

L. WEINSTEIN.
LACE TIPPING TOOL.
APPLICATION FILED JULY 19, 1918.

1,308,516.

Patented July 1, 1919.

2 SHEETS—SHEET 1.

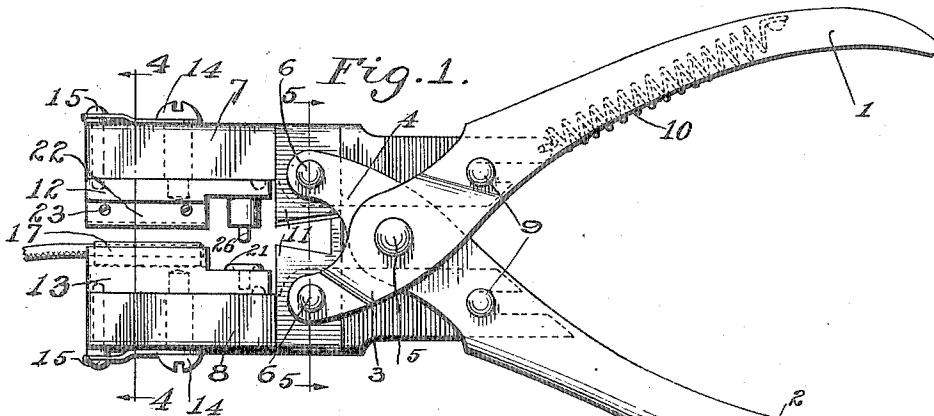


Fig. 2.

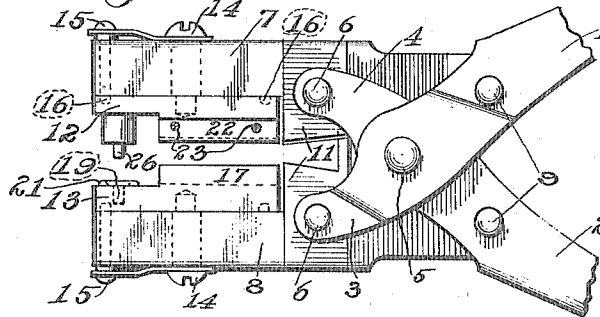


Fig. 4.

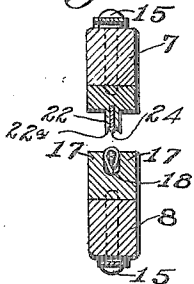
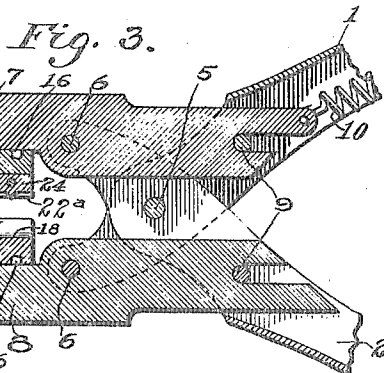
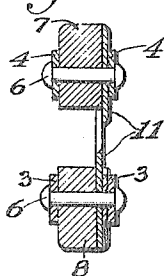


Fig. 5.



