Oct. 9, 1928. 1,687,294

W. B. HOPWOOD

NONSLIP SOLE

Filed July 31, 1926

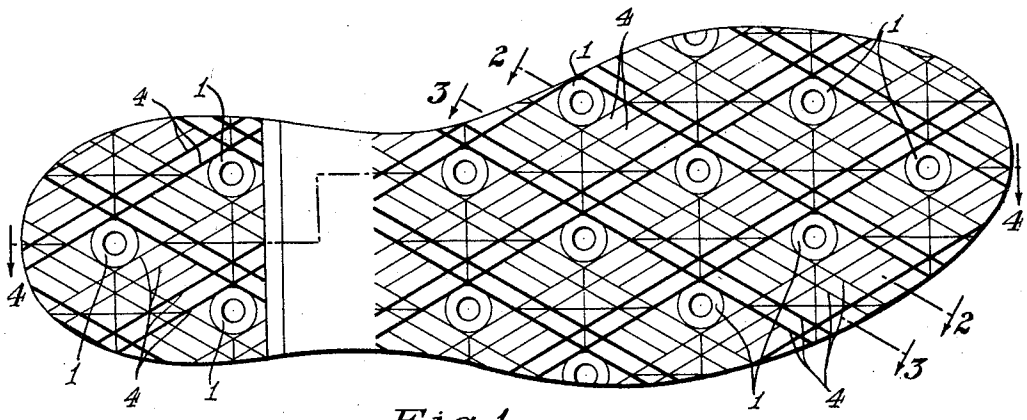


Fig. 1.

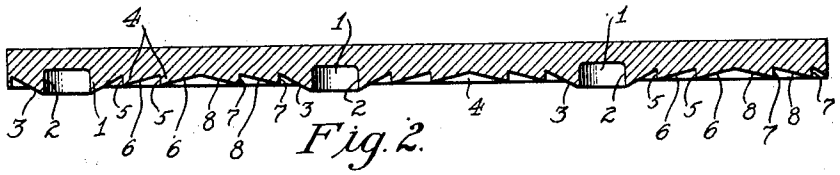


Fig. 2.

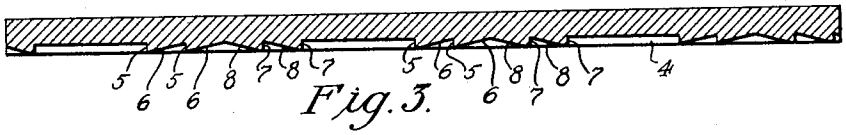


Fig. 3.

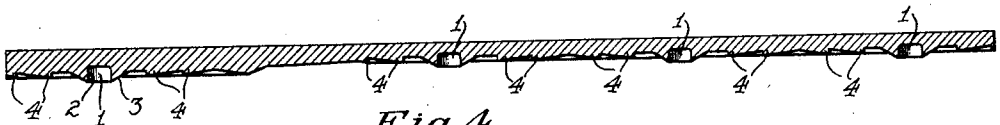


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM B. HOPWOOD, OF COLLEGE POINT, NEW YORK, ASSIGNOR TO THE BEACON FALLS RUBBER SHOE COMPANY, OF BEACON FALLS, CONNECTICUT, A CORPORATION OF MASSACHUSETTS.

NONSLIP SOLE.

Application filed July 31, 1926. Serial No. 126,107.

This invention relates to a non-slip sole, more particularly to a non-slip sole formed of rubber or similar composition.

A disadvantage of the ordinary smooth rubber sole is that it tends to slip under certain conditions, as on smooth wet surfaces, grass, etc.

An aim of the present invention is to provide a non-slip sole which will operate efficiently under varying weather conditions and on different surfaces, and which at the same time is of ornamental appearance, and capable of giving extended wear. Other objects will appear from the detailed description and drawings.

The invention comprises broadly a sole with spaced rows of suction cups, between which are disposed non-slip ribs, each rib having a substantially vertical wall and an inclined wall, the vertical walls of certain ribs facing in an opposite direction from those of other ribs.

