Feb. 17, 1942. A. J. M. VAN GASSELT 2,273,672

STRETCHER

Filed March 29, 1940 3 Sheets-Sheet 1

Fig. 1.

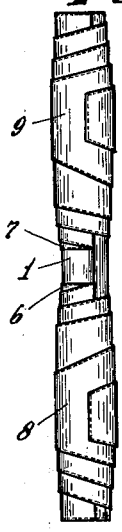


Fig. 2.

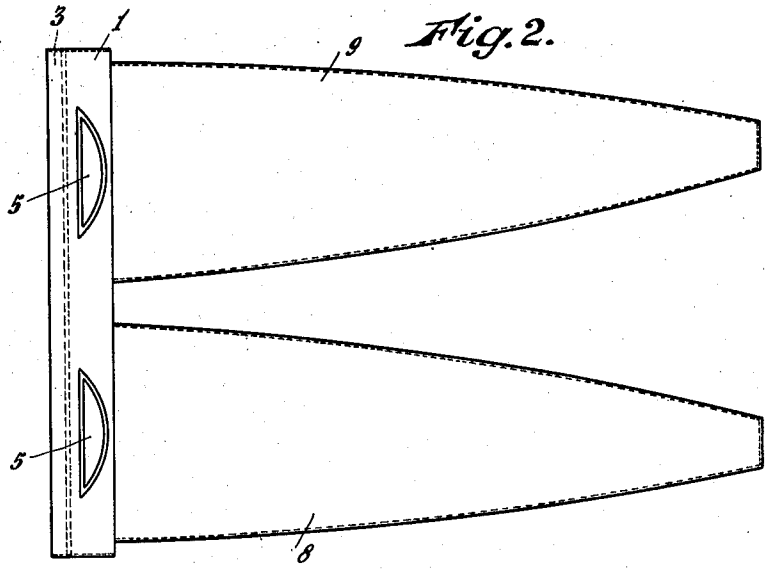
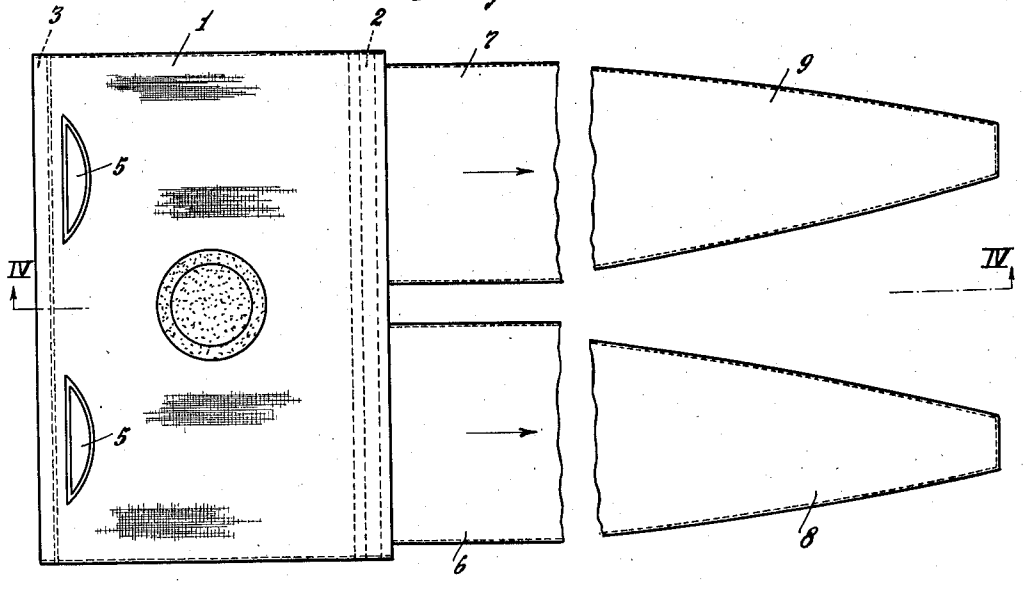


Fig. 3.



INVENTOR:
ANTONIUS JOHANNES MATHIJS VAN GASSELT
BY Haseltine, Lake & Co.
ATTORNEYS

Feb. 17, 1942. A. J. M. VAN GASSELT 2,273,672

STRETCHER

Filed March 29, 1940 3 Sheets-Sheet 2

Fig. 4.

