

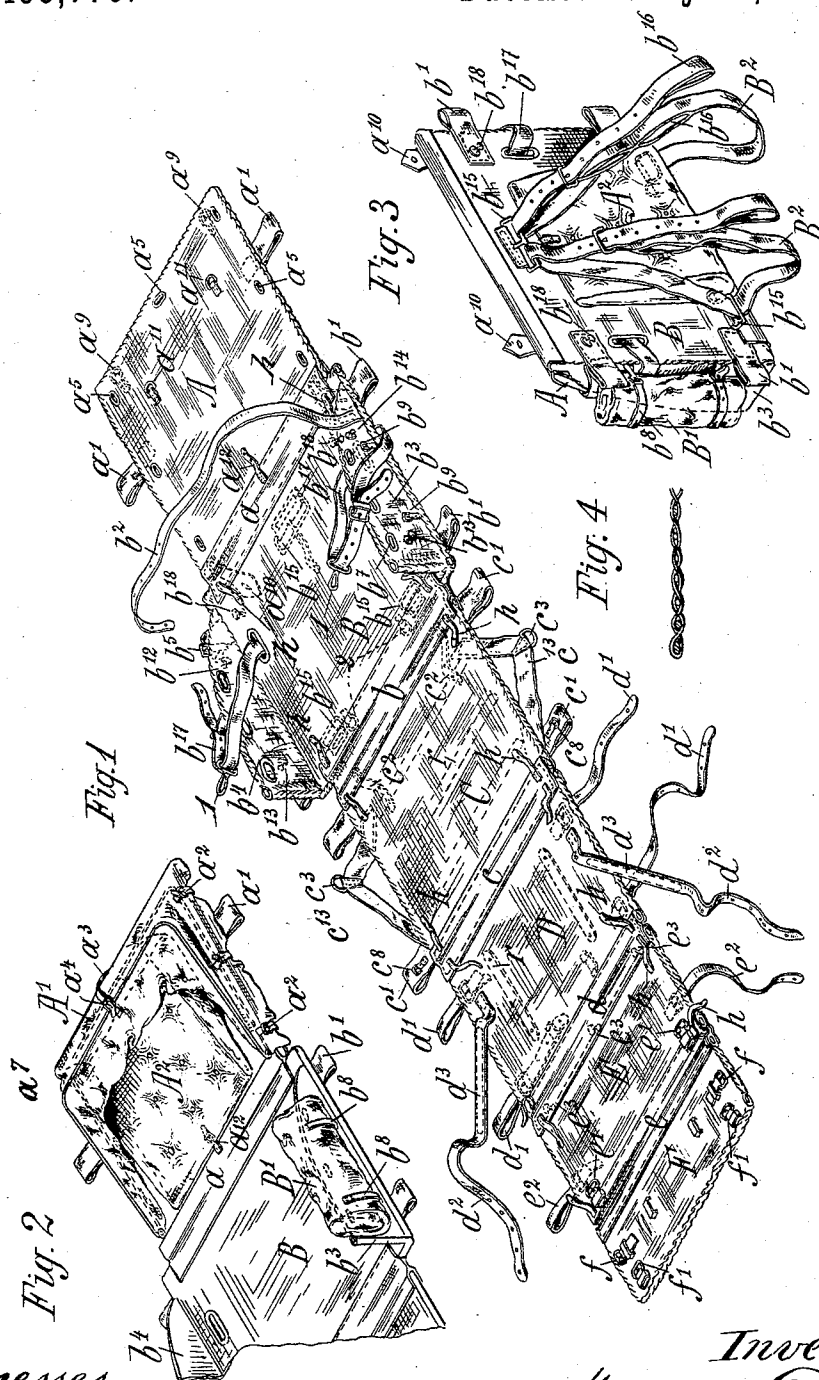
(No Model.)

4 Sheets—Sheet 1.

M. TELL.
LITTER.

No. 455,778.

Patented July 14, 1891.



