April 30, 1963 W. McKINLEY 3,087,265

INTERCHANGEABLE TURNABLE HEELS

Filed May 6, 1960

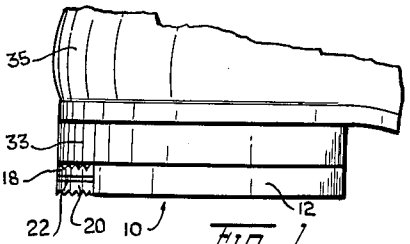

Fig. 1.

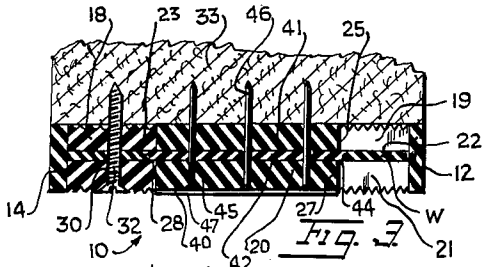

Fig. 3.

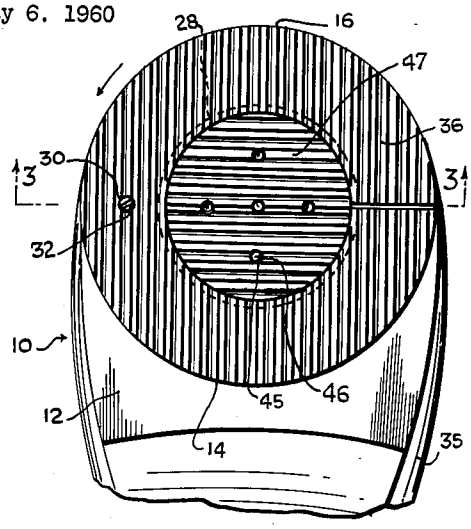

Fig. 2.

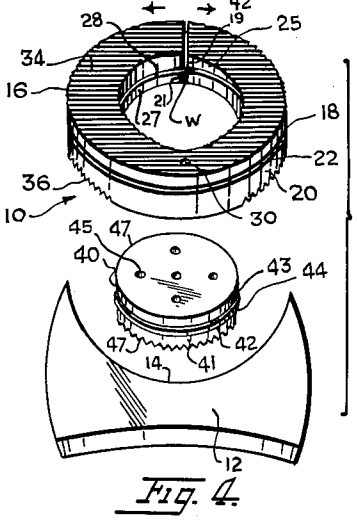

Fig. 4.

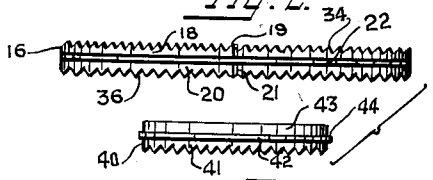

Fig. 5.

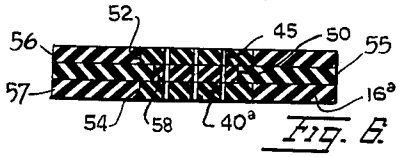

Fig. 6.

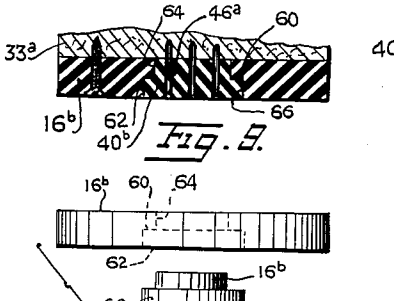

Fig. 8.

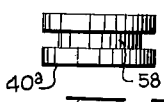

Fig. 8.

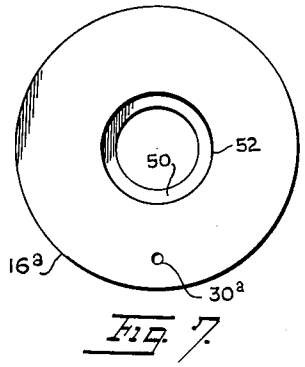

Fig. 7.

Fig. 10.

