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W. J. DE WITT

2,148,539

TOE FORM

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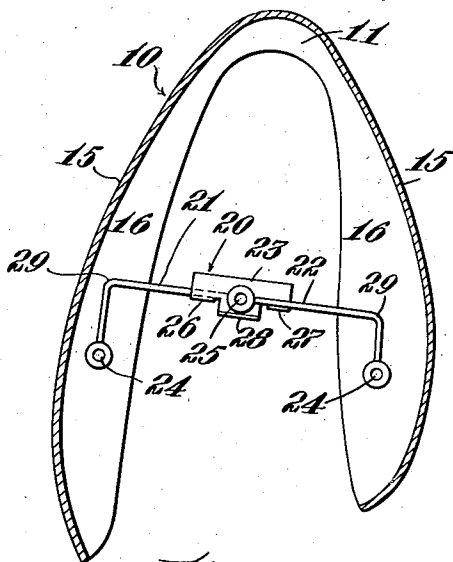


Fig. 1

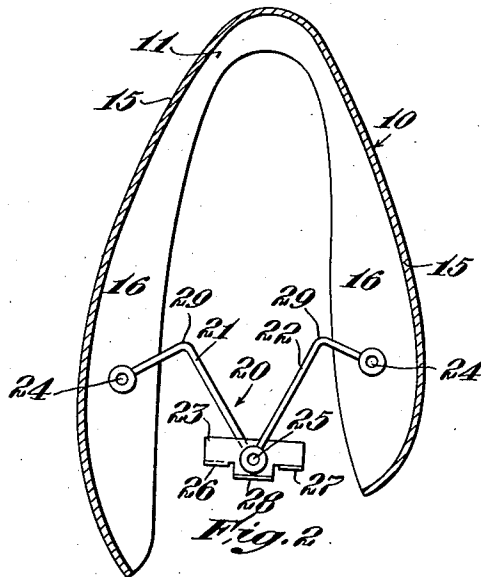


Fig. 2

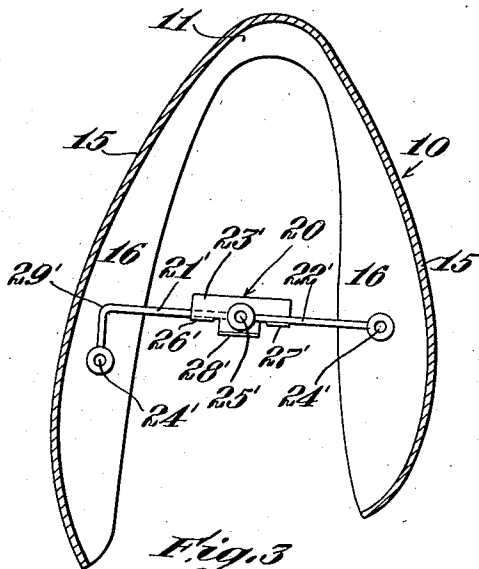


Fig. 3

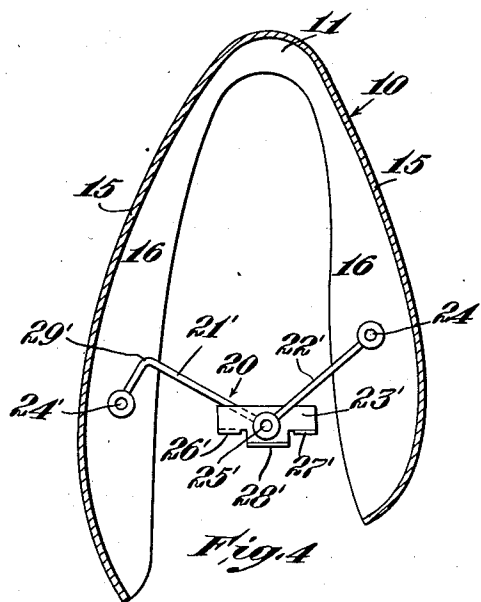


Fig. 4

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UNITED STATES PATENT OFFICE

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TOE FORM

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5 Claims. (Cl. 12—128.4)

This invention relates to an improvement in toe forms of the type disclosed in my Patent No. 2,097,207, dated October 26, 1937, wherein the side walls are expanded and contracted by a cross brace consisting of two sections by which a toggle is made or broken.

The primary object of this invention is to shape one or both sections of the cross brace in such a manner that the toggle is yieldably made and any tendency to break the made toggle is yieldably resisted.

A further object of this invention is to provide a toe form including a toe member and a cross brace of the toggle type by which the side walls of the toe member are expanded or contracted, said brace comprising an intermediate plate and two rod sections, one at least of said sections being bent intermediate its ends to shorten the effective length thereof whereby when a broken toggle is made or a made toggle is broken the side walls of the toe member are first expanded and then contracted.

These and other objects will appear from a consideration of the following description of certain embodiments of the invention and of the drawing which forms a part thereof and in which:

Fig. 1 is a top plan view of a toe form embodying this invention in the fully expanded position, the top of the toe portion having been removed;

Fig. 2 is a view similar to Fig. 1 of the toe form in the partially contracted position; and

Figs. 3 and 4 are views corresponding to Figs. 1 and 2, respectively, of another embodiment.

The toe form 10 comprises a toe member 11 and a cross brace 20 connecting the side walls of the toe member. The toe member 11 is of Celluloid, buckram or other flexible resilient material having side walls 15 which terminate in inwardly facing ball flanges 16. The toe members of both embodiments illustrated are the same and will be designated on the drawing by the same reference numerals. These embodiments differ merely in the structure of the cross brace 20 as will be set forth hereinbelow.

