Feb. 5, 1924. 1,482,888

F. B. CONVERSE

INSTRUMENT FOR TIPPING SHOE LACES

Filed March 29, 1920

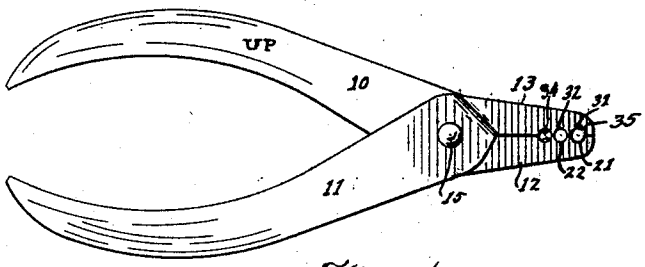


Fig. 1

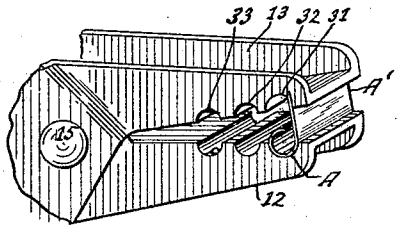


Fig. 2

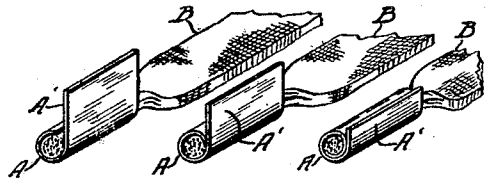


Fig. 3

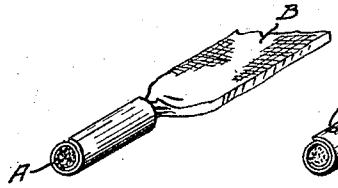


Fig. 4

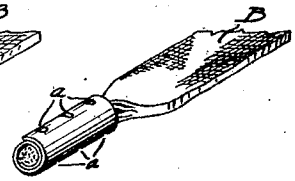


Fig. 5

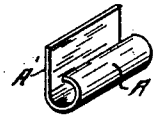


Fig. 6

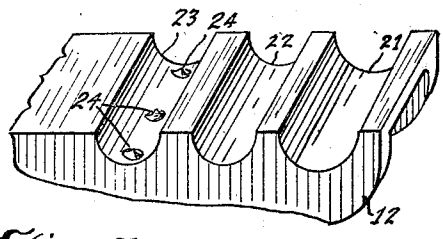


Fig. 7

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UNITED STATES PATENT OFFICE.

FRANCIS B. CONVERSE, OF NORWALK, CONNECTICUT.

INSTRUMENT FOR TIPPING SHOE LACES.

Application filed March 29, 1920. Serial No. 369,464.

To all whom it may concern:

Be it known that I, FRANCIS B. CONVERSE, a citizen of the United States, residing at Norwalk, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Instruments for Tipping Shoe Laces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide a simple and effective hand implement for enabling the ready application of tips to laces for shoes or other uses. A shoe lace, to be satisfactory, should have a length comparatively accurately chosen with reference to the shoe with which it is to be used. Laces too short are troublesome to tie, and laces too long are unsightly and liable to catch on obstructions; or, if the surplus length is taken up either by tying around the ankle or pushing into the top of the shoe, the wearer's circulation is likely to be interfered with. The result is that it has become incumbent on shoe dealers to keep laces of a large variety of lengths. On account of the number of different lengths, multiplied by the number of different colors and qualities required, it is a considerable burden for the dealer to keep in stock all of the laces demanded. The result is that the present situation is unsatisfactory both to the purchaser and to the dealer.

To remedy the above condition, I propose to furnish laces in a continuous length on a spool, the user of which shall simply cut off the length desired and place his own tips thereon. The difficulty in such a system has been the application of the tip by the laymen, there being, so far as I am aware, no suitable tool available for this purpose.

My invention provides a very simple and effective tool, in the nature of a pair of pinchers, adapted for the purpose of curling and pinching a metal member about the lace to form a tip thereon. This tool, as well as the results accomplished by it, are illustrated in the drawings hereof.

In the drawings, Fig. 1 is a side elevation of the tipping tool; Fig. 2 is an enlarged perspective of the jaw portion of such tool, showing the tip in the process of being curled; Fig. 3 is a perspective illustrating the tip in successive stages of curling as accomplished by the first pair of notches of the tool; Fig. 4 is a perspective of a lace having the tip as acted on by the second pair of notches; Fig. 5 is a perspective of a lace having the finished tip, that is after it has been acted on by the third pair of notches of the tool; Fig. 6 is a perspective of the tip member in the form supplied to the users; Fig. 7 is an enlarged perspective of the lower jaw of the tool.

As shown in Figs. 1, 2 and 7, the tool comprises two members 10 and 11 having jaws 12 and 13 respectively and intermediately pivoted by a pivot pin 15. As shown, each member of the tool is a stamping, being made of sheet metal for such purpose, as will be understood. However, the jaws could be solid or formed in other manner if desired.

In the lower jaw 12 are three substantially semi-cylindrical grooves 21, 22 and 23, and cooperating with these are three grooves 31, 32 and 33 in the jaw 13. The groove 31 is partially cylindrical but has in its forward portion a straight notch 35, the outer wall of which is substantially tangent to the circle defined by the grooves 21 and 31, and the inner wall of which is spaced from the outer wall a distance slightly greater in thickness than that of the tip blank to be acted on. The depth of the notch 35 is about sufficient to bring the top of the notch the same distance from the inner face of the jaw as the highest point of the cylindrical groove 31.

