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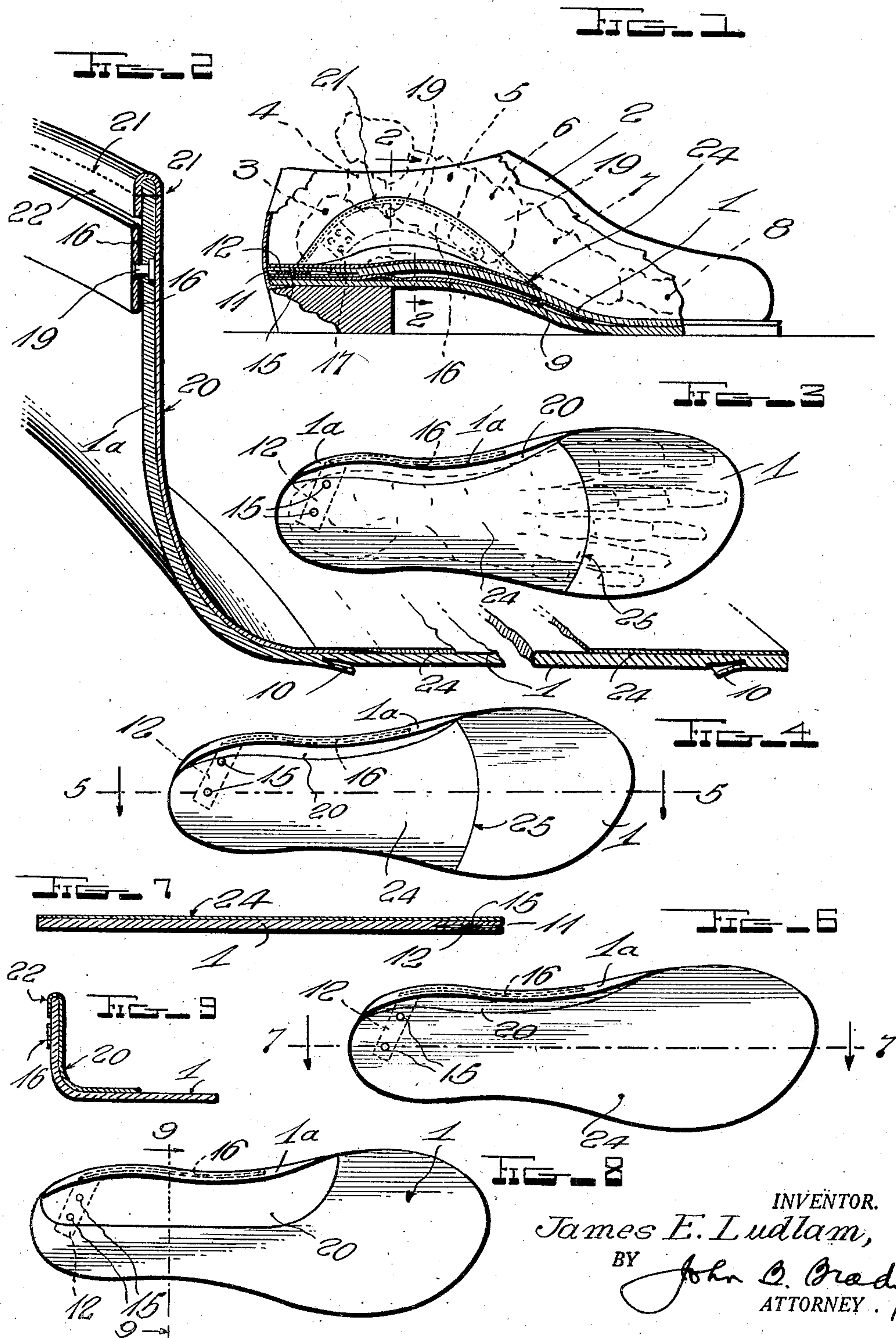
J. E. LUDLAM

2,148,485

SADDLE INSOLE SUPPORT AND COVER

Filed Jan. 2, 1936

3 Sheets-Sheet 1



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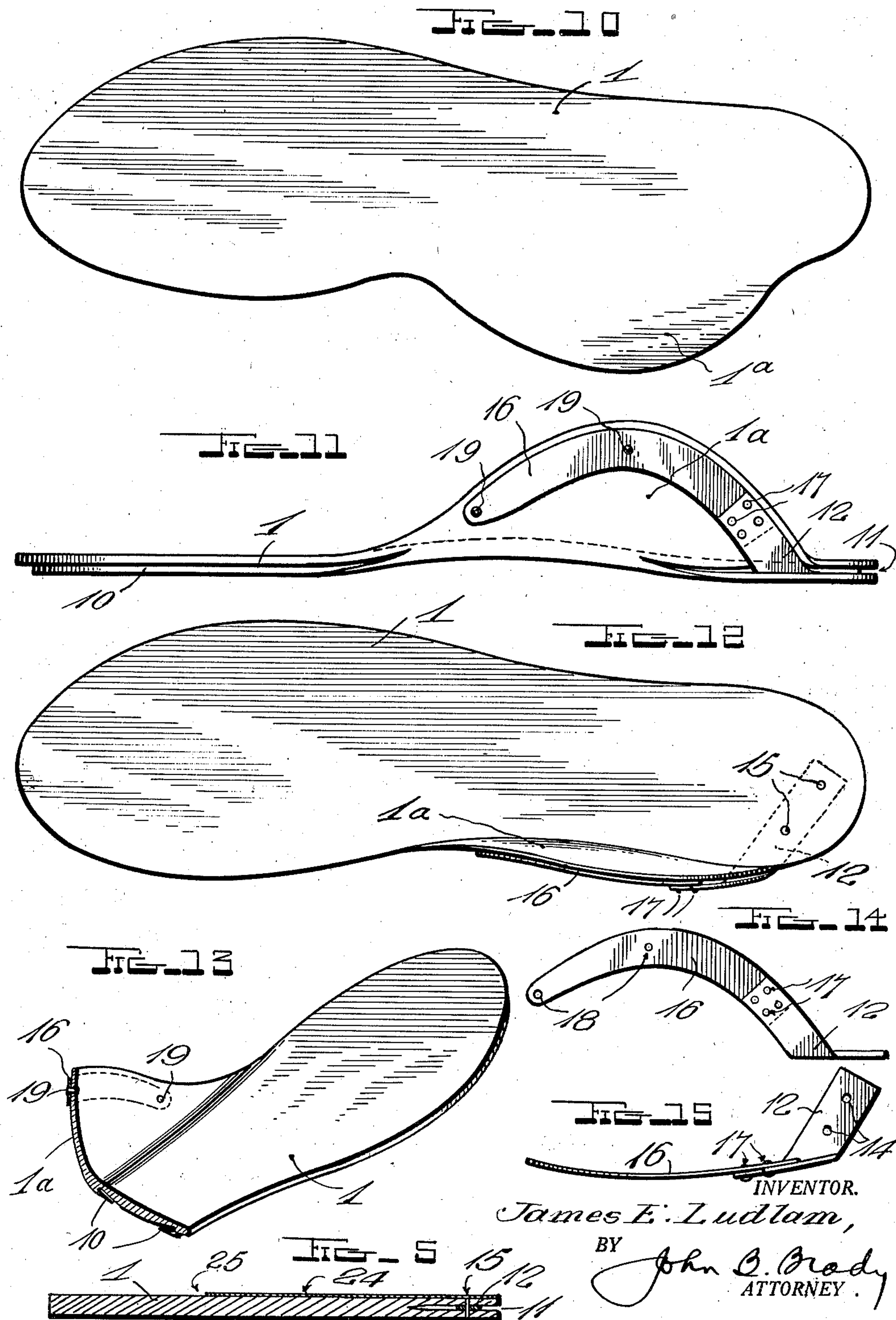
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SADDLE INSOLE SUPPORT AND COVER

