Feb. 14, 1939. B. J. SILVER 2,147,466

CUSHIONED SOCK LINING

Filed Jan. 31, 1936

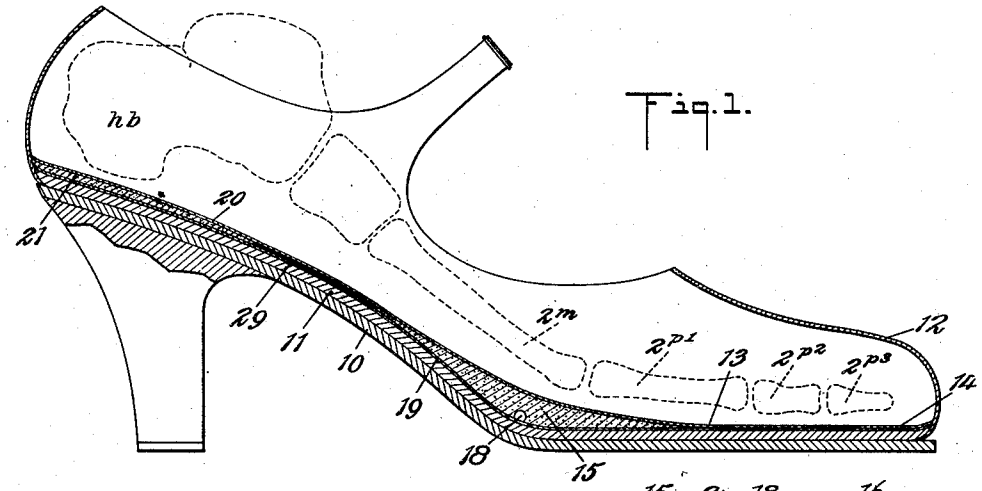


Fig. 1.

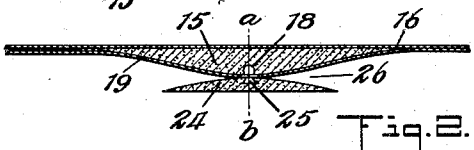


Fig. 2.

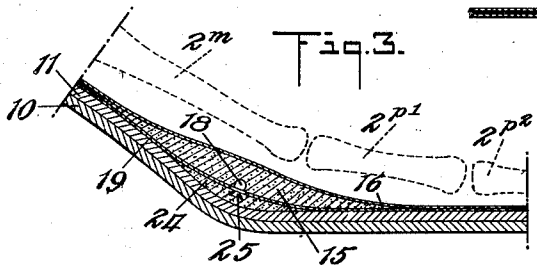


Fig. 3.

Fig. 4.

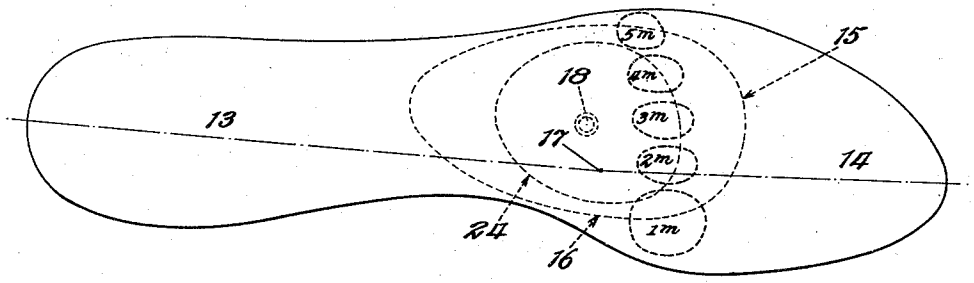
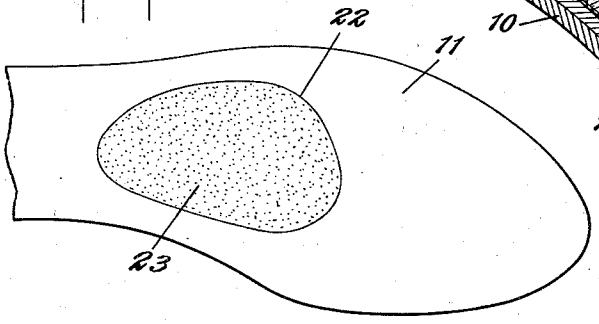


Fig. 5.



