

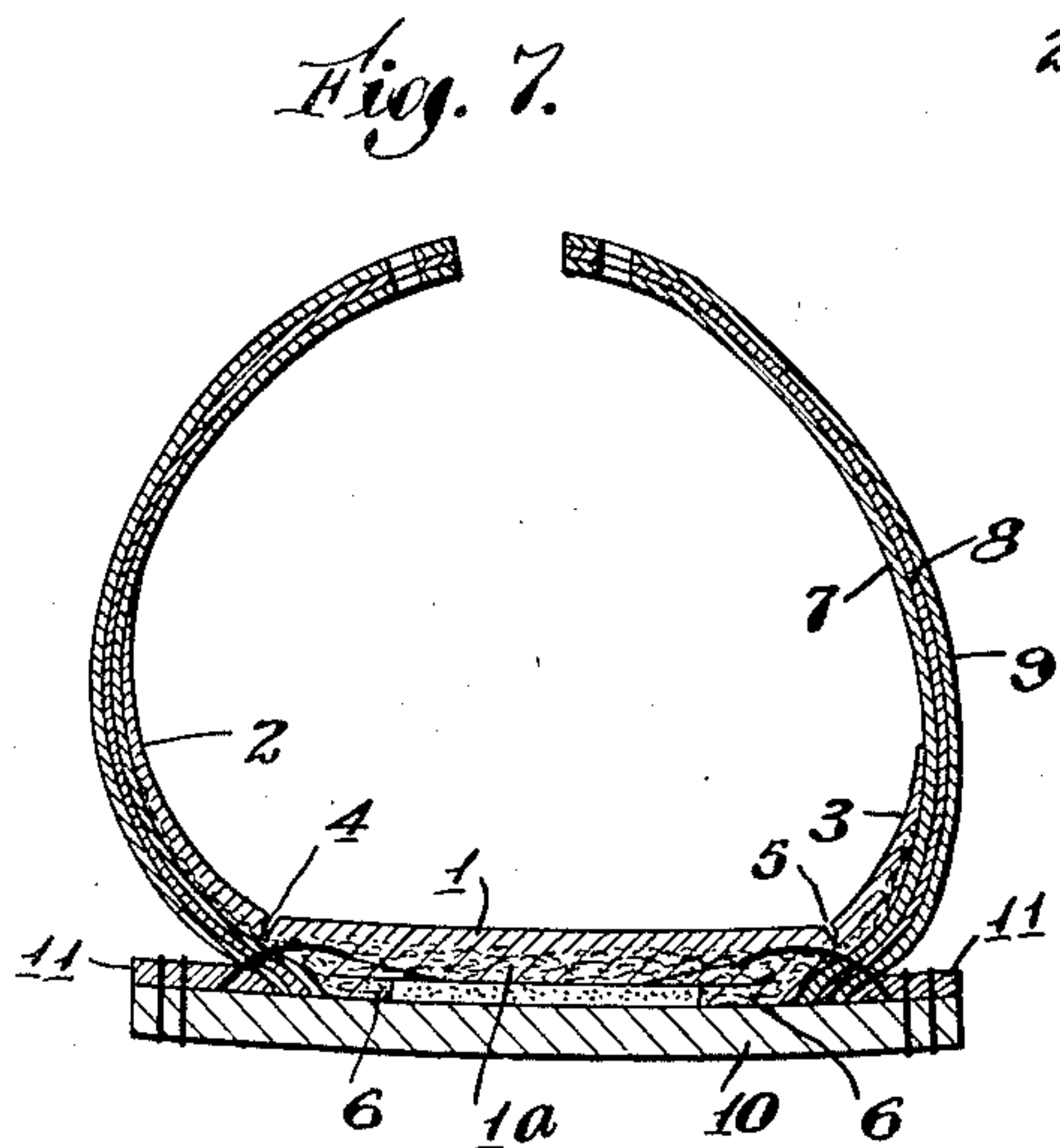
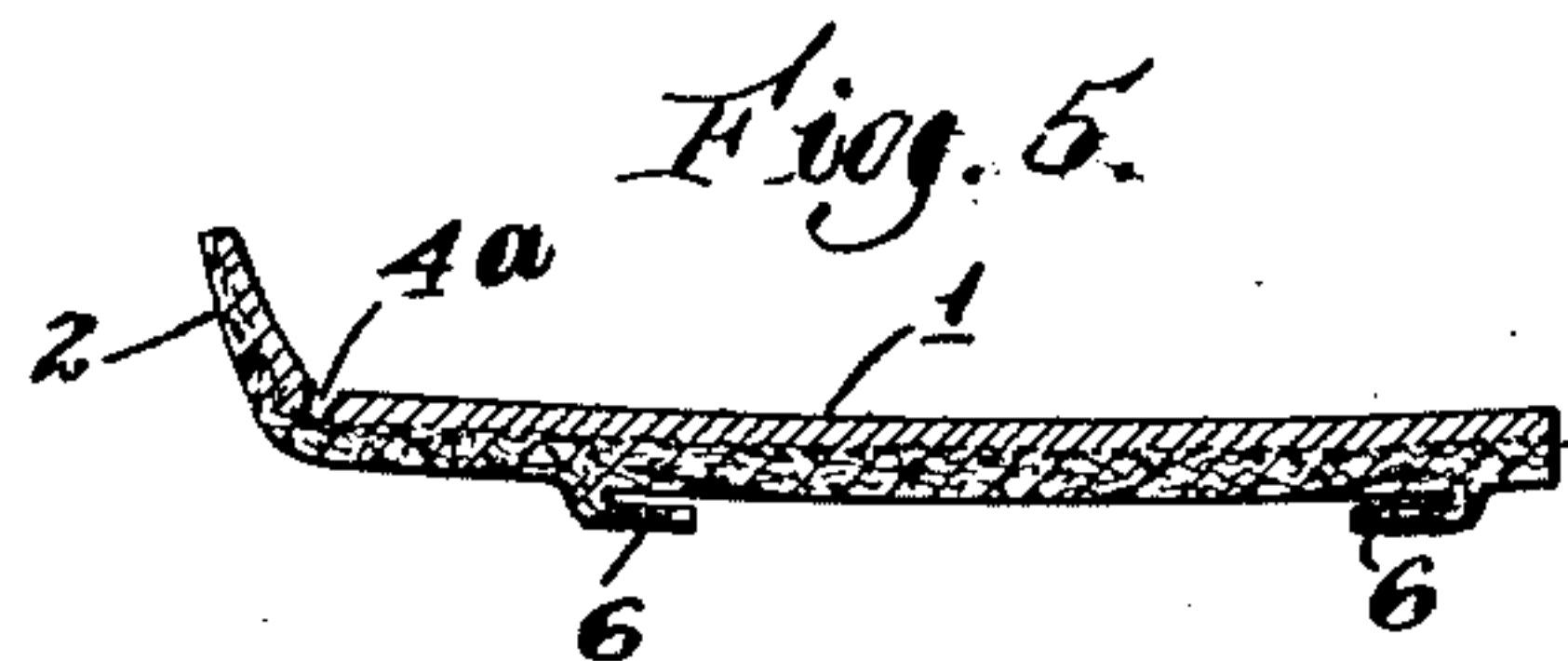
