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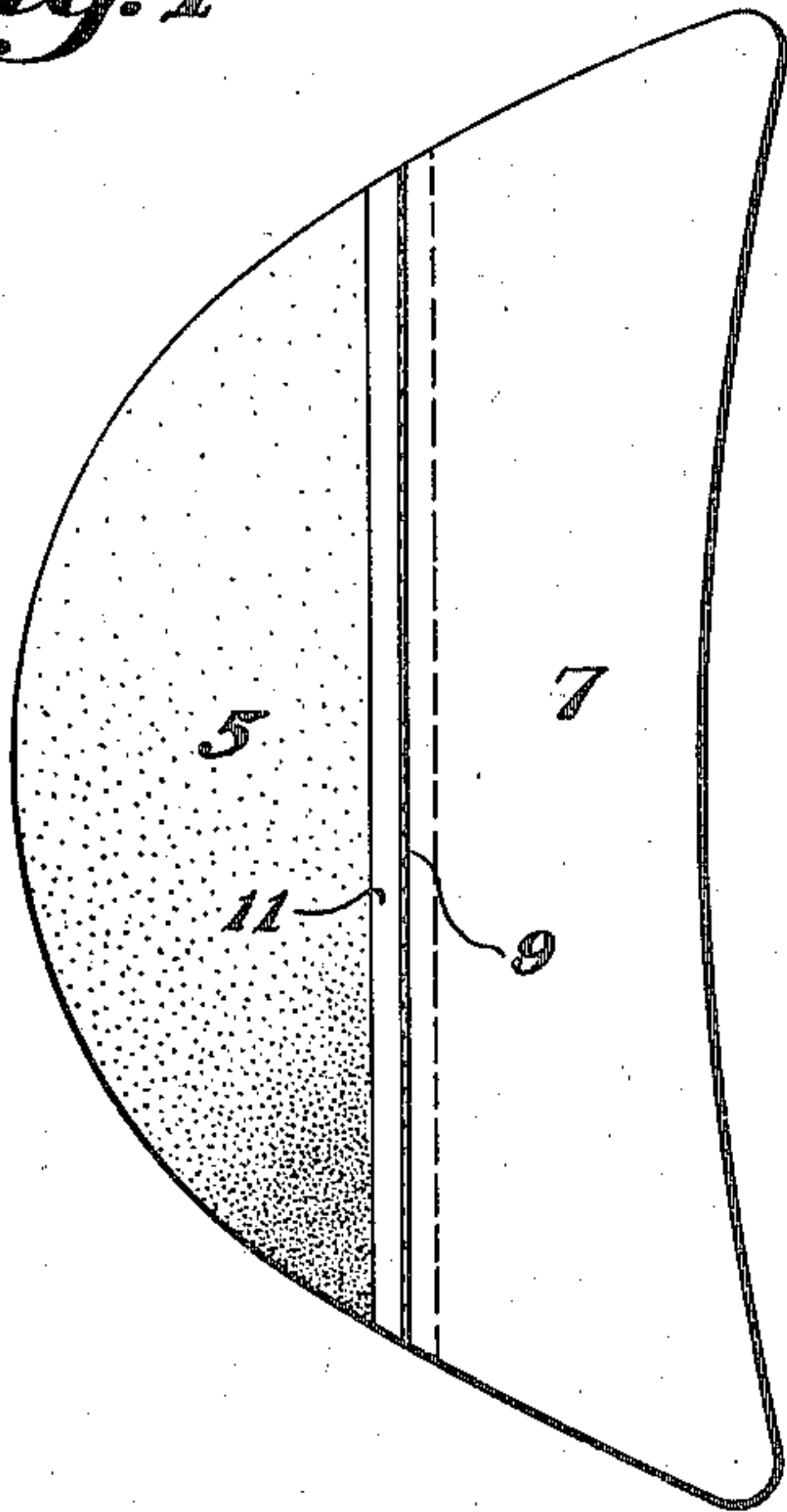