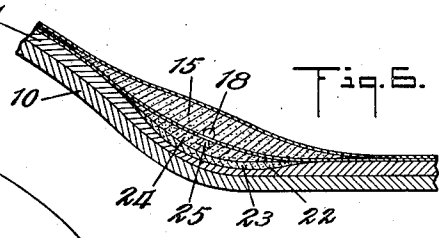


Fig. 6.

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CUSHIONED SOCK LINING

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Application January 31, 1936, Serial No. 61,647

18 Claims. (Cl. 36—71)

The invention relates to an insert or sole modulant for a shoe which shoe may be of conventional construction or which may have a cushioned area defining its inner sole as disclosed in the modified form of the invention herein disclosed. The disclosure herein constitutes an improvement and development of the invention disclosed in my three copending applications, one entitled "Weight distribution shoe sole", Serial No. 659,754 filed March 6, 1933, now Patent No. 2,046,190 granted June 30, 1936; another entitled "Inner sole for shoes", Serial No. 726,738 filed May 21, 1934, now Patent No. 2,083,581, June 15, 1937, and a division of which bearing Serial No. 141,753 was filed May 10, 1937; and the third entitled "Insert sole for shoes", Serial No. 8,525 filed February 27, 1935.

The present invention, as was the case in the preceding application disclosures, has for its general object the providing of a shoe which will give greater comfort to the wearer by providing as a standard shoe service better fitting accommodations than are provided by present practices. The objective in this disclosure, as was the objective in the copending applications, is simply to increase the percentage of those customers who can be fitted with stock shoes in which the foot engaging part of the inner sole can be minutely modified by the judicial use of one of a set comprising a limited number of stock inserts of slightly varying dimensions, hereinafter referred to as supplemental cushions, which can be carried by the store for the different sizes of stock shoes, one for each size of shoe.

Primarily the present disclosure features as part of the factory produced basic shoe the inclusion of a temporarily secured insert fitted on top of the inner sole which will take the place of and function as does the usual sock lining and additionally provide in that portion of the shoe in which it is fitted a main cushioned area beneath that part of the wearer's foot which is commonly designated the metatarsal region and at least some cushioning effect at the heel portion of the shoe. The disclosure also contemplates the use as a replacement or additional part of that supplemental insert for varying the depth of cushion at the metatarsal region best suited to meet the needs of the individual user.

The primary object of the invention is to provide a form of sock lining as the usual part of stock shoes which will contain as a unitary part thereof a thickened portion hereinafter designated as a main cushion and which sock lining thus forming a part of the manufactured shoe may be partially torn from its initially cemented position and have inserted under the main cushion any one of the set of supplemental cushions which are of varying degrees of thickness so as to modify at will the total thickness of the cushioned area beneath the metatarsal region so as to accommodate stock shoes to the individual peculiarities of the individual wearer.

Still another object of the invention is to provide a shoe which in its finished fitted condition will provide at the ball portion of the wearer's foot a kneading action which will constitute an exercising device for the ball portion of the foot and tend to simulate the action on the foot comparable to that provided when the wearer is walking barefooted or in stocking feet on soft ground.