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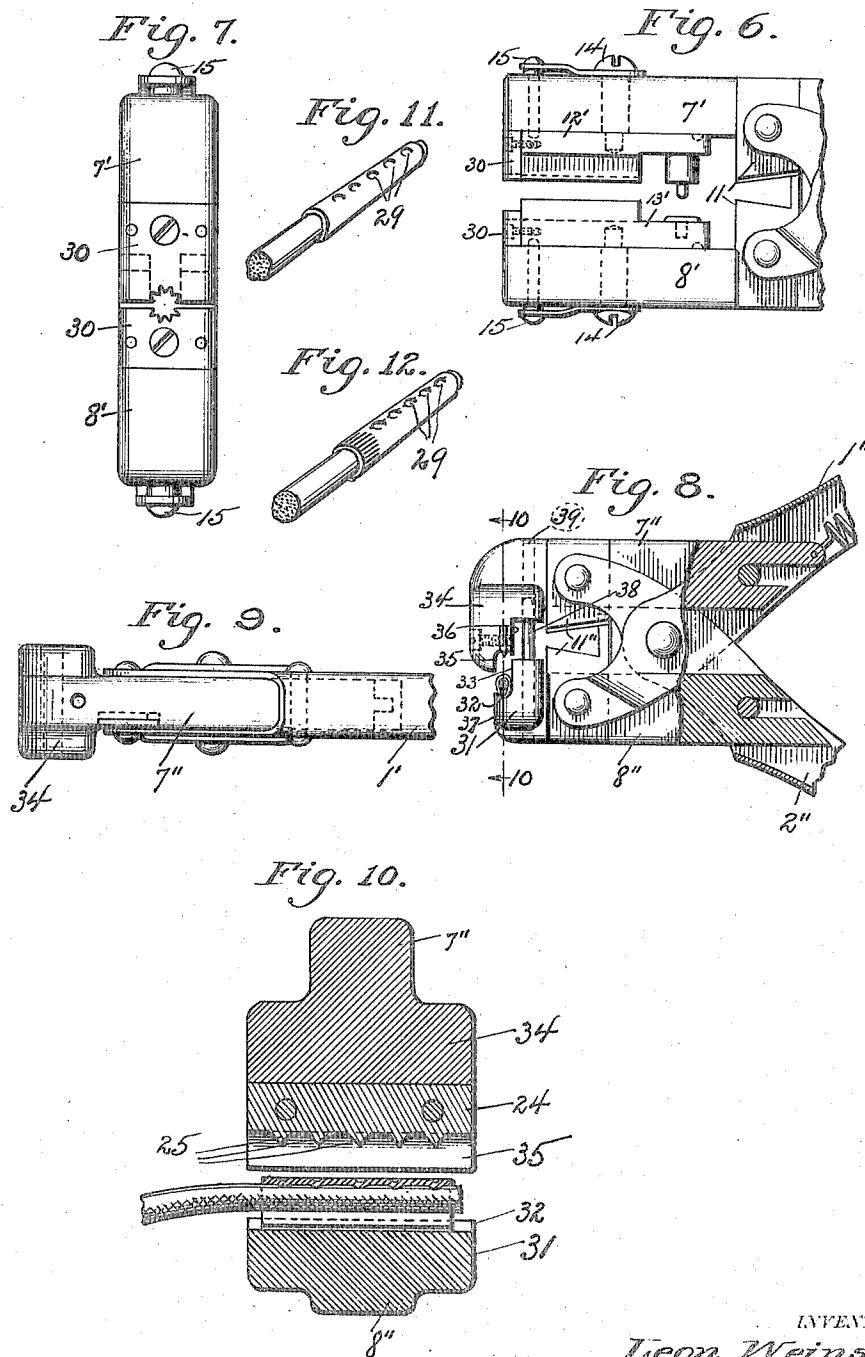
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2 SHEETS—SHEET 2.



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LEON WEINSTEIN, OF ST. LOUIS, MISSOURI.

LACE-TIPPING TOOL.

1,308,516.

Specification of Letters Patent.

Patented July 1, 1919.

Application filed July 19, 1918. Serial No. 245,741.

To all whom it may concern:

Be it known that I, LEON WEINSTEIN, a subject of the King of Roumania, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Lace-Tipping Tools, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to a certain new and useful improvement in lace-tipping tools.

The principal object of my present invention is to provide a tool of simple and inexpensive construction which may be easily and conveniently manually operated for cutting shoe-laces and for attaching metal-tips thereto, the tool being especially designed for use in retail shoe-stores, shoe repair-shops, and the like.

With the above and other objects in view, my invention resides in certain novel features of form, construction, arrangement, and combination of parts, all as will hereinafter be described and afterward pointed out in the claims.

In the accompanying drawings,

Figure 1 is a side elevational view of a lace-tipping tool embodying my invention, the dies of the tool being set for a tipping operation;

Fig. 2 is a view similar to Fig. 1, with portions of the operating levers or handles broken away, the dies of the tool being set for an eyeletting operation;

Fig. 3 is a longitudinal sectional view through the tool on approximately the median line thereof, the dies of the tool being set as in Fig. 2;

Fig. 4 is a transverse sectional view through the tool on approximately the line 4-4, Fig. 1;

Fig. 5 is a similar view through the tool taken approximately on the line 5-5, Fig. 1;

Fig. 6 is a fragmental side elevational view of the tool equipped or provided with slightly modified forms of tipping dies;

