

Nov. 11, 1947.

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2,430,497

ROPE SOLE FOR FOOTWEAR

Filed Aug. 17, 1944

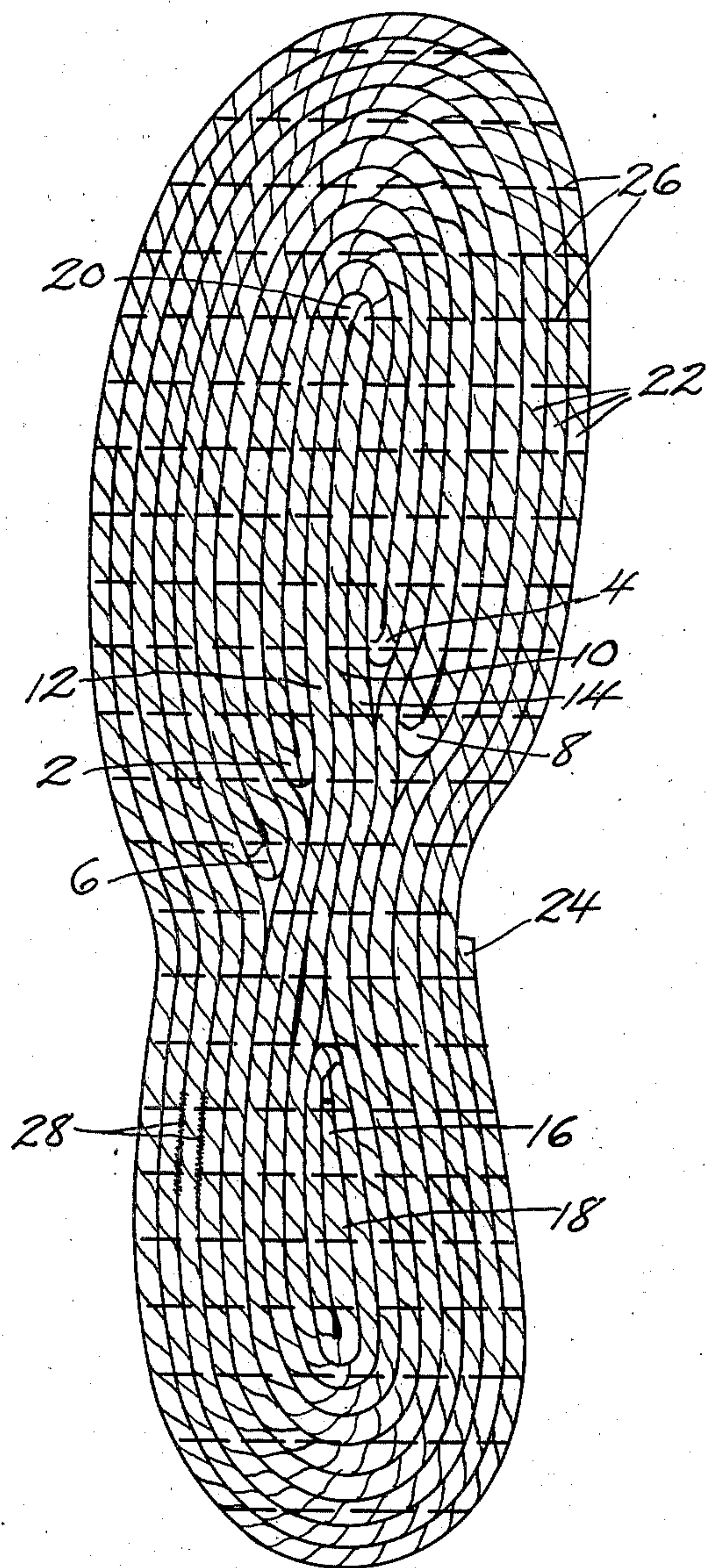


FIG. 1.