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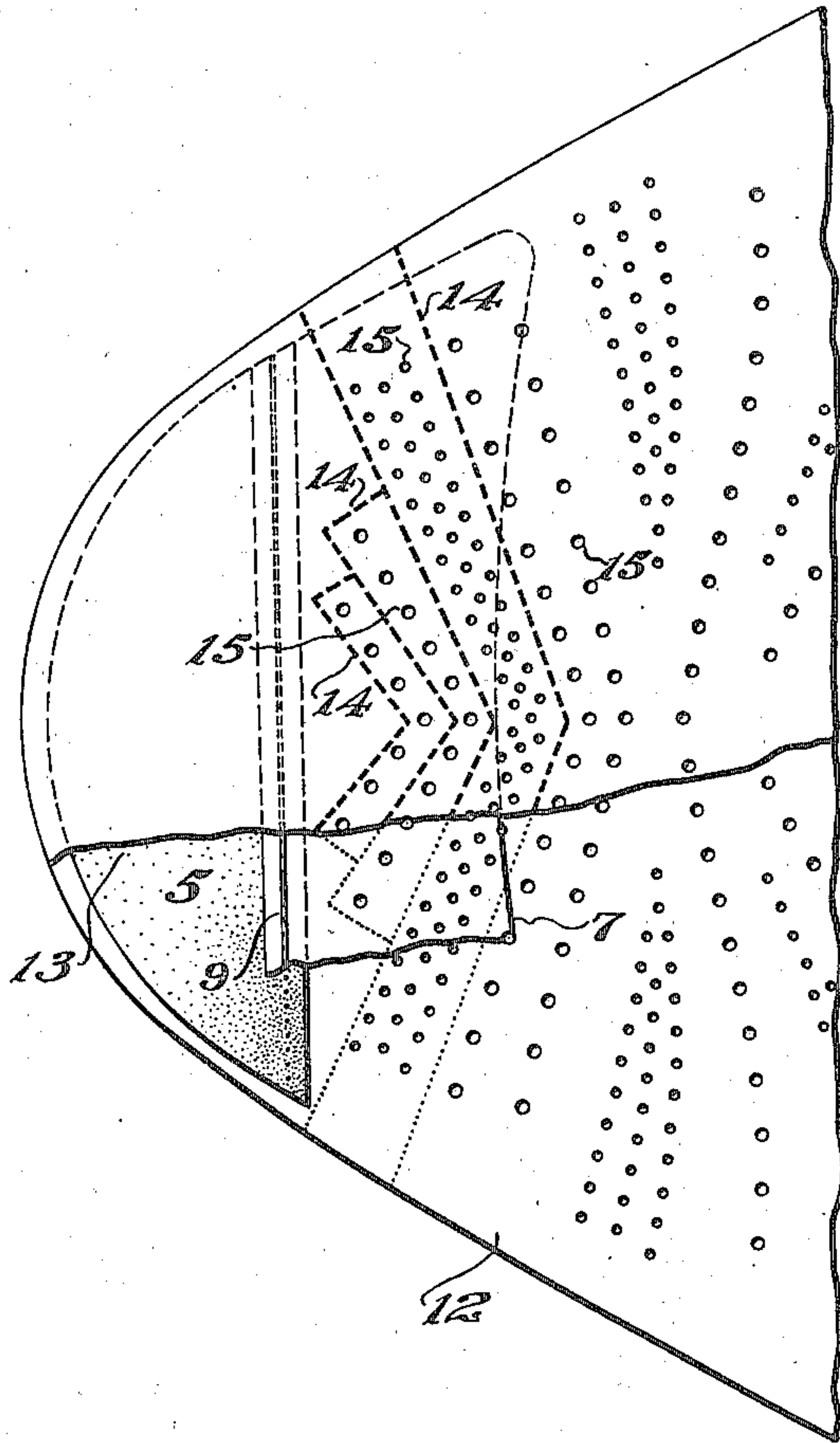
TOE STIFFENER