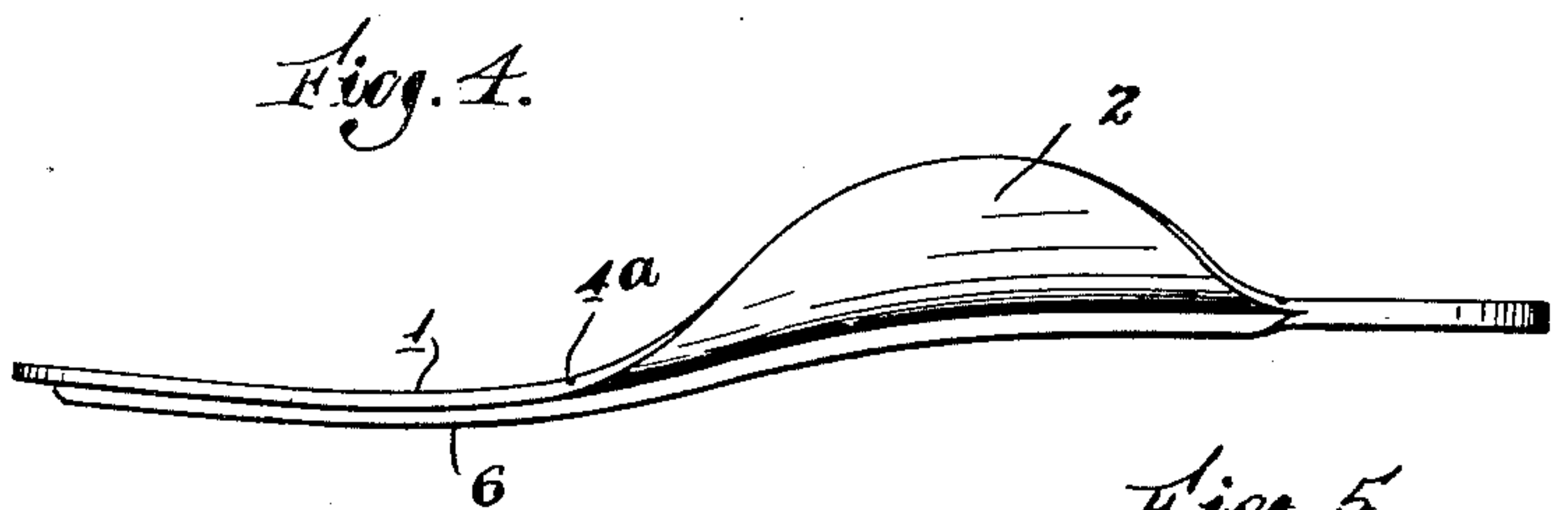
