To all whom it may concern:

Be it known that we, ANDRÉ DEMOREY AND BAPTISTE TOURNIER, citizens of the French Republic, both residing at Lyon, in France, have invented certain new and useful Improvements in Cushioned Boot-Heels, of which the following is a specification.

The present invention has for its object a boot heel provided with a number of more or less elastic rollers, each partly housed in one of a series of recesses formed on the lower side of the heel, said rollers being rotatably mounted on spindles or trunnions arranged transversely to the heel and held in place by a suitable plate. The rollers project from the bottom of the heel and make contact with the ground. When said rollers become worn they can be rotated by hand in said recesses; or they can be easily taken out and replaced as desired for example by more elastic or less elastic rollers. These interchangeable rollers can be made of rubber or other elastic composition and contain a core of lead or other material for the purpose of giving them various degrees of elasticity.

The annexed drawing illustrates the invention.

Figures 1 and 2 are plan views of the under side of a boot heel provided with the invention. Figs. 3 to 8 illustrate various shapes of the resilient member and methods of mounting them. Fig. 9 is a plan view of a modified construction and Fig. 10 is a section on line A-A of Fig. 9.

Figs. 1 and 2 show a heel made of rubber, leather or other suitable material provided with recesses as 3, in which rubber rollers 4 provided with trunnions 5 in a single piece are housed. A suitably shaped aperture

metal plate 6 is fixed on the heel 1 by screws 7 and engages the trunnions of the rollers and prevents them from escaping. In Fig. 1 the plate 6 and screws 7 are supposed to be removed as well as two of the rollers. Fig. 2 shows the heel ready for use. Each roller may be provided with a core such as shown in Fig. 3, the core being formed by a ball of lead or other material, or by any other shaped body, if it is desired to modify the effects produced by the core which affects the degree of elasticity of the rollers. It is sufficient for this to employ cores of a relatively large or relatively small diameter according to the effect to be obtained.

Fig. 4 is a side view of a roller housed in the heel 1 shown in section.

Fig. 5 shows a roller mounted on a small metal spindle 9.

Figs. 6 to 8 illustrate various shapes of the rollers which can vary as required. It is evident that the heel may be provided with a greater or less number of similar elastic rollers which may be all of the same dimensions or of different dimensions, and arranged in any suitable manner. The degrees of elasticity of the respective rollers on the same heel may be alike or may differ. Also a group of two rollers, the axes of which are on the same axis as shown in Fig. 2, could be replaced by a single elongated roller housed in a correspondingly shaped recess. The shape of the plate 6 would in this case be simplified, and would comprise only the two lateral parts fitting along the edge of the heel and the cross piece which connects them.

The plate 6 is fixed in such a way that without risk of accidental detachment it can be easily and rapidly detached as desired by the simple unscrewing of the screws illustrated which can screw into female screws fixed in the heel 1. Any other suitable means of fixing could be used.

In the modification shown in Figs. 9 and 10 which has the advantage of simplicity of construction and low cost of production, the rollers 11, 12 are mounted on the same axle 13 and the rollers 14, 15 are mounted on the axle 16. Each of these axles 13 and 16 is formed by a metal rod of which the central part is housed in a recess 22 formed on the lower face of the heel 17, as clearly shown in Fig. 10. To maintain the rollers in position a simple narrow plate 18 fixed to the heel 17 between the rollers is sufficient. The manufacture of the plate 18 requires but little metal and it effectively prevents the spindles of the rollers coming out of their housings and so retains the rollers in position. For fixing the plate 18 it is best to form a shallow housing in the heel of similar shape to the plate and to sink the plate therein as shown on the drawing. The plate is fixed by screws 19 screwing into nuts 20 embedded in the heel 17 each nut being terminated at its upper part by a rectangular head 21 preventing it from turning. It can be understood that the mounting and unmounting of the rollers can be easily effected. These rollers can be turned on the axles 110 which carry them so that the point of contact of any one of said rollers with the
ground can be changed without touching the others. Also if some of the rollers wear more rapidly than others, those worn can be replaced without interfering with the others.

The improved heel is comfortable to wear and reduces fatigue and is durable and economical. The body of the heel is not worn and when wear commences to appear on the rollers or projections, it is sufficient to turn them through a certain angle to bring forward a new surface. The rollers can be interchanged if they are worn more on one side than the other or can be entirely renewed by replacing them with others of the same model. The heel provided with its rollers or projections only bears on the ground by some points which completely prevents slipping. The elasticity of the heel can be varied according to requirements, for example according to the weight of the person who wears the boot owing to the fact that the rollers can have different sized cores varying their degree of elasticity.

It is understood that the details of construction can be modified.

What we claim as our invention and desire to secure by Letters Patent of the United States is:

1. A heel having recesses at the bottom thereof, said recesses being provided with shallow extensions, resilient rollers partially housed in said recesses so as to project from the bottom of said heel, trunnions on said rollers adapted to engage in said shallow extensions of said recesses and means adapted to retain said trunnions in their recesses.

2. A heel having recesses at the bottom thereof, said recesses being provided with shallow extensions, resilient rollers partially housed in said recesses so as to project from the bottom of said heel, trunnions on said rollers adapted to engage in said lateral shallow extensions of said recesses, a plate on said heel having openings for the projection of the rollers and adapted to retain said trunnions in their recesses and so as to allow said rollers to be turned by hand and means for removably securing said plate on said heel.

3. A heel having recesses at the bottom thereof, resilient rollers partially housed in said recesses so as to project from the bottom of said heel, axles upon which said rollers can be turned by hand, said axles being housed in recesses in said heel and a plate on said heel adapted to retain said axles in their recesses and so as to allow said rollers to be turned by hand, and means for removably securing said plate on said heel.

4. A heel having recesses at the bottom thereof, resilient rollers partially housed in said recesses so as to project from the bottom of said heel, cores in said rollers, and means for retaining said rollers in said recesses.

In witness whereof we have signed this specification in the presence of two witnesses.

ANDRÉ DEMOREY.
BAPTISTE TOURNIER.

Witnesses:

CARRIGAN,

HERMAZ.