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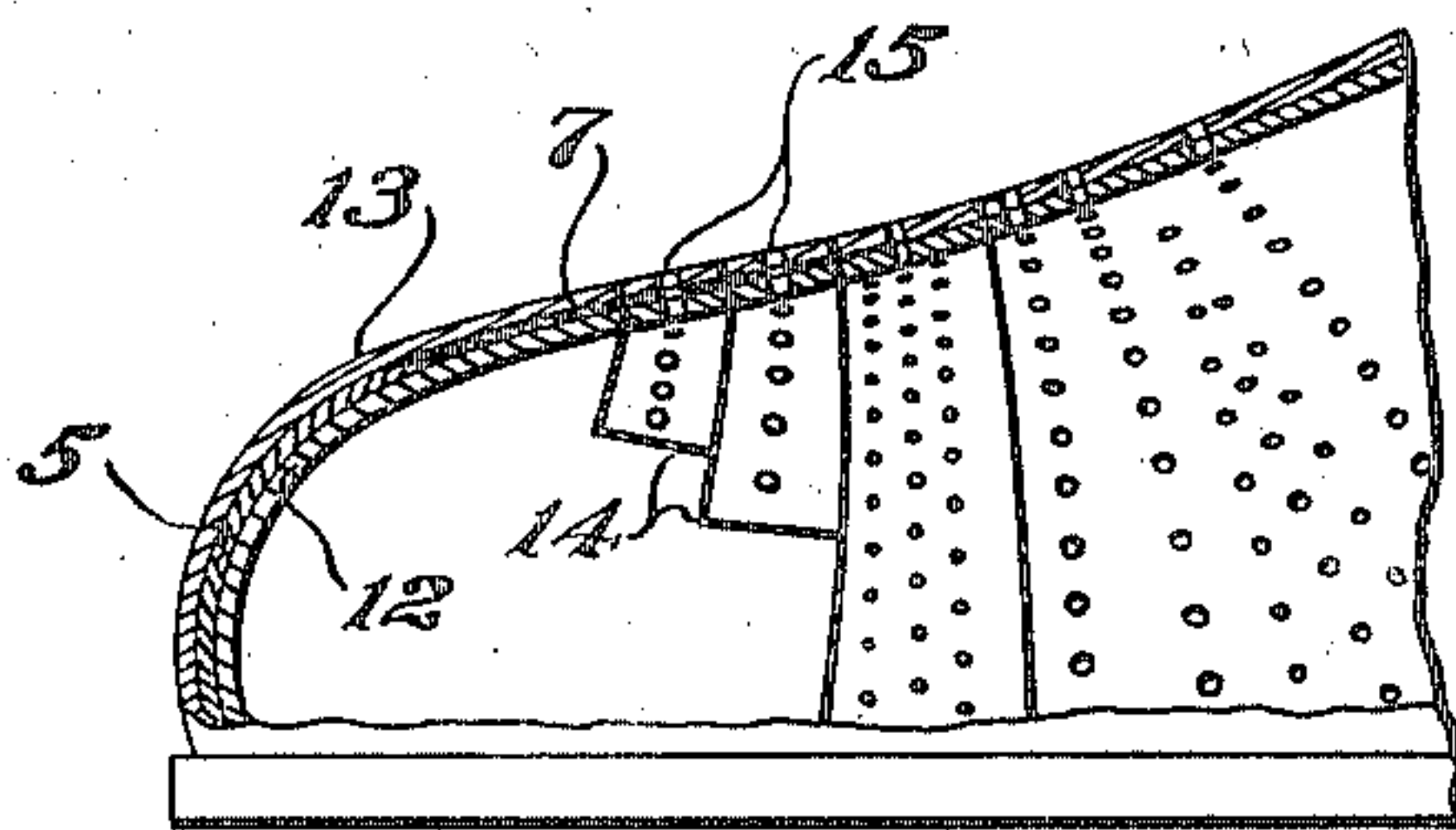
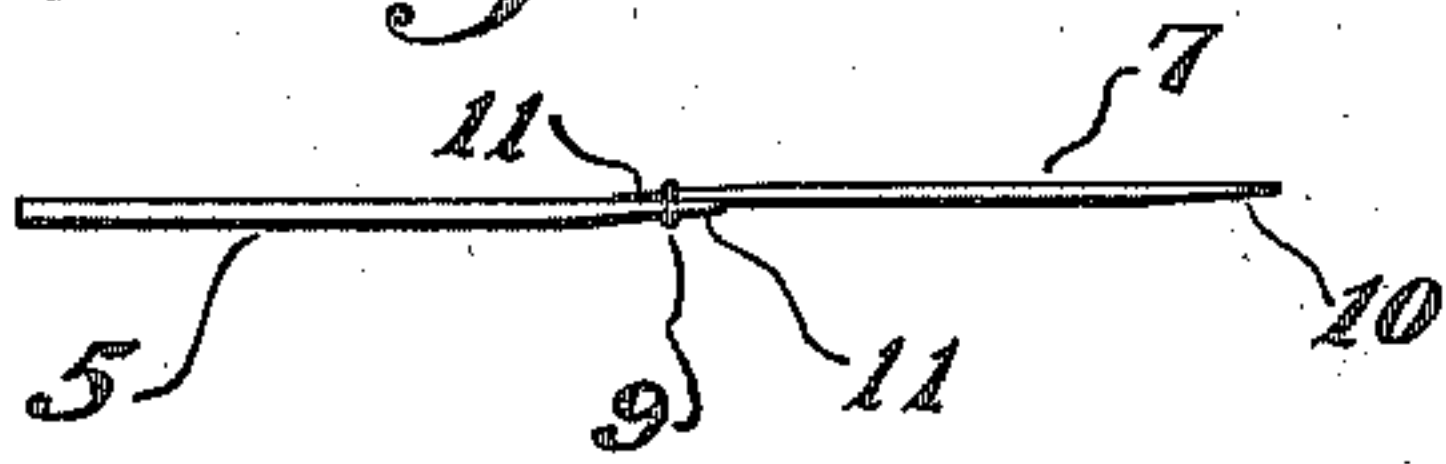
*Fig. 1*