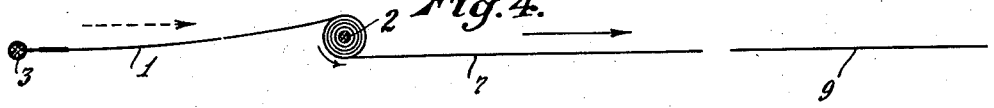


Fig. 5.

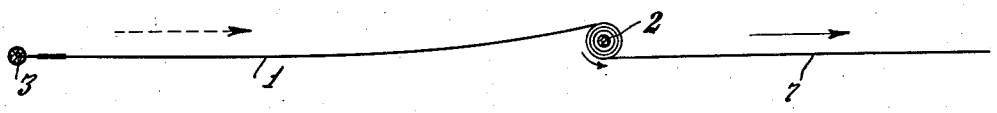
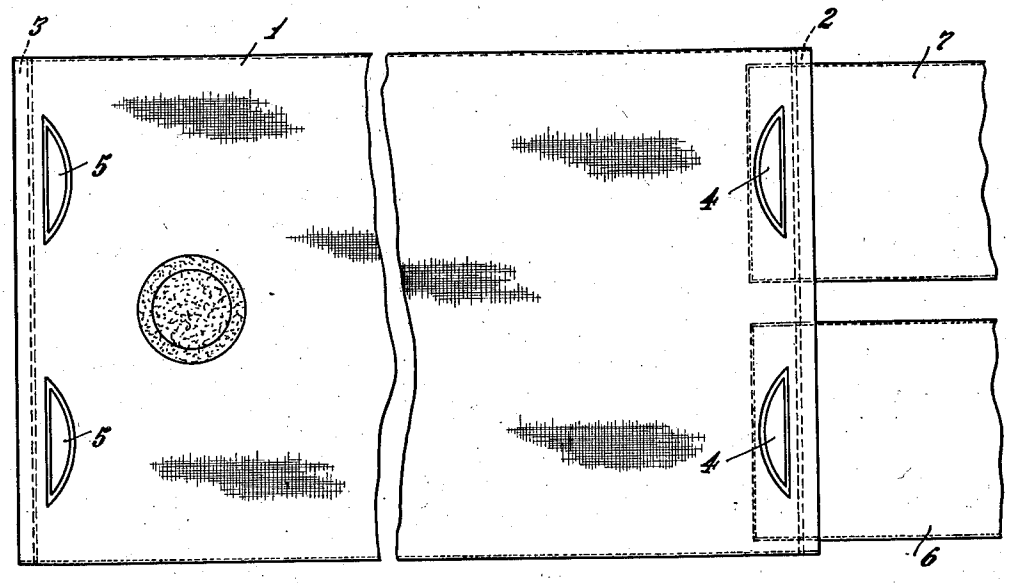


Fig. 6.



INVENTOR:
ANTONIUS JOHANNES MATHIJS VAN GASSELT
BY Haseltine, Lake & Co.
ATTORNEYS

Feb. 17, 1942. A. J. M. VAN GASSELT 2,273,672

STRETCHER

Filed March 29, 1940 3 Sheets-Sheet 3

Fig. 7.

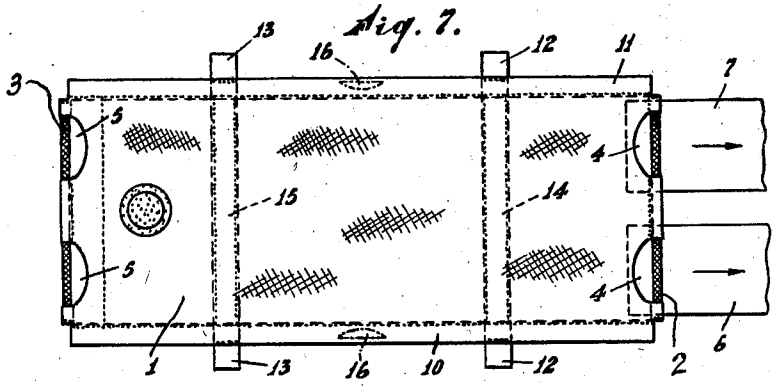


Fig. 8.