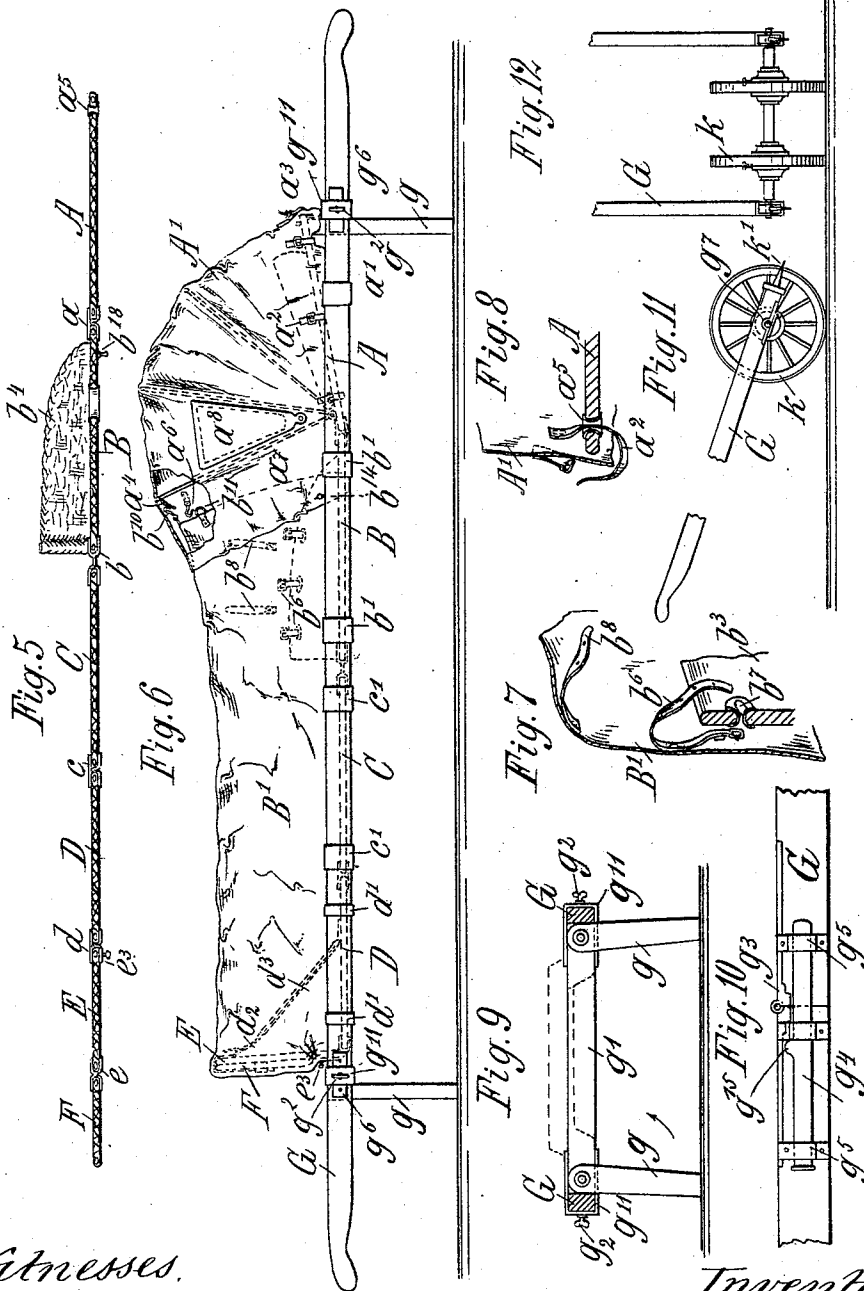
Witnesses
Ella S. Johnson
B. H. Sommers

Inventor
Michael Tell
per Henry M. M.
att'y

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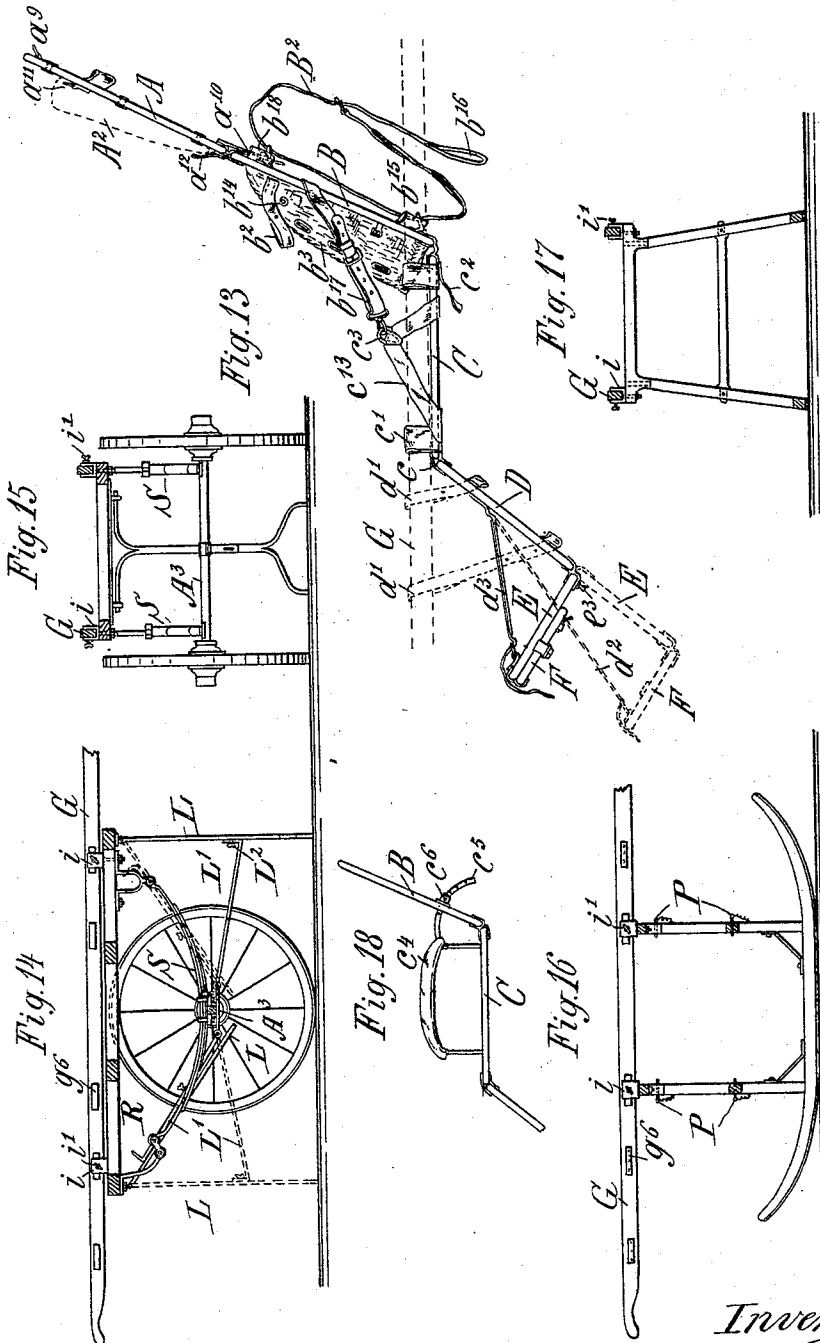
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(No Model.)

