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PATENT SPECIFICATION



Application Date: July 11, 1921. No. 18,720/21. **184,032**

Complete Left: Apr. 11, 1922.

Complete Accepted: Aug. 10, 1922.

PROVISIONAL SPECIFICATION.

Man Harness.

I, ERNEST EDWARD SMITH, Engineer, of 31, Amner Road, London, S.W. 11, British nationality, do hereby declare the nature of this invention to be as follows:—

This invention has reference to harness suitable for the suspension of men and particularly adapted to withstand sudden shocks such as may be experienced by aviators when leaving swiftly moving aircraft by means of parachutes.

It has hitherto been the practice to make such harness of various lengths of straps or webbing secured together at various points by means of stitching, rivetting or similar attachment upon the strength of which joints the security of the passenger depends.

Now, in order to provide greater reliability in strength and to facilitate production I make from one continuous length of webbing or the like the whole of the members which are subjected to the full stress of supporting the load, no matter whether the passenger fall feet first, head first, or in any other position. Such a harness may be constructed by placing the end of a length of webbing at the breast of the passenger about the point where suspension is desired, but allowing sufficient to fold back and form a loop which may afterwards be stitched. The webbing then passes under the right arm and over the left shoulder to the point of suspension at the breast when an

oblique fold is made in the webbing which provides one of the two points of attachment for the connection to the lifeline and also deflects the line of the webbing so that it passes neatly without crease down the left side and beneath the buttocks of the passenger to form a comfortable seat when suspended with feet downwards. The webbing then passes up the right side to the point of suspension at the breast where a similar oblique fold is made to form the corresponding second point of attachment for the connection to lifeline and thence over the right shoulder and under the left arm to the point of suspension on the breast with sufficient allowed to fold back and form a loop. The loops at each end of the webbing pass round the oblique folds and the loop and the fold securely stitched together form a very strong attachment for the connection to lifeline which may be a metal ring, loop of spliced wire cable or single strand grummet of hemp rope. The webbings where crossed at the back between the shoulder blades are stitched together and another ring or grummet may be provided here so that for aeroplane purposes the harness will also serve as safety belt to prevent pilot being thrown forward off his seat.

In order to maintain the webbing that serves as seat in correct position loops of webbing or elastic may be provided to encircle the thighs of the passenger or such loops may be formed by stitching in.

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the one length of webbing from which the harness is made.

Such a harness provides comfortable suspension perfect freedom of movement for walking *etc.*, is very light and utilizes the full strength of the webbing from which it is made, no matter whether the

maximum load is applied to that part forming the seat, to the straps over the shoulder, or by an oblique pull distributed between the various members.

Dated this 11th day of July, 1921.

ERNEST E. SMITH.

COMPLETE SPECIFICATION.

Man Harness.

I, ERNEST EDWARD SMITH, 31, Amner Road, London, S.W. 11, Engineer, British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has reference to harness suitable for the suspension of men and particularly adapted to withstand sudden shocks such as may be experienced by aviators when leaving swiftly moving aircraft by means of parachutes.

It has hitherto been the practice to make such harness of various lengths of straps or webbing secured together at various points by means of stitching, rivetting or similar attachment upon the strength of which joints the security of the passenger depends.

Now, in order to provide greater reliability in strength and to facilitate production I make from one continuous length of webbing or the like the whole of the members which are subjected to the full stress of supporting the load, no matter whether the passenger fall feet first, head first, or in any other position. Such a harness may be constructed by placing the end of a length of webbing at the breast of the passenger about the point where suspension is desired, but allowing sufficient to fold back and form a loop which may afterwards be stitched. The webbing then passes under the right arm and over the left shoulder to the point of suspension at the breast when an oblique fold is made in the webbing which provides one of the two points of attachment for the connection to the lifeline and also deflects the line of webbing so that it passes neatly without crease down the left side and beneath the buttocks of the passenger to form a comfortable seat when suspended with feet downwards. The webbing then passes up the right side to the point of suspension at the

breast where a similar oblique fold is made to form the corresponding second point of attachment for the connection to lifeline and thence over the right shoulder and under the left arm to the point of suspension on the breast with sufficient allowed to fold back and form a loop. The loops at each end of the webbing pass round the oblique folds and the loop and the fold securely stitched together form a very strong attachment for the connection to lifeline which may be a metal ring, loop of spliced wire cable or single strand grummet of hemp rope. The webbings where crossed at the back between the shoulder blades are stitched together and another ring or grummet may be provided here so that for aeroplane purposes the harness will also serve as safety belt to prevent pilot being thrown off his seat.

In order to maintain the webbing that serves as seat in correct position loops of webbing or elastic may be provided to encircle the thighs of the passenger or such loops may be formed by stitching in the one length of webbing from which the harness is made.