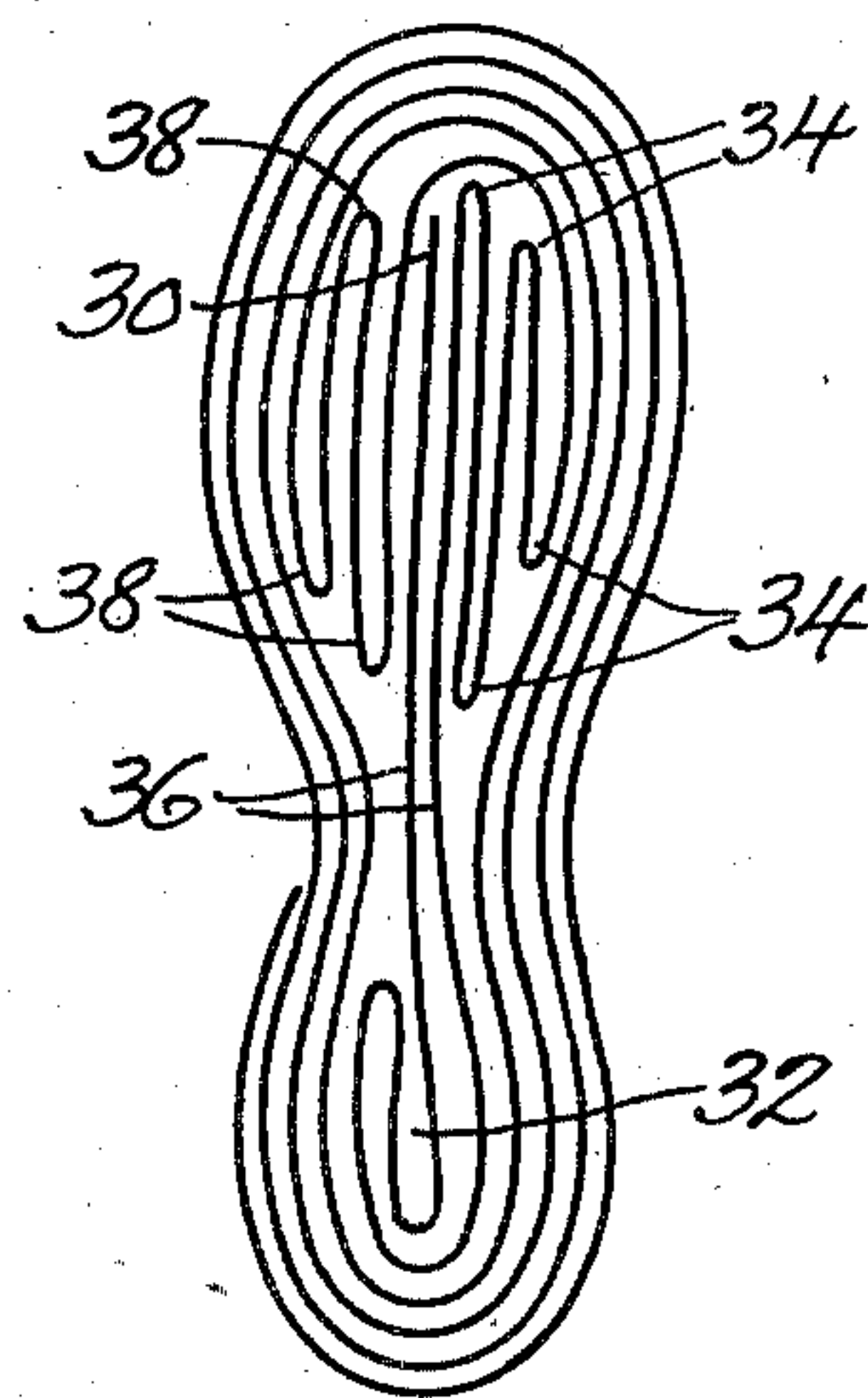


FIG. 2.