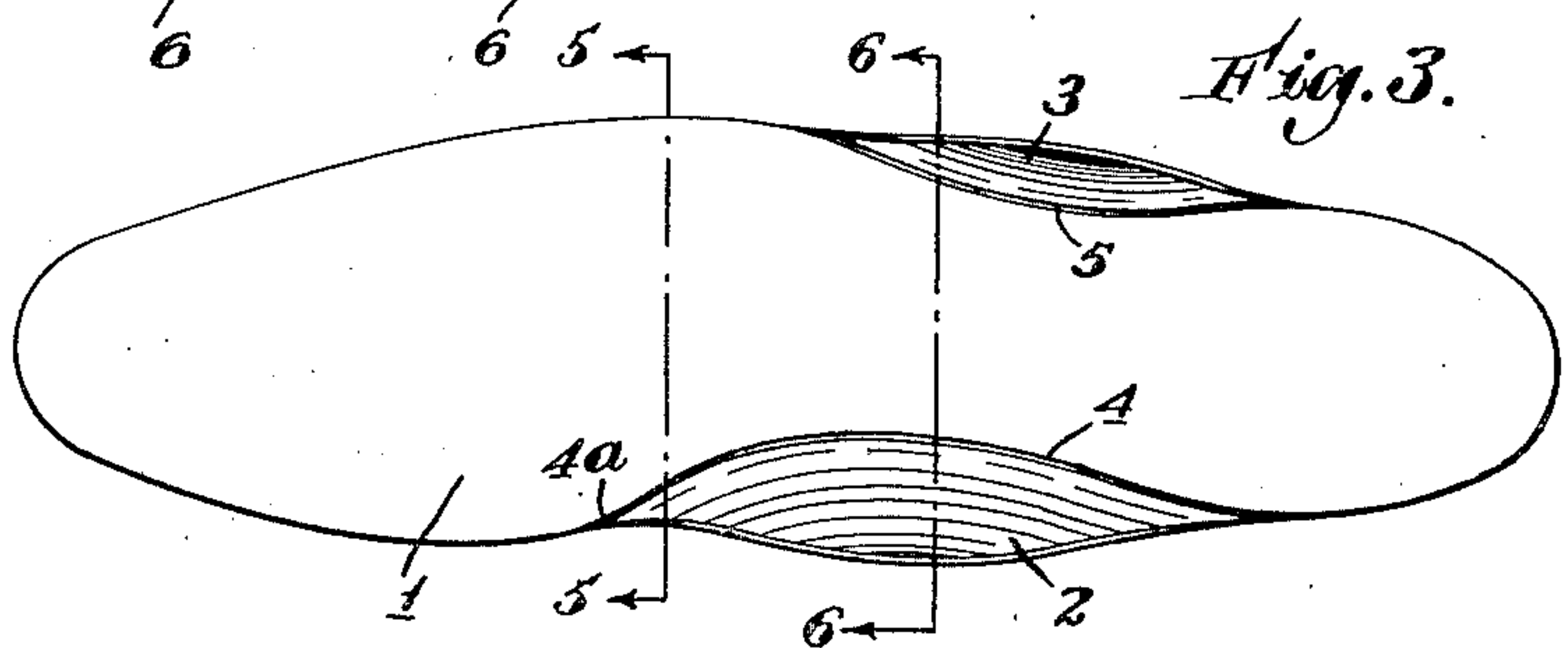
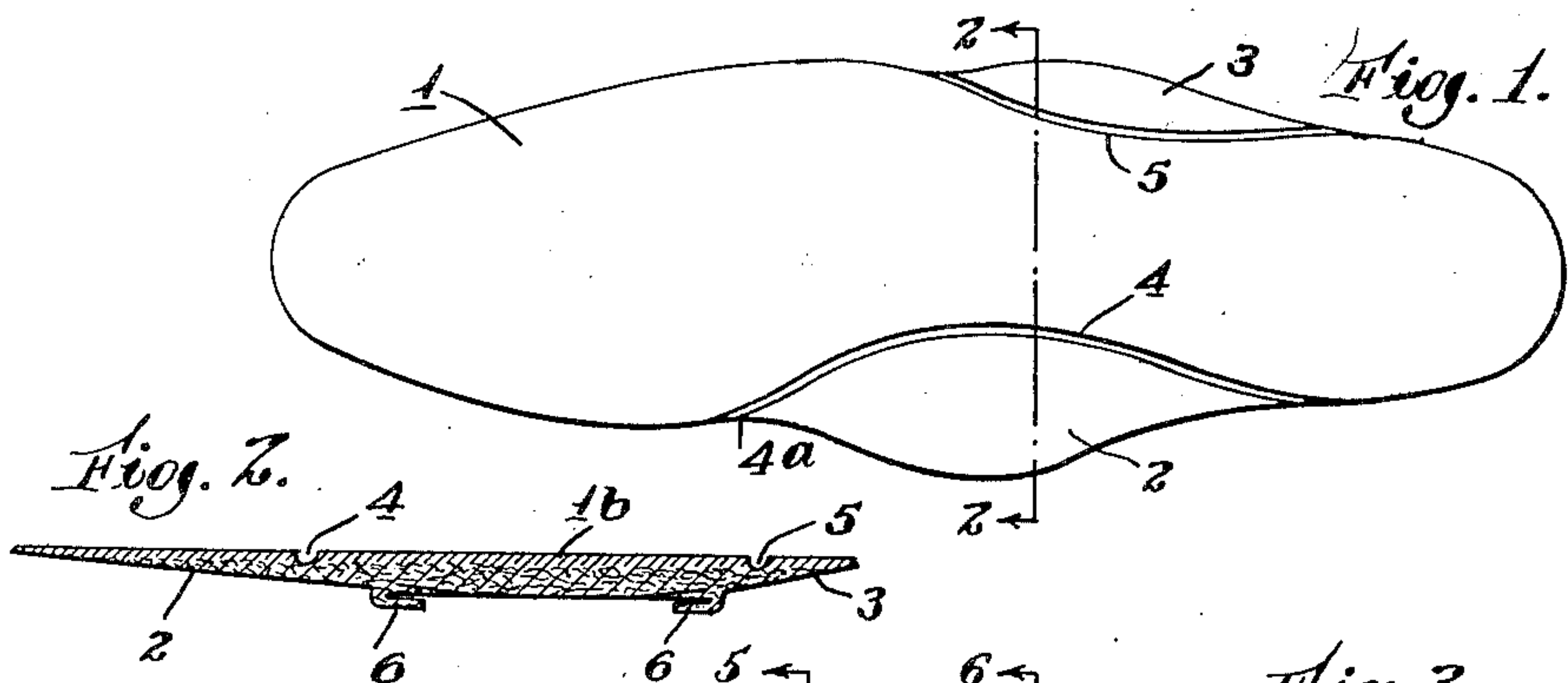
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1,778,002

