(No Model.)

W. L. JUDSON.

SHOE FASTENING.

No. 504,037. Patented Aug. 29, 1893.

Fig. 1.

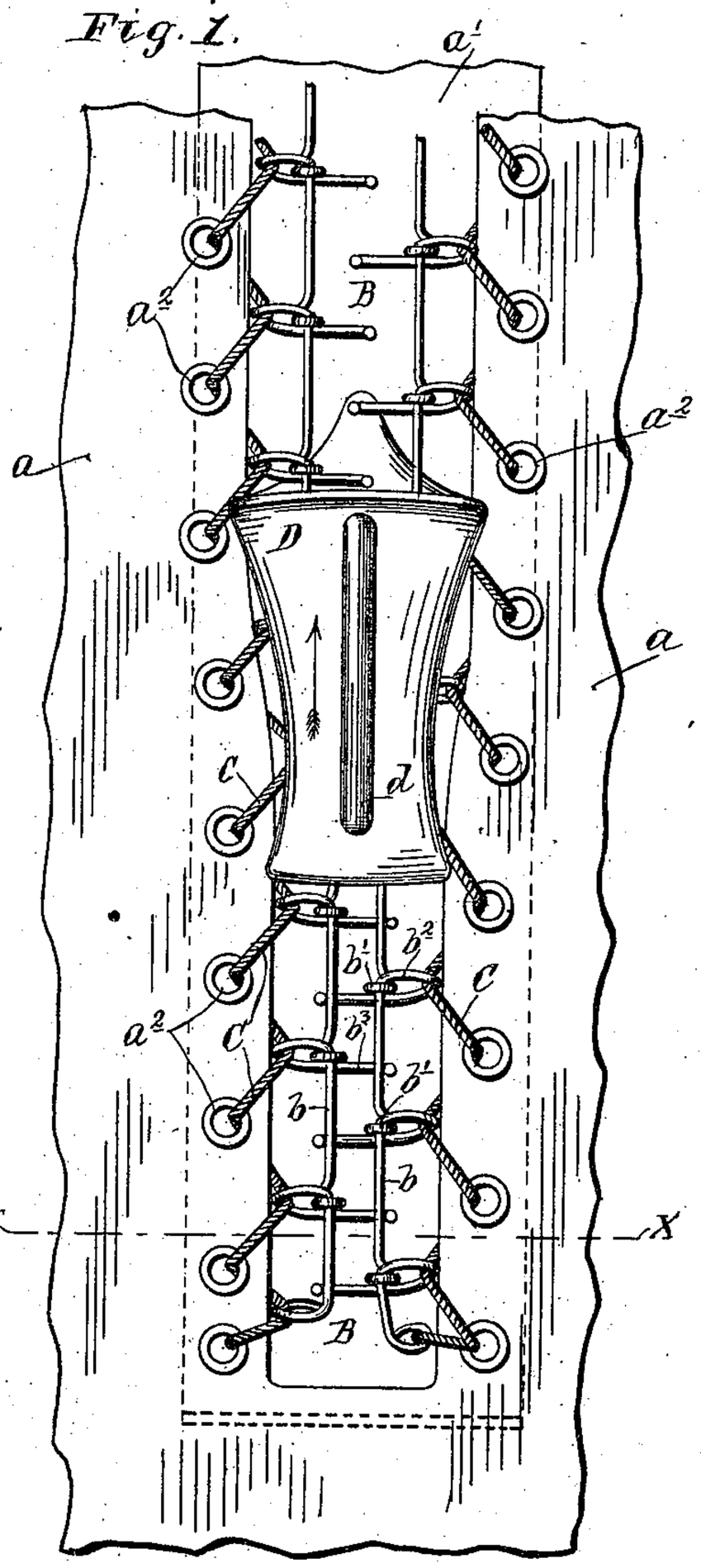


Fig. 2

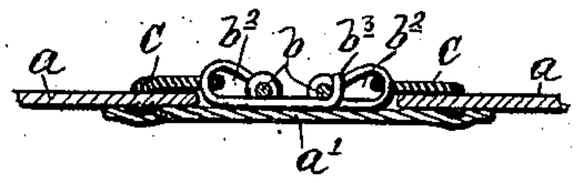


Fig. 3.