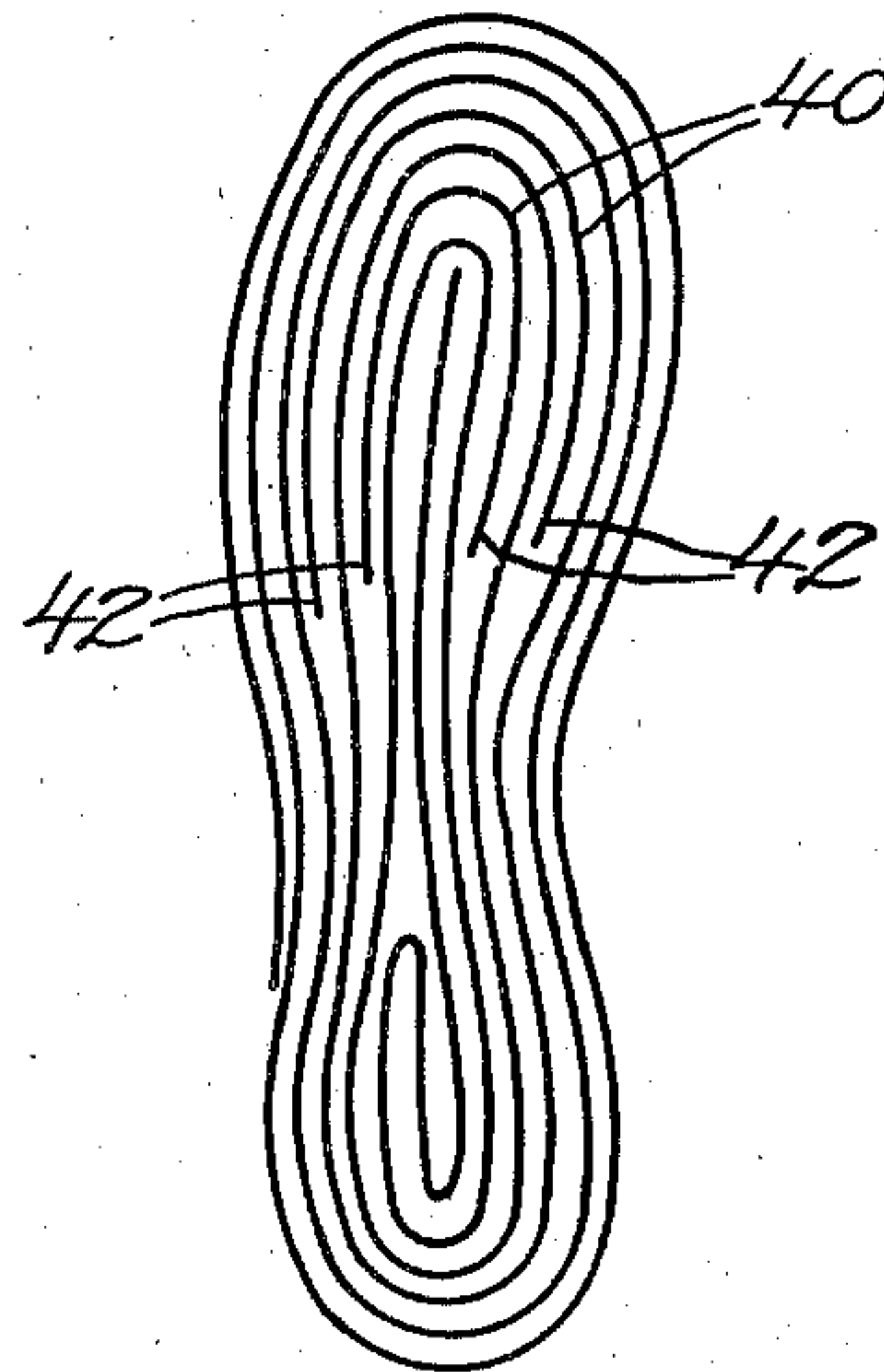


FIG. 3.

