Sept. 20, 1938. A. C. SEWALL 2,130,968

INSOLE BLANK AND METHOD OF MAKING INSOLES THEREFROM

Filed Jan. 3, 1938 2 Sheets-Sheet 1

Fig. 1.

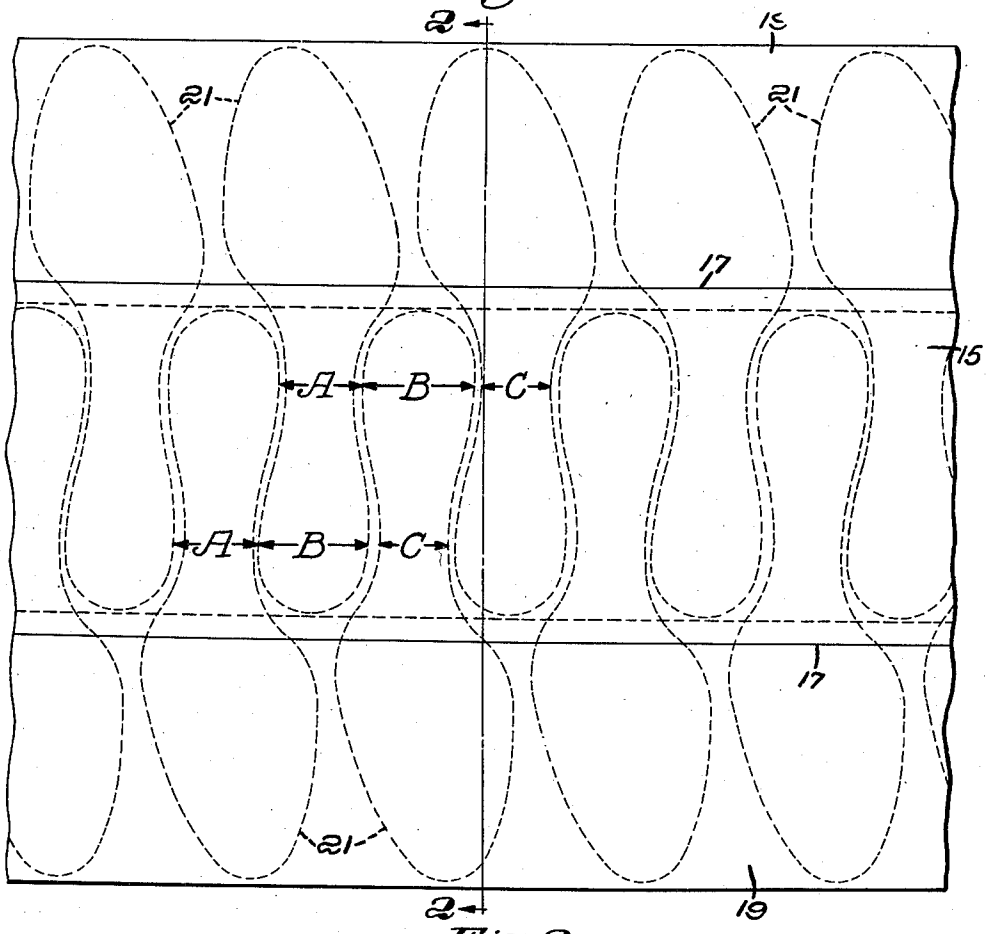


Fig. 2.



Fig. 3.

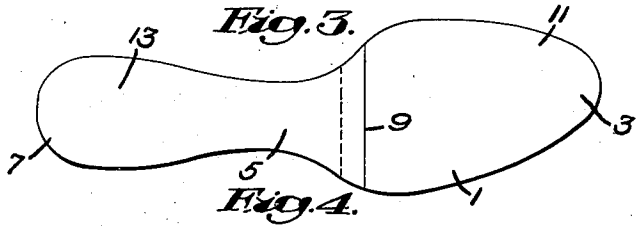
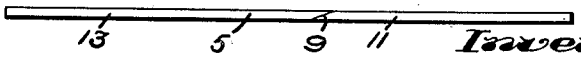


Fig. 4.