In the embodiment shown in Figs. 1 and 2 the cross brace 20 comprises two sections 21 and 22 and a plate 23. The outer ends of the sections are pivotally attached to the ball flanges 16 by rivets 24 or similar means, and the inner ends thereof are similarly secured to the plate 23 as by the rivet 25. The sections engage the plate at opposite sides and the latter is provided at its rearward edge with ears 26 and 27 projecting laterally therefrom in opposite directions, the ear 26 and section 21 being at one side of the

plate and the ear 27 and section 22 being at the opposite side of the plate. In addition to the ears 26 and 27, the rearward edge is provided with a flange 28 which serves as a convenient piece for the actuation of the cross brace as will be pointed out below. Each of the sections 21 and 23 is bent intermediate its ends to provide two portions at an angle to each other and to shorten the effective length thereof. In the drawing the angle 29 is substantially a right angle and extends forwardly.

The position of this embodiment shown in Fig. 2 is that assumed when the toe form is to be inserted into a shoe in the usual manner with the cross brace toggle broken. After the form is inserted in a shoe, forward pressure is applied upon the flange 28 to make the toggle and expand the side walls of the form. As the toggle is being made the walls are expanded to their limit when the rivet 25 passes through the line between the rivets 24 and are thereafter contracted when the rivet 25 continues past that line until the final position, shown in Fig. 1, is reached, the ears 26 and 27 being in contact with the sections 21 and 22, respectively. The natural resiliency of the material forming the toe member creates a tendency of the walls to contract and thereby, due to the formation of the sections 21 and 22, acts yieldably to make the toggle. It further acts for the same reason after the toggle is made to resist yieldably, the breaking of the toggle continuing so to act until the rivet 25 has crossed the line between the rivets, the side walls of the toe member being first expanded and thereafter contracted.

The embodiment shown in Figs. 3 and 4 differs from that shown in Figs. 1 and 2 solely in that only one section of the cross brace 20 is bent intermediate its ends to shorten its effective length. The elements of this cross brace have therefore been designated by primes of the numerals applied in Figs. 1 and 2 to corresponding elements. The structure and operation of this toe form will be readily apparent and will not be described in detail. It is believed obvious that the natural resiliency of the toe member material will, due to the formation of the section 21', serve as in the first described embodiment to make the toggle yieldably and also to resist yieldably the breaking of the toggle.

While two embodiments of this invention have been described and shown in detail, it will be understood that the invention is not limited thereto and that other embodiments thereof may be made without departing from the spirit and

scope of the invention as set forth in the following claims.

I claim:

1. A toe form comprising a hollow toe member
5 and a cross brace connecting the side walls of said member, said cross brace comprising two rod sections and an intermediate plate, each of said rod sections being pivotally connected at one end to the side wall of the toe member, one to each
10 wall, and at the other end to said plate, the sections and plate constituting a toggle which, when made by movement of the plate in one direction, expands the side walls of the toe member and, when broken by movement of the plate
15 in the opposite direction, contracts such side walls, one of said rod sections being bent intermediate the ends to thereby shorten the effective length thereof, whereby, when the plate is moved to make the toggle, the side walls of the toe member are fully expanded before the toggle is completely made.
2. A toe form comprising a hollow toe member and a cross brace connecting the side walls of said member, said cross brace comprising two
25 rod sections and an intermediate plate, each of said rod sections being pivotally connected at one end to the side wall of the toe member, one to each wall, and at the other end to said plate, the sections and plate constituting a toggle which, when made by movement of the plate in one direction,
30 expands the side walls of the toe member and, when broken by movement of the plate in the opposite direction, contracts such side walls, one of said rod sections being bent intermediate the ends to thereby shorten the effective length thereof, whereby when the toggle is made the breaking movement thereof is yieldably resisted by the impulse to expand the walls which precedes the contraction thereof.
3. A toe form comprising a hollow toe member
40 and a cross brace connecting the side walls of said member, said cross brace comprising two

rod sections and an intermediate plate, each of said rod sections being pivotally connected at one end to the side wall of the toe member, one to each wall, and at the other end to said plate, one of said rod sections being bent intermediate its ends to reduce the effective length thereof, said sections and plate constituting a toggle which, when the plate is moved in one direction to make a broken toggle, initially expands and finally contracts the side walls of the toe member and, when the plate is moved in the opposite direction to break a made toggle, initially expands and thereafter contracts such side walls.

4. A toe form comprising a hollow toe member and a cross brace connecting the side walls of said member, said cross brace comprising two
15 rod sections and an intermediate plate, each of said rod sections being pivotally connected at one end to the side wall of the toe member, one to each wall, and at the other end to said plate, each of said rod sections being bent intermediate its ends to reduce the effective length thereof, said sections and plate constituting a toggle which, when the plate is moved to break a made toggle or to make a broken toggle, first expands
20 the side walls of the toe member and thereafter contracts such side walls.

5. A toe form comprising a hollow toe member and a cross brace connecting the side walls of said member, said cross brace comprising two rod
30 sections and an intermediate plate, each of said rod sections being pivotally connected at one end to the side wall of the toe member, one to each wall, and at the other end to said plate, each of said rod sections being bent intermediate its ends to reduce the effective length thereof, said sections and plate constituting a toggle which, when a breaking force is exerted upon a made toggle, expands said side walls, thus setting up a yieldable opposition to such breaking force and thereafter contracts such walls.

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