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2,430,497

ROPE SOLE FOR FOOTWEAR

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Application August 17, 1944, Serial No. 549,887

14 Claims. (Cl. 36—25)

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My invention relates to soles for footwear and particularly to soles formed of rope, braid, twine, raffia, straw or other braided or stranded materials.

Soles for shoes which are made of rope, braid or the like are generally referred to as "rope soles" and have been made for many years. Originally such soles were made by simply forming the rope into an elongated coil and the convolutions of the coil were secured together by stitching or a bonding agent. Soles of this type are not shaped to the foot and therefore are used primarily for sandals.

More recently rope soles have been shaped to some extent by forming the rope or braid into a relatively small elongated coil which is located in the center of the ball portion of the sole and forms a core about which further portions of the rope are wound into an elongated shape to form narrower shank and heel portions of the sole. However, these soles are still symmetrical with respect to a line extending longitudinally through the center of the sole and are not shaped accurately so as to form right and left soles. Furthermore, this construction is open to serious objection because in wrapping further strands of rope about the initially coiled core in the ball portion of the sole, the strands tend to spread apart and form a gap between the strands adjacent the end of the core near the shank of the sole and at the point where the sole is flexed the most in walking.

In some instances this gap is filled with a plug formed of rubber or other bonding agent used for securing the strands of the sole together, but even in such cases, if the sole is distorted or shaped to form right and left soles for use on shoes, the strains incident to such shaping are greatest in the area where the triangular gap or filling is located so that the sole still has an inherent weakness in the area subjected to the most flexing.

In accordance with my invention these objections to constructions of the prior art are overcome by providing a novel arrangement for the coils or strands of rope, braid or other material used in forming a shoe sole. In particular the strands are so arranged that the sole may be shaped by the strands themselves so as to provide right and left shoes, and the conventional gap formed at the juncture of the ball portion and shank of shaped rope soles is eliminated.

One of the objects of my invention is to provide a novel type of rope sole for shoe and other footwear.

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Another object of the invention is to provide novel methods for arranging the strands or coils of rope, braid or material employed in forming a rope sole for footwear.

A further object of my invention is to provide a rope sole for footwear which is shaped to provide right and left soles for shoes.

A specific object of my invention is to provide rope soles for shoes and footwear which conforms accurately to the shape of the foot and yet do not present a gap between the strands at the juncture of the ball portion and shank of the sole.

These and other objects and features of my invention will appear from the following description thereof in which reference is made to the figures of the accompanying drawing.

In the drawing:

Fig. 1 is a plan view of a typical form of rope sole for footwear embodying my invention, and

Figs. 2 and 3 are diagrammatic illustrations of alternative forms of rope sole embodying my invention.

Rope soles constructed in accordance with my invention overcome the inherent objections to prior constructions in that they are shaped to form right and left soles and do not have any gap between the strands of such size or so located as to weaken the sole. In each instance one or more strands of rope extend longitudinally of the sole substantially in the center thereof and other strands are arranged so as to present terminal points on opposite sides of the central strand and in the ball portion of the sole. These terminal points can be arranged in any desired locations and preferably are unsymmetrically situated on opposite sides of the central strand or strands and are in staggered relation longitudinally of the sole to eliminate any concentrated area of weakness and provide the lack of symmetry which is necessary to produce right and left soles. This construction also renders it possible to produce soles of different shapes and size for use on a wide variety of styles and types of shoes.

In that form of my invention chosen for purposes of illustration in Fig. 1 a shoe sole, made of rope, braid, raffia, straw or other stranded material, is formed by providing terminal points in the strands by reversely turning portions of the rope or braid at the points 2, 4, 6 and 8 in the ball portion of the sole and by locating these reversely turned points in unsymmetrical relation on opposite sides of three central strands 10, 12 and 14. Moreover, continuous strands of rope pass between these points and thus space them

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apart and serve to strengthen the sole throughout the entire area thereof.