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Fig. 5.

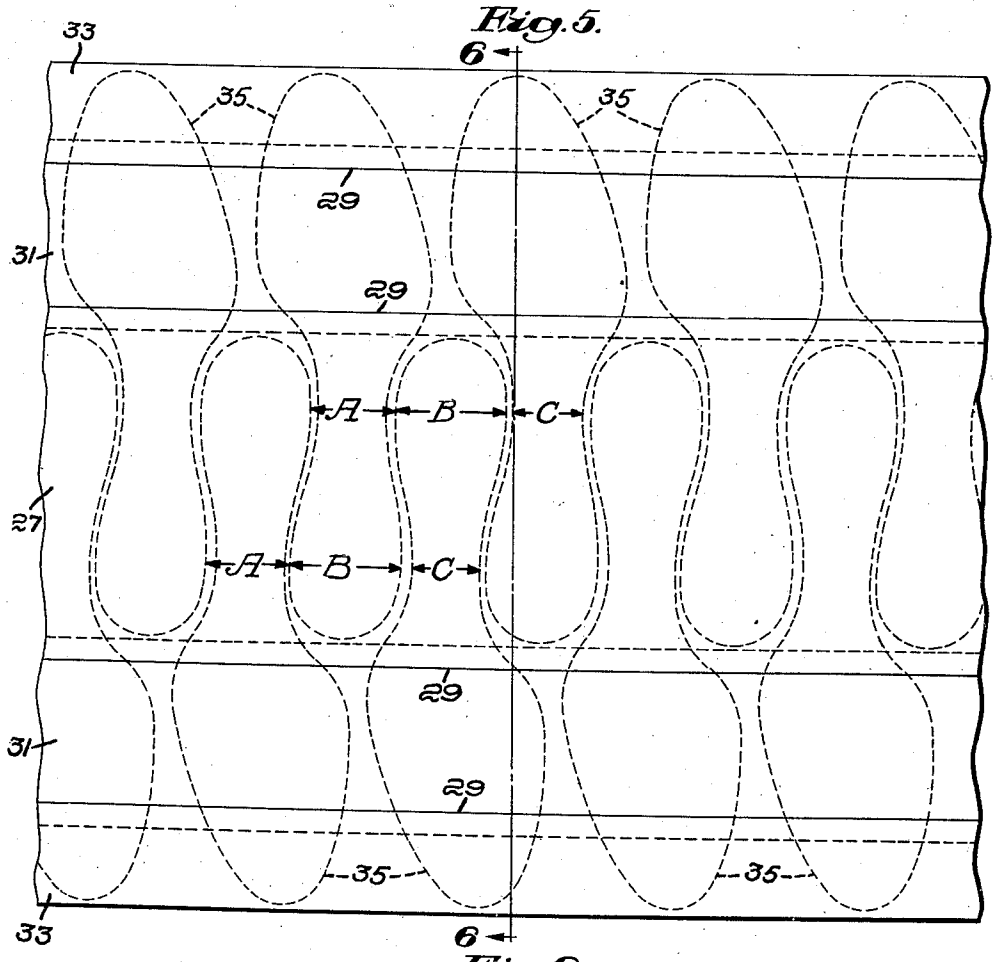


Fig. 6.



Fig. 7.

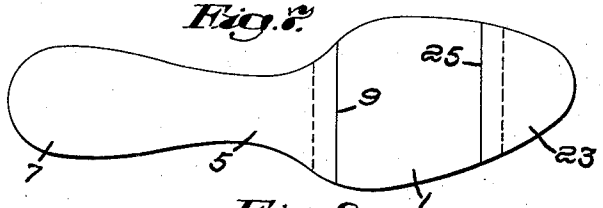
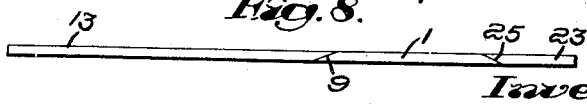


Fig. 8.