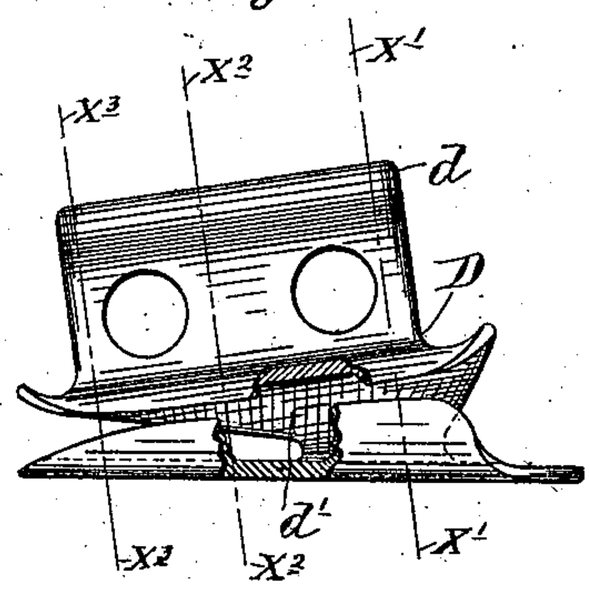


Fig. 4.

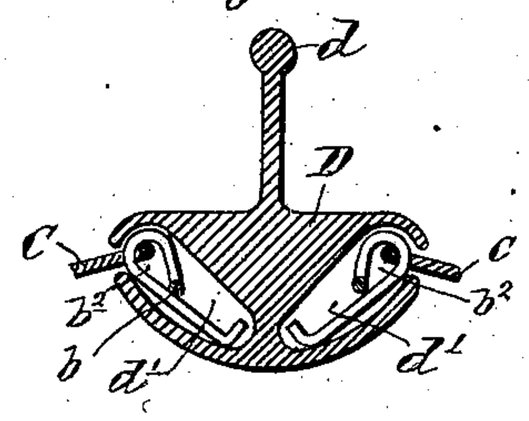


Fig. 5.

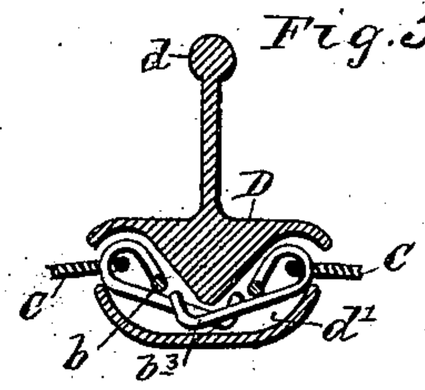


Fig. 6.

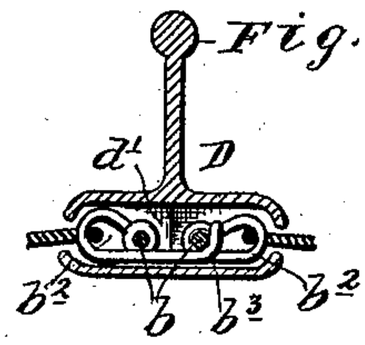
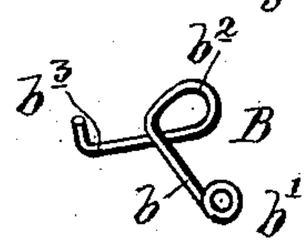


Fig. 7.



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UNITED STATES PATENT OFFICE.

WHITCOMB L. JUDSON, OF CHICAGO, ILLINOIS.

SHOE-FASTENING.

SPECIFICATION forming part of Letters Patent No. 504,037, dated August 29, 1893.

Application filed August 17, 1892. Serial No. 443,353. (No model.)

To all whom it may concern:

Be it known that I, WHITCOMB L. JUDSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Clasps for Fastening Shoes, &c.; and I do heréby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to clasps, serviceable for shoe fasteners, or other similar use, and is in the nature of an improvement in that class of fasteners shown and described in my pending application, filed of date November 7, 1891, under Serial No. 411,155. In common with said former application, I employ herein a series of clasps securable to the flaps of the shoes or other corresponding parts to be fastened, for securing the same together, and I use in connection therewith a hand device similar to that shown in my former case for automatically engaging or disengaging the entire series of clasps by a single continuous movement. My present invention is, however, directed particularly to the form of the clasps or interlocking parts and to the means for securing the same to the flaps of the shoes; and consists in the novel features of construction hereinafter fully described and particularly defined in the claims.