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INTERCHANGEABLE TURNABLE HEELS

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This invention is directed at an improved turnable heel construction.

According to the invention there is provided a heel made of rubber, plastic, fiber or composition material. The body is provided with a cavity for receiving a turnable rubber ring which is stretchable so that it can be secured in place on a core secured to a heel base of a shoe. Outer surfaces of the core and ring can be ribbed or corrugated. The ring and core may be made by laminating a plurality of rubber layers together or can be formed in solid, one-piece construction.

It is therefore one object of the invention to provide a heel having a cavity adapted to receive an annular rubber ring, the ring having an inner wall formed to interfit with a mating wall of a circular core which is attachable to a heel base of a shoe.

A further object is to provide a heel structure for a shoe with a turnable ring adapted to be rotated as it wears at one point so that a fresh portion may be disposed at the point of greatest wear and impact of the heel.

Still another object is to provide a heel with a turnable ring having an inner grooved or ridged wall and with a supporting core having a peripherally ridged or grooved wall.

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

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

FIG. 1 is a side elevational view of a portion of a shoe with a heel embodying the invention mounted thereon.

FIG. 2 is a bottom plan view on an enlarged scale of the heel of FIG. 1.

FIG. 3 is a sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is an exploded perspective view of the components of the heel of FIGS. 1–3.

FIG. 5 is an exploded side elevational view of components of the heel.

FIG. 6 is a sectional view through another heel structure according to the invention.

FIG. 7 is a plan view of a ring portion of the heel structure of FIG. 6.

FIG. 8 is a side elevational view of the core of the heel structure of FIG. 6.

FIG. 9 is a sectional view through still another heel structure embodying the invention.

FIG. 10 is an exploded side elevational view of components of the heel structure of FIG. 9.

Referring to the drawings, there is shown in FIGS. 1–5, a heel structure **10** which includes a flat body **12** formed with a partially cylindrical cutout or cavity **14**. Rotatably fitted in this cavity is a ring **16**. The ring is preferably formed as a laminated member with outer flat, annular elements **18**, **20** and a central annular element **22**. Elements **18** and **20** are formed of tough, resilient rubber and may be split radially at **19** and **21**. The splits in the two outer rings are coplanar. The annular element **22** is formed of more elastic rubber than the outer elements and is not split. Element **22** has a central aperture **23** which has a diameter greater than that of the aligned apertures **25** and **27** of elements **18** and **20**. Thus an internal annular groove **28** is defined between the elements **18** and **20**. A hole **30** may be provided in the ring **16**

through which may be inserted a screw **32** secured in heel base **33** of shoe **35** to prevent the ring from rotating in body **12**. The outer sides **34** and **36** of the elements **18** and **20** may be ridged or corrugated to increase the cushioning effect of the heel when in use. The several elements **18**, **20** and **22** are secured to each other by a suitable cement or may be fused to each other by vulcanization. An elastic web W thus exists in element **22** in the plane of splits **19** and **21**, so that the ring **16** can be expanded to fit over core **40**.

The core is a cylindrical member which may be made from a single piece of rubber or from a plurality of layers **41**, **42**, **43** cemented together. The layers are circular. The central layer **42** has a larger diameter than layers **41** and **43** to define a ridge **44** adapted to fit in the groove **28** in ring **16**. The ring **16** can be expanded to fit over the core because the elastic element **22** stretches at W. When the ring is fitted on the core, ridge **44** in groove **28** holds the ring rotatably on the core. Holes **45** in the core receive nails **46** as shown in FIG. 3 which are anchored in the heel base **33** as shown in FIG. 3. The core is thus secured in a stationary position on the heel base while the ring **16** is rotatable to any desired position. The screw **32** is then inserted to lock the ring in the selected position. By removing or loosening the screw, the ring can be rotated to another position and then fixed in the new position by reinserting screw **32**. After one side **34** or **36** of the ring becomes worn the ring can be removed from the core, turned over and replaced on the core to continue in service until the new exposed side is worn out. The ring **16** can then be removed and replaced by a new one. Core **40** may have a corrugated side **47**.

