H. J. P. ROTTGER.

HEEL FOR SHOES.

APPLICATION FILED JAN. 27, 1910.

960,708. Patented June 7, 1910.

Fig. 1.

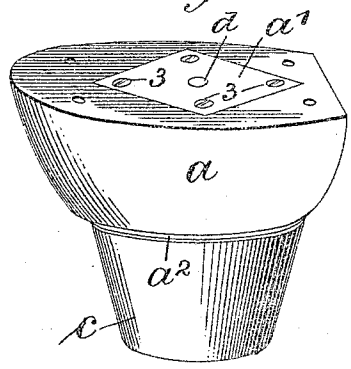


Fig. 2.

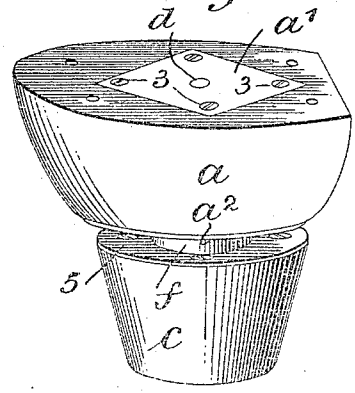


Fig. 3.

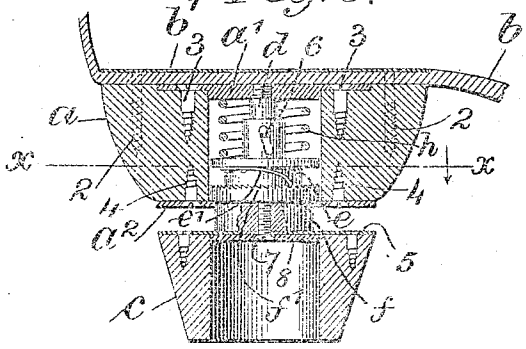


Fig. 5.

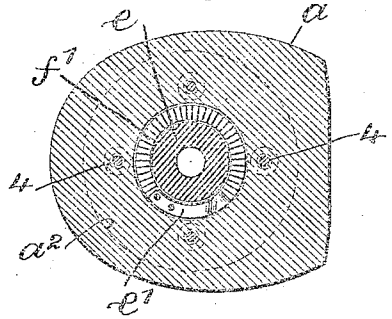


Fig. 4.

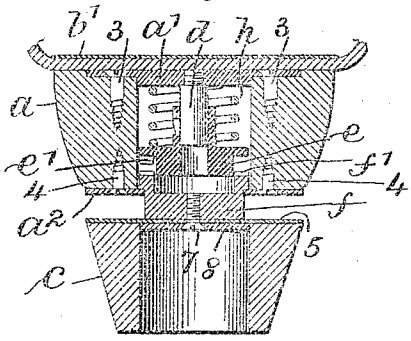
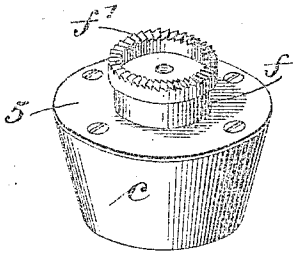


Fig. 6.



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HEEL FOR SHOES.

960,708. Specification of Letters Patent. Patented June 7, 1910.

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To all whom it may concern:

Be it known that I, HENRY J. P. ROTTGER, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings, city and State of New York, have invented an Improvement in Heels for Shoes, of which the following is a specification.

My invention relates to a composite heel for shoes, especially shoes for women's wear, with the object of providing both an elastic or yielding tread and a tread surface that will not wear uneven.

In carrying out my invention, my improved heel is composed of two main portions, namely, an upper member to be securely attached to the sole of the shoe as a fixture, and a lower vertically movable member. This lower member yields with the weight of the person wearing the shoe in walking, and interior devices employed in the upper fixed member come into evidence as the pressure is removed in lifting the foot off the ground; these devices imparting a partial rotation to the lower movable member. In this manner the lower member is progressively and continuously turned during the walking of the wearer of the shoe. The interior mechanism generally comprises a spring actuated revoluble head carrying a pawl and a circular ratchet body engaged by the pawl, all of which is hereinafter more particularly described.

In the drawing, Figures 1 and 2 are perspective elevations representing the two parts of my improved heel as disconnected from a shoe; Fig. 1 representing the closed position and Fig. 2 the open position of the parts. Fig. 3 is a longitudinal vertical section of the heel. Fig. 4 a transverse vertical section of the heel. Fig. 5 a sectional plan at the dotted line x, x, of Fig. 3 and Fig. 6 is a perspective view of the lower member of the heel with the ratchet body connected thereto.

a represents the upper member of my improved composite heel. This is made with a central circular aperture. b represents the sole of the shoe and b^1 a sole plate of metal coming on the inner surface against the sole; the heel member being secured by screws 2 to the sole and the sole plate; the screws passing through from within the shoe.

