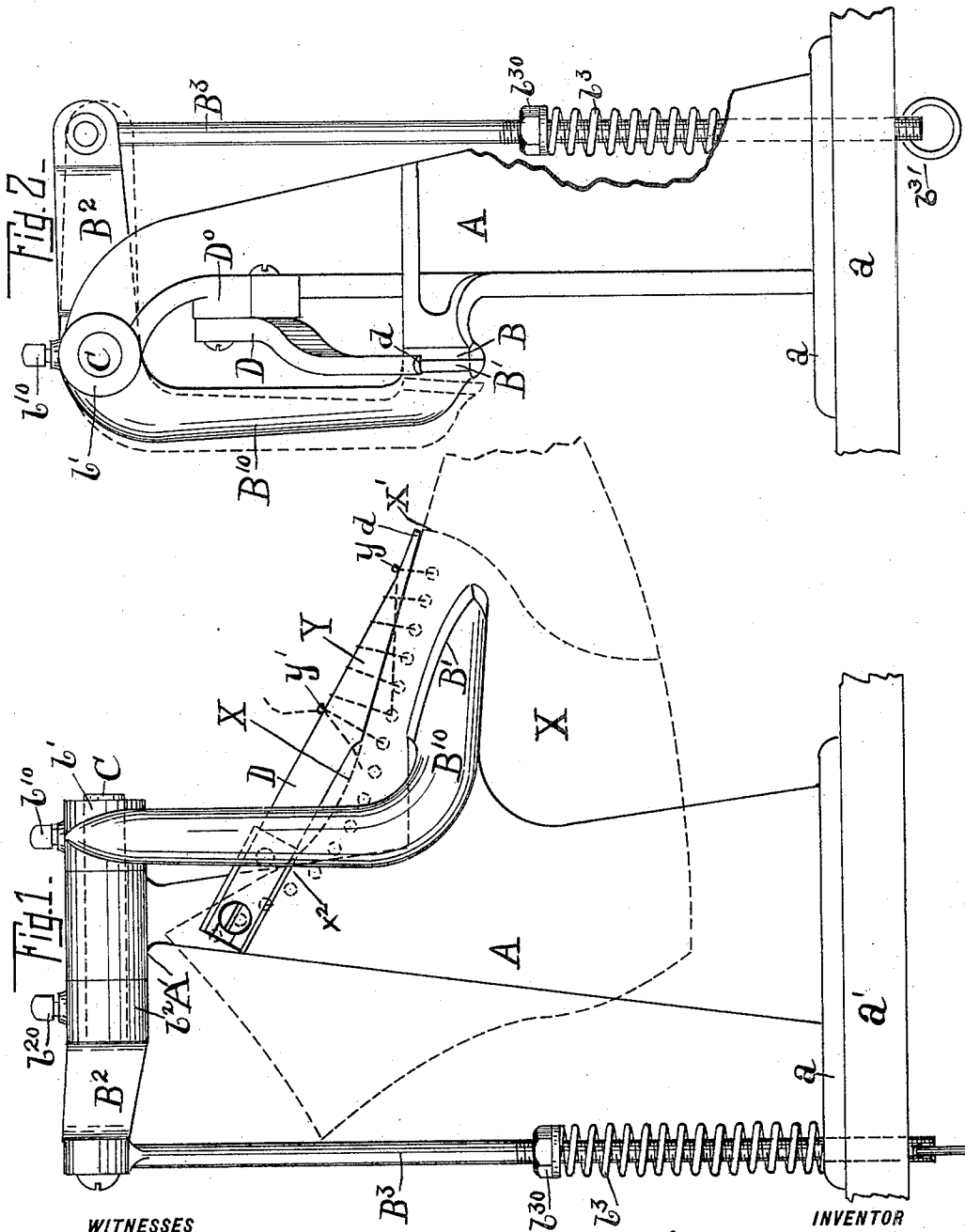


S. A. WEST.
LACING DEVICE FOR SHOE UPPERS.

No. 599,485.

Patented Feb. 22, 1898.



