July 6, 1943. A. G. TRIGG 2,323,500

LIFTING DEVICE

Filed Nov. 26, 1941

Fig. 1.

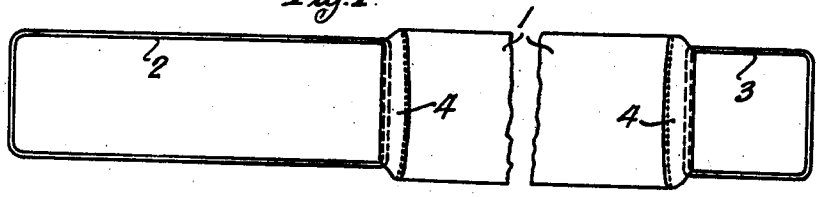


Fig. 2.

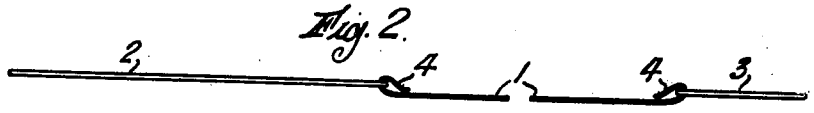


Fig. 3.

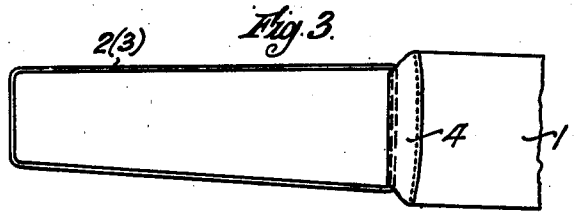


Fig. 4.



Fig. 5.

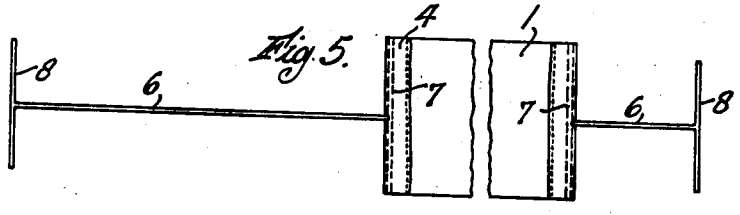
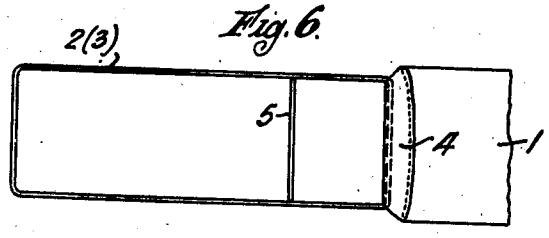


Fig. 6.



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UNITED STATES PATENT OFFICE

2,323,500

LIFTING DEVICE

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Application November 26, 1941, Serial No. 420,581
In Great Britain March 21, 1940

9 Claims. (Cl. 294—15)

This invention relates to a device for use in lifting articles and injured persons, as for example when it is required to lift a person from the ground to a stretcher. At the present time the method adopted by the first-aid authorities requires men (usually four) to use their hands and arms and the operation, especially in confined spaces, may involve some difficulty particularly when the person to be lifted is heavy.

The main object of the present invention is to provide a lifting device which will facilitate a lifting operation.

According to the present invention a lifting device comprises a length of flexible material connected at each of its ends to only one end of a handle formed of rigid material, the handles being otherwise free of the length of flexible material so that they can form extensions of the said length and so that the flexible material is free to flex between its connection to the handles.

The invention is illustrated in the accompanying drawing, in which Figures 1 and 2 are respectively plan and elevation of one form, Figures 3 and 4 similar views of a modified form and Figures 5 and 6 plan views of two further modifications. In all the figures, the complete length of webbing or other flexible material is not shown.

Referring firstly to Figures 1 and 2, the lifting device comprises a length or strip 1 of webbing or other flexible material to the ends of which are secured one of the ends of looped handles 2, 3 of metal of any convenient cross section such for example of circular cross section; it will be observed that since the handles are connected only at one of their ends to the strip 1, the handles being otherwise free of the strip, they can form a prolongation of the strip and moreover the strip is free to flex between its zones of connection to the handles.