*Fig. 3*



*Fig. 2*



*Fig. 4*

*Witness*

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## UNITED STATES PATENT OFFICE

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## TOE STIFFENER

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3 Claims. (Cl. 36—77)

The present invention relates to shoes and stiffeners for the same.

In the manufacture of shoes it is a common practice to use a toe stiffener in the form of a flat blank of fibrous material impregnated with a softenable stiffening compound. This blank is assembled with the vamp and lining and is lasted in with these parts, having first been softened by the application of heat or suitable solvent. Ordinarily the stiffener blank is positioned loosely between the vamp and lining, the skill of the operative being relied upon for properly positioning in the first place and for retaining it and avoiding displacement during the subsequent handling and manipulation of the parts, and until the lasting is completed and the stiffener fixed in place. Difficulty is often experienced, however, both in positioning and also in retaining the stiffener in proper position during such manipulations, and to avoid this it has been attempted to secure the stiffener blank fixedly between the lining and the vamp by means of a line of stitches passing through these parts, such for example, as the seam customarily uniting the tip and upper. This practice is objectionable with the common types of stiffeners now in use, due not only to the difficulty in sewing through the hard, resistant stiffener, particularly with as fine stitches as are required when exposed on the outside of the upper and vamp, but also because of the tendency of the stiffening material or compound, when softened by heat or solvent, to ooze or "spew" outwardly through the stitch holes, and to damage and discolor the stitches and upper, particularly if the latter are of a light or delicate shade.

It is the object of the present invention to provide a toe stiffener which may be easily sewn in place before the lasting operation, by as fine a seam of stitching as desired, and without the possibility of damage or discoloration of the stitches or upper.

A further object of the invention is to provide a simple and inexpensive form of toe stiffener which in the finished shoe will impart a relatively high degree of stiffness to the extreme tip of the shoe and a lesser stiffness to portions further back from the tip.

To the above ends the present invention contemplates a toe stiffener having the different portions formed of different stiffening materials, that portion of the stiffener through which the seam of stitches will be sewn for attaching the stiffener to the upper and lining being stiffened with a compound which will not interfere with such

sewing, and which will avoid any possibility of discoloration of the stitches or vamp. Preferably the toe tip portion of the stiffener blank will be stiffened or impregnated with a compound which will impart a high degree of stiffness thereto, while the more rearward portions will be stiffened or impregnated with a compound imparting a lesser stiffness.

In the accompanying drawing which illustrates what is now considered the preferred form of the present invention in one of its applications, Fig. 1 is a top plan view and Fig. 2 a side elevation of a toe stiffener constructed in accordance with and embodying the present invention; Fig. 3 is a top plan view of an upper or vamp assembly showing the positioning and securing of the toe stiffener between the upper and lining; and Fig. 4 is a vertical section of a finished shoe in which such assembly has been incorporated.

The toe stiffener blank illustrated in Figs. 1 and 2 is designed primarily for use with a vamp or upper of the type shown in Fig. 3, wherein is provided an ornamental design of perforations and lines of stitching. The blank comprises two portions, a toe tip portion 5 and rear portion 7. The toe tip portion 5 forms in the lasted shoe the tip or extreme forward part of the stiffener, and is designed to impart a high degree of stiffness to this portion of the shoe. It may be formed of any of the various stiffening materials now in use, a suitable material being felt impregnated with thermoplastic material, such as a mixture of asphaltic, waxy, and resinous substances. This compound imparts a very desirable high degree of stiffness, but makes sewing through the stiffener a matter of such difficulty that lubrication of the needle may be required and the sewing of a fine seam is practically impossible. Furthermore, this compound is black in color and when softened for lasting, has a tendency to exude or spew.

The rear portion 7 of the stiffener is of lighter weight or construction than the toe portion, a felt or fabric of less thickness being used, and the stiffening compound with which it is impregnated being of more flexible character as well as being substantially white in color. A suitable material for this rear portion 7 is a relatively thin felt lightly rubberized. This material may be sewn without difficulty and is sufficiently flexible for lasting yet possesses the desirable degree of stiffness.

The two portions 5 and 7 of the stiffener are secured together by a line of stitches 9. Inasmuch as these stitches are not exposed, they need



not be fine and close together, and since the seam is entirely covered by an imperforate portion of the vamp, any exudation or spewing through the stitch holes cannot reach the external surface of the upper to discolor the same.