WITNESSES

A. R. Selden.
C. E. Major.

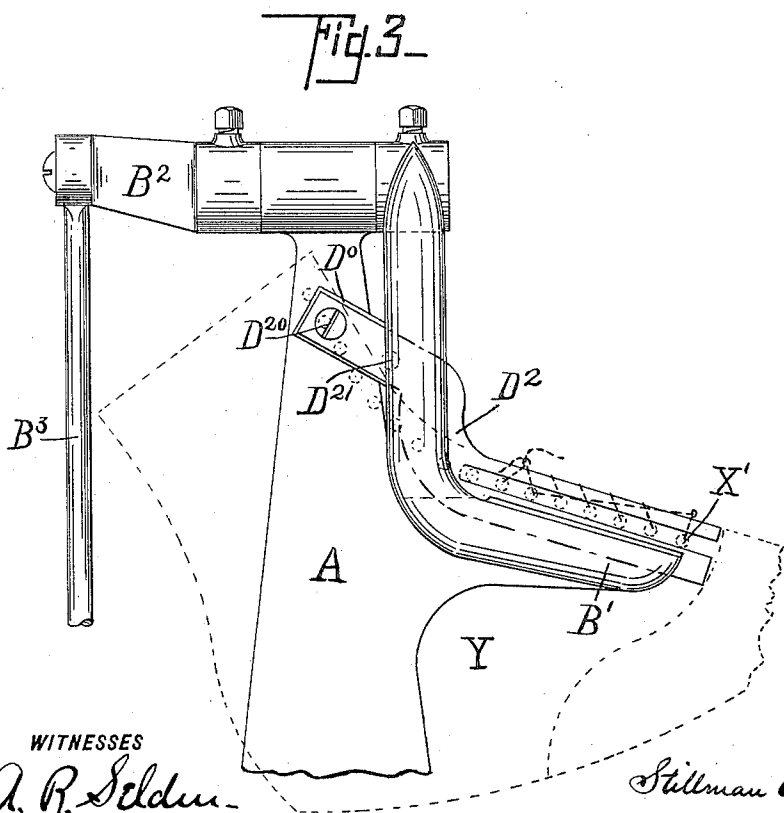
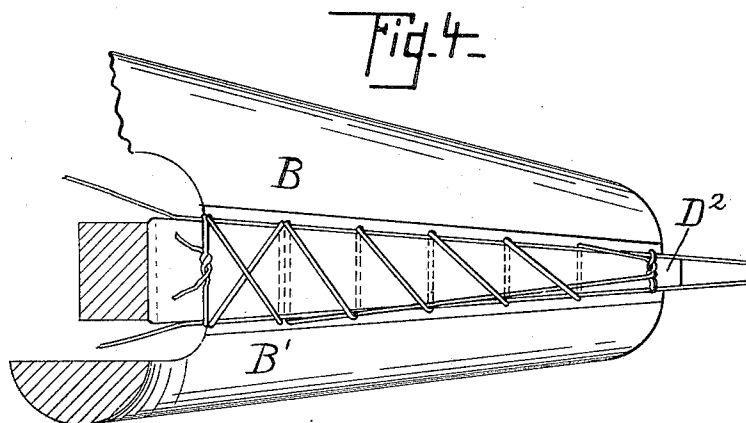
INVENTOR

Stillman A. West
BY
Howard L. Osgood
ATTORNEY

S. A. WEST.
LACING DEVICE FOR SHOE UPPERS.

No. 599,485.

Patented Feb. 22, 1898.



