June 25, 1946. E. M. BONYHADY 2,402,726

FLYER'S BOOT

Filed Oct. 15, 1943

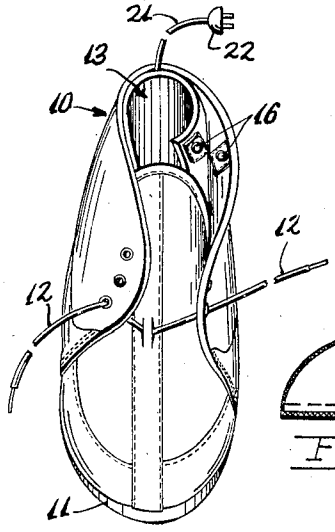


Fig. 1.

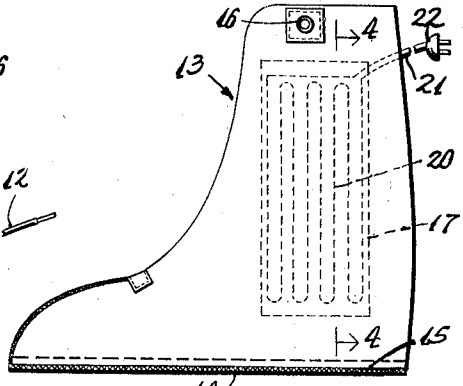


Fig. 2.

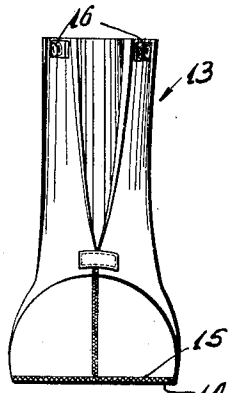


Fig. 3.

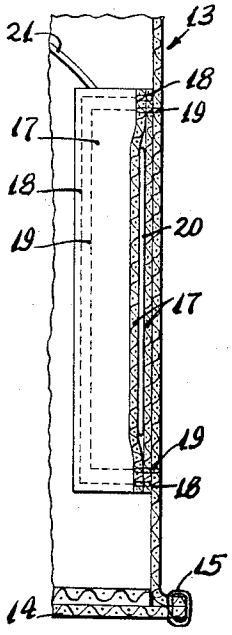


Fig. 4.

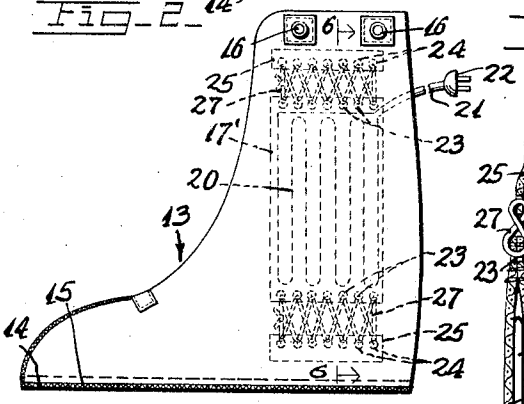


Fig. 5.

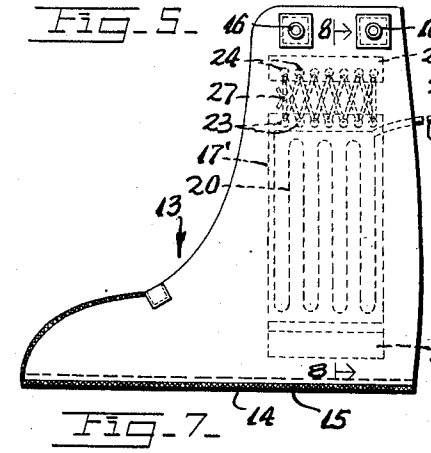


Fig. 7.

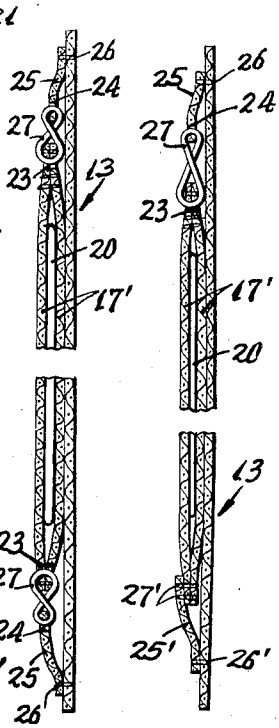


Fig. 6.

