May 8, 1934. R. W. SHAW 1,958,097

CORRECTIVE INSOLE

Filed March 14, 1932

Fig. 4

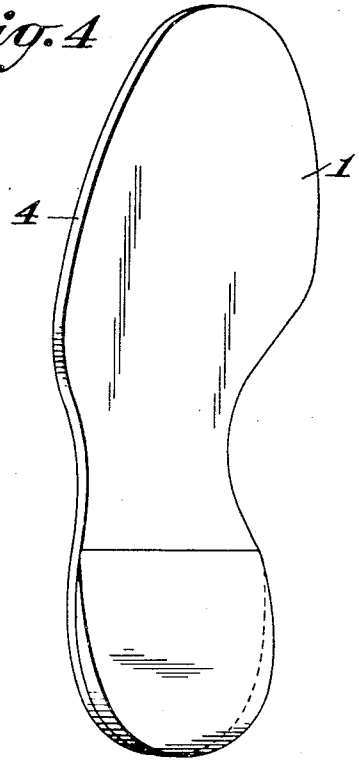


Fig. 3

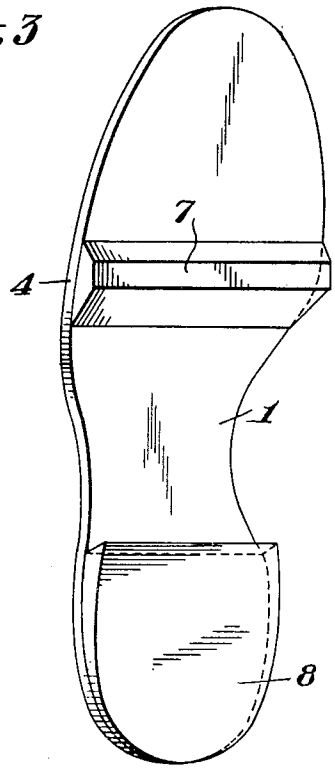


Fig. 1

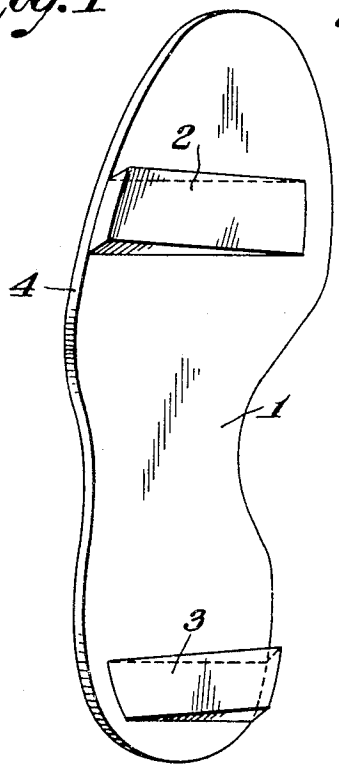
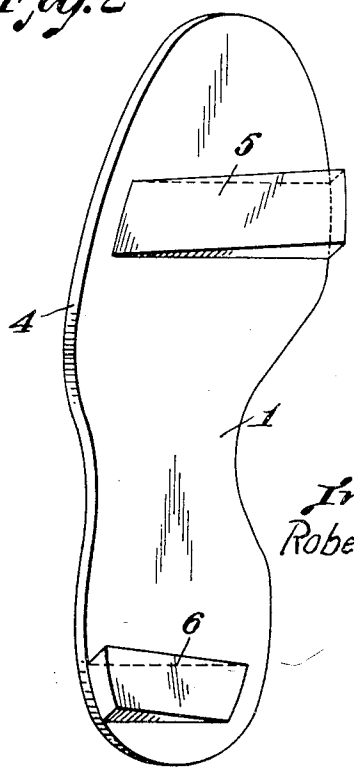


Fig. 2



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UNITED STATES PATENT OFFICE

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CORRECTIVE INSOLE

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3 Claims. (Cl. 36—71)

My invention differs from all others in having a raised portion under the heads of the inner or outer metatarsal bones, in combination with a raised portion under the opposite side of the heel, in order to twist the foot back to the normal position.

In flat-foot, the head of the outer metatarsal bone, and also the inner side of the heel, are too low. The heel, as a result, slides forward, and the arch bulges downwards, while the ankle bends inwards. By placing a raised portion under these points the foot is twisted back into the normal position.

When the arch is too high, the opposite condition is present, namely: the head of the inner metatarsal bone and the outer side of the heel are too low. The heel as a result slides backwards, the arch is forced upwards, and the ankle is bent outwards. By raising these points the foot is twisted back into the normal position.

By raising the head of the outer metatarsal bone, and the inside of the heel, in combination with a thickening under the head of the inner metatarsal, and also the outer side of the heel, the foot is held in the normal position: as a result, the arch is neither too high nor too low, the ankle is held straight, and the foot is carried in the normal position.

The thickened portions under the heads of the inner and outer metatarsal bones (thicker at the outer portions and becoming thinner as they pass towards the centre of the foot) put the weight on these heads, leaving a depression under the heads of the second, third and fourth metatarsals, and allow the heads of these bones to drop downwards, when the heel is raised in walking, the foot rocking on the prominent part under the heads of the inner and outer metatarsal bones.

I attain these objects by placing thickenings at certain points on the insole, as illustrated in the accompanying drawing, in which:

Fig. 1 shows a view of the under side of the insole from the left, with a thickened portion under the heads of the inner metatarsal bones, thicker under the head of the inner metatarsal, gradually becoming thinner as it passes outward under the heads of the centre metatarsal bones, also a thickened portion under the outer side of the heel which gradually becomes thinner as it passes towards the inner side.