WITNESSES

A. R. Selden.
E. Major.

INVENTOR

Stillman A. West

BY

Howard L. Osborn

ATTORNEY

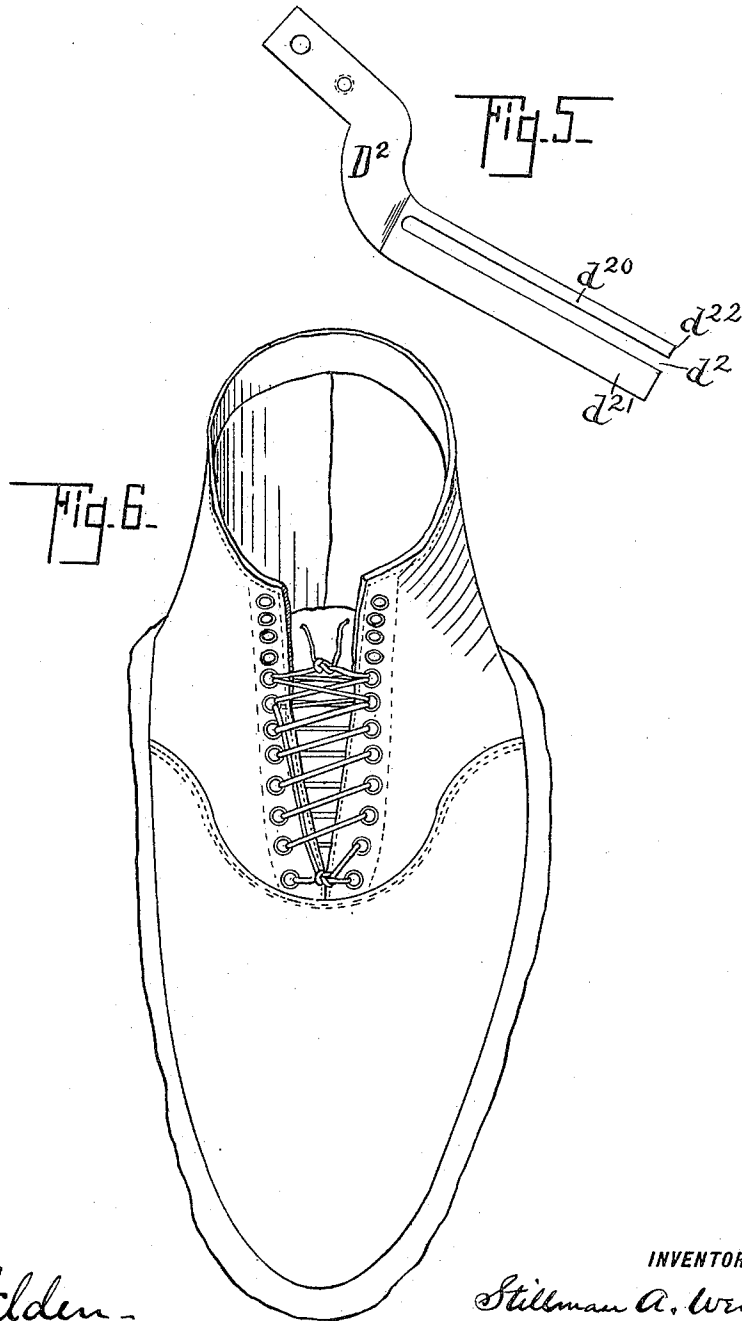
(No Model.)

3 Sheets—Sheet 3.

S. A. WEST.
LACING DEVICE FOR SHOE UPPERS.

No. 599,485.

Patented Feb. 22, 1898.



WITNESSES
A. R. Selden.
B. E. Major.

INVENTOR
Stillman A. West
BY
Howard L. Osborn
ATTORNEY

UNITED STATES PATENT OFFICE.

STILLMAN A. WEST, OF ROCHESTER, NEW YORK.

LACING DEVICE FOR SHOE-UPPERS.

SPECIFICATION forming part of Letters Patent No. 599,485, dated February 22, 1898.

Application filed May 5, 1897. Serial No. 635,274. (No model.)

To all whom it may concern:

Be it known that I, STILLMAN A. WEST, a citizen of the United States, and a resident of the city of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lacing Devices for Shoe-Uppers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a front elevation thereof. Fig. 3 is a side elevation of the upper part of a modified embodiment of my invention. Fig. 4 is a top plan of the holding-jaws and gage-bar of the modification shown in Fig. 3. Fig. 5 is a side elevation of the detached gage-bar shown in Figs. 3 and 4, and Fig. 6 is a view of a shoe-upper after having been laced by the use of my device.

In the manufacture of shoes the upper is formed complete and ready for attachment to the sole—inner or outer, as the case may be. The upper is then placed upon a last in order that when it is drawn to the sole or insole it may have the proper conformation. The last fits tightly in the upper, and the upper is stretched and tightly fastened to the sole or insole in the processes of lasting and of sewing. In order that in the case of laced shoes the shoe should fit properly over the instep of the last, it is necessary to insert a lacing-cord through the eyelet-holes formed in the free edges of the upper and that said lacing-cord should be tight in order that the upper shall fit properly upon the last and subsequently upon the foot of the wearer. The length of the lacing-cord used in this preliminary lacing determines the distances of the eyeleted edges of the upper from each other during the subsequent processes to which the upper is subjected. This operation has heretofore been performed by hand with results which vary considerably, because of the fact that the length of the lacing-cord is not properly gaged.

For the purpose of gaging the length of the lacing-cord, and hence determining the distances of the eyeleted edges of the upper from each other when the upper is lasted, and in order to provide a means for giving a vary-

ing distance of said edges from each other, I have produced the device described and claimed in this application, whereby I secure uniformity of results, ease in use, and simplicity and cheapness in the manufacture of the device itself.