4 Sheets—Sheet 4.

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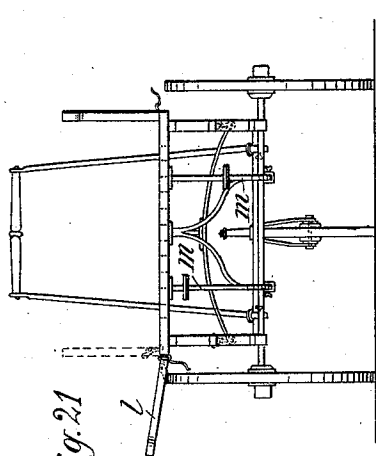


Fig. 21

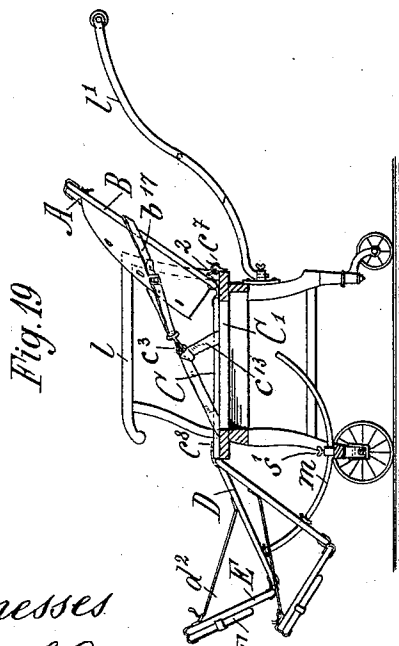


Fig. 19

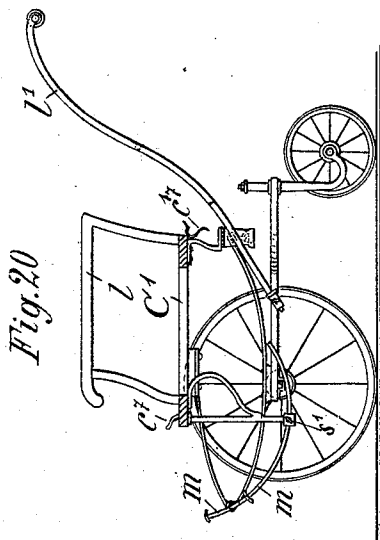


Fig. 20

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UNITED STATES PATENT OFFICE.

MICHAEL TELL, OF VIENNA, AUSTRIA-HUNGARY.

LITTER.

SPECIFICATION forming part of Letters Patent No. 455,778, dated July 14, 1891.

Application filed November 25, 1890. Serial No. 372,596. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL TELL, a subject of the Emperor of Austria, residing at Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Litters for the Infirm and Wounded; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The invention relates to that class of hand-conveyances for the sick and wounded known as "stretchers," and has for its object a construction whereby such hand-conveyances are not only rendered more efficient in use, but more comfortable to the person carried thereon, and whereby said conveyance is adapted for use under conditions that would preclude the use of a hand-conveyance of this class as heretofore constructed.

