May 3, 1932. W. J. DE WITT 1,856,750

SHOE FORM

Filed April 16, 1931

Fig. 1

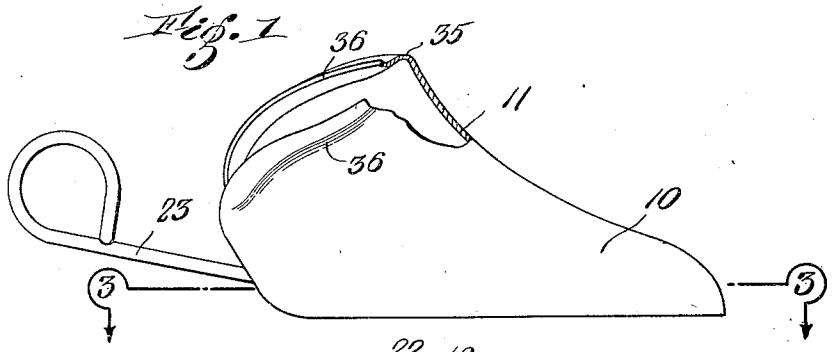


Fig. 2

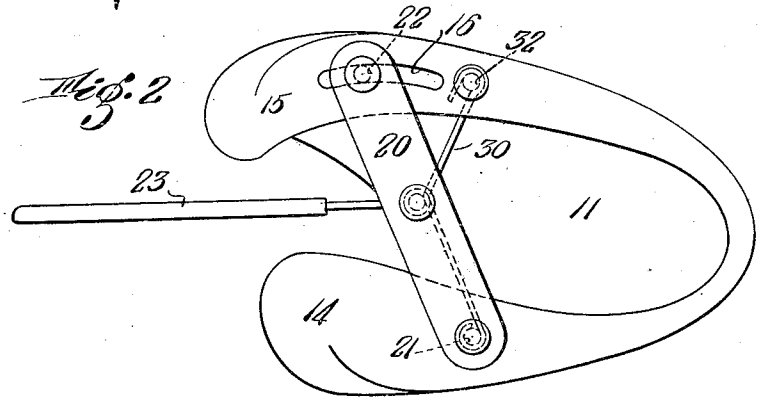


Fig. 3

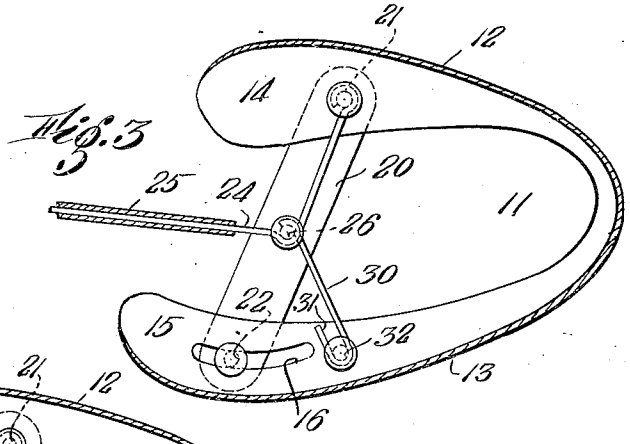
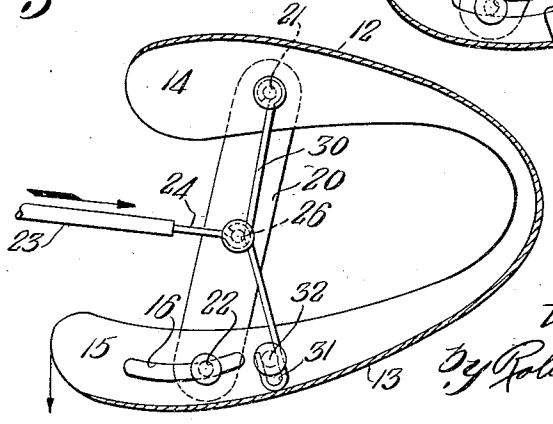


Fig. 4



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Patented May 3, 1932 1,856,750

UNITED STATES PATENT OFFICE

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SHOE FORM

Application filed April 16, 1931. Serial No. 530,514.

This invention relates to an improvement in shoe forms and more particularly to expansible toe forms made of resilient flexible material such as celluloid or the like which inserted into the toes of shoes plump out the material thereof.

The primary object of this invention is to provide means for expanding or contracting the side walls of the toe form comprising a cross brace pivotally secured, at one end, to one side wall and having, at the other end, a slidable engagement with the other side wall and resilient means which normally holds the side walls in the expanded condition.

A further object of this invention is to provide means to facilitate the removal of the toe form from the shoe, such means comprising the treatment of the rear edge of the toe form cone to prevent any retarding engagement of the toe form and shoe upper.

Other objects of the invention will appear from a consideration of the following description and of the drawings which form a part thereof and in which:

Fig. 1 is a side elevation with parts broken away of a shoe form embodying this invention;

Fig. 2 is a bottom plan view of the shoe form illustrated in Fig. 1 in the contracted position;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1 illustrating the toe form and cross brace in the contracted position; and

Fig. 4 is a view similar to Fig. 3 illustrating the toe form and cross brace in the normally expanded position.

