rest said guide portions adjustable laterally to collapse the frame structure, hinged connections jointed at their upper ends to the body and at their lower ends to the longitudinal frame structure adjacent to one end, additional hinged connections having their upper ends jointed to the longitudinal frame structure adjacent to the other end thereof and having their lower ends hinged to the body, said additional hinged connections adapted to swing from an upright position to a depending position for lowering one end of the longitudinal frame structure, whereby it assumes an inclined position for permitting loading or discharging of the stretcher and its load.

5. In an ambulance, a body having an adjustable stretcher-support comprising a longitudinal frame structure upon which the stretcher may rest, hinged connections jointed at their upper ends to the body and at their lower ends to the longitudinal frame structure adjacent to one end, additional hinged connections having their upper ends jointed to the longitudinal frame structure adjacent to the other end thereof and having their lower ends hinged to the body, said additional hinged connections adapted to swing from an upright position to a depending position for lowering one end of the longitudinal frame structure, whereby it assumes an inclined position for permitting loading or discharging of the stretcher and

its load, combined with a lower horizontally arranged stretcher-support substantially on a level with the lower end of the longitudinal frame structure when lowered.

6. In an ambulance, a body having an adjustable stretcher-support comprising a longitudinal frame structure upon which the stretcher may rest, hinged connections jointed at their upper ends to the body and at their lower ends to the longitudinal frame structure adjacent to one end, additional hinged connections having their upper ends jointed to the longitudinal frame structure adjacent to the other end thereof and having their lower ends hinged to the body, said additional hinged connections adapted to swing from an upright position to a depending position for lowering one end of the longitudinal frame structure, whereby it assumes an inclined position for permitting loading or discharging of the stretcher and its load, combined with a lower horizontally arranged stretcher-support substantially on a level with the lower end of the longitudinal frame structure when lowered said lower support convertible into a seat extending longitudinally of the ambulance body.

7. In an ambulance, a body having a rear opening and a lower longitudinal stretcher-support adjacent to its lower portion, combined with a door hinged to the rear of the body adjacent to the rear end of the longitudinal stretcher-support and adapted to swing upwardly to close the rear opening, a strut hinged to the body and having an adjustable connection with and to support the door in a lowered position to form a continuation of the stretcher-support, and an adjustable suspended stretcher-support linked at its forward end to the body above the lower longitudinal stretcher-support, rear link supports for said suspended stretcher-support whereby it has freedom to swing longitudinally and its end adjacent to the rear opening adjustable vertically whereby it may assume a suspended horizontal position or an inclined position extending to the open door adjacent to its hinged end for loading or unloading.

8. In an ambulance, a body having rear openings, and two lower longitudinal stretcher guides and supports respectively extending forward from said rear openings, combined with two longitudinal suspended stretcher-supports respectively above the lower longitudinal stretcher guides and supports, said suspended supports having jointed connections at their forward ends with the body to permit them swinging longitudinally and also having at their rear ends adjustable connections with the body to permit said ends to be lowered to give to the suspended supports an inclined position to facilitate loading and unloading of the stretcher and its load, or to cause said supports to be raised to a horizontal position.

9. In an ambulance, a body having rear openings, and two lower longitudinal stretcher guides and supports respectively extending forward from said rear openings and each provided with a compartment under them and an adjustable portion convertible into a seat and back, combined with two longitudinal suspended and laterally collapsible stretcher-supports respectively above the lower longitudinal stretcher guides and supports, said suspended supports having jointed connections at their forward ends with the body to permit them swinging longitudinally and also having at their rear ends adjustable connections with the body to permit said ends to be lowered to give to the suspended supports an inclined position to facilitate loading and unloading of the stretcher and its load, or to cause said supports to be raised to a horizontal position.

10. In an ambulance, a body, combined with a suspended stretcher-support comprising a front hinged frame pivoted at its top to the body and having a transverse bar at its bottom, a rear hinged frame pivoted at its bottom to the body and having a transverse bar at its top, and a longitudinal frame structure hinged at its ends to the respective transverse bars, whereby by swinging the rear hinged frame backward and downward the longitudinal frame structure may be made to assume an inclined position for loading and unloading.

11. In an ambulance, a body, combined with a suspended stretcher-support comprising a front hinged frame pivoted at its top to the body and having a transverse bar at its bottom, a rear hinged frame pivoted at its bottom to the body and having a transverse bar at its top, and a longitudinal frame structure hinged at its ends to the respective transverse bars, whereby by swinging the rear hinged frame backward and downward the longitudinal frame structure may be made to assume an inclined position for loading and unloading, said longitudinal frame structure consisting of two parallel guides independently supported upon the front and rear hinged frames and relatively adjustable in a lateral direction and connecting means for securing said guides at a distance apart or permitting them to be moved relatively toward each other.

12. In an ambulance, a body, combined with a suspended stretcher-support comprising a front hinged frame pivoted at its top to the body and having a transverse bar at its bottom, a rear hinged frame pivoted at its bottom to the body and having a transverse bar at its top, and a longitudinal frame structure hinged at its ends to the respective transverse bars, whereby by swinging the

rear hinged frame backward and downward the longitudinal frame structure may be made to assume an inclined position for loading and unloading, and adjustable means on the body for holding the suspended stretcher-support from swinging longitudinally when in horizontal elevated position.

13. In an ambulance, a body, combined with a suspended stretcher-support comprising a front hinged frame pivoted at its top to the body and having a transverse bar at its bottom, a rear hinged frame pivoted at its bottom to the body and having a transverse bar at its top, and a longitudinal frame structure hinged at its ends to the respective transverse bars, whereby by swinging the rear hinged frame backward and downward the longitudinal frame structure may be made to assume an inclined position for loading and unloading, said longitudinal frame structure consisting of two parallel guides independently supported upon the front and rear hinged frames and relatively adjustable in a lateral direction and connecting means for securing said guides at a distance apart or permitting them to be moved relatively toward each other, said body also having a lower horizontal stretcher-support having hinged portions whereby it may be temporarily converted into a seat and back when the suspended stretcher-support is collapsed.

14. In an ambulance, the body having a longitudinal compartment adjacent to its floor and side and partly closed by a longitudinal strip, a stretcher guide upon said strip, an overhanging hinged cover for the open top of the compartment and having a stretcher guide on its upper part when closed said cover adapted to be turned up to form a seat back, and a hinged seat board hinged to the front of the compartment and adapted to be turned over the opening of the compartment to form a seat.

In testimony of which invention, I hereunto set my hand.

CHARLES S. WOOD.

Witnesses:
F. I. RENNIE,
D. RICKLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."