My invention comprises a stretcher constructed of a material more rigid than the textile fabric heretofore employed and adapted to be folded so that it may be carried like a knapsack. It also comprises means combined with the stretcher whereby the person may be carried in a sitting posture; also, means whereby the stretcher may be readily secured to a wheeled truck and propelled either like a barrow or a two-wheeled vehicle; also, means whereby the stretcher may be used for the lowering of a sick or wounded person from the upper stories of a building not provided with an elevator, or as a fire-escape in case of egress from a building being cut off by fire; also, means whereby the patient may be thoroughly protected against the inclemency of the weather or against the glaring light or shaded from the sun; also, means whereby the legs of the patient may assume different positions relatively to each other, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the stretcher proper without the carrier-bars. Fig. 2 is a like view of the head-section of the

same and parts of two connected sections, showing the pillow and hood and the waterproof or other cover rolled or folded up. Fig. 3 shows the stretcher proper in its folded condition to be carried like a knapsack. Fig. 4 is a detail sectional view illustrating the construction of the stretcher. Fig. 5 is a longitudinal section of the stretcher proper. Fig. 6 is a side view of the stretcher as it appears in use. Figs. 7 and 8 are sectional detail views. Fig. 9 shows one pair of the detachable legs for the stretcher and the means for securing the stretcher-bars thereto. Fig. 10 shows a portion of a folding stretcher-bar and the means for locking the hinged sections rigidly together. Figs. 11 and 12 are side and end views of carrier-wheels and their axle in connection with stretcher-bars, whereby a stretcher may be wheeled like a barrow. Fig. 13 is a side view of the stretcher arranged for carrying a person in a sitting posture. Fig. 14 is a longitudinal section, and Fig. 15 is a transverse section, of a wheeled truck and means for securing the stretcher thereon. Fig. 16 is a longitudinal section, and Fig. 17 is a transverse section, of a sled and means for securing the stretcher thereto. Fig. 18 is a detail view. Figs. 19, 20, and 21 are sectional views illustrating the mode of applying the stretcher to perambulators.

In the construction of the stretcher, instead of using a textile material, as has generally been the case heretofore, I employ a material that is, although more or less elastic, yet sufficiently rigid to avoid the use of transverse stretchers, as in the case of a textile material. To this end the stretcher is constructed of interwoven split cane, as shown in Fig. 4, which is nearly as light as the heavy canvas usually employed, and in order to adapt such a stretcher to be folded into a small bundle, and also to adapt the stretcher to be adjusted to various positions, I construct the same in sections.

As shown in Fig. 1, the stretcher is composed of six sections A, B, C, D, E, and F, connected together by hinge or flexible joints, preferably the latter, said joints being made of a strong textile material, as shown at *a, b, c, and d*, Figs. 1 and 5. The head-section A is provided on each side with a loop *a'*, of leather or other flexible material, with two buckles *a'' a''* on its

under side near the outer edge, with two loops or rings a^{11} a^{11} , with a series of strap slots or eyes a^5 around its edges, and with a strap a^{12} at the hinge-joint a , at which point, on the back of the section, are also secured two button flaps or flies a^{10} a^{10} . The section B is provided on each side with a guard projection or wall b^3 b^4 , of the same material as the stretcher, said guards tapering toward the head-section A and having formed therein slots or eyes b^7 , and are provided with buckles b^9 and with buttons b^{12} b^{13} b^{13} b^{14} . As shown in Fig. 1, the section B, which I may term the "shoulder-section," is slightly wider than the remaining sections, and has formed therein on each side, inside of the guards b^3 b^4 , a strap-slot for the passage of the straps b^{17} , each of which has a safety-hook 1. On the back of section B are secured three strap-loops b^{15} , one about centrally of the section near the flexible joint a and the other two near the edges at the flexible joint b , at which point are also secured two strap-loops 2, and to the front of said section, near the joints a b , are secured four small straps h , each of the sections C, D, and E being likewise provided with four such straps h . Finally, said section B is provided on opposite sides with two stretcher-bar loops b' b' . The section C has also on each side two stretcher-bar loops c' and two angle-straps c^{13} , provided with eyes c^3 , and to each stretcher-bar loop c' , at the joint c , is secured a buckle c^8 .

The sections D and E, instead of having stretcher-bar loops like sections A, B, and C, have straps d' e' , respectively, section D having four such straps d' , two on each side, while section E has but one strap e' on each side, said straps serving also for purposes other than merely connecting the stretcher-bars to said sections to prevent the stretcher from slipping on the bars.

The section D is further provided with a strap d^2 on each side, a portion d^3 of which is stiffened by the insertion of a steel plate.

The section E has at the joint e two buckles e' and on its under side at the joint d three buttons e^3 , while the section F has near its outer edge two buckles f' , facing inwardly, and on each side a buckle f , facing outwardly.