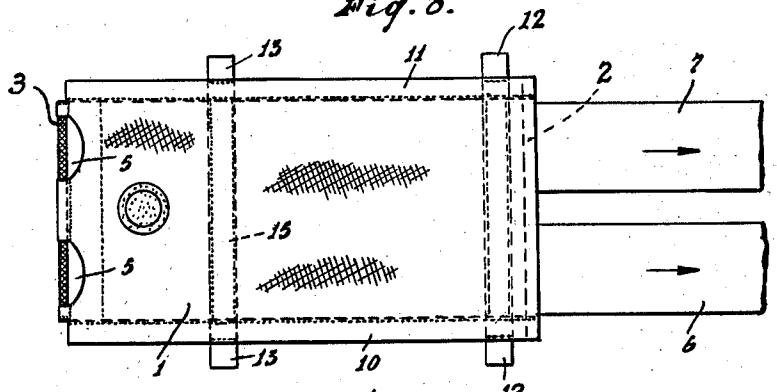
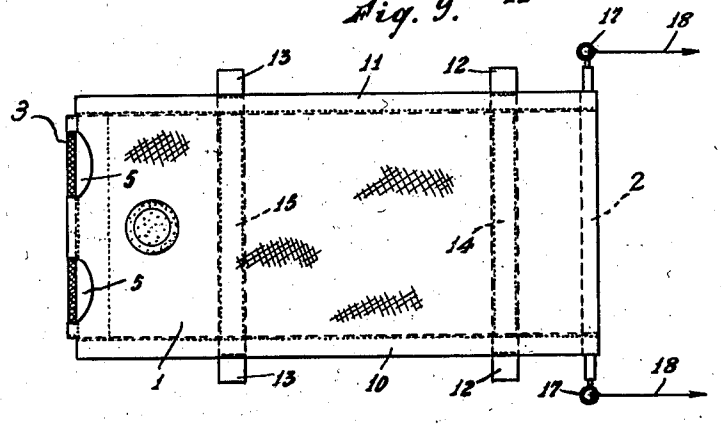


Fig. 9.



INVENTOR:
ANTONIUS JOHANNES MATHIJS VAN GASSELT
BY: Haseltine, Lake & Co.
ATTORNEYS

Patented Feb. 17, 1942

2,273,672

UNITED STATES PATENT OFFICE

2,273,672

STRETCHER

Antonius Johannes Mathijs van Gasselt,
Venlo, Netherlands

Application March 29, 1940, Serial No. 326,649
In the Netherlands November 3, 1939

5 Claims. (Cl. 5—82)

It is generally known that great difficulties are still experienced in lifting and placing on a stretcher patients who have been wounded, often in some unknown manner, and who have to be transported, the main difficulty being the lack of a suitable stretcher.

Several stretchers good in themselves are known which are satisfactory for the transportation of the wounded persons, but the difficulties do not relate so much to the transportation of a wounded person once he has been established on the stretcher, as on lifting the patient and placing him on the stretcher. Many hands are needed for this and up to the present it has been practically impossible to have such a patient laid on the stretcher without altering his position, whereas it is of the greatest importance that the patient is placed on the operating table as nearly as possible in the position in which he was found.

The present invention has for its purpose to provide a device by means of which a wounded person may be lifted from the ground in a simple and quick manner and further conveyed without pain or danger resulting therefrom.

According to the invention use is made for this purpose of a stretcher or a similar device consisting of a rolled-up length of some textile or other material adapted for rolling-up, which device is adapted to be unrolled under a person lying on the same.

It will therefore no longer be necessary first to lift the wounded person by hand in order to push or to place a stretcher under him; the device according to the invention may be passed with a small portion thereof unrolled under the head of the patient and the roll placed under his neck, after which the said roll is further unrolled in a direction towards the feet of the patient. By subsequently lifting the rolled-out piece of material at both ends, two or more persons will be able, while keeping the stretcher taut, to lift the wounded person from the ground and either to place him on an ordinary stretcher or, if needed, to convey him further at once, either with or without the aid of other means. The wounded person may now be conveyed to the operating place as much as possible in the same attitude as in which he had been found.

The novel stretcher according to the invention may be provided at least at that end of the length of material which is located inside the roll with a transverse roll comprising a flexible rolling core, which will greatly facilitate the unrolling even on a very uneven ground. The transverse roll may be of various kinds of material; a simple and efficient embodiment is the one in which according to the invention a rope, a cord or a coiled wire of metal such as that of a cable is used. The transverse rolls may also serve as handles and for this purpose the piece of material may be provided with gripping openings. Such openings may also be provided along the longitudinal edges, for which purpose the said edges may be reinforced by hems or in some other manner.