In Figs. 1 and 3 of the drawings the upper and lacing are shown in dotted lines, while the machine proper is shown in full lines.

In Figs. 1 and 2 a suitable standard A is provided with a fixed jaw B, which for convenience is cast integral with said standard, and a journal-bearing A' for a shaft C, the ends of which project on either side of the bearing A'. Upon one end of the shaft C is a collar b' , adjustable on the shaft by means of a set-screw b^{10} , carrying an integral depending arm B¹⁰, which bears on its lower end a jaw B', corresponding in form and position to the fixed jaw B. The other end of the shaft C bears a collar b^2 , adjustable on the shaft by a set-screw b^{20} , and integral with the collar is a lever-arm B², so that by rocking the lever-arm B² the movable-jaw arm B¹⁰ is rocked, as shown in full and dotted lines in Fig. 2, and the movable jaw B' moves to and from the fixed jaw B. From the arm B² depends a rod B³, having adjusting-nuts b^{30} thereon, and a coiled spring b^3 around the rod B³ and pressing at one end against the foot a of the standard A and with the other end against the adjusting-nuts b^{30} , so that the amount of pressure of the jaw B' toward or against the fixed jaw B may be suitably adjusted. The rod B³ may pass through the table a , upon which the whole device rests, and by a ring b^{31} or in any suitable manner may be connected with a treadle or other device under the table, where- by the movable jaw B' may be opened by the foot of the operator.

To a suitable portion of the frame A, such as the lug D⁰, and preferably above the level of the jaws B B' is fastened a gage-bar D, the under side of which is above the jaws B B' and which extends substantially parallel to said jaws to a suitable distance, as hereinafter described. The gage-bar D tapers toward the free end d . If the jaws B B' are now opened by depressing the rod B³, the eyeleted edges x^2 of an upper X, flat against each other, are inserted between said jaws. The said upper is then brought against the under side of the

gage-bar D, and the front end of the quarter X' is brought to register with the extreme end d of said gage-bar. The jaws are then brought together, and inasmuch as the distance from the upper edges of the jaws to the lower edge of the gage-bar is made sufficient for that purpose the two rows of eyelet-holes x^2 in the two eyeleted edges are brought opposite each other and stand between the upper edges of the jaws B B' and the under side of the gage-bar D. The position of the upper just described gives a uniform position of the eyeleted edges of the upper with reference to the gage-bar, and when the rod B³ is released the jaws B B' clamp the upper in a position so that the lacing-cord may be passed through the eyelet-holes and around the gage-bar D with great ease.

As before stated, the gage-bar tapers and decreases in size toward the free end. In Figs. 1 and 2 this gage-bar is of uniform transverse thickness, but tapers longitudinally. The lacing-cord Y is preferably passed through the pair of eyelet-holes nearest to the front end of the quarter and is knotted, as at y , around the bar D. Thence the lacing extends through the series of eyelet-holes for a suitable distance, passing through the same and around the bar D until it is knotted again, as at y' , at a point which is far enough from the front end of the quarter to lace the upper wherever the last can press against the same in the subsequent operations. In Fig. 1 this lacing extends for the distance of seven eyelet-holes.

I find it convenient to wind the lacing around the gage-bar and through the eyelet-holes in the manner shown in the figures substantially as follows: After having passed the lacing through the opposite and registering eyelet-holes nearest the front end of the quarter I knot it, as at y , and then taking one end of said lacing-cord I pass it through the next pair of eyelet-holes and around the gage-bar and repeat this operation until as many pairs of holes are laced as desired. The other end of the lacing-cord I pass through the pair of eyelet-holes next to the last ones laced, counting from the front end of the quarter, wind it over the gage-bar, but in the opposite winding from that of the first-named end of the lacing-cord, and then knot the two ends, as at y' . On releasing the jaws B B' from the upper the tapered form of the gage-bar D permits the upper and lacing-cords to be stripped longitudinally from the gage-bar D, and when the edges of the upper are pulled apart they take position substantially such as are shown in Fig. 6, whereby the eyeleted edges are held by the lacing-cord in definite positions with reference to each other, which may be either nearly parallel or at considerable angle, depending upon the length of cord used and the knottings thereof, which in the instances shown are fixed by the size and shape of the gage-bar D. The upper is then ready for the subsequent processes, and,

according to the taper of the gage-bar D, which may be uniform or variable, as desired, the space between the eyeleted edges of the upper is definitely determined.