In general, the invention has for its objective the providing of a stock size shoe which can be fitted conventionally to give the best possible fit without regard to the use of any supplemental cushions herein featured and which will not require any change in the cases of persons who have what may be regarded as a low arch but which can be readily modified by the insertion under the sock lining or rather under that portion of the sock lining which has the main cushion that particular supplemental cushion which will provide in the finished shoe the maximum degree of comfort and to approach as far as possible the soft resistant effect and gentle massaging of the undersurface of the foot enjoyed by those who walk barefooted on soft ground.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawing and in part will be more fully set forth in the following particular description of one form of device embodying the invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawing:

Fig. 1 is a longitudinal sectional view taken through a shoe as it comes from the factory and illustrating a preferred form of the invention in a simplified form;

Fig. 2 is a longitudinal sectional view of the main metatarsal or ball cushion shown separated from its position in the shoe as shown in Fig. 1 and with a supplemental cushion attached to the underside of the main cushion;

Fig. 3 corresponds to the metatarsal region of the shoe shown in Fig. 1 after the supplemental insert of Fig. 2 has been added thereto;

Fig. 4 is a plan view looking down on the inner sole assembly of Fig. 3;

Fig. 5 is a plan view of the forward portion of a modified form of inner sole showing a fixed cushion therein; and

Fig. 6 is a view corresponding to Fig. 3 in which the inner sole of Fig. 5 has inserted therein the main and supplemental cushion of Fig. 2.

In the drawing and referring first to the basic shoe in connection with the invention herein illustrated there is disclosed a conventional form of woman's shoe comprising an outer sole **10** and an inner sole **11** with the edge of the upper **12** secured between the soles and otherwise it is intended that the shoe represents any known commercial form of construction. In this form the inner sole is of conventional form in distinction from the inner sole shown in Figs. 5 and 6 and in which case the inner sole itself is provided with a cushioned area as hereinafter described.

Fitted within the shoe and coextensive with the inner sole is an insert **13** formed as a factory produced article and which due to its resemblance to the construction and function of a sock lining will be so designated in some of the claims. The insert comprises for the most part a thin layer **14** of highly flexible material which extends from the toe to heel and overlaps the inner sole and is conventionally cemented or otherwise secured thereto at the factory in the manufacture of the shoe. This sock lining distinguishes from conventional sock linings in the providing of a thin main cushion **15** preferably formed of highly elastic rubber; having the ovate form shown in Fig. 4, having a point of maximum thickness in the line *a*—*b* as shown in Fig. 2 and reducing in thickness gradually therefrom in all directions to a feathered edge **16**.

Extreme care is exercised to insure the proper location of this main rubber cushion **15**, it being the intent to locate the point of maximum thickness slightly in rear of the head of the second metatarsal bone 2*m* as featured in one of the preceding applications. The cushion is located entirely in advance of the rear portion of the instep, that is approximately at the tarso-metarso joint, in rear of the third proximal phalanges of the toes and extending at least to the heads of the three middle proximal phalanges and as indicated in Fig. 1 about midlength of the second proximal phalange $2p^1$. When in normal position removed from the shoe the rubber cushion **15** will have the convexo-concavo form in its longitudinal medial plane as indicated in Fig. 1 and has sufficient flexibility so as to conform to the contour of the portion of the inner sole therebeneath as shown in Figs. 1 and 6; as was featured in one of the preceding applications, the point of maximum elevation **17** of the main cushion in the line *a*—*b* is just back of the head of the second metatarsal bone 2*m*. The main rubber cushion **15** is provided at its point of maximum thickness in the line *a*—*b* and on the underside thereof with the female element **18** of a stud-and-socket form of readily separable fastening device.

It is suggested that the sock lining be faced on its underside with a sublining blank **19** in order to give a finished appearance to the underside of the sock lining but it is appreciated that this is no necessary part of the disclosure. The shoe as thus far described is a factory produced article; is complete, ready for use and gives no evidence that it is capable of being modified to raise the main cushioned portion beneath the metatarsal area of the foot.

It is suggested that the rear portion **20** of the sock lining, that is the portion which underlies the heel bone *hb* may be of slightly increased thickness as shown at **21** over the thin portion of two layers **14**—**19** at the shank and over the thickness usually employed to form sock linings so as to give a slight cushioning effect at the heel portion of the shoe. In one physical embodiment of the invention the thickness at the shank portion was made one-sixteenth of an inch while the heel portion was increased as much as five-sixteenths of an inch in thickness, but in the preferred form as herein illustrated the shank portion as well as the heel cushion was much thinner.