For a detailed disclosure of the nature and objects of the invention, reference is had to the accompanying specification and drawing, in which latter:

Fig. 1 is a plan view of the sole;

Fig. 2 is an enlarged diagonal section on the line 2—2 running through a diagonal row of suction cups;

Fig. 3 is an enlarged diagonal section on the line 3—3 midway between diagonal rows of cups; and

Fig. 4 is a longitudinal section on the line 4—4 running through a longitudinal row of cups.

Referring to the drawing, the numeral 1 designates generally one of the suction cups, the latter being provided with a substantially vertical inner wall 2 and an inclined outer wall 3 sloping away from the edge of the cup. It will be seen from the drawing that each cup is disposed in a row extending longitudinally of the sole, also in a row extending transversely of the sole and also in two diagonally crossing rows, and a cup in any row is in staggered arrangement with the cups in an adjacent parallel row, whether the rows be considered as transverse, longitudinal or diagonally crossing rows.

Between diagonal rows of cups diagonally extending ribs 4 are disposed, four being shown in the present instance, but a greater or less number may be used. These ribs are all the same in general outline but differently arranged. It will be seen that adjacent one diagonal row of cups, two of the ribs have vertical walls 5 facing said row of cups and inclined walls 6 extending away from the cups, while the two ribs adjoining the next diagonal row of cups have vertical walls 7 facing the latter row and inclined walls 8 extending away from it. In other words, between each two diagonal rows of cups are two or more series of ribs, the vertical and inclined walls of one series facing in an opposite direction to those of an adjacent series. The shank portion between the heel and forward part of the sole is preferably left smooth as shown. In the drawing the heel cups and ribs are shown as disposed in rows or series forming in effect continuations of those in the main body of the sole, but it is obvious that the heel pattern may be displaced laterally or longitudinally to bring a greater or less number of cups into the heel. The suction cups preferably extend slightly above the tops of the ribs.

Due to the diagonally crossing arrangement of both the suction cups and the ribs and the arrangement of the walls of the latter, it will be seen that a tread surface is provided which effectually acts to prevent slipping in any direction, and while the invention is not to be so limited, it is particularly adapted for use on sport shoes. It provides a firm and non-slip grip on various surfaces such as wet, smooth pavements, earth, grass, etc. While in the present instance the cups and ribs are diagonally arranged, it is obvious that if desired, the cups may be disposed in a non-staggered arrangement in straight transverse and longitudinal lines with the ribs extending between them in transverse and longitudinal lines crossing at right angles, or instead, the present arrangement of the cups may be retained and the ribs extended transversely and longitudinally instead of diagonally. However, the arrangement shown is believed to be the most efficient and is the preferred one.

With the above detailed disclosure in mind, it is obvious that modifications will suggest themselves to those skilled in the art and it is not desired to limit the invention otherwise than as set forth in the appended claims.

Having thus described my invention, what

I claim and desire to protect by Letters Patent is:

1. A sole provided with spaced rows of suction cups and ribs extending between the rows of cups, each rib having one substantially vertical wall, the vertical walls of different ribs facing in opposite directions.

2. A sole provided with spaced rows of suction cups and ribs extending between the rows of cups, each rib having a substantially vertical wall facing the nearest row of cups.

3. A sole having spaced rows of suction cups, each cup having a substantially vertical inner wall and an inclined outer wall, and ribs extending between the rows of cups, each having a substantially vertical wall and an inclined wall.

4. A sole having spaced rows of suction cups, and ribs extending between the rows of cups, each rib having a substantially vertical wall facing the nearest row of cups and an inclined wall extending away from said row of cups.

5. A sole having diagonally arranged rows of suction cups and interposed diagonally crossing ribs between the cups, each rib having a substantially vertical wall and an inclined wall, ribs on opposite sides of a line intermediate two rows of cups having their vertical walls facing the nearest row of cups.

6. A sole having crossing series of ribs, each rib having a substantially vertical and an inclined wall, the walls of one series facing in an opposite direction to those of an adjoining parallel series.

Signed at New York, county of New York, State of New York, this 29th day of July, 1926.

WILLIAM B. HOPWOOD.