A lifting device constructed as shown is capable of wide application as for example lifting paper and canvas reels and logs; the device especially during war-time, is of extremely great value for lifting injured persons and a detailed description will now be given of such use, this description enabling other uses of the device to be readily understood.

In use, for lifting an injured person, the handle 2 or 3 at one end of the strip 1 is pushed from one side under the person to be lifted until the handle can be grasped at the other side and drawn through to pull the strip 1 until it lies under the person. A number (say four) of such devices would be employed and the required number having been threaded in the manner described the attendants (usually four in number, two at each side) grasp the handles at each end of the strip and lift the person, an operation which can be performed more easily through the devices than in the usual way especially with a heavy person, and enables a person to be gently laid on a stretcher.

Obviously the number of devices employed would depend upon requirements and also the devices could be used when it is required to raise a part of the body, the threading operation being easily effected and the strips when in position facilitating the moving of a body or any part of it.

While the handle at each end of the strip could be of the same length and of such length that it could be passed completely from one side to the other under the body, it is preferred as shown to make the handle 2 at one end longer than the other handle 3. The longer handle 2 (which would be of sufficient length to pass completely from one side of the body to the other) would normally be passed under the body since it would be more easily grasped from the other side; moreover, such an arrangement would be of value for use where it is required to lift a person in a confined space e. g. when the person is lying against a wall and insufficient space would be available for a long handle. In such a case, as the strip 1 is free to flex between its ends, the end adjacent the shorter handle 3 would be doubled over the outer end of the longer handle 2 which would then be employed to push the doubled-over end of the strip 1 and its attached handle 3 under the person until the doubled-over end of the strip can be grasped, the longer handle then being withdrawn and the strip drawn through by the shorter handle 3 as required.

Another use to which the devices can be put would be to enable a person lying face downwards on a floor to be placed face upwards on a stretcher, in this case the strips 1 would be threaded as described below the person as he lies face downwards but leaving a longer length of strip on one side of the person; the handles 2, 3 would then be raised to lift the person and the handles at the longer lengths of the strip lowered as the handles at the other ends of the strips are raised, this resulting in causing the person to roll from the face downwards position to the face upwards position, the person then being transferred to the stretcher.

In the case of a heavy person and when four devices and four attendants are employed, it will be found that a more equal distribution of weight among the attendants will be obtained by the attendants near the head end of the person grasping the handles of the first and third devices and the attendants nearer the feet grasping the handles of the second and fourth devices, the strips 1 of the devices being enabled to flex between their ends permitting the necessary crossing over of the strips to be effected.

By the employment of one or two of the devices a seat can readily be improvised for use in carrying a person having say a leg injury in sitting position.

Various other uses can be made of the device; further instances are now given. A plurality of lifting devices according to this invention can be joined together to make a sling which can be placed over the shoulders of stretcher bearers and attached to the handles of the stretcher to assist the stretcher bearers while carrying a heavy patient a long distance.

By joining several devices together a patient can be lifted out of a hole or a patient can be lowered from a height to the ground.

An advantageous use of the device is to carry a patient downstairs and around corners where it is not possible to carry a stretcher.

There are occasions when it is necessary to carry a patient out of a small doorway or aperture which is not wide enough for the patient to be carried on his back and by the use of the devices according to the invention a patient can be smoothly rolled on to his side and carried through.

The devices can be used to lift a patient from a stretcher to a bed or vice versa and they can be used in hospitals and other places to lift a patient from one bed to another.

The devices are also advantageous in removing a patient through a small aperture and along corridors where the ceiling is low.

The devices can also be employed to carry an injured person with a board instead of using a stretcher, the devices being placed under the board on which the injured person is placed.

It has been found convenient to provide two sizes of device both having strips of webbing about 5" wide; one size would be 40" long over the handles and the other 52" long, the handle 3 at one end would be about 3–4" long and the handle 2 at the other end about 12" long, the webbing ends being turned as indicated at 4 over the metal of the handles 2, 3 and sewn in position. The handles 2, 3 may be narrower than the width of the strip which in such a case could be edge folded where it is secured to the handles but preferably the handles would as shown in Figure 3 taper in width from the strip at one end to a narrower width at the other end where the handles would be grasped; for example, the handles could taper from a width of 5" to a width of 3". As is shown in Figure 4, the handles could be curved as seen edgewise and the handle could as shown in Figure 6 be provided with a cross bar 5 which provides an additional hand grip when a short handle is required.