Fig. 8.

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2,402,726

FLYER'S BOOT

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5 Claims. (Cl. 36—2.6)

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This invention relates to new and useful improvements in a flyer's boot.

More specifically, the invention proposes the construction of a flyer's boot characterized by an outer boot into which an inner slipper is adapted to be inserted with means provided between the adjacent top edges of the boot and slipper for connecting them together as an integral unit in a manner to prevent relative shifting of the boot and slipper when being worn.

Still further it is proposed to provide the inner faces of the slipper with heating windings connected with an electric cable adapted to connect with a source of electric current in a manner to provide heat required to keep the flyer's feet warm when flying at extremely high altitudes.

Another object of the invention proposes mounting the heating windings between flexible mounting strips of asbestos or other similar materials in a manner to provide a means by which the windings may be mounted in position and to contain the windings to prevent the boot from being set afire by the windings when in operation.

Still another object of this invention proposes stitching the flexible mounting strips to the inside face of the inner slipper in a manner to secure the winding in position within the slipper.

A further object of the invention proposes the provision of means for adjustably mounting the flexible mounting pieces in position within the slipper in a manner so that the position of the heating windings may be adjusted relative to the slipper to meet the requirements of the wearer.

It is a further object of this invention to construct a flyer's boot which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a front perspective view of a flyer's boot constructed in accordance with thils invention.

Fig. 2 is a side elevational view of the inner slipper per se.

Fig. 3 is a front elevational view of Fig. 2.

Fig. 4 is an enlarged vertical sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a view similar to Fig. 2 but illustrating a modification of the invention.

Fig. 6 is an enlarged partial vertical sectional view taken on the line 6—6 of Fig. 5.

Fig. 7 is another view similar to Fig. 2 but illustrating a still further modification of the invention.

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Fig. 8 is an enlarged vertical sectional view taken on the line 8—8 of Fig. 7.

The flyer's boot, according to this invention, includes an outer boot 10 of leather or other similar material and provided with a durable bottom sole 11. The outer boot 10 is further formed with a front opening adapted to be closed by means of a lace 12.

Inserted into the outer boot 10 is an inner slipper constructed entirely of felt or other similar heat retaining material. The bottom of the slipper 13 is closed by means of a felt piece 14 secured in position by stitches 15. Fastening elements 16 in the form of complementary snap fasteners are provided between the top edges of the boot 10 and slipper 13 for releasably securing the slipper in position within the boot to limit relative movement of these parts when the assemblage is worn.

Flexible mounting pieces 17 are extended along the inner walls of the slipper 13. The mounting pieces are constructed of asbestos or other similar fireproof insulating material, and have their adjacent edges secured together by lines of stitches 18. Stitches 19 in turn secure the edges of the mounting pieces in position within the slipper 13. Flexible heating windings 20 are mounted in position between the adjacent faces of mounting pieces 17. These heating windings have their ends secured to an electric cable 21 which extends from the top of the boot 10 and which terminates in a plug 22 adapted to be connected with a source of electric power for energizing the winding to supply heat to keep the flyer's feet warm when flying at extremely high altitudes.

The manner of using the boot is as follows:

First the inner slipper is engaged upon the boot and the foot with the slipper is engaged into the outer boot 10. The fastening elements 16 are then engaged with one another and the lace 12 is used for closing the front of the boot.

The flyer then boards the airplane, and as extremely high altitudes are reached he inserts the plug 22 into an electric line to supply the required current to energize the heating windings 20 to supply heat to keep his feet warm.

In the modification of the invention shown in Figs. 5 and 6 the construction of the slipper is similar to that previously described except for the provision of a means for adjustably mounting the flexible mounting pieces 17' in position within the slipper 13.

In this form of the invention the mounting pieces 17' have their top and bottom edges formed with eyelets 23 aligned with complementary eyelets 24 formed in strips 25 extended along the top and bottom of the mounting pieces 17'. The

strips **25** are spaced from the adjacent edges of the mounting pieces **17'** and are attached to the inside faces of the slipper **13** by means of stitches **26**.

Laces **27** are engaged through the aligned eyelets **23** and **24** and capable of being adjusted for lifting or lowering the position of the mounting pieces with relation to the strips **25** for vertically adjusting the position of the heating winding to meet the requirements of the wearer. The ends of the laces **27** are adapted to be tied together to maintain the adjusted positions of the mounting pieces **17'**.