For the purpose of unrolling the roll under the patient various constructions are possible. A suitable one is that in which according to the invention one or more draw members are attached to the inner end of the rolled up length of material. The said members may then be rolled up together with the material. By pulling on these members, the roll may be easily unrolled under the wounded person.

According to the invention the roll is preferably rolled in such manner that during the unrolling of the material the body of the person lying on the same will constitute the unrolling surface; in order to indicate the correct manner of placing and unrolling the stretcher, parts thereof may be marked with arrows or other marks.

In order to promote a correct unrolling of the stretcher, the face thereof which will be uppermost in the unrolled condition may be given special adhesive properties. This also promotes the correct unrolling when pulling on the draw members, if these have been rolled up together with the material.

Owing to the application of the invention the person who is to be conveyed on the stretcher will suffer less or not at all by the said treatment, which not only will be favorable for the operation to be performed and may even save his life, but which also saves him from complications, needless pains or an aggravation of any pains he may be suffering. If no ordinary stretcher is available, which may be the case e. g. in disasters involving a great number of persons, the new stretcher will serve very well for transporting a wounded person over a distance. For this purpose according to the invention there may be provided means, such as longitudinal hems through which sticks or tubes may be passed, transverse bands with loops for the hands, etc., which will render it possible to keep the length of material taut in a transverse direction, if needed, with the aid of several persons.

The novel stretcher fills a long felt want, it is

very simple and inexpensive and in its rolled-up condition it may easily be taken along even in or with the kit of each soldier, so that a sufficient number of such stretchers may be immediately on hand. The weight is slight, compared to that of an ordinary stretcher. The novel stretcher is suitable for being taken along as a regulation accessory in motor cars, trams and railway carriages, fire engine trucks, aero-planes, ships etc. and to be incorporated in the inventory of factories and shops in the same manner as e. g. the well-known first aid kit.

The invention will now be further explained by means of some embodiments illustrated in the drawings in which

Fig. 1 is a top view of a stretcher in rolled up condition ready to be put away.

Fig. 2 shows the draw members partly unrolled.

Fig. 3 represents the draw members further unrolled and pulled out while a small portion of the stretcher itself is unrolled.

Fig. 4 is a cross section through the line IV—IV in Fig. 3.

Fig. 5 is a cross section as in Fig. 4 while the stretcher is further unrolled.

Fig. 6 is a top view of the stretcher completely unrolled.

Fig. 7 illustrates a modification of the stretcher.

Fig. 8 shows the same stretcher in partly unrolled condition.

Fig. 9 illustrates another modification.

In the figures the reference numeral **1** represents the length of material upon which the wounded person is to be laid (Fig. 6). This material may be e. g. linen or canvas and is provided at the end with rolls of rope or braided cord **2**, **3** and cut out and edged openings **4**, **5** for the hands. The padding at **2** forms a rolling core; the padding at **3** need not be round and may e. g. have the shape of a ring segment. At the end at **2** which end has been located inside the roll there are attached two draw bands **6**, **7** the ends of which are indicated by **8**, **9** in Figures 2, 3, and 4.

When preparing the novel stretcher for use one unrolls the ends **8**, **9** of the draw bands, subsequently holding the end **3** in one hand and unrolling with the other hand a small portion of the roll (Fig. 3) i. e. so far that the roll may be placed under the neck of the patient while being passed under his head in the direction of the dotted arrow in Fig. 4. This may be easily done without any danger to the patient. After this the two draw bands **6**, **7** are employed for unrolling the roll under the body of the patient in the direction of the solid arrows in Figures 4 and 5. The material of the stretcher in that case will not rub against the body of the patient, but will unroll under him so that he will not be disturbed thereby. If desired one person may hold the end **3** while another person pulls on the draw members with both hands, thus unrolling the stretcher, according to circumstances.

Owing to the fact that the core **2** of the roll is flexible, it will also be possible to unroll the stretcher under the patient if he is lying on uneven ground; the invention, however, is not restricted to this example and one may also use rigid or semi-rigid rolls or tubes such as e. g. tubes of the airplane cable type. The tubes may then contain the core which may engage with members outside the tubes, by means of which the stretcher may be unrolled and which need not be rolled up together with the stretcher, such as e. g. simple rings.