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UNITED STATES PATENT OFFICE

2,130,968

INSOLE BLANK AND METHOD OF MAKING INSOLES THEREFROM

Arthur C. Sewall, Auburn, Maine

Application January 3, 1938, Serial No. 182,952

21 Claims. (Cl. 12—146)

My invention relates to insoles, and methods of and materials for making the same.

This application is a continuation-in-part of applicant's co-pending allowed application Serial Number 88,152, filed June 30, 1936.

The invention, which has among its objects the provision of insoles of improved construction, and methods of and strips for making the same with a minimum waste of material, will be best understood from the following description when read in the light of the accompanying drawings, the scope of the invention being more particularly pointed out in the appended claims.

In the drawings:—

Figure 1 is a plan view of a fragment of a strip from which the insoles are made, this figure also schematically showing a way in which the insoles may be cut from the strip;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a plan of the insole;

Fig. 4 is a side elevation of the insole according to Fig. 3;

Fig. 5 is a plan view of a fragment of a modified form of strip from which a modified form of insole may be made, this figure also showing a way in which the modified insoles may be cut from the strip;

Fig. 6 is a section on the line 6—6 of Fig. 5;

Fig. 7 is a plan of the modified form of insole; and

Fig. 8 is a side elevation of the insole according to Fig. 7.

It has been found that women's and other light weight shoes of the McKay, Littleway and similar types may be more easily formed and are more satisfactory when in use when the ball or ball and toe portions of the insole are of flexible material. However, if the shank and heel portions also are formed of this flexible material it has been found necessary, particularly with high heels such as French and Louis heels, to employ a so-called "tuck" or tucks of stiff, hard material such as leather to act as a shank stiffener and to prevent the heel attaching nails from pulling through the insole. Such a tuck, to be suitable for the purpose, commonly would be formed of a sheet of material, such as stiff leather, the outline of which conforms to the outline of the shank and heel portions of the insole, and would be laid upon the flexible insole and assembled with it in the shoe.

Referring particularly to Figs. 1 to 4 of the drawings, applicant has found that improved results can be secured, particularly with a so-called "long shank" type of insole used with French and Louis heels, by making the ball portion 1 and toe portion 3 of a sheet of thin, flexible material, such as alpha cellulose fibers felted together to make a bibulous paper which is afterward impregnated with rubber in the form of a hydrocarbon rubber solution or a natural or artificial rubber dispersion such as the natural rubber dispersion known at latex, while the shank portion 5 and heel portion 7 are made of a sheet of stiff, preferably hard, cellulose material such as fiberboard. Conveniently the toe portions of the insole are of the same thickness, or approximately so, and are secured together with rubber cement at a wide, skived joint 9.

An insole so constructed presents a forward portion 11 of flexible material, which insole is much tougher than one having that portion made of "upper leather" or the like, and presents a rearward portion 13 of stiff, hard material which is much stiffer and harder than "sole leather" of the same thickness. Further, each portion of the insole may readily be made of the same thickness, and a plurality of insoles may readily be made of uniform thickness and properties, thus entirely avoiding the necessity of skiving leather to a given thickness in the attempt to make insoles of uniform thickness and properties, which leather when skived is usually seriously deficient in tensile strength, stiffness and hardness.

In the preferred way of making the insoles according to Figs. 3 and 4 by the improved method a strip is formed having a central or intermediate band 15 of the material of which the rearward portions 13 of the insoles are formed. Cemented to the opposite edges of this central band by means of skived joints 17 are side bands 19 of the material of which the forward portions 11 of the insoles are formed. From this strip so formed to provide relatively flexible and stiff zones are cut the insoles, preferably by use of the machine which will die or cut by a stamping operation a plurality of insoles at a time as the strip is fed through the machine. The dotted lines 21 in Fig. 1 indicate the portions of the strip which may be cut to form the insoles. By cutting from the strip a row of insoles so positioned that alternate insoles have their forward portions 11 cut from opposite side bands 19 of the strip, while all the rearward portions 13 are cut from the central band on outlines in longitudinal overlapping relation, a great saving in material can be effected. Preferably the insoles are so cut that the width A between the heel portions of adjacent insoles is less than the width B of those portions and slightly greater than the width C

of the shanks, which permits the shanks to be cut from such portions of width A, and thus cutting the insoles on outlines in lateral overlapping relation effects a decided saving in material.