In Figs. 3, 4, and 5 is shown another form of gage-bar. This gage-bar is uniform in vertical thickness, but tapers, as seen in Fig. 4, in a transverse plane. This gage-bar D² has a transverse longitudinal slot d^2 dividing the free end into an upper portion d^{20} and a lower portion d^{21} . The portion d^{21} rests between the jaws B B' and is capable of a slight rocking motion around a pin or screw D²⁰, which holds the bar to the frame A, which motion is guided by a pin D²¹, moving in a socket in the lug D⁰. The gage-bar, therefore, is movable to permit one edge of the upper Y to be inserted between the side of the gage-bar and the fixed jaw B, while the movable jaw B' opens when moved by the rod B³ to permit the other edge of the upper to be inserted between said movable jaw and the corresponding side of the gage-bar D². The upper edge of the arm d^{20} is so adjusted with reference to the slot d^2 that when the edges of the upper are brought level with the upper edges of the arm d^{20} the eyelet-holes x^2 of each quarter register with the slot d^2 . The free end d^{22} of the arm d^{20} is in such a position that it registers with the front end of the quarter in the same manner as has been described with reference to the free end d with the gage D. The lacing is performed, in the case of the modification just described, in the same way as with the form of my device first described herein, and when the lacing has been performed the upper may be stripped from the gage-bar, because it is tapered and in the same manner as above described.

In this specification and in the claims following the jaws B B' constitute a holding device and a clamping device for the eyeleted edges of the upper. The gage-bar determines both the length of the lacing-cord for lacing the edges of the upper at predetermined distances apart and for determining the position of the upper longitudinally with respect to said gage. It is further understood that the words "eyeleted" or "eyelets" include not only the tubular eyelets, such as are usually employed in shoes, but also mere eyelet-holes without eyelets inserted therein and also lacing-hooks and other similar devices, and it is further to be understood that I do not limit the scope of my claims to any greater extent than the state of the art necessarily requires.

In the drawings the upper is shown with the vamp on it. My device, however, is particularly applicable to the lacing of an upper before the vamp is attached thereto.

What I claim is—

1. The combination of a holding device for a shoe-upper and gaging means for determining the length of lacing-cord for lacing the eyeleted edges of the upper whereby to determine the distance of said edges from each other when laced.

2. The combination of a holding device for a shoe-upper and gaging means for determining the length of lacing-cord for lacing the eyeleted edges of said upper at predetermined distances apart and for adjusting the positions of said edges with reference to said gaging means.

3. The combination of a clamping mechanism adapted to hold the eyeleted edges of a shoe-upper, and a gage-bar fixed in position adjacent to said clamping mechanism and around which a lacing-cord is wound for lacing said eyeleted edges at distances apart predetermined by the form and size of said bar.

4. The combination of a clamping mechanism adapted to hold the eyeleted edges of a shoe-upper, and a tapered gage-bar fixed in position adjacent to said clamping mechanism and around which a lacing-cord is wound for lacing said eyeleted edges at varying distances apart predetermined by the taper of said bar.

5. The combination with a frame having a fixed clamping-jaw and a spring-operated movable jaw, for holding the eyeleted edges of a shoe-upper between said two jaws, of a gage-bar fixed to the frame and adjacent to said jaws, and against which the upper is held by said jaws, whereby the lacing-cord may be passed through the eyelets and around said bar for determining the distances of said edges from each other when laced.

6. The combination with a frame having a

fixed clamping-jaw and spring-operated movable jaw, for holding the eyeleted edges of a shoe-upper between said jaws, of a tapered gage-bar fixed to the frame and adjacent to said jaws, and against which the upper is held by said jaws, whereby a lacing-cord may be passed through the eyelets and around said bar for determining the varying distances of said edges from each other when laced.

7. The combination with a holding device for holding the eyeleted edges of a shoe-upper, of a gage-bar for determining the position of said edges longitudinally with respect to said gage-bar.

8. The combination of a holding device for a shoe-upper and a gage-bar for determining the length of lacing-cord for lacing the eyeleted edges of the upper to determine the distance of said edges from each other when laced and for determining the position of the upper longitudinally with respect to said gage-bar.

9. The combination of a holding device for a shoe-upper and a tapered gage-bar for determining the length of lacing-cord for lacing the eyeleted edges of the upper to determine the distance of said edges from each other when laced and for determining the position of the upper longitudinally with respect to said tapered gage-bar.

STILLMAN A. WEST.

Witnesses:

W. C. KOHLMETZ,
C. R. OSGOOD.