The toe form 10 comprises a cone 11, the side walls 12 and 13 of which terminate in inwardly projecting flanges 14 and 15. An arcuate slot 16 is provided in the flange 15 for a purpose described below. These flanges are connected by a cross brace 20, preferably, as here shown, of celluloid or other similar material. One end of the brace 20 is pivotally connected to the flange 14 by a pin 21 and the other end carries a pin 22 which passes through the slot 16 in the flange 15. Pivotally connected to the cross brace 20 intermediate its ends is a rod 23 here shown as a wire 24 covered by a tube 25 and attached to the cross brace by a pin 26.

When the cross brace 20 is swung upon its pivot pin 21 the pin 22 is forced to travel in the slot 16 and the side walls 12 and 13 are thereby expanded or contracted. It has been found desirable to have the side walls normally expanded and the cross brace in the position shown in Fig. 4 with the pin 22 nearer the inner end of the slot 16. This result has been attained by the employment of a resilient wire 30 looped at one end around the stationary pin 21 and having at the other end a hook 31 which is passed around a pin 32 fixed in the flange 15 in advance of the slot 16. The wire 30 is also coiled around the pivot pin 26 and as is apparent from an examination of Fig. 4 tends to hold the form in the expanded condition. The pins 21, 22, 26 and 32 are here shown as rivets but obviously other forms of pins could be employed.

Under retractive pressure exerted through the rod 23 upon the cross brace 20 the cross brace is swung from the position shown in Fig. 4 to that shown in Fig. 3 thus contracting the side walls of the form against the urge of the resilient wire so that the form can more easily be introduced into or withdrawn from the toe of the shoe. As soon as the pressure is released the side walls will resume their normal expanded condition. The hook 31 allows the wire 30 to shift longitudinally when the form is expanded as will be apparent from a comparison of Figs. 3 and 4.

The contraction of the side walls of the form will cause the cone 11 to rise and when in a shoe, the cone contacts more closely with the shoe upper and the rear edge of the cone will bind against the upper and impede the removal of the form. In order to overcome this difficulty the upper rear edge of the cone is rolled downwardly and outwardly, thus providing a transversely extending rounded arc 35 and an outwardly extending flange 36. The flange may be gripped by the fingers of the operator to withdraw the contracted form and the arc being in contact with shoe upper will facilitate its removal.

While one embodiment of this invention has been shown and described, I am not limited thereto since other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. An expansible toe form comprising a body portion including a cone having spaced side walls, a cross brace connecting said side walls and being pivotally secured at one end to one side wall and slidably secured at the other end to the other side wall so that the cross brace is pivotally movable between a position in which the side walls are expanded and a position in which the side walls are contracted, and a resilient wire secured at one end to the pivotal connection of the cross brace and side wall, at the other end to the other side wall and intermediate its ends to the cross brace, said wire normally holding the cross brace in the first of said positions while permitting its movement into the second of said positions.

2. An expansible toe form comprising a body portion including a cone having spaced side walls, a cross brace connecting said side walls and being pivotally secured at one end to one side wall and slidably secured at the other end to the other side wall so that the cross brace is pivotally movable between a position in which the side walls are expanded and a position in which the side walls are contracted, a rod pivotally attached at one end to the cross brace and a resilient wire secured at one end to the pivotal connection of the cross brace and side wall, at the other end to the other side wall and intermediate its ends to the pivotal connection of the rod and cross brace, said wire normally holding the cross brace in the first of said positions while permitting its movement into the second of said positions.

3. An expansible toe form comprising a body portion including a cone having spaced side walls which terminate in flanges one of which flanges has an arcuate slot therein, a cross brace connecting said side walls and being pivoted at one end upon the unslotted flange, a pin carried by the other end of the cross brace and in engagement with said slot so that when the cross brace is swung upon its pivot the pin engaging the walls of the slot causes the side walls to expand or contract, and a resilient wire secured at opposite ends to the flanges and intermediate its ends to the cross brace, said wire normally holding the cross brace in a predetermined position while permitting movement into other positions.

4. An expansible toe form comprising a body portion including a cone having spaced side walls which terminate in flanges one of which flanges has an arcuate slot therein, a cross brace connecting said side walls and being pivoted at one end upon the unslotted flange, a pin carried by the other end of the cross brace and in engagement with said slot so that when the cross brace is swung upon its pivot the pin engaging the walls of the slot causes the side walls to expand or contract, and a resilient wire secured at opposite ends to the flanges and intermediate its ends to the cross brace, said wire normally holding the cross brace in a predetermined position while permitting its movement into other positions, one end of the wire being secured to the pivot of the cross brace and the other end being secured to the slotted flange in advance of the slot therein.

5. An expansible toe form comprising a body portion including a cone which when the form is inserted in the toe of a shoe engages the upper thereof, the upper engaging surface of the cone terminating in a transversely extending rounded arc.

6. An expansible toe form comprising a body portion including a cone which when the form is inserted in the toe of a shoe engages the upper thereof, the cone having a rounded arc adjacent its upper edge and terminating in a rearwardly projecting flange.

Signed by me at Auburn, New York, this 14 day of April, 1931.

WILLIAM J. DE WITT.