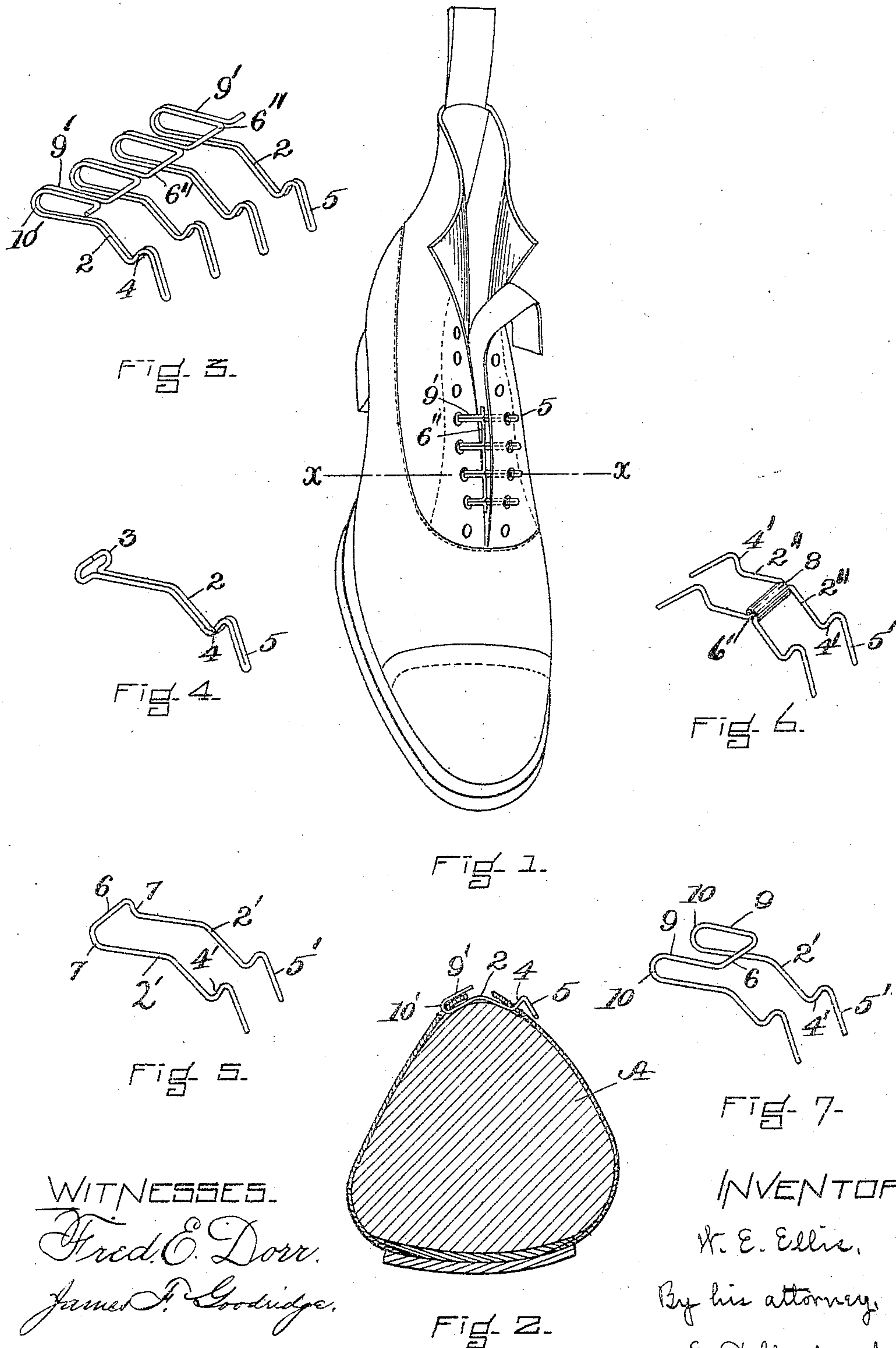


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PATENTED NOV. 8, 1904.

W. E. ELLIS.  
FASTENER FOR SHOE UPPERS.  
APPLICATION FILED MAY 31, 1899.

NO MODEL.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## FASTENER FOR SHOE-UPPERS.

SPECIFICATION forming part of Letters Patent No. 774,659, dated November 8, 1904.

Application filed May 31, 1899. Serial No. 718,811. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN EUGENE ELLIS, a citizen of the United States, residing at Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Fasteners for Shoe-Uppers, of which the following is a specification.