If desired the toe portion of the insole may also be of relatively stiff material such as fiberboard as shown by the insole according to Figs. 7 and 8. This insole is exactly like that shown by Figs. 3 and 4 except that only the ball portion 1 is of the relatively flexible material, the toe portion 23 of relatively stiff material being joined to the forward end of the ball portion by a cemented, wide, skived joint 25.

A form of strip for use in making the insole according to Figs. 7 and 8 is shown by Figs. 5 and 6. This strip has a central or intermediate band 27 of the relatively stiff material of which the rearward portions 13 of the insoles are formed. Cemented to opposite edges of this central band by means of skived joints 29 are bands 31 of the relatively flexible material of which the ball portions of the insoles are formed, which cemented to the outer edges of the bands 31 by means of like joints 29 are bands 33 of the relatively stiff material of which the toe portions are formed. The insoles may be cut along the dotted lines 35 from the strip so formed as indicated in Fig. 5.

It will be observed that each of the strips above described has between its edges a longitudinally extending zone of the relatively stiff material from which the combined shank and heel portions are cut, this zone being of width approximately the combined lengths of those portions, and that contiguous with each edge of said zone is a zone of the relatively flexible material of which the ball portion is formed, these last mentioned zones being of width at least approximately the length of the ball portions of the insoles.

It will be understood that within the scope of the appended claims wide deviations may be made from the above described strips and insoles, and methods of and materials for making the insoles, without departing from the spirit of the invention.

I claim:

1. The method of forming a multiplicity of insoles having relatively stiff heel and shank portions and relatively flexible ball portions which comprises forming a sheet having a zone of the material of which the heel and shank portions are formed, and, at each of opposite sides of said zone and contiguous therewith, zones of the material of which said ball portions are formed, and cutting from said sheet a multiplicity of the insoles in such wise that the heel and shank portions of all said insoles so cut are formed of the first mentioned zone while the ball portions of adjacent insoles are formed of the zones at opposite sides respectively of said first mentioned zone.

2. The method according to claim 1 in which the heel and shank portions of the insoles are cut from the sheet on outlines in longitudinal overlapping relation.

3. The method of forming a multiplicity of insoles having relatively flexible ball and toe portions and relatively stiff heel and shank portions which comprises forming a sheet having a zone of the material of which said heel and shank portions are formed, and, at each of opposite sides of said zone and contiguous therewith, zones of the material of which said ball and toe portions are formed, and cutting from said sheet a multiplicity of the insoles in such wise that the ball and toe portions of adjacent insoles so cut are formed of the zones at opposite sides respectively of the first mentioned zone while the heel and shank portions of all said insoles are cut from said first mentioned zone.

4. The method according to claim 3 in which the heel and shank portions of the insoles are cut from the sheet on outlines in longitudinal overlapping relation.

5. The method according to claim 3 in which the heel and shank portions of the insoles are cut from the sheet on outlines in longitudinal and lateral overlapping relation with the spaces on the first mentioned zone between the portions thereof forming the heel portions of alternate insoles so cut being narrower than said heel portions but being at least the width of the shank portions of said insoles.

6. The method of forming a multiplicity of insoles having relatively stiff toe, shank and heel portions and relatively flexible ball portions which comprises forming a sheet having a zone of the material of which said heel and shank portions are formed, and, at each of opposite sides of said zone and contiguous therewith, zones of the material of which said ball portions are formed, and, at that side of each of the last mentioned zones which is opposite the first mentioned zone and contiguous with such side, a zone of the material of which said toe portions are formed, and cutting from said sheet a multiplicity of the insoles in such wise that the heel and shank portions of all insoles so cut are formed of the material of said first mentioned zone while the ball and toe portions of adjacent insoles are formed of the zones at opposite sides respectively of said first mentioned zone.