Fig. 2 shows a view of the under side of the insole from the left, with a thickened portion under the heads of the outer metatarsal bones, thicker under the head of the outermost metatarsal, gradually becoming thinner as it passes inwards under the heads of the centre metatarsals. There is also a thickened portion under the inner side of the heel which gradually becomes thinner as it passes towards the outer side.

Fig. 3 shows a view of the under side of the insole from the left, with a thickened portion at the front of the heel which gradually becomes thinner as it passes towards the back of the heel.

Fig. 4 shows a view of the under side of the insole from the left, with a thickened portion at the back of the heel which gradually becomes thinner as it passes towards the anterior part of the heel.

(1) represents the insole from the left, showing the thickenings on the under side. The insole is made of pliable material that will press downwards easily around the thickenings.

(2) represents the shape and position of a thickening across the insole under the inner and middle metatarsals. It is thickest under the head of the inner metatarsal and gradually becomes thinner as it passes under the middle metatarsals. The head of the inner metatarsal extends farther forward than that of the outer metatarsal and (5) will therefore be posterior to (2). The head of the inner metatarsal only is supported by (2) and a depression is formed in front and behind it and under the middle metatarsals. (The heads of the middle metatarsals extend farther than those of the inner and outer. They must therefore have a depression into which they can drop when the heel is raised in walking, in order that the weight may be carried by the inner and outer metatarsal heads only and the tender heads of the centre bones be protected.)

In a long foot the middle metatarsal heads project farther forward than in a short foot and (2) will in this case have to be thicker to provide for a deeper depression. This will also apply when high-heeled shoes are worn.

(3) represents the shape of a thickening under the outer side of the heel, thickest at the outer edge and gradually becoming thinner as it passes inwards. This is for the purpose of straightening the ankle which is bent outwards, a condition found with turned-in toes. The thickness and position of (3) vary according to how much the toes turn in. The farther the toes turn in the greater the thickness required and the farther back it is placed.

(4) represents the inner edge of the insole.

(5) represents the shape and position of a thickening across the insole under the outer and middle metatarsals. It is thickest under the head of the outer metatarsal and gradually be-

comes thinner as it passes under the middle metatarsals. The head of the outer metatarsal does not extend as far forward as that of the inner metatarsal and (5) will therefore be posterior to (2). The head of the outer metatarsal only is supported by (5) and a depression is formed in front and behind it and under the middle metatarsals. (The heads of the middle metatarsals extend farther forward than those of the inner and outer. They must therefore have a depression into which they can drop when the heel is raised in walking, in order that the weight may be carried by the inner and outer metatarsal heads only and the tender heads of the centre bones be protected.)

In a long foot the middle metatarsal heads project farther forward than in a short foot and (5) will in this case have to be thicker to provide for a deeper depression. This will also apply when high-heeled shoes are worn.

(6) represents the shape of a thickening under the inner side of the heel, thickest at the inner edge of the insole and gradually becoming thinner as it passes outwards. This is for the purpose of straightening the ankle which is bent inwards, a condition found with turned-out toes and flat feet.

The thickness and position of (6) vary according to how much the toes turn out. The farther the toes turn out the greater the thickness required and the farther forward it is placed. In all cases, however, it is placed away from the back of the heel so as to form a depression there, to facilitate the heel sliding backwards.

(8) represents the shape of a thickening under the heel. It is thicker at the front of the heel and becomes thinner as it passes backwards to prevent the heel going too far forwards in the shoe (a condition which occurs with turned-out toes and flat feet). The thickness and distance forward of (8) vary acording to how far the toes turn out. The farther the toes turn out the more the heel will slide forward and therefore the greater the thickness necessary for (8) and the farther forward its position.

(9) represents the position of a thickening under the heel, which is always thickest at the back of the heel and becomes thinner as it passes forward, to prevent the heel from going back too far in the shoe (a condition which occurs with turned-in toes). The thickness of (9) and the distance it extends forwards vary according to how far the toes turn in. The farther the toes turn in the more the heel will slide backward and therefore the greater the thickness of (9) and the farther forward it must extend.

The central and thinner portions of (2) and (5) form a depression under the second, third and fourth metatarsal bones thus allowing the heads of these bones to drop downwards when the heel is raised in walking, while the foot rocks on the inner and outer heads of the metatarsals which rest on the thickest part of (2) and (5) respectively.

The heads of the second, third and fourth metatarsals project farther forward than the inner and outer heads and must have a depression to drop down into or the sore callous so frequently found beneath them will result. When this callous occurs, the foot will turn inwards or outwards to avoid pressure on the sore spot.

In all other inventions where wedges are used, these project forward under one or more heads of the centre metatarsals. The absence of a depression under the centre heads is the primary cause of all ordinary foot trouble.

I claim:—

1. An insole having in combination a transverse thickened portion tapered from one edge of the insole to a point beyond its longitudinal centre line and restricted approximately to the portion of the insole that underlies the metatarsal heads of a superimposed foot, and another transverse thickened portion at the heel tapered from the opposite edge of the insole to a point beyond said centre line and spaced a substantial distance from the heel end.

2. An insole as set forth in claim 1 in which the thickened portion for the metatarsal heads is tapered from the inner edge of the insole.

3. An insole as set forth in claim 1 in which the thickened portion for the metatarsal heads is tapered from the outer edge of the insole.

ROBERT W. SHAW.