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FIG. 16

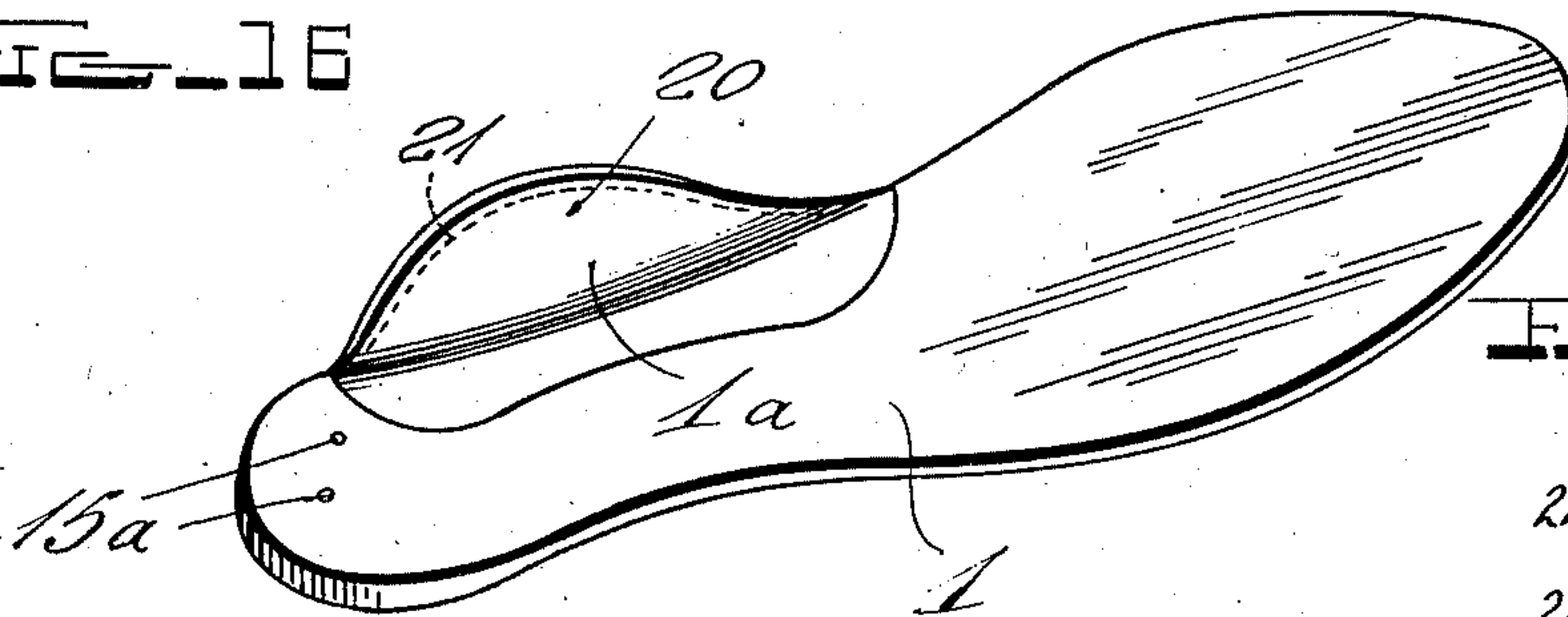


FIG. 17a

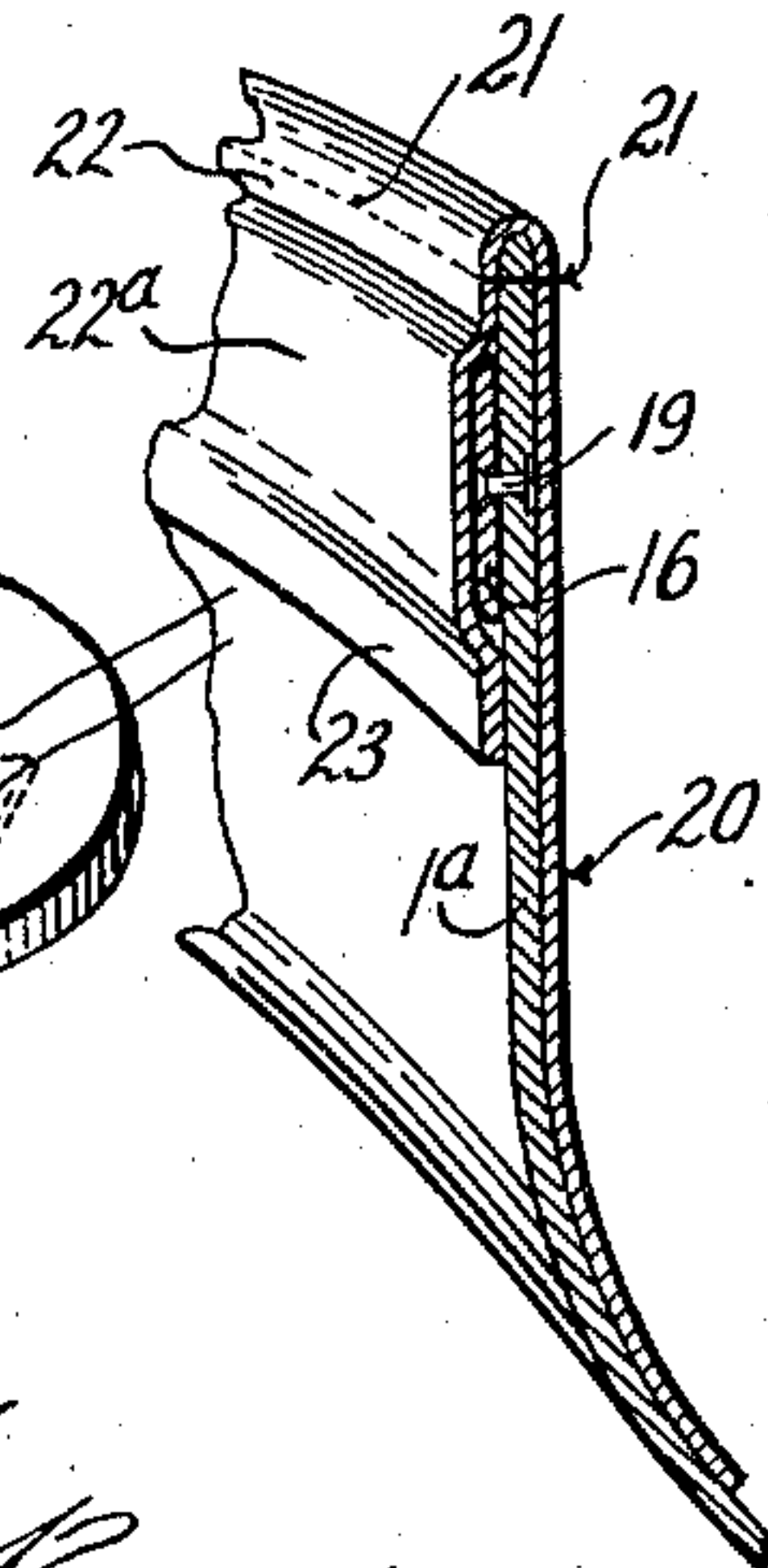


FIG. 17

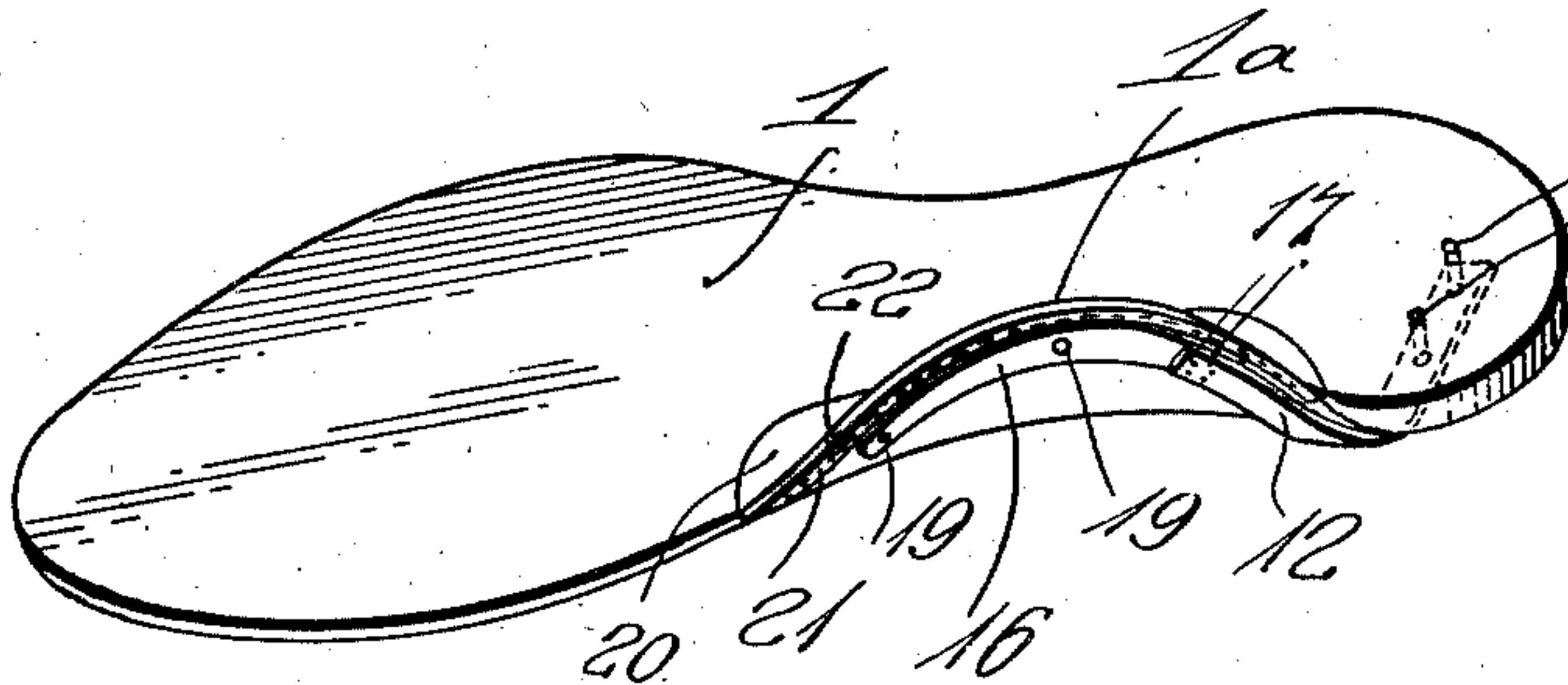


FIG. 18

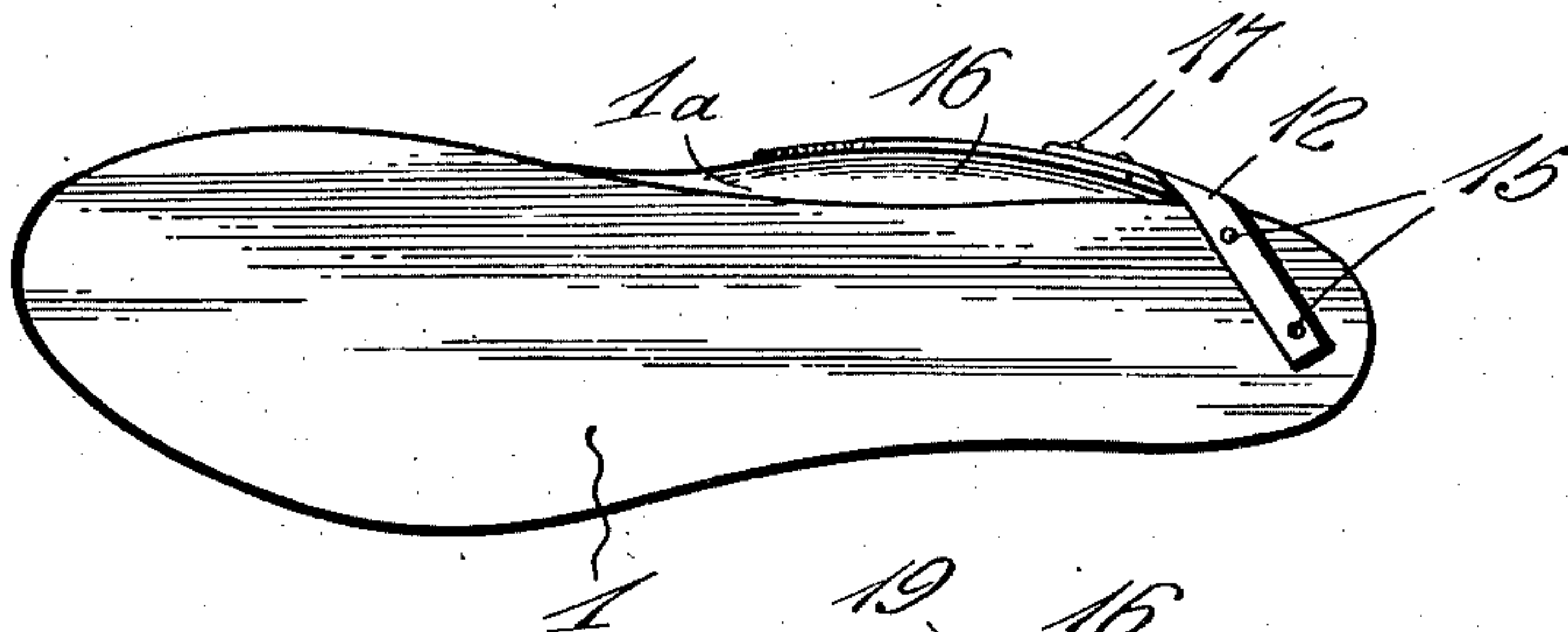


FIG. 19

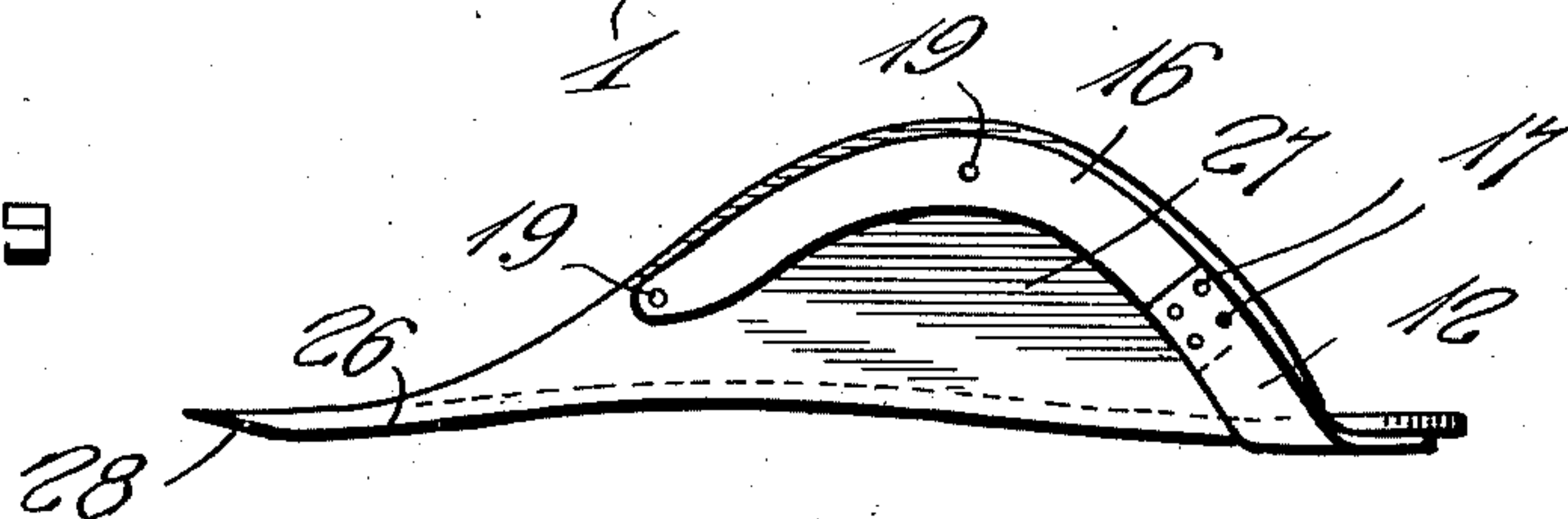
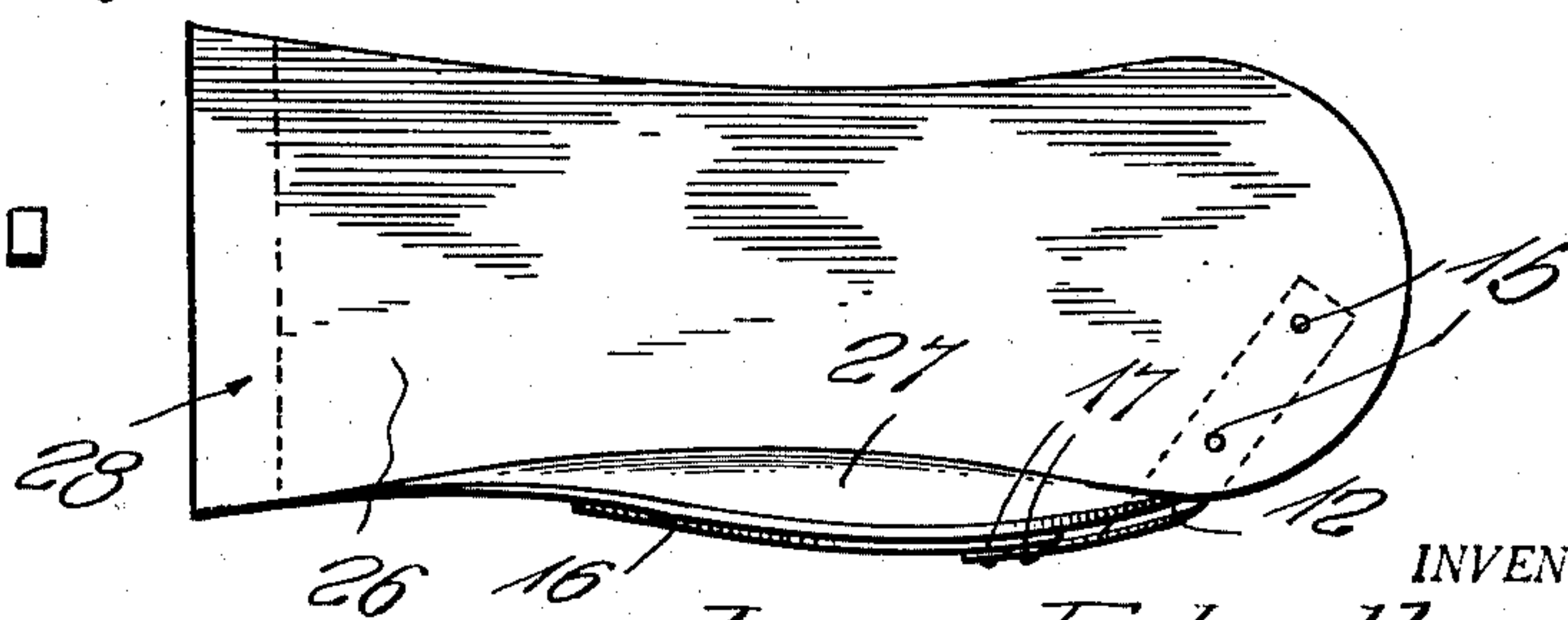


FIG. 20



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2,148,485

SADDLE INSOLE SUPPORT AND COVER

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Application January 2, 1936, Serial No. 57,301

15 Claims. (Cl. 36—71)

My invention relates broadly to shoes and more particularly to an improved construction of saddle insole for shoes.