In the shoe thus described it is assumed that the inner sole is of conventional thickness throughout. However it is within the scope of the disclosure to provide for a modified form of inner sole as specifically shown in Figs. 5 and 6. In this form the top of the inner sole at the portion adapted to receive the central portion of the main rubber cushion is provided with a relatively shallow recess **22** and this recess filled with rubber or pliable material to an extent to restore the inner sole to its normal thickness and thus form a shallow fixed cushion **23** as a prefabricated portion of the basic shoe. In this case, of course, the shoe as originally manufactured will have both the fixed cushion **23** as an integral part of the inner sole and the main cushion **15** as hereinbefore described as part of the sock lining and both forming part of the manufactured shoe as delivered to the retail store. The shoe as thus far described may be sold as such without any attempt to modify it over its factory form.

In the event that the shoe fitter should determine that the particular foot which he is fitting should have an increased depth of cushioning in the metatarsal region herein featured, then he will simply lift the sock lining either in its entirety from the shoe, or preferably simply by lifting one or the other ends, and preferably the rear end, to disclose the underside of the main rubber cushion **15**. He will then select from a stock of supplemental or auxiliary cushions, one of which is shown at **24**, that size which best fits the particular foot being fitted. The supplemental insert **24** is provided at its point of maximum diameter and in the line *a*—*b* with the male element **25** of the readily detachable fastening. The supplemental insert **24** in the form herein illustrated is somewhat circular in plan, has its underside flat as shown in Fig. 2 or slightly concave with its opposite side, that is the side facing the main cushion more pronouncedly convex so that normally and when free of pressure thereon, there is provided an annular space **26** therebetween.

Preferably the supplemental cushion is of less area than the main cushion and in one embodiment of the invention is about one and a half inches in diameter. Otherwise the structure is the same as disclosed for the preferred form. In the case of the modified showing it means simply that there are three layers of cushioning material thus providing for the maximum depth of cushioning effect beneath the balls of the wearer's foot.

In operation it will be understood that after the sock lining has been lifted as previously suggested, the supplemental cushion **24** is secured to the underside of the main cushion by the intrusion of the male element **25** into the female element **18** as illustrated and the sock lining as

thus modified is recemented in place and the shoe as a whole thus restored to its original appearance as indicated in Figs. 3 and 6. Should it so happen that too large a supplemental cushion be used, and the wearer feel any discomfort, the discomforting supplemental cushion can be readily removed by again lifting the sock lining from the inner sole and another supplemental cushion, say of less thickness or of other distinctive form may be substituted until by a trial and error method that insert can be used thereafter which will give the wearer the greatest degree of comfort.

It is also suggested that instead of the shank portion being formed simply of two layers of this material 14 and 19, that an extra layer 29 of felt or rubber be inserted between these layers and in the space between the cushions 15 and 21 to form a thin filler of slight cushioning effect. This has the effect of eliminating what would otherwise be a sharp break in the continuity of the sole engaging upper face of the sock lining especially where the heel cushion 21 was of great thickness. It is also suggested that in order to economize in the cost of the sock lining herein featured, the forward toe portion be cut off, in advance of the cushion 15, leaving a space between the forward end and the cushion 15 for cementing the forward end of the sock lining to the inner sole as hereinbefore described.

I claim:

1. An insert for a shoe comprising two cushions coacting to form an assembly of cushions located to extend beneath the metartarsal region of the wearer's foot and projecting forwardly therefrom at least to the heads of the proximal phalanges to provide for a required depth of cushion at this place in the shoe, one of said cushions being of ovate form and the other being approximately circular and said cushions being of different size areas, each cushion being of a maximum thickness at a point within its outline and reducing gradually in thickness therefrom to an outlining feathered edge, the cushions being in contact at a point in a straight line passing through the location of the maximum thickness of each cushion and means at said point of contact for temporarily securing the cushions to each other whereby one of the cushions may be substituted for another similar cushion having a different maximum thickness thereby to vary at will the total maximum thickness of the assembly of the two coacting cushions.