The space defined by the grooves 22 and 32 is purely cylindrical and of smaller diameter than that defined by the grooves 21 and 31.

The cylinder defined by the grooves 23 and 33 is substantially the same in diameter as that defined by the grooves 22 and 32; this last cylindrical space however, is interrupted by sharply pointed projections carried by the two jaws. As illustrated in Fig. 7 three projections 24 are provided in the groove 23 and a similar number of projections 34 are provided in the groove 33 of the jaw 13. These projections may be made in any suitable manner. I find it convenient in the stamped tool to make the projections by indenting the outer face of the jaw opposite the groove.

The tip as furnished with the above described tool is a thin sheet metal member of the form shown in Fig. 6, and comprises a portion A, curved for three-fourths or less of a cylinder, and a tangential portion A^1.

The gap between the tangential portion A^1 and the edge of the curve is sufficient to enable the ready insertion of the lace. The length of this tip blank is substantially the same as that now in use, and the tool hereintofore described preferably has a width equal to the tip length.

In applying the tip to the lace, the latter is inserted into the trough of the tip blank through the longitudinal gap, at a point near the end of the lace; the projecting end being twisted, if necessary, to twist the lace well down into the curved portion of the tip; and then the tip with the lace in place is put in the tool with the end of the tangential portion A^1 in the notch 35.

For convenience in handling during the operation on the tip in the tool, it is desirable that the tool be so held that the tangential portion of the tip will extend upwardly. For this reason, I prefer to mark the handle 10, with some suitable indication, as for example, the word "Up." After the tip with the lace inserted had been placed in the tool, the handles are squeezed together, causing the jaws to approach, thus shoving inwardly on the tangential portion and causing the cylindrical portion to curl around the lace. Fig. 3 illustrates respectively the parts as they are placed in the tool, at an intermediate stage of compression, and as finally curled by bringing the jaws together. This wraps the tip loosely around the lace.

The jaws are then separated and the partially formed tip is slid along the lace flush with its end. It is then placed in the grooves 22 and 32, and the jaws again brought together. This completes the forming of the projecting straight portion of the tip and further reduces the diameter of the tip, pressing it tightly around the lace. The jaws are then again separated and the tipped lace inserted in the grooves 23 and 33 and the jaws brought together, thus making indentations "a" in the upper and lower sides of the tip to effectively secure it to the lace.

I find that with the edge of the tip securely guided by the notch 35 the winding of the tip around the lace is greatly facilitated. Without this notch there is a disposition for the upper portion of the tip, not being definitely guided, to bend or kink, resulting in an imperfect tip.

It will be seen that the tool described is extremely simple in construction. Experience has demonstrated it to be very effective in operation. By supplying a customer with the tool and with tip blanks,—which may if desired, be of various colors, corresponding to the laces usually used—he is enabled to buy laces in a continuous length on a spool and tip them as desired.

I claim:

1. A tool for applying tips to laces comprising a pair of jaws movable toward and from each other, said jaws being provided with registering grooves and a recess in one of the grooves having its outer face extending tangential to the outer face of the coacting groove when the grooves are brought into registering relation for engaging the straight portion of the partially curved tip blank.

2. A tool for applying tips to laces comprising a pair of jaws, one jaw having a substantially semi-cylindrical groove corresponding to the curve of a partially closed tip and the other jaw comprising a single member having a coacting groove with a notch, whose outer face is tangential to the face of the groove in the first mentioned jaw, for holding a straight portion of the tip, whereby when the jaws are brought together the tip may be curled about a lace.

3. A hand tool for applying tips to shoe laces comprising a pair of jaws pivoted together and each having two approximately semi-cylindrical grooves registering in the two jaws in two pairs, one pair of grooves having a notch in one side to receive the edge of an open curled tip, and the other pair of grooves having inward projections adjacent the deepest portion of the grooves to lock the tip to the lace.

4. A hand tool for applying tips to shoe laces comprising a pair of jaws pivoted together and each having three approximately semi-cylindrical grooves registering in the two jaws in three pairs, one pair of grooves having a notch in one side to receive the edge of an open curled tip, another pair of grooves being substantially smooth and cylindrical, and the third pair of grooves having inward projections.

5. A tool for applying tips to laces, comprising a pair of jaws each provided with a handle and a pivot intermediately connecting them, the width of the jaws being substantially equal to the length of the tip to be applied, and each jaw having three grooves therein, the grooves registering in three pairs, one pair defining a substantially cylindrical space except for a notch in one groove, another pair defining a substantially cylindrical space, and the third pair defining a substantially cylindrical space with projections in it.

6. A tool for applying tips to laces, comprising a pair of pivoted jaws, said jaws being provided with a pair of co-operating grooves adapted to bind a partially formed tip loosely around a lace, a second pair of cooperating grooves of smaller bore to further reduce the diameter of the tip, and a third pair of grooves of substantially the same bore as the second pair and provided with indenting projections.

7. A tool for applying tips to laces comprising a pair of jaws movable toward and

from each other, said jaws being provided with a plurality of sets of registering grooves, one of the sets having a notch in one side having its outer face extending in the same direction as the face of the opposite groove when the grooves are caused to register, being flush with the face of said groove and another set having inwardly extending projections therein.

8. A tool for applying tips to laces comprising a pair of jaws, said jaws being provided with a plurality of sets of co-operating grooves, the first set being the largest and provided with a notch having its outer face extending in the same direction as the face of the opposite groove when the grooves are caused to register being flush with the face of said groove and the last set being provided with indenting projections.

In testimony whereof, I hereunto affix my signature.

FRANCIS B. CONVERSE.