CORRECTIVE SHOE

Filed June 27, 1929



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# UNITED STATES PATENT OFFICE

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## CORRECTIVE SHOE

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This invention relates to shoes of the cor-  
rective type and more particularly that type  
of shoe in which the inner sole, at its shank  
portion beneath the arch of the foot, is pro-  
vided with lateral extensions upwardly  
turned to afford supporting means for the  
main longitudinal arch of the foot, such a  
shoe, for example, as is disclosed in the United  
States patent to George R. Davis, No.  
1,058,561.

In order to afford proper support on oppo-  
site sides of the arch through these extensions  
it is desirable that the inner sole of the shoe  
bottom shall be fairly heavy, but in the manu-  
facture of such shoes with the proper weight  
of inner sole there has been encountered diffi-  
culty in moulding the lateral arch supporting  
extensions to give them a sharp enough up-  
ward curvature from the body of the insole  
to snugly embrace or hug the arch portion of  
the foot which they are intended to engage.  
The problem is further complicated by the  
fact that the forward portion of the arch-  
subtending or shank portion of the insole is  
inclined downwardly toward the forepart,  
since the shank portion is, and should be, on  
a somewhat higher level than the forepart of  
the shoe bottom. Such downward bending  
tends to force the forward end portion of  
the main extension outward away from the  
foot. It is also desirable that the inner sole  
be not materially weakened along the lines  
where the relatively flat inner sole body joins  
the upturned arch supporting extension.

The present invention affords a solution of  
these difficulties by providing an inner sole  
construction which permits the sharp upward  
bending of the arch supporting extensions  
along clearly defined lines of juncture with-  
out sacrificing the strength of the inner sole  
and consists, generally speaking, in a con-  
struction of inner sole of sole leather having  
a lateral extension on either, or preferably on  
both, sides of the shank portion of the body  
of the inner sole, which extension is integral-  
ly united throughout the flesh or fibrous layer  
of the sole leather and is severed throughout  
the grain layer of the inner sole on a line  
substantially following the usual contour of  
the shank portion of an insole, thereby elimi-

nating resistance of the stiff grain layer to the  
proper bending upward of the extension  
while retaining practically the full strength  
of the leather at the point of juncture by the  
absence of any severing cut through the  
fibrous layer of the inner sole. Moreover, this  
severance of the grain layer, while leaving  
the more flexible but tougher fibrous layer  
intact, permits that portion of the inner sole  
where the shank portion merges with the fore-  
part to bend downward without tending to  
force outward the extension member on the  
inner or ball side of the shoe.

This and other features of the invention  
will be particularly described in the follow-  
ing specification and will be defined in the  
claims hereto annexed.

In the accompanying drawings we have  
illustrated the preferred construction em-  
bodying the principles of this invention, in  
which

Fig. 1 is a top plan view of an insole blank  
showing the severing lines or channels partly  
separating or dividing the lateral arch sup-  
porting extensions from the main body por-  
tion of the inner sole.

Fig. 2 is a cross sectional elevation on  
dotted line plane 2—2 of Fig. 1.

Fig. 3 is a plan view of the inner sole blank  
with the lateral extensions upwardly moulded  
before attachment to the last for lasting the  
upper.

Fig. 4 is a side elevation of the moulded  
inner sole shown in Fig. 3.

Figs. 5 and 6 are cross sectional views re-  
spectively on the dotted line planes 5—5 and  
6—6 of Fig. 3.

Fig. 7 is a cross sectional elevation through  
the middle portion of the shank showing the  
shoe upper lining and the reenforcing bands  
united with the shoe bottom.

In the practice of the invention the inner  
sole of sole leather is cut out in the usual  
form, except that the shank portion is pro-  
vided with integral outwardly projecting  
lateral extensions 2 and 3 which are to form  
the arch supporting members or segments in  
the completed shoe.