My invention relates to detachable fasteners for temporarily securing together the eyeleted edges of the uppers of lace-shoes while they are being lasted. So far as I am aware the eyelet-engaging hooks or devices employed in all such fasteners hitherto used have been incapable of removal from the eyelets while the upper was under tension, and hence unless the parts of the fastener were separable, and therefore more or less complicated, it has been impossible to use such fasteners in connection with a solid last, because the last could not be removed from the shoe after lasting without destroying the fastener.

A main object of my invention is therefore to provide a simple fastener which may be used in connection with a solid or any other last; and to that end my invention relates primarily to novel eyelet-engaging means, whereby my fastener is adapted to be disengaged from an upper while on a last and under tension, thereby permitting the removal of a solid last from the shoe.

Other features of my invention relate to the body portion of the fastener and provide a fastener which will secure two or more pairs of eyelets at once and will also be self-adjusting to shoes having differently-spaced eyelets and to lasts having different contours.

A preferred form of fastener embodying my invention is illustrated in Figure 1 of the accompanying drawings, in which a shoe is shown in perspective with the fastener in place therein. Fig. 2 is a section on the line  $x x$  in Fig. 1, showing a last within the shoe. Fig. 3 is a perspective view of a fastener, such as shown in Fig. 1, detached from the shoe. Fig. 4 is a perspective view of a simpler form of fastener embodying my novel eyelet-engaging means. Figs. 5 and 6 are similar views of modified forms of fasteners. Fig. 7 is a simi-

lar view of a simple fastener of the type shown in Figs. 1 and 3.

My fastener may be described in a general way as comprising a connecting body portion adapted to extend across the opening between the sides of an upper and provided at one end with any suitable means for engaging and retaining one or more eyelets and consisting at its other end of one or more tongues each having an upwardly-projecting shoulder making substantially a right angle with said tongue, the free end of the latter being extended beyond said shoulder and bent away from the same and downward or, in other words, into a position adjacent to the top of the upper. A simple form of fastener embodying this construction is shown in Fig. 4, consisting of a tongue 2, adapted to be passed through two opposite eyelets and having an eyelet engaging and retaining head or hook 3 at one end and bent upwardly near its other end to form a shoulder 4, the free end 5 of the tongue 2 being bent over slightly beyond its original direction, as shown.

In use the tongue 2 is threaded through two opposite eyelets and holds the parts of the upper in proper relation to each other by the engaging of the head 3 with one eyelet and the hook or shoulder 4 with the other, the downwardly-projecting free end 5 serving by bearing against the top of the upper to keep the adjacent eyelet from slipping off the hook 4 while the upper is being handled preparatory to placing it upon the last and putting it under the tension of the lasting process. When so put under tension, the strain draws the upper tightly over the top of the last A, and thus draws the eyelets into the bottoms of their respective hooks, the sides of the upper being thus tied together in an obvious manner. I prefer to make this fastener of wire, and to bend it slightly at its center, as shown, so that it will conform substantially to the transverse contour of the last.

It will be seen that the upwardly-projecting hook or shoulder 4 makes substantially a right angle with the tongue 2, and hence will stand perpendicular, or nearly so, to the adjacent surface of the last, so that although



the upper will have no tendency to slip off said hook on account of any tension put upon it by the lasting process, yet it may easily be released from the fastener when desired, even while under tension, by merely slipping its edge up the hook 4, over the rounded upper end thereof and off the free end 5, thus entirely removing that side of the upper from the fastener and permitting the sides of the upper to be separated and the last to be withdrawn.

It is usually desirable to tie more than one pair of eyelets during the lasting process, and I have shown in Figs. 1, 3, 5, 6, and 7 fasteners adapted to tie two or more pairs of eyelets at once. Thus in Fig. 5 I have shown a fastener made of a single piece of wire bent to form two parallel tongues 2', each provided with a double bend forming a hook 4' and free end 5', as above described. The portion 6 of this fastener which connects the two tongues 2' serves also to retain that end of the fastener in engagement with the corresponding eyelets, and the connected ends of said tongues 2' are preferably bent upward slightly, forming shallow hooks 7, which receive the eyelets without tilting them, thus permitting the edge of the upper to lie flat on the last.

In Fig. 6 I have shown a hinged fastener made of two similar portions, each like the fastener shown in Fig. 5, except that the tongues 2'' are only about half as long, these two portions being placed with their respective connecting portions 6' adjacent to each other and hinged together by means of a clip 8, wrapped around said portions 6', or in any other suitable manner. The hinge 8 lies over the central line of the front of the last when in use and permits the fastener to adapt itself perfectly to any form of last, whether its front edge be sharp or blunt. This form of fastener may be detached from the upper at either end independently of its other end, as will be obvious.