2. A shoe including an inner sole having a shallow recess in its upper surface confined to the metatarsal region and a fixed cushion filling said recess and thus forming a structural part of the shoe, a replaceable insert for the shoe comprising a sock lining covering the inner sole and including a main cushion secured permanently to the underside of the sock lining overlapping the fixed cushion, and said insert also including a supplemental cushion located between the main cushion and the fixed cushion and replaceably secured to the underside of the main cushion.

3. A shoe including an inner sole having a shallow recess in its upper surface confined to the metatarsal region and a thin fixed cushion filling said recess and thus forming a structural part of the shoe, a replaceable insert for the shoe comprising a sock lining covering the inner sole and including a main cushion secured permanently to the underside of the sock lining overlapping the fixed cushion, said insert also including a supplemental cushion located between the main cushion and the fixed cushion and replaceably secured to the underside of the main cushion, and said sock lining being slightly thicker at the heel socket than at the shank portion thereby to provide at least a slight cushioning effect at the heel.

4. An insert for a shoe including a sock lining provided with a main cushion permanently secured thereto and having its greatest depth at a point slightly in rear of the heads of the metatarsal bones of the wearer's foot and said main cushion gradually reducing in thickness therefrom in all directions to a feather edge, a replaceable auxiliary cushion of relatively smaller area than the main cushion underlapping the main cushion, and readily separable means therebetween for securing the auxiliary cushion to the main cushion whereby variations in the total depth of the two cushions may be obtained by the use of the relatively smaller auxiliary cushions of different thicknesses.

5. A sock lining for shoes comprising a relatively thin and highly flexible element for covering the inner sole of a shoe, said lining including two cushions forming two spaced apart cushioning areas, one of said cushions being relatively thick and located beneath the head of the second metatarsal bone of the wearer and gradually reducing in thickness from an interior point to a feathered edge, and the other cushion being relatively thin, of substantially uniform thickness and confined to the heel portion of the sock lining leaving the shank portion between these two cushions without cushioning effect and one of said cushions provided on the underside thereof with the female element of a snap fastener, confined within the outlines of the containing cushion, and means for temporarily securing said underside of the cushion to the insole of a shoe.

6. A sock lining for shoes comprising a relatively thin and highly flexible element for covering the inner sole of a shoe, said lining including two cushions forming two spaced apart cushioning areas, one of said cushions being relatively thick and located beneath the head of the second metatarsal bone of the wearer and gradually reducing in thickness from an interior point to a feathered edge, the other cushion being relatively thin, of substantially uniform thickness and confined to the heel portion of the sock lining leaving the shank portion between these two cushions without cushioning effect, and said first named cushion provided on the underside thereof with an element of a fastening means countersunk into the cushion and so that its exposed lower side may lie normally in engagement with the top face of the inner sole.

7. A sock lining for shoes comprising a manufactured unit adapted to be secured to the inner sole of a shoe in the factory production of the shoe, said sock lining including a cushion confined to the metatarsal area of the shoe and terminating at its advance edge adjacent the forward heads of the metatarsal bones and at its rear edge in advance of the rear part of the shank portion of the shoe, and said cushion provided on the underside thereof with the female element of a snap fastener.

8. A sock lining for shoes comprising a manufactured unit adapted to be secured to the inner sole of a shoe in the factory production of the shoe, said sock lining including a cushion confined to the metatarsal area of the shoe and terminating at its advance edge adjacent the forward heads of the metatarsal bones and at its rear

edge in advance of the rear part of the shank portion of the shoe, said cushion provided on the underside thereof with the female element of a snap fastener, and a supplemental cushion adapted to underlie the first named cushion and provided on its upper side with the coacting male element of the snap fastener thereby to form in the sock lining a double layer of cushioning material at the metatarsal region of the shoe.

9. A sock lining adapted to extend over the entire upper area of the inner sole of a shoe, adapted to be temporarily cemented in place in the shoe and including two thin flexible linings, said sock lining provided at the metatarsal region with a thin cushion of ovate form, reducing in thickness to an outlining feathered edge and contained between the two flexible linings and a supplemental and readily replaceable cushion underlapping the sock lining, located beneath the first named cushion and secured directly thereto.