Such a harness provides comfortable suspension perfect freedom of movement for walking *etc.*, is very light and utilizes the full strength of the webbing from which it is made, no matter whether the maximum load is applied to that part forming the seat, to the straps over the shoulder, or by an oblique pull distributed between the various members.

Referring to the annexed drawings:—
Fig. 1 shows an elevation of my invention.

The webbing is in one continuous piece and shaped as shown, being strongly stitched at the various points of contact. It will be seen that the weight of the wearer will be equally distributed throughout the whole length and safety will not depend upon the strength of the

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stitching at any point, which would be the case if the harness were made up of separate lengths.

5 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

10 1. A man harness embracing legs and trunk substantially as described and illustrated herein.

2. A man harness embracing legs and trunk and made from one continuous length of material so that the stress of suspension is not at any point directly transmitted by a stitched or rivetted joint substantially as described and illustrated herein. 15

Dated this 8th day of April, 1922.

ERNEST E. SMITH. 20

[This Drawing is a reproduction of the Original on a reduced scale.]

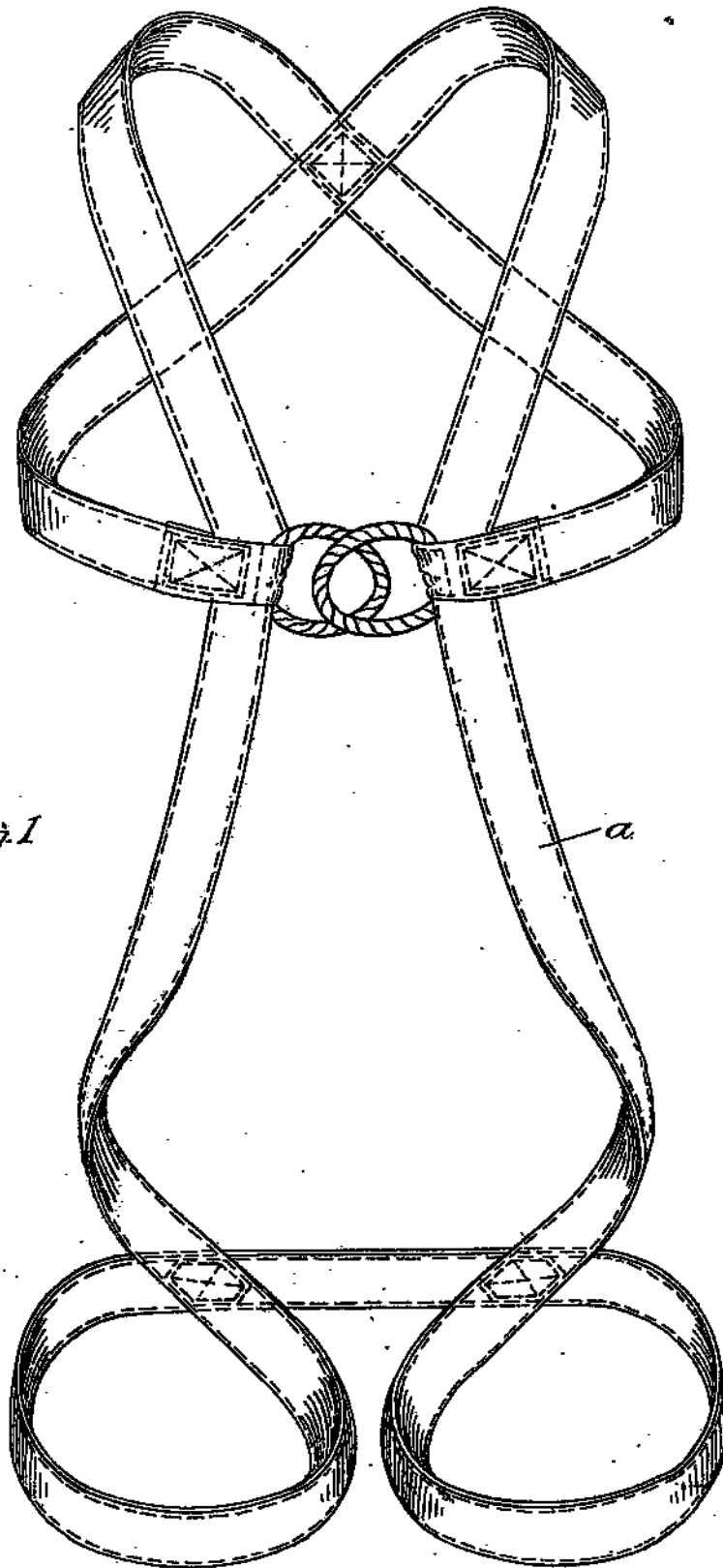


Fig. 1

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