In FIGS. 6, 7 and 8 are illustrated another enbodiment of the invention. The ring **16ª** shown in FIGS. 6 and 7 has its intermediate layer **55** formed with a central hole having a diameter less than the diameter of holes **52** and **54** in layers **56** and **57** thereby forming a ridge or shoulder **50**. The several layers will be cemented together. If desired, the ring **16ª** may be formed as a one-piece structure instead of employing a plurality of layers. Core **40ª** shown in FIG. 8 has a central groove **58** in which engages the ridge **50** when the ring is fitted on the core. The ring **16ª** should be made of tough rubber material which is sufficiently flexible and elastic so that it can be stretched to fit on the core. A hole **30ª** similar to hole **30**, extends through the ring **16ª** for receiving a screw, such as screw **32**, for securing the ring to the heel base **33**, once the ring is on the core.

In FIGS. 9 and 10, ring **16ᵇ** is formed with a shoulder **60** defined by the outer portion **62** and inner portion **64** of its central aperture. The core **40ᵇ** is secured to heel base **33ª** by nails **46ª**. The core has a ridge or flange **66** which fits under shoulder **60** and holds the ring on the core. When the outer side of the ring is worn, the ring can be removed from the core by stretching it to permit narrow portion **64** of the central aperture to pass the ridge **66**.

The ring and core structure illustrated has been shown employed in a heel of a shoe, but it can also be used as part of a shoe sole.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to tht precise constructions herein disclosed and that various changes and modifications may be made 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 Letters Patent is:

1. A heel structure for a shoe, comprising a ring formed of three annular layers secured to each other, the outer

ones of said layers being formed of tough, resilient material, the outer layers having coplanar radial slits therein, the intermediate one of the three layers being an elastic element having a stretchable web located between the coplanar radial slits in the outer layers, said ring having a central aperture, and a core disposed in said central aperture, said ring being rotatable on the core.

2. A heel structure for a shoe, comprising a ring formed of three annular layers secured to each other, the outer ones of said layers being formed of tough, resilient material, the outer layers having coplanar radial slits therein, the intermediate one of the three layers being an elastic element having a stretchable web located between the coplanar radial slits in the outer layers, said ring having a central aperture, and a cylindrical core disposed in said central aperture, said ring being rotatable on the core, said ring and core having an interfitting ridge and groove assembly.

3. A heel structure for a shoe, comprising a ring formed of three annular layers secured to each other, the outer ones of said layers being formed of tough, resilient material, the outer layers having coplanar radial slits therein, the intermediate one of the three layers being an elastic element having a stretchable web located between the coplanar radial slits in the outer layers, said ring having a central aperture formed with an annular groove at the intermediate layer, and a cylindrical core disposed in said central aperture, said core having an annular ridge disposed between opposite sides thereof and fitting within said groove assembly so that the ring is rotatable on the core.

4. A heel structure for a shoe, comprising a ring formed of three annular layers secured to each other, the outer ones of said layers being formed of tough, resilient material, the outer layers having coplanar radial slits therein, the intermediate one of the three layers being an elastic element having a stretchable web located between the coplanar radial slits in the outer layers, said ring having a central aperture formed with an annular groove at the intermediate layer, and a cylindrical core disposed in said central aperture, said core having an annular ridge disposed between opposite sides thereof and fitting within said groove assembly so that the ring is rotatable on the core, opposite sides of said ring being corrugated and at least one side of the core being corrugated.

5. A heel structure for a shoe, comprising a ring formed of three annular layers secured to each other, the outer ones of said layers being formed of tough, resilient material, the outer layers having coplanar radial slits therein, the intermediate one of the three layers being an elastic element having a stretchable web located between the coplanar radial slits in the outer layers, said ring having a central aperture formed with an annular groove at the intermediate layer, and a cylindrical core disposed in said central aperture, said core having an annular ridge disposed between opposite sides thereof and fitting within said groove assembly so that the ring is rotatable on the core, opposite sides of said ring being corrugated and at least one side of the core being corrugated, and a flat body having a cylindrical cutout, said ring being rotatably disposed in the cutout of said body.

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