10. A sock lining adapted to extend over the entire upper area of the inner sole of a shoe, adapted to be temporarily cemented in place in the shoe and including two thin flexible linings, said sock lining provided at the metatarsal region with a thin cushion of ovate form, reducing in thickness to an outlining feathered edge and contained between the two flexible linings, a supplemental and readily replaceable cushion underlapping the sock lining and located beneath the first named cushion, and readily separable fastening means for securing the two cushions in a preset relative relation.

11. In a shoe the combination in superposed relation in the metatarsal region of the shoe of an outer sole, an inner sole having a recess in its upper side, a fixed cushion secured permanently in said recess, a supplemental cushion, a main cushion, detachably secured to the supplemental cushion, and a top lining.

12. In a shoe, means forming a sock lining provided at the metatarsal region with a main cushion having its point of maximum elevation slightly in rear of the head of the second metatarsal bone and gradually reducing in thickness therefrom to a feathered edge terminating in advance of the rear part of the shank portion and in rear of the toes, and a supplemental cushion of substantially circular shape in plan and reducing in thickness from its center towards an outlining feathered edge secured to the underside of the main cushion both adjacent their points of maximum thickness, and said cushions being normally disposed to provide an annular space between their outlining edges.

13. A sock lining for a shoe comprising two layers of highly flexible material and including a heel portion, a ball region and a shank portion therebetween, three distinct elements located between the said two layers, one of said elements forming a relatively deep cushion at the ball region of convexo-concavo form in its longitudinal medial plane, egg-shaped in plan and substantially of the same width as the sole at that place, another forming a flat cushion of relatively less depth at the heel portion, and the third element constituting a filler located at the shank portion and providing at least some slight cushioning effect.

14. A shoe having its foot engaging upper face defined by a sock lining having a wide flat cushioning area at the heel, a flexible portion at the shank providing a slight cushioning effect, and a relatively deep cushioning area at the ball portion, said area being egg-shaped in plan with its wider end forward and at its mid-length extending laterally for substantially the entire width of the sock lining having its maximum depth off-centered and just in rear of the head of one of the metatarsal bones and reducing therefrom in cushioning effect outwardly in all directions to an outlining feathered edge, said flexible portion between the two cushioning areas acting to prevent sharp breaks in the continuity of the upper face of the sock lining and said sock lining at the toe end defined by a thin portion having no cushioning effect.

15. An insert for a shoe including a cushion comprising two superposed elements contacting adjacent their mid-portions and forming a flat annular space between their marginal edges, the upper element having a substantially flat upper face, a curved lower face and reducing in thickness in all radial directions from its line of maximum thickness and the lower element having its underside substantially flat, its upper face curved and reducing in thickness in all directions from its line of maximum thickness, said two lines of maximum thickness being in vertical alignment and passing through their contacting points.

16. An insert for a shoe including a rubber pad, an element of a fastening means mounted in one face of the rubber pad and embedded therein for substantially the entire depth of the element, and a layer of lining material limited to said face and through which the element is exposed.

17. A replaceable pad for a shoe including two elements in superposed relation at least one of which elements is of resilient material, a snap fastener for securing one element to the other and including one of its elements embedded in the resilient material and a single thin layer of lining material between the elements facing the element of resilient material and acting to prevent tearing of the resilient material by the snap fastener.

18. In a shoe, a ball supporting portion comprising a basic shoe sole, a thin cushion permanently fixed to the shoe sole, a sock lining overlapping the fixed cushion, and said sock lining in the area overlapping the fixed cushion provided with a main cushion reducing in thickness in all radial directions towards a feathered edge, said sock lining having at least one end beyond the main cushion secured to the shoe sole and adapted to have the other end easily separated from the shoe sole to expose the joint between the fixed cushion to the main cushion, and a supplemental cushion located in said joint between the fixed and main cushions.

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