One of the objects of my invention is to provide a construction of saddle insole for shoes which will provide a substantial support for the calcaneus, astragalus, scaphoid, internal cuneiform, and great toe metatarsal bones of the foot.

Another object of my invention is to provide a construction of saddle insole having a resilient reinforcement adapted to maintain the shape of the saddle insole over a relatively long period of wear of the shoe in which the saddle insole is employed.

Still another object of my invention is to provide a construction of saddle insole for shoes in which a metallic reinforcement varying in its degree of resiliency along the length thereof is provided for aiding in the support of the inner portion of the arch of the foot.

A further object of my invention is to provide an improved method of constructing a saddle insole by the insertion of a preformed metallic member which extends in a curved path about the saddle and is supported within the heel portion of the insole.

A still further object of my invention is to provide a construction of saddle insole in which a lining is secured over the saddle in such manner that continued wear of the shoe will not have a tendency of tearing the lining from the saddle.

Another object of my invention is to provide a construction of foot support which extends under the bottom of the heel of a shoe and presents a yieldable portion in a position adjacent the inner arch of the foot.

A still further object of my invention is to provide a construction of foot support which continues beyond the bottom of the heel and along the side of the flanged portion or portions or counter for supporting the calcaneus, astragalus, scaphoid, internal cuneiform, and great toe metatarsal bones.

Other and further objects of my invention reside in the construction of a saddle insole which greatly improves the comfort in the wearing of shoes as set forth more fully in the specification hereinafter following by reference to the accompanying drawings, in which:

Figure 1 is a side elevation of my improved saddle insole shown in position in a shoe and illustrating the manner in which the saddle insole supports the bones of the foot, particularly the calcaneus, astragalus, scaphoid, internal cuneiform, and the great toe metatarsal bones; Fig. 2

is a sectional perspective view on a much enlarged scale showing the saddle insole and the sock lining arranged thereon, the view being taken on line 2—2 of Fig. 1; Fig. 2a is a view similar to Fig. 2 but showing a modified arrangement of the sock lining; Fig. 3 is a plan view of the saddle insole showing the reinforcing metal strip in position in dotted lines and illustrating the bones of the foot which are supported by the saddle insole; Fig. 4 is a plan view of the saddle insole illustrating the manner of partially covering the saddle insole with the sock lining; Fig. 5 is a central vertical longitudinal sectional view of the saddle insole taken on line 5—5 of Fig. 4 and showing the sock lining partially covering the saddle insole; Fig. 6 is a top plan view of the saddle insole showing the sock lining extending throughout the entire length of the saddle insole and illustrating the metallic reinforcing member in position; Fig. 7 is a central vertical longitudinal sectional view taken on line 7—7 of Fig. 6; Fig. 8 is a plan view showing the sock lining stretched in position over the vertically extending portion of the saddle insole; Fig. 9 is a lateral sectional view taken on line 9—9 of Fig. 8; Fig. 10 is a plan view of the blank of the innersole showing it provided with a lateral extension; Fig. 11 is a side elevation of the wall showing the same split at the rear and the metal insert fastened thereto by rivets; Fig. 12 is a plan view looking down on the saddle insole; Fig. 13 is a sectional perspective view of the saddle insole showing the forepart of the metal insert riveted thereto; Fig. 14 is a side elevation of the metal insert clearly showing the upper thinner portion made of spring steel and the lower lateral bent portion made of heavier material; Fig. 15 is a top plan view thereof; Fig. 16 is a perspective view of the saddle insole showing the sock lining in position on the vertically extending portion of the saddle insole; Fig. 17 is a perspective view of the saddle insole represented in Fig. 16 but looking in the opposite direction to that in which the view in Fig. 16 is taken; Fig. 18 is a bottom plan view of the saddle insole shown in Figs. 16 and 17; Fig. 19 is a side view of a separately insertable support which may be provided in a shoe without the necessity of initially building the support into the shoe; and Fig. 20 is a top plan view of the separately insertable insert shown in Fig. 19.

I have developed the saddle insole of my invention in connection with the arch support covered by my Patent 1,777,440, dated October 7, 1930, and my application for Letters Patent Serial No. 753,045, filed November 14, 1934, for Arch

support for shoes, now Patent 2,085,374, dated June 29, 1937, and the saddle insole may be employed in combination with either of these arch supports, as indicated generally in Fig. 1, or in combination with any other suitable arch support. The purpose of my present invention is to improve the wearing comfort of shoes over the entire period of useful life thereof by providing a combination yieldable support for the bones of the foot, particularly the calcaneus, astragalus, scaphoid, internal cuneiform, and the great toe metatarsal bones. The insole of my invention includes a saddle portion which is reinforced by a composite and yieldable strip member. The strip member is preformed to substantially correspond with the shape of the saddle insole. The strip is constituted by a supporting portion and a resilient portion. The supporting portion is somewhat more rigid than the resilient portion. The supporting portion may extend from under the insole or it may be secured between split portions of the insole secured to provide a support for the resilient strip portion. Rivets extend through the split portions of the heel of the insole and anchor the supporting portion of the reinforcing strip therein. The resilient portion of the strip is curved to conform with the general contour of the saddle portion of the insole and to provide the maximum yieldable support for the bones of the foot. The sock lining is stitched over the saddle portion thereby eliminating any tendency for the sock lining to become detached from the saddle insole or wrinkle or work loose and thereby become a source of discomfort in the wearing of the shoe.

My Patent 1,777,440, above referred to, shows an arch support devised to engage resiliently the vertical inner longitudinal arch of the foot embracing the bones from the calcaneus to the first metatarsal inclusive; and my Patent 2,085,374, also referred to, discloses an arch support devised to support resiliently both the inner and outer vertical longitudinal arches of the foot, with a greater degree of resiliency provided in the support for the inner arch as compared with that for the outer arch. The arch support of my Patent 2,085,374, likewise embraces corresponding bones of the arches between the calcaneus and the first metatarsal. The reinforced saddle insole of my present invention, when used in combination with either of my patented arch supports in the manner shown in Fig. 1, will therefore result in complete resilient support for all the bones of the arch in a manner not heretofore accomplished.

Referring to the drawings in more detail, I have shown the saddle insole 1 serving as a support for the bones of the foot within the shoe 2. For purposes of illustrating my invention, I have indicated the bones of the foot in dotted lines wherein reference character 3 designates the calcaneus, 4 the astragalus, 5 the scaphoid, 6 the internal cuneiform, 7 the first metatarsal, and 8 one of the phalanx bones. There are also various tendons and muscles which must be supported by the arch support 9 and the saddle insole 1. The arch support 9 is illustrated as extending beneath the heel of the saddle insole. The saddle insole 1 is undercut peripherally as indicated at 10 in Fig. 2 to provide connecting means for the welt and upper of the shoe. The inner portion of the insole extends upwardly as indicated at 1a and forms a support for the foot. The upwardly extending portion 1a is shaped to conform with the lateral inner longitudinal arch of the foot, as shown clearly in Fig. 3, and provides a com-

fortable fit for supporting the lateral inner longitudinal arch. In order to insure the maximum possible support for the bones of the foot throughout the ordinary wear of the shoe, I provide a resilient metallic strip as a reinforcing member for the saddle insole. In order to support the strip, I either secure the strip under the heel portion of the saddle insole as indicated in Figs. 17 and 18 or I split the saddle insole at the heel portion thereof as indicated at 11 in Fig. 11 and between the split portions of the heel of the saddle insole, I introduce strip member 12. The strip member 12 is provided with apertures 14 through which rivets 15 extend for securing the strip member 12 in rigid position in the heel portion of the saddle insole. The strip 12 is bent upwardly in a plane which is substantially normal with respect to the plane of the portion of the strip member which is secured by rivets 15 in the heel portion of the insole. The strip member 12 in addition to its vertically upward direction also extends in a substantially curved path conforming with the contour of the saddle portion of the insole. The upper extremity of the strip member 12 provides an anchorage for the resilient strip 16. The resilient strip 16 is formed from spring steel adapted to maintain its resiliency throughout the normal wear of the shoe. A rigid connection is provided between the upper extremity of strip 12 and the lower extremity of strip 16 through four rivet members indicated at 17. The rivets 17 are so positioned that resilient strip 16 is substantially continuous with the more rigid strip 12. The resilient strip 16 is curved to conform with the upper periphery of the saddle 1a. In order to provide a yieldable support for the saddle 1a, I provide rivet apertures 18 in resilient strip 16 and pass rivets 19 through the apertures 18 in strip 16 through the saddle portion 1a of the insole 1. Any tendency of the saddle 1a to flatten out is continuously resisted by the coaction of the supporting strip 12 with the resilient strip 16.