The invention is illustrated in the accompanying drawings, wherein, like letters referring to like parts throughout the several views, Figure 1 is a plan view showing a portion of the flaps of the shoe, with the interlocking clasps secured thereto, and the hand device in its locking action; and Fig. 2 is a transverse section of the same taken on the line X X of Fig. 2. Fig. 3 is a side elevation of the hand device. Figs. 4, 5 and 6 are transverse vertical sections taken respectively, on the lines X′ X′, X^2 X^2 and X^3 X^3, of Fig. 4, showing the action of the hand device on the interlocking parts. Fig. 7 is a detail, in perspective, showing one of the interlocking parts of the series detached.

The parts shown in Figs. 2, 3, 4, 5, 6, and 7 are all enlarged from their normal sizes, in the proportions of about three to one, for the purpose of better illustrating the construction of the same.

A represents an ordinary shoe, provided with the flaps *a* and the tongue *a′*. The flaps have eyelets a^2, for co-operation with draw cords, as will presently appear. The parts of the clasps are pivotally connected together, so that each series of parts in reality constitutes what may, for distinction, be called a chain. One chain of parts is connected to one flap and the other chain of parts to the other flap.

The particular sections or links of each chain have projecting hooks which engage with the corresponding links or sections of the other chain, for securing together the flaps or other parts to be fastened. Each section or link is preferably constructed of a piece of steel wire or other suitable material, which is bent to form the pivot rod or body portion *b*, constituting the longitudinal part of the link, the pivot eye *b′* for connection with the next adjacent link, the cord loop b^2, for connection directly or indirectly with the shoe flaps, and the transversely projecting hooks b^3, for interlocking with the corresponding link or section of the other chain.

The individual links or sections, as entireties are designated by the letter B.

The pivot eye *b′* is so located, that when it is connected with the opposite extremity of the next adjacent link or section, the said connecting joint between the links of the chain will be at a point immediately inward of the cord loops b^3. In virtue of this construction and connection of the links, any one link or section of the chain may be given an independent pivotal movement on its longitudinal axis without any movement of the adjacent sections, or of the chain as an entirety. This fact particularly adapts the fastener to the use of my particular form of hand device, for locking or unlocking all the clasps, by a single continuous movement of the said hand device longitudinally of the chains. It should be also noted that the corresponding sections or links of the opposing chains are positioned longitudinally, so as to break joints with each other. Hence, the interlocking hooks b^3, of the one chain, will stand opposite the central portions or the pivot rods *b*, of the other

chain, in position to engage therewith, to lock the parts together. This arrangement removes the necessity of a fine longitudinal adjustment of the clasps, and will permit considerable play of said parts under the action of the hand device or otherwise, without preventing or hindering their engagement.

Another important feature in the construction and arrangement of the interlocking parts lies in the fact that the engaging portions of the hooks b^3 are turned upward and are engaged with the pivot-rod b of the corresponding section of the other chain, by an underhooking action, and are held in their engaged position by the upward pressure of the foot against the tongue of the shoe. Hence, it is not necessary to construct the engaging portions of the hooks b^3 with return ends. They are preferably made simply in the form of stop lug projections which will resist lateral strain; which fact permits the two parts of the clasps or fasteners to be engaged without overdrawing the flaps beyond the position occupied by the same when fastened together.

The chains are secured to the shoe flaps, in my preferred construction, by the draw-cords or lacing strings C, in engagement with the cord loops b^2, on the links or sections of the respective chains and the eyelets a^2 on the respective shoe flaps. These lacing string connections give the very important advantage of permitting either or both chains to be adjusted in respect to the flaps, thereby securing a perfect fit of the shoe to the foot and an adjustment of the parts after they are stretched from the wear or usage of the shoe. Incidentally also, an appearance is produced similar to that of a laced shoe.