5 Preferably, the adjacent edges of the two portions of the stiffener will be skived, as shown at 11 in Fig. 2, to avoid any abrupt change in thickness that might show on the outer surface of the upper. The rear edge of the portion 7 is also preferably skived, as shown at 10, as is customary with these parts.

10 In use, the improved stiffener will be assembled with the upper, lining, etc., in the stitching room, being carefully positioned between the lining 12 and vamp 13 and then stitched in place by a line of fine stitches which pass through the vamp, stiffener and lining. The size and shape of the rear portion 7 of the stiffener will be designed, generally speaking, in accordance with the type of vamp with which the stiffener is to be used, so that the ornamental stitching which secures the parts together will pass through the rear portion 7 only, and further, so that any ornamental perforations in the vamp or tip will not overlie the front or tip portion 5, with its black stiffening compound.

20 Thus, in Fig. 3, the stiffener is shown in position beneath the vamp, and it will be noted that none of the ornamental stitching 14 passes through the front portion 5, but only through the rear portion 7. Also, that none of the ornamental perforations 15 overlie the front portion 5, but only the rear portion 7.

30 The ornamental stitching is thus easily applied since it passes through only the thinner more flexible material, and discoloration of the shoe threads or of the upper itself through exudation through the stitch holes or perforations cannot occur. The relatively stiff tip portion 5 gives a strong rigid toe tip to the shoe, while the lighter portion 7 imparts the desirable flexibility to the rearward part.

40 Since the upper comes to the laster with the stiffener stitched securely in position, he is not required to assemble the parts in exact position or maintain them securely when applying the upper to the last and performing the lasting operation. All slipping and displacement of the stiffener is prevented, and since the latter is securely anchored to the vamp and lining, the toe can be pulled more evenly and smoothly over the last, insuring a smooth tip line and avoiding all possibility of the back edge of the stiffener being shown on the upper.

50 Furthermore, the operator does not have to touch or handle the stiffener in its conditioned state so that there is no liability of marking or soiling the uppers, even with white shoes, by finger smudges.

60 Another advantage is the elimination of improper size of stiffeners, for an inspector or foreman can see at a glance whether the stiffener of the correct size to match the sweep of the tip line has been assembled with the vamp. The wasteful use of over sized toes or the attempt to use an under sized stiffener will thus be quickly detected—something which cannot be done in

the present methods, where the stiffener is selected, assembled and immediately pulled over, after which proper inspection becomes impossible.

A shoe having an improved stiffener as above described, is also more satisfactory in use, as the formation of wrinkles and gutters, which sometimes form directly ahead of and parallel to the tip stitching, is prevented.

10 Although in the accompanying drawing and the foregoing specification a stiffener has been shown and described in which the toe tip and rear portions are of substantially the same width from front to back, it is to be understood that the present invention is not necessarily limited thereto, but the relative widths of the parts may be varied as desired, and in accordance with the character of the upper or vamp with which the stiffener is to be used.

15 Nor is the invention limited to a construction in which the stiffener is positioned between the vamp and the lining except where so specifically set forth in the claims, as doublers or other parts may be inserted in accordance with the well known practice.

20 Where in the claims reference is made to discoloration on the exposed surface of the upper, this is to be understood to mean not only discoloration of the upper itself, but also discoloration of any of the parts of, or associated with, the upper, such as vamp, tip and seam of stitches.

25 Having thus described the invention, what is claimed is:

1. A two-part toe stiffener for shoes and the like comprising a front portion of fibrous material impregnated with stiffening material of dark color and a rear portion of substantial width from the front to rear impregnated with a stiffening material of light color only thereby to prevent discoloration on the exposed surface of the shoe upper over said rear portion of the stiffener when the stiffener is used with an upper of light color.

2. In a shoe, the combination with an upper, of a toe stiffener having a front portion impregnated with asphaltic material and a rear portion impregnated with a stiffening material of light color only, and a seam of stitches uniting the upper and the stiffener and passing through the rear portion only of the stiffener thereby to prevent discoloration of the stitch seam by the stiffening material when the stiffener is used with an upper of lighter color than the asphaltic stiffening material.

3. In a shoe, the combination with a light color vamp having perforations therein, of a toe stiffener having front and rear portions impregnated with stiffening materials of different colors, the color of that for the front portion being different from, and that for the rear portion corresponding to, the color of the vamp, and the perforations of the vamp overlying the rear portion only of the stiffener thereby to prevent discoloration of the vamp rearwardly of the front portion of the stiffener by exudation through the perforations of stiffener material of different color from that of the vamp.

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