If desired, the stretcher-sections may be stiffened by interweaving steel stiffeners r , either longitudinally or transversely, and this I prefer for ordinary ambulance service.

When the stretcher is in use, a pillow A^2 , Fig. 2, provided near one edge with hooks and near the other with a buckle, is hooked to the loops or eyes a^{11} and secured by straps a^{12} .

To protect the patient or wounded against the glaring light or the heat of the sun, I provide a hood A' , that is constructed somewhat like a folding buggy-top or perambulator-hood, (see Fig. 6,) and has along its edges straps and buckles a^2 a^3 , said straps being passed through the eyes a^5 , Fig. 1, to secure the hood A' in place. (See also Fig. 8.) To the front bow or rib of the hood is secured a buckle a^4 , to which the upper end of the cover B' is

hooked, said cover B' being provided with a hook b^{10} , Fig. 6, and the hood has a curtain a^7 , to the inside of which are secured hooks a^6 for the reception of loops b^{11} on said cover B' to hold the same in the position shown in Fig. 6, the curtain a^7 overlapping the upper edge of the cover B' to exclude rain and wind.

To provide for admission of air under the hood, it has on each side an opening provided with a flap or cover a^8 . If the weather is such as not to require the complete covering of the patient or wounded individual, the curtain a^7 may be thrown back over the hood, and when the latter is not in use it is folded down and firmly strapped down by the strap a^3 , which is first unbuckled and then buckled to the buckle a^4 , as shown in Fig. 2.

The cover B' , which is preferably of waterproof material, as well as the hood A' , has straps and buckles b^8 , (shown in dotted lines, Fig. 6,) that are passed through the eyes b^7 in the guards b^3 b^4 , whereby the said cover is secured to section B of the stretcher, to which the patient or wounded may be firmly strapped by means of the strap b^2 and buckle b^5 , secured to the guards b^3 b^4 , respectively, to prevent him from falling out or from slipping up or down when the stretcher is carried down a declivity or steep incline. The cover B has a series of button-holes that button over the buttons b^{13} b^{14} on the guards b^3 b^4 , respectively, the buttons b^{12} b^{14} and b^{12} b^{13} also serving to secure the curtain a^7 of the hood A' , which is provided with suitable button-holes for this purpose, as shown in Fig. 6. The cover B' is further secured at the foot end by buttoning the buttons e^3 of section E, which section is turned up when the stretcher is in use and secured in position by means of the straps d^2 , the stiffened portion d^3 of which performs the function of a brace, said straps d^2 being buckled to buckles e' of section E, while section F is or may be turned down on section E, as shown in said Fig. 6, and secured in place by means of the straps e^2 , buckled to buckles f of section F. This last-named section is provided for the purpose of lengthening the stretcher for a person above the normal size, and when not in use serves as a stiffening-brace to the foot-section E.

The stretcher may be folded in such a manner as to be carried on the back like a knapsack, and this feature of my invention is considered a very valuable one in view of the ease of transportation, and in view of the fact that in war circumstances arise when a vehicle or even a pack-animal cannot be brought to the field of battle, and when a stretcher as heretofore constructed cannot be carried by hand except with the greatest difficulty.

The folding is effected as follows: The cover B' is detached from its fastenings, rolled up, and by means of straps b^8 , Figs. 2, 6, and 7, is buckled to buckles b^9 on the outside of the guard b^3 , Fig. 2. The hood A' is folded back and secured, as hereinbefore described, by means of strap a^3 and buckle a^4 . The pil-

low A² is detached and hooked to eyes 2 2 on back of section B and secured by a strap 3 on strap-loop b¹⁵, Figs. 1 and 3. These sections E and F folded, as shown in Figs. 6 and 13, are now turned on the back of section C, and section C, with the remaining sections on the back thereof, is folded onto section B, so that all of the stretcher-sections except the head-section A will lie on B between the guards b³ b⁴. The head-section A is now turned down over the sections inclosed in B and serves as a cover and is secured by means of the straps c² on the back of C and the buckles a⁹ on the outer edge of the back of A. (Shown in dotted lines in Fig. 1.) Finally, shoulder-straps B², for carrying the folded stretcher, are passed through the hinged loops b¹⁵ on the back of section B. In order to avoid the use of separate shoulder-straps for carrying the stretcher when in use and when folded, the said straps B² are provided with loops b¹⁶, Fig. 3, each having two or more such loops for the reception of the stretcher-bars and the adjustment of said bars relatively to the height of the carriers. It will be seen that the pillow A², when the stretcher is folded, serves also as a cushion for the back of the person that carries the stretcher, which, when unfolded for use and in order to carry the same with ease, has the stretcher-bars G inserted through the loops a' b' b' c' c' on sections A, B, and C and strapped to section D by means of the straps and buckles d' d' in conjunction with the shoulder-straps B², as before described and as shown in Fig. 6.