In forming a rope sole of the type illustrated in Fig. 1, the end 16 of a continuous strand of rope, braid or other material used in forming the sole, is located in the heel portion of the sole and a portion of the rope adjacent the end is formed into a short fold or coil 18 to provide the desired widening of the sole at the heel. This coil need not embody more than one or two turns of material and thereafter the central strand 10 is extended centrally of the sole from the coil 18 to a point near the opposite end of the sole as indicated at 20. At the point 20 the strand is reversely folded upon itself and the strand is carried rearwardly to the heel of the sole providing the second central strand 12. At the heel of the sole the rope is passed about coil 18 and extended forward to form the third central strand 14 after which it is passed about the point 20 and reversely folded upon itself to form the terminal point 2 on the left hand side of the central strands 10, 12 and 14, as seen in Fig. 1. From the point 2 the rope extends forward about the point 20 and thence to the point 4 on the right side of the central strands. At the point 4 the strand is again reversely folded to provide a terminal point suitably located to shape the sole and longitudinally displaced from the point 2. The rope passing forward from the point 4 is carried about the point 20 near the toe and then extends rearward adjacent the point 2 and about the heel coil 18 and back forward past the point 4. Thereafter the rope is again wrapped about the point 20 and formed into the reversely turned terminal point 6 on the left side of the central strands 10, 12 and 14.

After forming the terminal point 6 the rope is passed forward about the point 20 and then continued on to the right side of the central strands to form the reversely turned portion presenting the terminal point 8. Any number and arrangement of the terminal points may be provided on either side of the central strands to shape the sole as desired and after forming the final reverse bend or terminal point, such as the point 8 the rope finally is wrapped about the sole one or more times. As shown at 22 in Fig. 1 the rope is passed about the previously assembled strands in three more turns to form a completed product. The outer end 24 of the strand is preferably located adjacent the shank of the sole and secured in place by stitching or otherwise.

In this way the sole is formed of a compact body of closely arranged strands, turns and convolutions of rope and no large gap or space occurs between the strands at any point in the sole. The sole when thus formed may be stitched, bonded, vulcanized or otherwise treated to secure the strands firmly together and in place. When the sole is stitched as indicated at 26 it is preferable to locate the stitches so that they pass through the reversely turned portions or terminal points of the material at 2, 4, 6, 8 and 20 and at the opposite ends of the heel coil 18. However, a bonding agent as shown at 28 may be used and the sole may be stitched or bonded in any suitable or conventional manner to form a shaped sole of superior strength and durability.

The construction thus provided is shaped to form a right or left sole by the strands of material themselves and the terminal points are spaced apart so that no gap or concentrated area of weakness is presented in any part of the sole.

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Moreover, the terminal points and doubled strands can be so located or multiplied as to provide soles of very different types, shapes and styles for use on any type of footwear. Furthermore, while I have illustrated and described a construction in which the inner-most end of the rope is located in the heel of the sole, it will be obvious that the ends of the strand may be positioned at other points than those shown and the reversely turned strands of material which shape the ball portion of the sole may be formed of or include separate strands or pieces of material and may be arranged in any suitable or preferred order or positions.

In order to illustrate such alternative constructions embodying my invention I have shown one typical arrangement in Fig. 2 wherein the inner end of the strand is located at the point 30 in the ball portion of the sole and extends to the heel where it is doubled twice upon itself to form a heel coil 32. The rope is then carried back to the ball portion of the sole where the reversely turned portions or terminal points 34 are formed on the right side of the central strands 36 so as to complete the shaping of one half of the sole prior to passage of the strand about the toe to the opposite side of the central strand to form the reversely turned or terminal points 38 on the left side of the sole. After the formation of the core thus produced the strand is wrapped about the core and heel portion to complete the sole.

As shown in Fig. 3 separate pieces of rope 40 are inserted into the sole in the ball portion and heel thereof to impart the desired shape to the assembled strands and present terminal points 42 which are in longitudinally staggered and unsymmetrically arranged positions on opposite sides of the central strands in the ball portion of the sole.