Instead of providing looped handles, handles of the form shown in Figure 5 could be employed; in this figure each handle consists of a central stem 6 having cross limbs 7, 8, the ends of the strip being looped and secured at 4 around one limb 7 and the other limb 6 providing a hand grip.

It will now be understood how a device according to this invention is intended to be used and the manner of its use for lifting articles will be clear.

What is claimed is:

1. A lifting device comprising a length of flexible material and two handles of rigid material, at least one of said handles being of such length that it can extend from one side to the other of the article to be lifted, each handle having two spaced cross pieces at least one of which is at one end of the handle, the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and so that the handles are free to form extensions of the said length of flexible material, and the other cross piece of each handle providing a hand grip.

2. A lifting device comprising a length of flexible material and two handles of rigid material, at least one of said handles being of such length that it can extend from one side to the other of the article to be lifted, each handle having two spaced cross pieces at least one of which is at one end of the handle and which are joined by two side limbs, the whole providing a looped handle and the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and so that the handles are free to form extensions of the said length of flexible material, and the other cross piece of each handle providing a hand grip.

3. A lifting device comprising a length of flexible material and two handles of rigid material, at least one of said handles being of such length that it can extend from one side to the other of the article to be lifted, each handle having two spaced cross pieces at least one of which is at one end of the handle and which are joined by a single stem, the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and so that the handles are free to form extensions of the said length of flexible material, and the other cross piece of each handle providing a hand grip.

4. A lifting device comprising a length of flexible material and two handles of rigid material, at least one of said handles being of such length that it can extend from one side to the other of the article to be lifted, each handle having two spaced cross pieces at least one of which is at one end of the handle and each handle having an intermediate cross piece, the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and so that the handles are free to form extensions of the said length of flexible material, and the other cross piece of each handle providing a hand grip while the intermediate cross piece provides an alternative hand grip.

5. A lifting device comprising a length of flexible material and two handles which are formed of rigid material and one of which is longer than the other, the length of the latter handle being such that it can pass from one side to the other of the article to be lifted, the handles being secured at one of their ends to the opposite ends only of the length of flexible material so that this material is free to flex between its connec-

tion to the handles which can themselves form extensions of the length of flexible material.

6. A lifting device comprising a length of flexible material and two handles of rigid material, at least one of said handles being of such length that it can extend from one side to the other of the article to be lifted, each handle being curved as seen edgewise and each having two spaced cross pieces at least one of which is at one end of the handle, the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and so that the handles are free to form extensions of the said length of flexible material, and the other cross piece of each handle providing a hand grip.

7. A lifting device comprising a length of flexible material and two handles of rigid material one being longer than the other, the longer handle being of sufficient length to pass from one side to the other of the article to be lifted, each handle having two spaced cross pieces at least one of which is at one end of the handle, the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and so that the handles are free to form extensions of the said length of flexible material and the other cross piece of each handle providing a hand grip.

8. A lifting device comprising a length of flexible material and two handles which are formed of rigid material and one of which is longer than the other, the length of the latter handle being such that it can pass from one side to the other of the article to be lifed, the handles being secured at one of their ends to the opposite ends only of the length of flexible material so that this material is free to flex between its connection to the handles which can themselves form extensions of the length of flexible material and each handle being curved as seen edgewise.

9. A lifting device comprising a length of flexible material and two handles of rigid material, at least one of said handles being of such length that it can extend from one side to the other of the article to be lifted, one handle being longer than the other and each handle having two spaced cross pieces at least one of which is at one end of the handle, the end cross piece of each handle being secured to one of the ends only of the length of flexible material so that this material is free to flex between its ends and that the handles are free to form extensions of the said length of flexible material, and the other cross piece of each handle providing a hand grip, each of the handles being curved as seen edgewise.

LUCY MARIE TRIGG,
Administratrix of the Estate of Albert George Trigg, Deceased.