Instead of folding the stretcher as described, the joints may be so arranged that section F will fold onto section E and the two on section D, then on section C, and finally on section B, in which case the joint b, Fig. 5, will have to be made of sufficient width to permit this.

The stretcher-bars G may be provided with a bearing g⁷ for the reception of a wheel-axle, and such axle has then by preference two wheels k to prevent the stretcher from tipping over, so that it may be trundled like a wheelbarrow, and in this case the bearing end of the bars may be provided with a spike, so that they may perform the function of an alpen-stock, as shown in Figs. 11 and 12.

The stretcher constructed as described may be provided with legs to support it at a certain distance from the ground, and these legs are preferably so constructed as to be detachable from the stretcher-bars. In fact, for field stretchers if it is desired to use the legs they should be detachable, not only for facility of transportation, so that one man can carry the stretcher and the other the bars and legs, but for other reasons hereinafter referred to, and to facilitate the carriage of the stretcher-bars I construct them of two sections hinged together.

Referring now to Fig. 9, it will be seen that the two legs g of a pair are pivoted to a cross-bar g' so as to fold on said bar, and to said

cross-bar is secured at each end a strap g¹¹ for the reception of the stretcher-bars G, the cross-bars g' being secured against displacement by a set-screw g², working in the straps g¹¹, and to avoid the wear of the stretcher-bars G, due to the impingement of the set-screws, I apply metallic plates g⁶ at the point of application of the legs, upon which the set-screws g² impinge.

Fig. 10 illustrates a portion of the two sections of a stretcher-bar hinged together at g³ and provided with keepers g⁵ for a locking-bolt g⁴, that is provided with a stop g¹⁵ to prevent its sliding out of the keepers and being lost. The stretcher may also be carried on a two-wheeled truck or on a sled, as shown in Figs. 14, 15, and 16, 17, respectively. In the case of a two-wheeled truck the longitudinal bars R of the truck-frame are supported from springs S, secured to the axle A³, and at both ends of the said truck-frame are secured U-shaped bearings i for the reception of the stretcher-bars, which are secured against displacement in said bearings by means of a set-screw i'. A foot or support L, hinged to the cross-bars of the truck-frame and braced by a brace L', is held in a vertical position by means of a set-screw L², which on being unscrewed will allow the foot to be swung inwardly, the brace sliding along the same, and said parts may then be locked together by means of the set-screw L², as shown at the left of Fig. 14.

The means for securing the stretcher-bar to a sled-frame are substantially the same as those described in reference to the wheeled truck-frame, and in either case I preferably construct the frames so that they may be taken apart—as for instance, by means of tongue-and-socket joints and locking-pins P, Fig. 16.

Whether for field or other purposes, it is not only desirable but in many cases necessary that the patient or wounded should be carried in a sitting posture, and this is not possible with stretchers as heretofore constructed, so far as I am aware, and one of the objects of my invention is to provide means to effect this.

Referring now to Fig. 13, it will be seen that the sections E and F (shown in full lines,) are folded together and held in proper position by means of the straps d² and in dotted lines in their extended position, in which the section F forms the foot-rest, which is also held in proper position by said straps d²; that the section D or the sections D and E are supported on an inclined plane from the stretcher-bars G (indicated in dotted lines) by the straps d' or by said straps and the straps d²; that the section C constitutes the seat to which the shoulder-section B is secured, so as to lie in an inclined plane, by means of the angle-straps c¹³, provided with eyes c³, and the straps b¹⁷, provided with safety or snap hooks 1, hereinbefore referred to. The head part A is secured in the plane of

the shoulder part B by means of the button-hole flaps or flies a^{10} , that button onto buttons b^{18} , which have steel-plate stiffeners inserted into them, or said head-section A may be folded onto section B, and, if desired, the pillow A^2 may then be secured to the back of A, for which, therefore, I provide eyes or loops and a strap (not shown) arranged like the loops and straps 2 and 3 on the back of section A.

10 The individual to be transported is secured to the section B by means of the straps b^2 , hereinbefore referred to, if this is necessary.

Instead of solely supporting the section D from the straps d' , said section may be supported by its joint c , the upper joint being in this case either sufficiently stiffened or made so tight as to prevent the free backward swing of section D. The section C may also be provided with an arm-rest c^4 , which will then by preference be detachably connected with said section and provided with a segment-arm c^5 , adapted to pass through a sleeve c^6 , secured to the back of section B, so that the straps b^{17} c^{18} may be dispensed with, if so desired, and the angle of inclination of section B relatively to section C adjusted by means of a set-screw working in sleeve c^6 and impinging on arm c^5 or a pin passing through said sleeve and arm.

30 The small straps h , of which there are four to each of the sections B, C, and D, serve the purpose of securing a mattress or sections of a mattress, which is or are provided with buckles at proper points for said straps.