Many other forms and arrangements of the strands, reversely turned portions, terminal points or coils of material within the sole may be employed in accordance with my invention and without departing from the spirit and scope thereof. It should therefore be understood that the embodiments of my invention shown in the drawing should be understood as illustrative only and are not intended to limit the scope of my invention.

I claim:

1. A sole for footwear embodying at least one strand of material located substantially centrally in said sole and extending longitudinally from the heel portion through the instep and ball portion to the toe portion of said sole, and other strands arranged in unsymmetrical relation in the ball portion of the sole on opposite sides of said central strand.

2. A sole for footwear embodying at least one strand of material extending longitudinally substantially through the center of the sole from the heel to the ball portion of the sole, and other strands presenting terminal points unsymmetrically located on opposite sides of said central strand.

3. A sole for footwear comprising a plurality of strands of material extending longitudinally of the sole and assembled in contact with each other, said strands presenting a plurality of terminal points which are spaced transversely of the sole in the ball portion thereof.

4. A sole for footwear comprising a plurality of strands of material extending longitudinally of the sole and assembled in contact with each other,

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said strands presenting a plurality of terminal points which are spaced transversely and longitudinally of the sole in the ball portion thereof.

5. A sole for footwear comprising a plurality of strands of material extending longitudinally of the sole and assembled in contact with each other, said strands presenting a plurality of reversely turned portions located in the ball portion of the sole and on opposite sides of said longitudinally extending strands.

6. A sole for footwear comprising a continuous strand of material arranged so as to provide a plurality of lengths extending longitudinally of the sole with reversely turned portions in the ball portion of the sole and on opposite sides of a line passing longitudinally through the center of the sole.

7. A sole for footwear comprising a plurality of strands of material arranged with at least one strand extending longitudinally of the sole substantially in the center thereof and other strands presenting terminal points in the ball portion of the sole and on opposite sides of said centrally located strand.

8. A sole for footwear comprising a continuous strand of material arranged with one portion thereof extending longitudinally of the sole substantially in the center thereof and other portions reversely turned upon themselves and located on opposite sides of said central portion and in the ball portion of the sole.

9. A sole for footwear comprising a continuous strand of material arranged with one portion thereof extending longitudinally of the sole substantially in the center thereof and other portions reversely turned upon themselves and located on opposite sides of said central portion and in the ball portion of the sole, the inner end of said strand being located in the heel portion of the sole.

10. A sole for footwear comprising a continuous strand of material arranged with one portion thereof extending longitudinally of the sole substantially in the center thereof and other portions reversely turned upon themselves and located on opposite sides of said central portion and in the ball portion of the sole, the inner end of said strand being located in the ball portion of the sole.

11. A sole for footwear comprising a continuous strand of material having one end thereof located in the heel portion of the sole and coiled

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upon itself, a portion of said strand extending from said heel portion through the shank of the sole to the ball portion of the sole and located substantially midway between opposite sides of the sole, further portions of said strand being doubled upon themselves at opposite sides of said central strand, and the opposite end portion of said strand being wound about the edges of the sole.

12. A sole for footwear comprising a plurality of strands of material presenting terminal points located in the ball portion of the sole, and at least one strand of material extending from the ball portion of the sole to the heel portion thereof between said terminal points.

13. A rope sole for footwear formed with a plurality of strands of material presenting terminal points located in the ball portion of the sole, said terminal points each being spaced from a laterally adjacent terminal point by at least one longitudinally extending strand of material.

14. A rope sole for footwear embodying at least one strand of material extending longitudinally and substantially in the center of said sole from the heel portion through the ball portion to the toe portion of the sole, other strands of material extending longitudinally of the sole on opposite sides of said central strand, the ball portion of said sole having strands therein presenting terminal points located on opposite sides of said central strand and spaced apart by said other longitudinally extending strands.

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