a^1 is a top plate in the upper member a secured in place by screws 3 and this plate preferably has a thicker central portion passing down into the aperture of the upper member a, and I provide a bottom plate a^2 secured to the under surface of the upper member by screws 4. The lower member c is hollow, or in other words, made with a central circular aperture. This lower member is preferably tapering and is provided with a top plate 5. The central portion of the top plate a receives the upper threaded end of the center stem d; the same being screwed firmly to the top plate. This stem d is provided with a pin 6 which passes through a slot in the circular head e, the upper end of which is made in the form of a sleeve to surround the pin d, and the head is also perforated providing for the movement of the stem. This head e is flanged to provide an attachment thereto for the pawl e^1 and I employ a ratchet body passing down from within the aperture of the upper member through an opening in the bottom plate a^2 to the upper surface of the top plate 5 and this ratchet body is securely fastened to the lower member c of my improved heel by a screw 7 which passes through the plate 8 and also the top plate 5 into the ratchet body. A circularly arranged series of radial ratchet teeth f^1 are on a portion of the ratchet body of greatest diameter, therefore the same provides beneath, a shoulder to rest upon the inner surface of the bottom plate a^1.

As will appear from Figs. 3 and 4, the lower member c of the heel cannot escape from the upper member because it is fastened to the ratchet body f and the toothed portion of the ratchet body being of larger diameter than the lower portion is held in the aperture in the upper member of the heel above the bottom plate a^2 and a spring pawl e^1 secured to the under surface of the flange of the head e engages the teeth of the ratchet.

In the operation of my improved heel, considering the parts of the heel in the position shown in Figs. 2, 3 and 4, and the wearer of the shoe about to step onto the heel, pressure upon the lower member c of the heel brings the parts of the heel together so closely that the ratchet body is raised into the aperture of the upper member of the heel,—the spring is compressed, the spring pawl also flattened and the head e raised against the action of the spring, causing the inclined slot in the sleeve member of the head to travel up the pin 6 whereby a turning motion is imparted to the head e and the spring pawl. This causes the spring pawl to travel back one or more teeth of the

ratchet into engagement with a fresh tooth. As the pressure is relieved and the foot lifted the spring *h* expands forcing downward the head and the ratchet body with the lower member of the heel, and as the inclined slot travels down over the pin, a turning movement is imparted to the lower member of the heel by virtue of the turning movement of the head *e* and the fact that its spring pawl engages a tooth of the ratchet body. This movement is repeated with every tread of the foot turning the lower member of the heel and causing the under tread surface thereof to wear evenly and flat by virtue of a fresh surface always being in place against an over-running tendency of the heel. There is sufficient power and spring action in the helical spring *h* within the apertured top member of the heel and the spring pawl to press the lower member of the heel and the ratchet body outward and when there is no pressure on the heel to keep the parts in said position.

My improvement is especially adapted to the heels of women's shoes because the same are high and because the lower end of the heel is narrow and from the top down quite pointed. These proportions are admirably adapted for the provision of a composite heel; there being ample space in the apertured top member of the heel for the operating mechanism which is depended upon in the act of walking to revolve the lower member of the composite heel and present new surfaces for wear.

I prefer to make the lower member of my improved heel, hollow, because there is less liability in the hollow heel of wearing over the tread surface so that the same becomes convex.

I claim as my invention:

1. A composite heel for shoes, comprising an upper apertured member to be secured to the sole of the shoe and a lower vertically movable member normally spaced apart therefrom and means for connecting the upper and lower parts of the heel and for imparting a partial rotation to the lower movable member by the approaching movement of the same toward the upper member in the act of walking.

2. A composite heel for shoes, comprising an upper member to be securely attached to the sole of the shoe as a fixture and centrally apertured means for connecting the same to the shoe, a lower member vertically movable, devices connected to the upper surface of the lower member and extending up into the aperture of the upper member, means for retaining the parts in such position and a spring actuated revoluble member adapted for progressive engagement with the part of the lower heel member which extends up into said aperture, providing for the progressive and continuous turning of the lower heel member during the walking of the wearer of the shoe.

3. A composite heel for shoes, comprising a centrally apertured upper member, means within the shoe and extending through the sole of the shoe into the upper member for securing it in a fixed relation to the shoe, a lower heel member, hollow, a ratchet body secured to the top of the lower member and extending up into the aperture of the upper member, an apertured plate secured to the upper member surrounding said ratchet body and coming beneath the shoulder thereof to hold the composite members of the heel in a fixed relation, and means actuated by the lower member in the act of walking with the shoe for progressively turning and also for axially moving the lower member of the heel in walking.

4. A composite heel for shoes, comprising a central apertured upper member, means within the shoe and extending through the sole of the shoe into the upper member for securing it in a fixed relation to the shoe, a lower heel member, hollow, a ratchet body secured to the top of the lower member and extending up into the aperture of the upper member, an apertured plate secured to the upper member surrounding said ratchet body and coming beneath the shoulder thereof to hold the composite members of the heel in a fixed relation, a center stem secured to the upper apertured member of the heel and having a pin, a tubular head member surrounding said stem and slotted at an inclination to receive said pin, a helical spring surrounding the tubular part of the head and the stem within the aperture of the upper member of the heel and a spring pawl connected with said head and adapted to engage the teeth of the said ratchet body for turning the same with the movement of the lower member of the heel in walking.

Signed by me this 18th day of January 1910.

HENRY J. P. ROTTGER.

Witnesses:

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E. ZACHARIASEN.