35 A stretcher adjusted to the position shown in Fig. 13 may be readily secured to a perambulator, as shown in Figs. 19 to 21. As shown in Figs. 19 and 20, the seat C' of the perambulator has at its front and rear ends straps c^7 and straps and buckles c^{17} , respectively. The straps c^7 are buckled to the buckles c^8 on the stretcher-bar loops c' of section C, and the straps and buckles c^{17} are secured to the loops 2 on back of section B, thereby securing the stretcher to the perambulator, which is provided with an adjustable segment-arm m , connected with the section D, said arm passing through a sleeve on the guide or fore-wheel axle, and is secured in the adjusted position by means of a set-screw s' .

In order that the legs of the patient may be adjusted to different elevations, the sections D, E, and F of the stretcher are divided longitudinally, as shown in Fig. 19, in which case two adjusting-segments m will be provided, as well as the necessary straps and buckles d^2 f'' e^2 for said sections, as will be readily understood.

60 To facilitate the lifting of the patient and stretcher onto the perambulator or the lifting of the patient onto the stretcher, one of the arm-rests 1 of the perambulator is hinged to the seat C' , so that it may be readily turned down, as shown in Fig. 21, the handle $1'$ being detachably secured to the perambulator.

From the description of the construction of the stretcher it will be readily seen that some of the improvements are applicable to stretchers of usual construction and that a non-foldable stretcher may be constructed of interwoven cane, and I do not wish to limit myself to the application to a foldable stretcher of those improvements that may be applied to non-foldable stretchers.

Having described my invention, what I claim is—

1. A stretcher comprising independent sections, flexible connections between said sections, arranged so that the latter may be folded on one another, independent stretcher-bar loops secured to opposite sides of each of said sections, and stretcher-bars adapted to be inserted in all or some of said loops, whereby one or more sections may be dropped below or elevated above the stretcher-bars, and whereby said stretcher may be compactly folded, for the purposes set forth.

2. A stretcher comprising independent sections composed of a rectangular frame having a web of interwoven cane, flexible connections between said sections, arranged so that they may be folded on one another, independent stretcher-loops secured to opposite sides of the sections, and stretcher-bars adapted to be inserted in said loops, whereby the stretcher fabric is prevented from sagging, and whereby one or more sections may be dropped below or elevated above the stretcher-bars or the stretcher folded, for the purpose set forth.

3. A stretcher comprising independent sections, flexible connections between said sections, arranged so that the latter may be folded on one another, independent stretcher-bar loops secured to opposite sides of said sections, stretcher-bars adapted to be inserted in said loops, and adjusting-straps connected with some of the sections for angular adjustment relatively to the stretcher-bars, for the purpose set forth.

4. A stretcher comprising independent sections, flexible connections between said sections, arranged so that the latter may be folded on one another, independent stretcher-bar loops secured to opposite sides of each of said sections, stretcher-bars adapted to be inserted in said loops, adjusting-straps connected with some of the sections for angular adjustment relatively to the stretcher-bars, and braces connected with the head and shoulder sections, adapted to connect said sections in a substantially rigid manner, for the purpose set forth.

5. A stretcher comprising independent sections, flexible connections between said sections, arranged so that the latter may be folded together, independent stretcher-bar loops secured to opposite sides of each of said sections, and stretcher-bars adapted to be inserted in all or some of said loops, whereby one or more sections may be dropped below or elevated above the stretcher-bars, in combination with a carriage or truck provided

with elastic supports for the stretcher-bars, for the purpose set forth.

6. A stretcher comprising independent sections, flexible connections between said sections, arranged so that the latter may be folded on one another, and independent stretcher-bar loops secured to opposite sides of each of said frames, and foldable stretcher-bars adapted to be inserted into all or some of said loops, for the purpose set forth.

7. A stretcher comprising stretcher-sections foldable one upon the other and provided with independent loops secured to opposite sides and a hood detachably secured to the head-section and provided at its front with an encompassing curtain, in combination with stretcher-bars adapted to be inserted into the loops of the stretcher-sections, and a cover adapted to be secured to the sides and end of said sections and to the hood under its curtain, for the purpose set forth.

8. A stretcher constructed of independent sections, a flexible connection between said sections, arranged so that they may be folded one upon the other, and attachments on the back and front of end sections for detachably securing a pillow thereto, and attachments for shoulder-straps on the back of one of said end sections, for the purpose set forth.

9. A stretcher constructed of independent sections provided on opposite sides with independent stretcher-bar loops, flexible connections between said sections, arranged so that they may be folded one upon another, attachments front and back of the end sections for detachably securing a pillow thereto, stretcher-bars adapted to be inserted in some or all of the loops, and shoulder-straps adapted for use either with said stretcher-bars or with the folded stretcher, and attachments for securing said shoulder-straps to the back of one of the end sections of the stretcher, for the purpose set forth.