Fig. 7 is an enlarged front elevational view of the tool shown in Fig. 6;

Fig. 8 is a side elevational view, partly broken away and in longitudinal section, of a somewhat modified form of tool embodying my invention;

Fig. 9 is a plan view of the tool shown in Fig. 8;

Fig. 10 is an enlarged transverse sectional view through the tool shown in Fig. 8, taken approximately on the line 10-10, Fig. 8;

Fig. 11 is an enlarged perspective view of a section or end of a lace-string tipped by the tool shown in Figs. 1 to 5, both inclusive, or by the tool shown in Figs. 8, 9, and 10; and

Fig. 12 is a similar view of a section or end of a lace-string tipped by the tool shown in Figs. 6 and 7.

Referring more particularly to the said drawings, in which like reference characters refer to like parts throughout the several views, 1 and 2 indicate, respectively, the co-operating handles or jaw-operating levers of the tool. Handles or levers 1 and 2, which are approximately U-shaped in cross section at their forward end, are lengthwise forwardly extended at their side flanges only to provide forked coöperating jaw-engaging extensions 3 and 4, respectively, handles 1 and 2 and their said extensions 3 and 4 being hingedly or pivotally fastened together, as by a cross rivet 5.

Fitting between, and approximately midway its length pivotally fastened, as by a cross-rivet 6, to, the extension-members 4 of so-called lower handle 2, is the so-called upper jaw 7 of the tool; and similarly fitting between and pivotally fastened to the extension-members 3 of so-called upper handle 1, is the so-called lower jaw 8 of the tool. The jaws 7 and 8 are preferably in the form of elongated blocks or bars each slotted or bifurcated at its rear end to slidably engage with cross-pins 9 fixed in the handles or levers 1 and 2, as seen especially in Fig. 3. Due to the engagement of the jaws 7 and 8 with the fixed pins 9, it will be evident that the jaws 7 and 8, on the closing and opening movements of handles 1 and 2 will be held from turning on their pivots and caused to move in a straight line parallel with each other. Having one end attached to the rear end of one jaw, as, for instance, upper jaw 7, and its other end to the under side of handle 1, is a coiled spring 10 adapted to yieldingly hold or maintain handles 1 and 2 and their carried jaws 7 and 8 in normally spread apart or spaced relation.

In order to adapt the tool to perform more than one function and thereby obviate the requirement of a plurality of tools, I secure to the jaws 7 and 8 the co-acting cutter-

blades 11, in the arrangement best shown in Figs. 1, 2, and 5, whose function is to cut such lacing-strings as may be too long for a specific use or to cut a "clean" end on a lacing that may have become frayed or ragged, preparatory to tipping or re-tipping.

12—13 indicate opposed die-members, which are disposed upon the inner faces of the jaws 7 and 8, respectively, and which are secured to the jaws by screws or the like 14 in a manner to be capable of end for end reversal relatively to the jaws, for purposes hereinafter appearing, each jaw being provided with means, such as the spring-pressed pins 15 adapted to yieldingly project into recesses or notches 16 in the die-members, for locking the die-members in rotarily adjusted position.

Lower die-member 13 is longitudinally formed on its upper face with a pair of spaced parallel walls 17 having a length substantially equal to the length of the usual lace-tip, the base or bottom of the channel between the walls 17 being rounded, as at 18, as seen particularly in Fig. 4. Near one end, the die-member 13 is provided or formed with an eyeletting-member comprising a bore 19 having a counter-sink 20, a bead 21 surrounding the counter-sink upon the face of the die-member, as seen especially in Fig. 3.

Upper die-member 12 is formed or provided with a longitudinal block 22 adapted to cooperate with, and fit the channel between, the walls 17 when the jaws are brought together, block 22 being rounded at its lower edge, as at 22^a, in a direction opposed to the curvature of the base of channel 18. Secured, as by screws 23, longitudinally in the block 22, is a blade 24 having points or prongs 25 projecting into the channel 22^a of the lower edge of block 22, as seen in Figs. 3 and 4. Near one end, the die-member 12, for cooperation with the eyeletting-member of die-member 13, is provided with a stub 26 having an annular groove 27 therearound at its base, stub 26 and groove 27 being adapted, respectively, to fit the bore 19 and bead 21 of die-member 13 when the jaws and their carried die-members are brought together.