As soon as the stretcher has been unrolled under the wounded person, two persons may lift the said stretcher by passing the hands through the opening **4**, **5** and taking hold of the rolls **2**, **3**. By keeeping the material taut the wounded person may be laid on an ordinary stretcher without any danger of complications, fractures, needless pain, etc. If desired means may be provided to connect the ends of the draw bands with the end **2** of the length of material or else to connect the said ends with each other in order to use them as handles for further transportation. It might also be possible to pass a carrying band through the openings **5**. The edges of the length of material **1** or of the ends thereof may be provided with hems or loops through which, if desired, there may be passed light longitudinal tubes or sticks for transportation over a greater distance.

In order to ensure a straight unrolling of the roll even when pulling a little awry on the bands **6**, **7**, it is advisable according to the invention to impart to the face of the material which lies uppermost relatively great adhesive power. This also causes the roll to unroll better under the wounded person. For the same purpose it is also possible according to the invention to make the underside of the bands very smooth. Many modifications and improvements are possible within the scope of the invention.

As a material for the stretcher a textile material either prepared or unprepared may be used. This may also be true for the bands, but these might also consist of rope, steel wire or metal strips or springs.

In its rolled condition the whole forms a thin roll which is even thinner in proportion to its length than for the sake of clarity has been represented in Fig. 1. When unrolled the area of the stretcher is of about 60 x 200 cm. It is not necessary that the length of material is a closed whole, and although according to the embodiment illustrated, the weight of the whole is but slight, this may even be reduced, if desired, by providing slots or recesses. The draw members, if desired, may be detachable or applied from the outside.

According to the embodiments of Figures 7 and 8 the longitudinal edges of the stretcher **1** are formed with hems **10**, **11**, open at the ends, through which light metal tubes or sticks may be passed after unrolling, in order to carry the stretcher. Instead of supporting the stretcher in this manner the stretcher may also be carried by means of opposite pairs of handles **12**, **13** which may be formed by the ends of transverse bands **14**, **15** preferably made of linen, canvas, or some other suitable material folded over and stitched fast to the underside of the stretcher, at the same time supporting the same. The invention is not restricted to this embodiment which is merely chosen by way of example, a different number, place or embodiment of the supporting members may be used within the scope of the invention. As schematically indicated at **16** it will also be possible to provide recessed handles along the side of the stretcher.

In Fig. 9 is illustrated how the rolling core **3** may consist of a preferably flexible tube on which the length of material is attached and wound and in which a corresponding core may be rotatably arranged, provided with rings or eyes **17**, to which drawing cords **18** may be attached which cords are not rolled up together with the stretcher **1**.

By pulling on the said cords 18 the rolling core with the stretcher which for the greater part is still rolled up, may be passed under the patient. The tube will then turn about the core provided with the rings 17 so that the stretcher will be further unrolled. The core may consist of two parts and if desired may be arranged only in the ends of the tube. The cores 18 may be omitted if desired and also the rings 17 if the core protrudes beyond the tube and is adapted to be gripped for unrolling the stretcher.

Having now fully described by invention, I claim:

1. A stretcher including a flexible sheet of material such as a textile fabric adapted to be rolled up toward an end thereof, handle means upon one end of said sheet and flexible draw means of a length at least equal to that of the sheet connected to the other end of the sheet serving for the unrolling of said sheet upon pulling the same when the sheet and draw means are folded double at the junction of the same and beginning at the fold the sheet is rolled up with at least a portion of the draw means into a roll.

2. A stretcher according to claim 1, in which the draw means includes draw members in the form of bands or strips of flexible material such as a textile fabric.

3. A stretcher according to claim 1, in which the end of the flexible sheet which lies inside the roll when said sheet is rolled up has a transverse roll consisting of a flexible rolling core.

4. A stretcher according to claim 1, in which the end of the flexible sheet which lies inside the roll when said sheet is rolled up has a transverse roll consisting of a flexible rolling core, and in which openings are provided in the sheet near the flexible rolling core in such a way that the rolling core may be gripped as a handle within the width of the stretcher.

5. A stretcher according to claim 1, in which the draw means includes draw members in the form of bands or strips of flexible material and the sheet and the draw members have adhesive properties so as to prevent lateral shifting of the still rolled-up draw members and of the rolled-up portion of the sheet during the unrolling of the stretcher.

ANTONIUS JOHANNES
MATHIJS VAN GASSELT.