Inasmuch as the distance between adjacent eyelets is often different in different factories it is desirable that a fastener which serves to tie more than one pair of eyelets at a time shall be capable of adjustment to correspond with such different distances, and one portion of my invention provides a fastener which will adjust itself automatically to a limited extent to such variations in the spacing of the eyelets regardless of the number of pairs of eyelets secured by the fastener and will also adjust itself to fit the contour of the front edge of the last. To this end I prolong the connected ends of the tongues and provide eyelet-engaging means on said tongues between said connected ends and the eyelet-engaging shoulders and at the proper distance from the latter, preferably by bending the extensions 9 of the tongues 2' over into substantial par-

allelism with said tongues 2', hooks or bends 10 being thus provided, in which the corresponding eyelets are retained. A double fastener thus constructed is shown in Fig. 7, and the adjustability of this form of fastener results from the flexibility of the extensions 9 and connecting portions 6, which permits the tongues 2', with their hooks 10 and 4', to approach or recede from each other to correspond with the distances between the eyelets through which they are inserted and also makes the fastener as a whole self-conforming to the profile of the last.

A fastener having more than two tongues can be made from a single piece of wire by doubling the wire to form each tongue and forming a connecting portion 6'' out of each portion of the doubled wire. A fastener thus constructed and having four tongues 2 is shown in Figs. 1 and 3, and this is my preferred form of fastener, since it is usually best to tie the upper at four points, at least, in order to divide the strain between the eyelets and hold the upper more accurately in its proper position. I prefer also to make the length of the tongues 2 between the hooks 4 and 10' increase progressively by a slight amount from one end of the fastener to the other, as shown in Figs. 1 and 3, in order to leave a narrow V-shaped aperture between the edges of the upper when the shoe is finished.

It is to be understood that the main feature of my present invention is the upwardly-extending eyelet-engaging shoulder combined with the downwardly-projecting free end, and the same may be applied to or used in connection with many different forms and styles of connecting portions other than those herein shown and described.

My fastener may be used for relasting a shoe in connection with a hinged last or a block-last by inserting the fastener before thrusting in the block or hinged portion of the last.

I do not claim broadly herein an eyelet-engaging hook extended to form a free end which is bent abruptly with respect to said hook and serves by engaging the upper when not under tension to prevent the accidental displacement of said hook from its eyelet, nor do I claim herein a fastener having its body portion centrally hinged, substantially as shown in Fig. 6, as said constructions form, respectively, the subject-matter of United States Letters Patent No. 688,297, granted to me December 10, 1901, and of United States Letters Patent No. 704,451, granted to me July 8, 1902.

I claim as my invention—

1. A detachable fastener for shoe-uppers comprising a connecting body portion provided at one end with eyelet engaging and retaining means, and provided near its other end with an upwardly-extending eyelet-engaging shoulder making substantially a right



angle with the connecting portion, said latter end being bent away from said shoulder and downward, for the purpose set forth.

2. A detachable fastener for shoe-uppers comprising two or more tongues connected together at one end and each provided near its free end with an upwardly-extending eyelet-engaging shoulder making substantially a right angle with said tongue, said free end being bent away from said shoulder and downward, for the purpose set forth.

3. A detachable fastener for shoe-uppers comprising a plurality of tongues, said tongues at one end being provided with downwardly-bent shouldered eyelet engaging and retaining tips, and at the other end with eyelet-engaging portions, said last-named portions being extended beyond the eyelet-engaging parts and connected at a distance therefrom, whereby flexibility of the fastener is secured

and it is rendered self-adjustable to differently-spaced eyelets.

4. A detachable fastener for shoe-uppers comprising a plurality of tongues, said tongues at one end being provided with downwardly-bent shouldered eyelet engaging and retaining tips, and at the other end with bent-over eyelet-engaging portions, said last-named bent-over portions being extended beyond the eyelet-engaging bends and connected at a distance therefrom, whereby flexibility of the fastener is secured and it is rendered self-conformable to differently-shaped lasts and self-adjustable to differently-spaced eyelets.

In testimony whereof I have hereunto subscribed my name this 25th day of May, 1899.

WARREN EUGENE ELLIS.

Witnesses:

E. D. CHADWICK,

E. B. TOMLINSON.