D is the hand-device consisting of a movable guide provided with a finger piece d, and having cam ways d' for permitting the passage of the clasps, by the movement of the guide from one end to the other of the series. These camways are so shaped and related that by the passage of the guide in one direction, the clasps will be depressed and drawn together and engaged; while by the passage of the guide in the other direction, the clasps will be depressed, disengaged, and separated. In other words, one end of the guide has two channels or grooves with flaring mouths for receiving the two parts of the clasps when opened or disengaged, and this may be called the gathering or forward end of the guide, in contradistinction to the other or rear end of the guide, which has a single channel or camway with flaring mouth into which the two camways of the said forward end converge.

In Fig. 2, the arrow indicates the movement of the guide to effect the engagement of the clasps, while by reversing the direction of its movement, or, preferably by reversing the guide end for end, and then moving it in the same direction as before, over the engaged clasps, the disengagement of the entire series will be effected. In other words, a single continuous movement of the hand device will engage or disengage all the clasps. The construction of the said guide with converging cam-ways and the action of the cam-ways upon the clasps in passing over the same are illustrated in the sectional views 5, 6 and 7. Fig. 5 shows the entering position at the forward or gathering end, Fig. 6 the intermediate position, and Fig. 7 the delivery position at the rear end, in the locking action. In the unlocking action, Fig. 7 would illustrate the entering and Fig. 5 the delivery position. In this locking and unlocking action, under the movement of the hand device, the pivot rod portions b are raised to give the necessary dip or angular depressions to the engaging ends of the hooks b^3. The shoe flaps a and the lacing strings C, will yield in respect to the shoe and foot, to permit this action.

It will be seen, that the hand device D is practically the same in principle of construction and operation as the hand device fully described and broadly claimed in my above noted pending application. The only difference is that the angle or dip is reversed, so that the clasps are depressed and underhooked instead of being raised and overhooked as in the other case.

It is obvious that if the adjustment of the clasps with reference to the flaps is not desired, the loops b^2 of the interlocking sections B may be secured directly to the said flaps, as, for example, by engaging the same with the eyelets a^2.

It is also evident that various other changes in the details of construction and arrangement might be made, without departing from the spirit of my invention.

It will also be understood that while the invention has been shown and described as applied for fastening shoes, it is equally applicable for fastening gloves, mail-bags and generally, wherever it is desired to detachably connect a pair of adjacent flexible parts.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A fastener for shoes, or similar uses, comprising two series of links or sections respectively securable to the flaps to be fastened, the links of each series being connected together and provided with hooks constructed to interlock with the links of the opposite series, substantially as described.

2. A fastener for shoes, or similar uses, comprising two series of links or sections respectively securable to the two shoe flaps or other parts to be fastened, the links of each series being pivoted together by swiveled joints and provided with hooks constructed to interlock with the links of the opposite series, substantially as described.

3. A fastener for shoes, or similar uses, comprising two series of connected links or sections respectively securable to the flaps or other parts to be fastened, the links of each series being provided with upwardly projecting hooks constructed to engage by an underhooking action, whereby they may be retained

in engagement by pressure from beneath, substantially as described.

4. A fastener for shoes, or similar uses, comprising two series of links or sections respectively securable to the flaps to be fastened, the links of each series being connected by swiveled joints and each constructed with a longitudinal rod portion and a transversely projecting hook adapted to engage with the rod portion of the corresponding link in the opposite series, substantially as described.

5. A fastener for shoes or similar use, comprising two series of links or sections, respectively, securable to the flaps, the corresponding sections of which are arranged to break joints with each other, each of the said sections being formed with the pivot rod b, having at one end the pivot-eye b', and at the other the loop b^2 and the projecting interlocking hook b^3, connected and operating, substantially as described.

6. The combination with a series of clasps for fastening adjacent parts, such as shoe flaps, of a draw cord or cords, connecting one or both members of the clasps to the parts to be fastened, whereby the entire series of clasps may be adjusted at will, relatively to said parts substantially as and for the purpose set forth.

7. The combination with the shoe flaps a', or other corresponding parts to be fastened, provided with the eyelets a^2, of the fastener consisting of two series of sections or links securable one to each of said flaps and composed each of the pivotally connected sections B, consisting of the pivot-rods b having the pivot-eyes b', the cord loops b^2 and the hooks b^3, operating as described, and the draw-cords C passing through the loops b^2 and the flap eyelets a^2, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WHITCOMB L. JUDSON.

Witnesses:
S. C. DAVIS,
A. I. SMITH.