In other respects this form of the invention is similar to that previously shown and like reference numerals identify like parts in each of the several views.

In Figs. 7 and 8 a modification of the invention is illustrated which is similar to that shown in Figs. 5 and 6 except for the provision of a means for permitting the position of the heating winding to be adjusted without completely removing the boot.

In this form of the invention the bottom edge of the mounting pieces **17** are connected directly by means of stitches **27'** to the top edge of an elastic strip **25'** which in turn is secured at its bottom edge to the inside face of the slipper **13** by means of a line of stitches **26'**.

Thus, with the boot in position on the wearer's foot, it is merely necessary to open the top of the boot to expose the lace **27** at the top thereof to be manually adjusted to lift or lower the mounting pieces **17'** and the enclosed heater windings **20**. The elastic strip **25'** will respond to any adjustments made to the lace **27** to maintain the mounting pieces **17'** in a stretched condition within the slipper **13**.

In other respects this form of the invention is similar to that previously mentioned and like reference numerals identify like parts in each of the several views.

It should be borne in mind that the inner slipper **13** should be made of inflammable felt or other inflammable material so that the boot cannot burn. The heat windings must be so designed that the temperature of the winding does not exceed 120°. With this limit there is little danger of one burning his feet even though the insulation covering of the heating winding becomes damaged or broken. It is calculated that normally eight feet of wire is sufficient for one inner slipper. If a warmer boot is desired more wire should be used. Because the inner slipper is loose, and of felt it is possible to walk on the boot without feeling the wire.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States Patent is:

1. A flyer's boot, comprising an outer boot, an inner slipper for the boot and disposed within said outer boot, fastening elements for releasably securing said slipper within said boot, flexible mounting pieces mounted on the walls of said slipper, electric heating windings secured on said mounting pieces, and an electric cable for current and connected with said windings, and means for adjustably mounting said mounting pieces within said inner slipper.

2. A flyer's boot, comprising an outer boot, an inner slipper for the boot and disposed within said outer boot, fastening elements for releasably securing said slipper within said boot, flexible mounting pieces mounted on the walls of said slipper, electric heating windings secured on said mounting pieces, and an electric cable for current and connected with said windings, and means for adjustably mounting said mounting pieces within said inner slipper, comprising strips secured to the inner face of said inner slipper above and below said mounting pieces, said strips and mounting pieces having their adjacent edges formed with eyelets, and laces engaged through said aligned eyelets.

3. A flyer's boot, comprising an outer boot, an inner slipper for the boot and disposed within said outer boot, fastening elements for releasably securing said slipper within said boot, flexible mounting pieces mounted on the walls of said slipper, electric heating windings secured on said mounting pieces, and an electric cable for current and connected with said windings and means for adjustably mounting said mounting pieces within said inner slipper, comprising an elastic strip secured to the inside face of said inner slipper below said mounting pieces and secured to the bottom edge of said mounting pieces, a strip secured to the inside face of said slipper above said mounting pieces, said mounting pieces having their top edges and the adjacent edges of said latter strip formed with adjacent eyelets, and a lace engaged through said eyelets.

4. In a flyer's boot, a slipper for engagement in an outer boot, flexible mounting pieces positioned adjacent the inner walls of said boot, electric heating windings mounted in said mounting pieces, resilient means anchoring one of the ends of said mounting pieces to the inner walls of said slipper, and adjustable means anchoring the opposite ends of said mounting pieces to the adjacent inner walls of said slipper, so that the adjustable means may be adjusted to adjust the vertical positioning of said mounting pieces within said slipper within the confines of the expansion and contraction of said resilient means.

5. In a flyer's boot, a slipper for engagement in an outer boot, flexible mounting pieces positioned adjacent the inner walls of said boot, electric heating windings mounted in said mounting pieces, resilient means anchoring one of the ends of said mounting pieces to the inner walls of said slipper, and adjustable means anchoring the opposite ends of said mounting pieces to the adjacent inner walls of said slipper, so that the adjustable means may be adjusted to adjust the vertical positioning of said mounting pieces within said slipper within the confines of the expansion and contraction of said resilient means, said adjusting means, comprising strips secured to the inside faces of said slipper above the free ends of said mounting pieces, and laces engaged through eyelets formed in the adjacent edges of said strips and mounting pieces.

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