7. The method according to claim 6 in which the heel and shank portions of the insoles are cut from the sheet on outlines in longitudinal overlapping relation.

8. The method according to claim 6 in which the heel and shank portions of the insoles are cut from the sheet on outlines in longitudinal and lateral overlapping relation with the spaces on the first mentioned zone between the portions thereof forming the heel portions of alternate insoles so cut being narrower than said heel portions but being at least the width of the shank portions of said insoles.

9. The method of forming a multiplicity of insoles having relatively flexible ball portions and relatively stiff heel and shank portions which comprises forming a sheet having a zone of the material of which said heel and shank portions are formed, and, at each of opposite sides of said zone and contiguous therewith, zones of the material of which said ball portions are formed, and cutting from said sheet a multiplicity of the insoles from closely adjacent portions of the sheet in such wise that the ball portions of adjacent insoles so cut are formed of the zones at opposite sides respectively of the first mentioned zone while the heel and shank portions of all said insoles are cut from said first mentioned zone on outlines in longitudinal and lateral overlapping relation with the spaces on said first mentioned zone between the portions thereof forming the heel portions of alternate insoles so cut being narrower than said heel portions but being at least the width of the shank portions of said insoles.

10. An article of manufacture comprising a sheet suitable as a blank for a multiplicity of insoles having, between its opposite edges, a rela-

tively stiff zone, and, at each of opposite sides of said zone and contiguous therewith, a relatively flexible zone, the combined widths of the first mentioned zone and either of the last mentioned zones being at least the length of an insole and the width of said first mentioned zone being at least the length of the heel portion of the insole.

11. The article according to claim 10 in which the first mentioned zone is of width approximately the combined lengths of the heel and shank portions of the insole and comprises a band of relatively stiff, hard fiberboard coextensive with the width of said zone, the other zones consisting of rubber impregnated sheet material of felted cellulose fibers.

12. An article of manufacture comprising a sheet suitable as a blank for a multiplicity of insoles having an elongated band of stiff, hard fiberboard, and, united thereto at each side thereof, elongated bands of rubber impregnated, flexible sheet material consisting of felted cellulose fibers.

13. An article of manufacture comprising a sheet suitable as a blank for a multiplicity of insoles having an elongated band of stiff, hard fiberboard, and, united thereto at each side thereof, elongated bands of substantially the same thickness as the first mentioned band formed of rubber impregnated, flexible sheet material consisting of felted cellulose fibers.

14. An article of manufacture comprising a sheet of substantially uniform thickness suitable as a blank for a multiplicity of insoles having an elongated band of relatively stiff, hard fiberboard, and, cemented to said band at opposite edges thereof by means of skived, overlapping joints, elongated bands of substantially the same thickness as the first mentioned band consisting of relatively flexible, rubber impregnated sheets of felted cellulose fibers, the combined widths of said fiberboard band and either of the other bands being at least the length of an insole, and said fiberboard band being of width approximately the combined lengths of the heel and shank portions of the insole.

15. An article of manufacture comprising a sheet suitable as a blank for a multiplicity of insoles, having, between its opposite edges, a relatively stiff zone, and, at each of opposite sides of said zone and contiguous therewith, a relatively flexible zone, and, at that side of each of the last mentioned zones which is opposite the first mentioned zone and contiguous with such side, a relatively stiff zone, the combined widths of the first mentioned zone and the two mentioned zones at either side thereof being at least the length of an insole, the width of the first mentioned zone being approximately the combined lengths of the heel and shank portions of an insole, and the width of each of the second mentioned zones being approximately the length of the ball portion of the insole.

16. The article according to claim 15 in which each relatively stiff zone comprises a band of relatively stiff, hard fiberboard coextensive with the width of the zone, and the relatively flexible zone consists of a band of rubber impregnated sheet material of felted cellulose fibers coextensive with the width of said zone.