10. A stretcher constructed of sections hinged together and foldable with the head and shoulder sections on the outside of the folded stretcher, attachments on the front of the head-section and on the back of the shoulder-section for detachably securing a pillow thereto, attachments for detachably securing shoulder-straps to the back of the shoulder-section, and independent stretcher-loops secured to the sides of the stretcher-sections, in combination with foldable stretcher-bars adapted to be inserted in some or all of the loops, and shoulder-straps adapted for use with said bars and for attachment to the back of the shoulder-section for carrying the folded stretcher, as set forth.

11. A stretcher comprising independent sections hinged together, so as to fold one upon the other, and independent stretcher-bar loops secured to opposite sides of the sections, in combination with foldable stretcher-bars adapted to be inserted in some or all of said loops, and foldable legs adapted for connection with the stretcher-bars, for the purpose set forth.

12. A stretcher composed of a plurality of independent sections hinged together, independent stretcher-bar loops secured to opposite sides of said sections, and stretcher-bars adapted to be inserted through the loops of some or all the sections, in combination with a wheeled carriage provided with attachments for securing the stretcher thereto and adjusting devices for adjusting the stretcher-sections relatively to one another, for the purpose set forth.

13. The combination, with a stretcher and removable stretcher-bars therefor, of a wheeled carriage and means for securing the stretcher thereto after removal of the stretcher-bars, for the purpose set forth.

14. The combination, with a stretcher comprising a series of independent sections hinged together, so as to fold one upon another, and removable stretcher-bars therefor, of a wheeled carriage provided with means for securing the stretcher thereto after removal of the stretcher-bars, and adjusting devices for adjusting the foldable or hinged sections relatively to one another, for the purpose set forth.

15. A stretcher constructed of interconnected sections adapted to be folded together and provided with attachments for the stretcher-bars, in combination with foldable stretcher-bars and detachable leg-supports consisting of the cross-bars g' , provided at each end with a strap g'' for the stretcher-bars, the legs g , pivoted to the cross-bars g' , and the set-screws g^2 , working in said straps to lock the same to the stretcher-bars, substantially as set forth.

16. A stretcher comprising independent sections consisting of a frame and a more or less flexible web and flexible connections between the frames, in combination with means for preventing the sagging of the web of the stretcher-sections, which consist of flat-metal stiffeners connected with the webs, as set forth.

17. A stretcher comprising independent sections consisting of a frame and a web of interwoven cane and flexible connections between the frames, in combination with means for imparting greater rigidity to the cane web, which consists in flat-metal stiffeners interwoven into the cane web, as set forth.

18. In a stretcher composed of jointed foldable sections, the head-section provided with loops a^{11} and a strap a^{12} on its front face, with loops a^9 and a similar strap on its back, and with stretcher-bar loops a' , substantially as and for the purposes set forth.

19. In a stretcher composed of jointed foldable sections, the shoulder-section B, provided with the lateral guards $b^3 b^4$, having buttons $b^{12} b^{13} b^{14}$, and with strap-slots b^7 , in combination with a cover provided with button-holes and with straps and buckles b^6 , substantially as and for the purpose set forth.

20. In a stretcher composed of jointed fold-

able sections, the shoulder-section B, provided on its back with buttons b^{18} , and the head-section provided with stiffened button-hole flaps a^{10} , substantially as and for the purpose set forth.

21. In a stretcher composed of jointed foldable sections, the shoulder-section B, provided on its back with the strap-loops b^{15} , b^{15} , arranged as described, in combination with the stretcher-bars and the shoulder-straps B^2 , provided with stretcher-bar loops b^{16} and adapted to be secured to the loops b^{16} , substantially as and for the purpose set forth.

22. In a stretcher composed of foldable sections, the combination, with the seat-section C, provided on each side with a triangular strap c^{13} , having a ring c^3 at its apex, and the shoulder-section B, provided on each side with a strap b^{17} , having a safety-hook adapted to hook on the rings of the straps c^{13} , of stretcher-bars adapted to be connected with the seat-section and with one or more or all of the leg and foot sections, for the purpose set forth.

23. In a stretcher composed of jointed foldable sections, the shoulder-section B, provided with a guard b^3 b^4 on each side, respectively, and with buckles b^9 , secured to one of said guards, in combination with a cover B' , provided with straps b^8 for strapping said cover to the guard when rolled up, substantially as set forth.

24. In a stretcher composed of jointed foldable sections, the sections D and E, provided on each side with straps and buckles d' d' and e^2 , respectively, and the sections C B A, provided on each side with the stretcher-bar loops c' b' a' , respectively, in combination with stretcher-bars adapted to pass through said loops and to be strapped to sections D E by means of said straps d' e^2 , substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL TELL.

Witnesses:

NETTIE S. HARRIS,
W. B. MURPHY.