In operation, the die-members 12 and 13 are selectively reversed end for end relatively to their carrying jaws to perform either an eyeletting or a lace-tipping operation, the die-members being in the position illustrated in Fig. 1 for a lace-tipping operation and in the position illustrated in Figs. 2 and 3 for an eyeletting operation. When in the latter position, the tool may be conveniently employed to secure eyelets or hollow rivets, such as the one shown at 28, Fig. 3, in a shoe-upper or the like. In a lace-

the position shown in Fig. 1, the lace is preferably first trimmed by cutter-blades 11 to provide a square or clean end. A tip, consisting of a section of relatively thin sheet metal, is then placed over the trimmed end of the lace-string and bent manually into partly clenched position upon the lace-string. The lace and tip are then inserted or placed lengthwise into the channel of the female-die-member 13, as illustrated in Figs. 1 and 4, and the jaws 7 and 8 brought together through an operation of their handles 1 and 2, block 22 with its blade 24 being thereby carried forcibly into channel 18 and the tip thereby tightly clenched upon the lace-string. At the same time, the blade-prongs 25 form indentations, as at 29, in the tip, which indentations engage the lace-string to more securely hold the tip from movement lengthwise of the lace-string.

The tool shown in Figs. 6 and 7 is substantially identical with the tool just described and shown in Figs. 1 to 5, both inclusive. In this form of my tool, however, the jaws 7' and 8' are somewhat elongated to accommodate die-members 12' and 13', respectively, having secured thereto cooperating fluting-dies 30—30, whereby the tips may be contracted at their inner ends to minimize shoulders at said ends and thereby render the tips more easily capable of being retracted, as in unlacing, through a lace-perforation or eyelet.

In the tool shown in Figs. 8, 9, and 10, the jaws 7'' and 8'' are of reduced length and are provided integrally with the die-members, which are disposed in fixed relation substantially at right angles to the operating-levers or handles 1''—2'' of the tool. In this tool, also, the female-die 31 is formed with a rounded portion or channel 32 having a single wall 33 rising therefrom, instead of the spaced walls 17 of the preferred form of tool illustrated in Figs. 1 to 5, both inclusive, the upper or so-called male-die 34 having walls 35—36 adapted to cooperate with walls 37—33 of the female-die in securing the tip upon the lace-string. This modified form of tool is preferably provided with a die-guide in the form of a pin 38 fixed in one of the jaws and adapted to slidably fit a bore 39 provided in the other jaw, the tool being equipped with cutter-blades 11'' similar to the cutter-blades 11, but arranged somewhat closer to the die-members, which is made possible by the omission of the eyeletting-members and the selective rotative feature of the die-members of the preferred form of tool.

I am aware that changes in the form, construction, arrangement, and combination of the several parts of my new tool may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A manually usable clenching tool of the kind described comprising, in combination, a pair of cooperating opposed jaws, a die-member mounted upon one of the jaws, said die-member being provided longitudinally with a channel convexedly rounded at its base and adapted to receive a lace-string-end and a tip partly clenched thereupon, a second die-member mounted upon the other jaw for cooperation with the first die-member to tightly clench and indent the tip upon the lace-string end, and lever-handles for actuating the jaws and their carried die-members, said second die-member including a block adapted to fit within, and provided longitudinally on its lower face with a channel oppositely disposed to, the channel of the first die-member, the block being also longitudinally provided with a slot opening into its said channel, and a blade provided along one edge with a series of in-

denting-teeth, the blade being disposed in said slot and fixed rigidly to the block with its said teeth projecting into the said channel of the block.

2. In a tool of the kind described, a pair of cooperating opposed jaws, a tip-clenching die-member mounted upon one of the jaws, said die-member having a channel adapted to receive a lace-string-end and a tip partly clenched thereupon, a second tip-clenching die-member mounted upon the other jaw and adapted to cooperate with the first die-member and its said channel to tightly clench the tip upon the lace-string-end, cooperating members carried by said jaws for fluting a portion of the length of the tip as the tip is clenched upon the lace-string end, and means for actuating the jaws and their carried clenching and fluting tip-members.

In testimony whereof, I have signed my name to this specification.

LEON WEINSTEIN.