I may apply a covering material for the strips 12 and 16 which will prevent annoying sound such as squeaking as the shoe is subjected to strains and stresses encountered in walking.

In order to improve the comfort in the wearing of shoes constructed with the saddle insole of my invention, I provide a two-piece sock lining for the saddle insole as shown in Figs. 2-7. I do not rely upon the mere cementing of the sock lining 20 with respect to the saddle insole but positively stitch the sock lining 20 at its upper periphery as indicated at 21. The threads 21 pass through the folded portion 22 of the sock lining 20 and secure the sock lining positively to the saddle portion 1a. The threads 21 pass through the upper peripheral edge of the saddle portion 1a and serve to bind the sock lining directly to the saddle portion 1a. The downwardly depending peripheral edge of the folded portion 22 of the sock lining is cemented to the rear of the saddle portion 1a. The sock lining 20 may partially cover the saddle insole as represented in Figs. 8 and 16 and may be formed from a single sheet of any desired material. As indicated in Figs. 2-7, the sock lining may be formed in two parts, one part providing an envelope or casing for the saddle portion 1a, as shown at 20, including the folded portion 22, and the other part 24 forming a surface covering for the insole 1a. The surface covering 24 may extend only partially of the entire length of the insole 1 as indi-

cated in Figs. 3, 4 and 5 wherein the surface covering 24 terminates along the line 25.

In certain shoe constructions, I may desire to extend the surface covering 24 of the sock lining the entire length of the insole 1 as represented in Figs. 6 and 7.

As shown in Fig. 2, the folded over portion 22 of the sock lining 20 may terminate even with the strip 16. However, in a modified form of my invention, illustrated in Fig. 2a, an enlarged marginal portion 22a is provided and extends as a cover over the strip 16. The edge 23 of the enlarged marginal portion 22a may be secured by adhesive to the saddle portion 1a, and cut to conform with the shape of the strip 16. The lining is stitched at 21, as in the arrangement in Fig. 2.

The sock lining is so intimately connected with the saddle insole that there can be no wrinkling or loosening of the sock lining which is often a source of discomfort in shoes wherein sock linings are merely cemented in the shoe and not stitched therein as provided in the saddle insole of my invention.

The resilient strip which serves to maintain the shape and form of the saddle insole even under conditions of heavy stresses and strains is constructed of steel, the lower part 12 which is of heavier material may be made of hard cold rolled or a tempered steel. The upper part 16 is high carbon spring steel which is highly tempered. By reason of the support provided by strip 12, the strip 16 is free to yield laterally to conform with the movement of the foot during walking. The resiliency of strip 16 is such that the saddle insole is continuously maintained in a position which affords maximum support for the bones of the foot.

Referring to Fig. 16, the saddle insole 1 is illustrated in perspective view having the vertically extending portion 1a covered by the sock lining 20 stitched at the periphery as indicated at 21. The insole is indicated as perforated at 15a to allow rivets 15 to extend therethrough for the securing of the reinforcing member.

In the perspective view in Fig. 17, I have shown the saddle insole in a position reversed with respect to the position illustrated in Fig. 16 and illustrating the manner in which the resilient strip 16 is shaped to conform with the contour of the peripheral edge of the upwardly extending portion of the saddle insole 1a. This view also illustrates the manner in which the more rigid strip 12 extends beneath the heel portion of the saddle insole and is secured thereto by rivets 15.

In Fig. 18, I have shown the saddle insole viewed from the bottom and looking upwardly showing the more rigid strip 12 riveted at 15 beneath the heel portion of the saddle insole and secured at 17 to the more resilient strip 16 and illustrating the manner in which the more resilient strip 16 serves as a support for the outer side wall of the vertically extending portion of the saddle insole at 1a.

Heretofore, the several views have shown my invention as applied to a saddle insole which is initially built into the shoe. I may construct a separate insert for a shoe embodying all of the desirable qualities of my invention so that the support may be applied to existing types of shoes without modification of the shoe structure per se. Figs. 19 and 20 illustrate my invention as applied to a separate insert for shoes. A sole and heel portion for the separate insert is provided at 25 having a vertically extending side wall portion

at 27 which is yieldably supported by means of the composite strip member formed by the more rigid angle member 12 and the more yieldable strip 16 interconnected at 17 as heretofore explained and wherein the more rigid strip member 12 is secured to the heel portion of the insert by means of rivets indicated at 15. The insert may be readily mounted in existing type shoes without modification of the shoe structure, and the forward edge of the portion 26 is chamfered as at 28 to conform with the insole of the shoe. If desired, the insert may be made full length, corresponding to the insole of the shoe.

I have described my invention applied both as a structural improvement in shoes and as an insert for existing type shoes for imparting beneficial effects to the feet and insuring greater wearing comfort. I realize that changes in the details of arrangement may be made and I desire that it be understood that modifications of my invention may be made and that all such modifications are included within the scope of my invention and that no limitations upon my invention are intended except as may be imposed by the following claims.

What I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. A saddle insole and support therefor comprising an insole having a saddle portion adjacent the inner arch thereof and coextensive with the inner arch of the foot, said insole being bifurcated adjacent the heel portion thereof, and a metallic strip having one end supported in the bifurcated heel portion of said insole and extending in a curved path substantially conforming with the peripheral edge of said saddle portion for yieldably supporting said saddle portion.

2. A saddle insole and support therefor comprising an insole having an upwardly extending portion adjacent the inner arch portion thereof, said upwardly extending portion terminating in a substantially curved peripheral edge and disposed in alignment with the bones of the foot from the calcaneus to the first metatarsal, the heel portion of said insole being bifurcated, a metallic strip having one end extending between the bifurcated parts of said heel portion and having the other end disposed adjacent the exterior of the upwardly extending portion of the insole and substantially conforming with the curved edge thereof, and means for fixedly connecting the curved portion of said strip with said upwardly extending portion of the insole.

3. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch portion thereof and coextensive with the inner arch of the foot, and a yieldable reinforcing member extending from the heel portion of said insole in a path substantially conforming with the curved peripheral edge of the upwardly extending portion of said insole, and means for securing said yieldable reinforcing member to the heel portion of said insole and to the upwardly extending portion of said insole.

4. A saddle insole and support therefor comprising an insole having an upwardly extending portion adjacent the inner arch portion thereof and coextensive with the inner arch of the foot, a metallic strip having a relatively rigid portion and a relatively resilient portion, and means for connecting said relatively rigid portion of said strip with the heel portion of said insole, and separate means connecting the relatively resilient

portion of said strip with the upwardly extending portion of said insole.

5. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch thereof and coextensive with the inner arch of the foot, a metallic strip having a relatively flat portion secured to the heel portion of said insole and having an upwardly and forwardly extending portion integral therewith, a curved resilient strip substantially conforming and coextensive with the contour of the upwardly extending curved portion of said insole, said resilient strip having its rearwardly extending portion connected with the upwardly and forwardly extending portion of said first mentioned strip, and means connecting said resilient strip with the upwardly extending portion of said insole.

6. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch portion thereof and coextensive with the inner arch of the foot, the heel portion of said insole being bifurcated, a relatively rigid metallic member having a supporting portion extending between the bifurcated parts of the heel portion of the insole and riveted therein, said metallic member having an upwardly and forwardly extending portion directed exteriorly of the upwardly extending curved portion of said insole, and a resilient strip connected with the upwardly and forwardly extending portion of said metallic member, said resilient strip being shaped to conform with the curved peripheral edge of the upwardly extending curved portion of said insole, and means connecting said resilient strip with the said upwardly extending curved portion of said insole.

7. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch portion thereof adapted to reach the astragalus bone of the foot, means for reinforcing the said upwardly extending portion with respect to said insole, said means substantially conforming to but spaced from the edge of the upwardly extending portion of said insole, a sock lining extending over said upwardly extending portion and terminating in substantially edge abutment with said reinforcing means, and means for positively securing said sock lining to the peripheral edge of the upwardly extending curved portion of said insole.

8. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch portion thereof, a metallic strip connected with the heel portion of said insole and extending adjacent the peripheral edge of the upwardly extending curved portion of said insole, and a sock lining enveloping the curved peripheral edge of the upwardly extending portion of said insole and having a marginal portion covering said metallic strip, the peripheral edge of said marginal portion being secured to the exterior of the upwardly extending curved portion of said insole.

9. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch portion thereof, a metallic strip connected with the heel portion of said insole and extending adjacent the peripheral edge of the upwardly extending curved portion of said insole, a sock lining enveloping the curved peripheral edge of the upwardly extending portion of said insole and having a marginal portion covering said metallic strip, the peripheral edge of said marginal portion being

secured to the exterior of the upwardly extending curved portion of said insole, and means for positively securing said sock lining to each side of said upwardly extending portion of said insole immediately adjacent the curved peripheral edge thereof.

10. A saddle insole and support therefor comprising an insole having an upwardly extending curved portion adjacent the inner arch portion thereof, a metallic strip connected with the heel portion of said insole and extending adjacent the peripheral edge of the upwardly extending curved portion of said insole, a sock lining enveloping the curved peripheral edge of the upwardly extending portion of said insole and having a marginal portion covering said metallic strip, the peripheral edge of said marginal portion being secured to the exterior of the upwardly extending curved portion of said insole, and a textile thread stitched through said sock lining on each side of said upwardly extending portion of said insole and through the upwardly extending portion of the insole immediately adjacent the curved peripheral edge thereof for positively securing said sock lining to said insole.

11. A support insertable in a shoe adjacent the insole thereof comprising an insert having a sole and heel portion and a saddle portion, said sole portion terminating in an edge conforming with the insole of the shoe, and means for reinforcing said saddle portion comprising a resilient member extending from a position adjacent said heel portion in a path peripherally of said saddle portion, and means securing said resilient member to said saddle portion.

12. A support insertable in a shoe adjacent the insole thereof comprising an insert having a sole and heel portion and a saddle portion, said sole portion terminating in an edge conforming with the insole of the shoe, and means for reinforcing said saddle portion comprising a strip device including a relatively rigid portion and a relatively resilient portion, means interconnecting the relatively rigid and resilient portions of said strip, a connection between the relatively rigid portion of said strip device and the heel portion of said insert, and a connection between the relatively resilient portion of said strip device and said saddle portion.

13. A support insertable in a shoe adjacent the insole thereof comprising an insert having a sole and heel portion and a saddle portion, said sole portion terminating in an edge conforming with the insole of the shoe, means for reinforcing said saddle portion comprising a resilient member connected in a plurality of positions adjacent the peripheral edge of said saddle portion, a relatively rigid angle member connected with said heel portion, and a connection intermediate said angle member and said resilient member.

14. A support insertable in a shoe adjacent the insole thereof comprising an insert having a sole and heel portion and a saddle portion, said sole portion terminating in an edge conforming with the insole of the shoe, and a metallic reinforcement comprising a resilient strip conforming in shape to the contour of the upper peripheral edge of said saddle portion, means securing said strip to said saddle portion, an angle member secured to said heel portion and shaped to conform to the shape of said saddle portion, and a connection between said angle member and said resilient strip.

15. A saddle insole comprising an insole having an upwardly extending curved portion adja-

cent the inner arch portion thereof and terminating opposite the astragalus bone of the foot, means for reinforcing the said curved portion with respect to said insole, said means being 5 shaped to conform with the edge of the curved portion but displaced below said edge, a sock lining extending over said curved portion and terminating adjacent the edge thereof above said

reinforcing means, the said sock lining being cemented to said curved portion, and a textile thread stitched through said sock lining and adjacent the edge of the curved portion of said insole for permanently retaining the said lining 5 in place during all conditions of wear.

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