17. An article of manufacture comprising a sheet suitable as a blank for a multiplicity of insoles each of which has a relatively stiff portion that includes one end portion of the insole, and an adjacent relatively flexible portion, which sheet between its opposite edges has a relatively stiff zone, and, at each of opposite sides of said zone, a relatively flexible zone, the combined widths of said relatively stiff zone and either of said relatively flexible zones being not less than the length of an insole; said zones being of such width, respectively, that when two such insoles are superimposed on said sheet transversely of said zones, with the insole toes pointing in opposite directions, and the regions of demarcation between their relatively stiff and flexible portions respectively superimposed on the corresponding regions of said sheet at opposite sides of said relatively stiff zone, their relatively stiff portions will materially overlap and their ball portions will be included by said relatively flexible zones.

18. The article according to claim 17 in which the first mentioned relatively stiff zone is of width approximately the combined lengths of the heel and shank portions of the insole, and the relatively flexible zones are each of width at least the combined lengths of the ball and toe portions of the insole.

19. An article of manufacture comprising a sheet suitable as a blank for a multiplicity of insoles, each of which has a relatively stiff portion that includes an end portion of the insole, and an adjacent relatively flexible portion, said sheet between its opposite edges having a relatively stiff zone, and, at each of opposite sides of said zone a relatively flexible zone, said sheet having, at the side of at least one of said relatively flexible zones opposite said relatively stiff zone, a further relatively stiff zone; the combined widths of the first mentioned relatively stiff zone and the zone or zones at either of opposite sides thereof being not less than the length of an insole, said first and second mentioned zones being of such width, respectively, that when two of such insoles are superimposed on said sheet transversely of said zones, with the insole toes pointing in opposite directions, and the regions of demarcation between the relatively stiff and relatively flexible portions thereof respectively superimposed on the corresponding regions of said sheet at opposite sides of the first mentioned relatively stiff zone, their relatively stiff portions included by said first mentioned zone will materially overlap and their ball portions will be included by said relatively flexible zones.

20. The article according to claim 19 in which the first mentioned relatively stiff zone is of width approximately the combined lengths of the heel and shank portions of the insole, and the second mentioned relatively stiff zone has a width at least the length of the toe portion of the insole and is spaced from the first mentioned relatively stiff zone a distance approximately the length of the ball portion of the insole.

21. The article according to claim 19 in which there is a relatively stiff zone at the side of each of said relatively flexible zones opposite the first mentioned relatively stiff zone and the latter is of width approximately the combined lengths of the heel and shank portions of the insole, said flexible zones being of width approximately the length of the ball portion of the insole.

ARTHUR C. SEWALL.

DISCLAIMER

2,130,968.—*Arthur C. Sewall*, Auburn, Maine. INSOLE BLANK AND METHOD OF MAKING INSOLES THEREFROM. Patent dated September 20, 1938. Disclaimer filed June 5, 1941, by the inventor.

Hereby makes the following disclaimer:

Under claims 1, 3, and 6 he disclaims from the scope of said claims any method, if such be in law comprehended by said claims in their present form, other than one wherein the first mentioned zone is formed of a width at least equal to, but much less than twice, the length of the heel and shank portion, and the widest portion, B, of the heel of each insole is cut from material between the heel and shank portions of the adjacent insoles at either side thereof.

Under claim 10 he disclaims from the scope of said claim all sheets, if such be in law comprehended by said claim in its present form, other than those wherein the stiff zone is of a width much less than twice the length of the heel and shank portion of the insole, whereby when insoles are cut with the toes of alternate insoles directed respectively toward the opposite sides of the sheet the heel of each of them may be cut from material between the heel and shank portions of the adjacent insoles at either side thereof.

Under claims 12 and 13 he disclaims from the scope of said claims all sheets, if such be in law comprehended by said claims in their present form, other than those wherein the elongated band of fiberboard is of a width at least equal to, but much less than twice, the length of the heel and shank portion of such an insole whereby when insoles are cut with the toes of alternate insoles directed respectively toward the opposite sides of the sheet the heel of each of them may be cut from material between the heel and shank portions of the adjacent insoles at either side thereof.

[*Official Gazette June 24, 1941.*]