With a suitable cutting tool channels 4 and  
5 are gouged out of the top or grain side of



the inner sole so as to sever the stiff heavy layer of the main body portion 1 of the inner sole from the grain layer of each lateral extension or segment. Preferably this severance line cutting through the grain layer follows the usual or normal contour of an inner sole for an ordinary shoe which is markedly concave on the inner or ball side of the shank and somewhat less concave on the outer side of the shank portion of the shoe. The cutting tool should actually cut away the grain along these lines so as to leave narrow channels extending down practically to the fibrous or flesh layer of the sole leather which is the tough or tenacious portion of the sole leather, while the grain layer of somewhat horn-like texture is the stiffening layer of the sole leather but adds little to its tensile strength.

It will therefore be seen that the integral connection between the flesh layers of the body portion and of the arch supporting extension is not weakened by this channelling process while the stiffness along the line of upward bend is largely eliminated. Furthermore, a very definite line of sharp bending can be established by reason of the removal or cutting away of the stiff grain layer on these lines 4 and 5. Furthermore, by reason of the elimination of this stiffening at the forward end of the main or ball side extension at 4\* the tendency of the downward bending of the forepart at this point to force outward the adjacent portion of the main extension 2 is substantially eliminated.

When the blank has thus been channelled it may be placed in the moulding machine or press and it will be found that both extensions can be given an abrupt upward curvature along the normal contour lines of the shank portion of an inner sole, thereby enabling the lateral arch supporting extensions to closely hug the upward curvature of the foot at these points, which is an effect greatly desired but not heretofore practically accomplished.

After the inner sole thus channelled on its top or grain side has been thus moulded, it is ready to be attached to the last on which the complete shoe is to be built. The inner sole is channelled on the bottom or flesh side to form the welt attaching lips 6 to which the interior lining 7, the upper 9 and the intermediate straps or reenforcing bands 8, shown in the aforesaid Davis patent, are united by stitching, following which the outer sole 10 is attached by the usual stitching operation.

It will therefore be seen that the weight and strength of the inner sole is not sacrificed, while at the same time the arch supporting extensions are turned upward on clearly defined and appropriate lines of juncture with the flat portion of the inner sole body to closely hug the corresponding portions of an inserted foot.

The outer edge of each extension should be

thinned or skived down to avoid forming a ridge in the shoe upper. In this case the flesh or fibrous layer of the sole leather is cut away leaving the grain side intact except at the tip so as to preserve the stiffness in the edge portion of the extension.

What we claim is:

1. An inner sole for a corrective shoe embracing an integral sole leather body of usual contour comprising grain and fibrous layers and having lateral extensions projecting from opposite sides of the shank portion, the fibrous layer of the extensions being integral and continuous with the fibrous layer of the inner sole body while the grain layer of the extensions is cut through to separate it from the body along the shank line, thereby permitting the extensions to be turned sharply upward to snugly embrace the arch of a foot without materially weakening the inner sole along the line of the cuts.

2. A moulded inner sole for a corrective shoe embracing an integral inner sole leather body of usual contour, comprising a top grain layer and a bottom fibrous layer and having a lateral extension projecting from the shank portion of the inner sole and moulded to turn abruptly upward along the concave line of inner sole body portion, the grain layer being channelled along said line leaving the fibrous layer intact, the forward end of said channel extending through the grain layer to the edge of the ball portion to allow the insole forepart to bend downward while allowing the adjacent end of the extension member to turn sharply upward.

3. An inner sole for a corrective shoe embracing an integral sole leather blank comprising an upper grain layer and a lower fibrous layer, having projecting out from the normal concave contour of the shank a lateral extension whose fibrous layer is continuous and integral with the fibrous layer of the body portion but having its grain layer separated from the grain layer of the body portion by removal of a narrow strip of the grain layer along the concave line of the inside edge of the shank, said extension being turned abruptly upward along said concave line to afford support for the ball side of the foot arch.

4. An inner sole for a corrective shoe embracing an integral sole leather blank comprising an upper grain layer and a lower fibrous layer, having projecting out from the normal concave contour of the shank a lateral extension whose fibrous layer is continuous and integral with the fibrous layer of the body portion but having its grain layer separated from the grain layer of the body portion by removal of a narrow strip of the grain layer along the concave line of the inside edge of the shank, said extension being turned abruptly upward along said concave line to afford support for the ball side of



the foot arch, the fibrous layer of the extension being skived off along its outer edge portion to leave a thin edge portion wholly of grain layer.

5 In witness whereof, we have subscribed the above specification.

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