No. 73,570. PATENTED JAN. 21, 1868.

L. R. BLAKE.

MODE OF CUTTING CHANNELS IN BOOTS OR SHOES.

Fig: 1

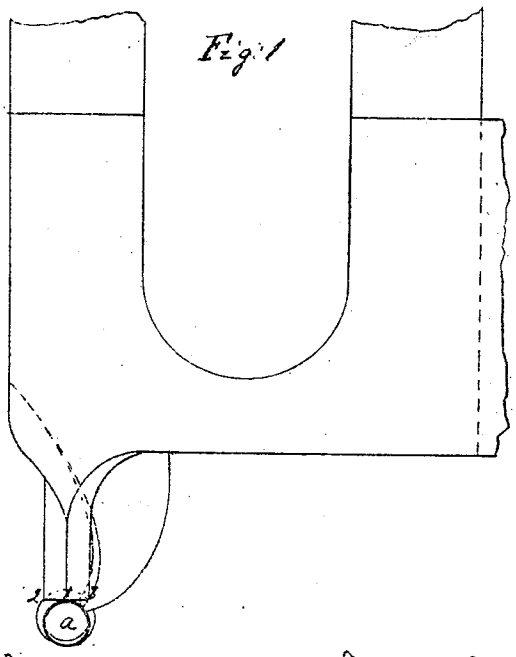


Fig: 2

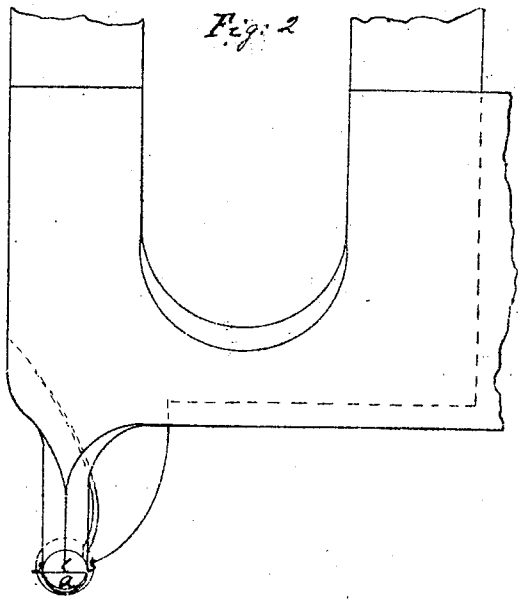


Fig: 3.

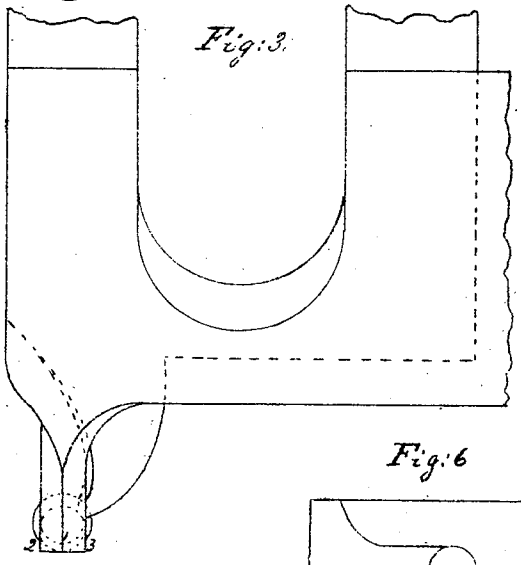


Fig: 4

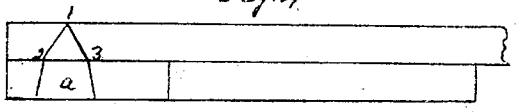


Fig: 5.

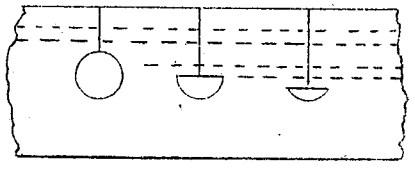
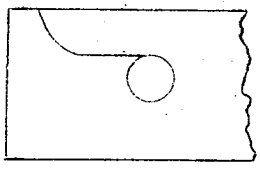


Fig: 6



Witnesses.

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Letters Patent No. 73,570, *dated January* 21, 1868.

IMPROVED MODE OF CUTTING CHANNELS IN BOOTS AND SHOES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, LYMAN R. BLAKE, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Cutting Channels in Boot and Shoe-Soles, &c.; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention, sufficient to enable those skilled in the art to practise it.

This invention relates to an improvement in that class of combined knives, used to form channels in which are concealed from view the stitches which confine soles to boots and shoes, and also to a peculiar channel which closes readily, and has but little tendency to open, while it also has the advantage that it may be formed in very thin stock.

Commonly, in forming channels, two knives are employed together, one in advance and one following. The advance knife cuts a slit merely, without removal of any material, while the following-knife removes the material in the form of a string. Now, the difficulty with the old arrangement is that the following-knife always removed material of but one area of cross-section, so that, to suit threads of different sizes, following-knives of different sizes had to be employed.

By my invention one following-knife, of a size sufficient to remove material for the largest-sized thread, suffices, by mere adjustment relative to the leading-knife, to remove strings of material of any cross-areas less than the whole cross-area which the following-knife is capable of removing.

My invention consists, first, in making the back of the leading-knife substantially equal in width to the diameter of the following-knife at its cutting-edge, so that, by adjustment of the two knives with relation to each other, more or less of the following-knife edge will be operative, and the size of the string-like chip, which is removed, will be varied in cross-area, leaving a groove of large or small size, as may be desired, in the leather, for reception of stitches made of large or small thread; and my invention also consists in forming channels with a mere slit, substantially vertical, opening directly into a trough-like cavity, the slit closing the trough or groove by mere abuttal of its edges, in contradistinction to a channel made with one flap, closing from one side only over a groove, as heretofore practised.

Figures 1, 2, and 3 are views of my improved combined knives drawn to an enlarged scale, said views presenting the leading-knife in front, and

Figure 1 showing the adjustment by which none of the edge of the following-knife (which is represented as tubular) is rendered inoperative by being sheltered behind the rear of the leading-knife.

Figure 2 shows about half of the edge of the following-knife, sheltered or protected behind the rear of the leading-knife, so that the string-like chip produced is semi-cylindrical, instead of cylindrical, as in fig. 1.

Figure 3 shows the edge of the following-knife, so adjusted as to be entirely covered by the back of the leading-knife, so that no chip will be removed, the leather being simply slit and displaced by the leading-knife.

Figure 4 shows a reversed plan of the combined knives, the leading-knife being triangular in cross-section, the angle 1 being in advance and forming the cutting-edge, while the back of the triangle, 2 3, is as wide as the width of the cutting-edge of the following-knife *a*, which is shown as tubular, though it may be made of other desirable forms of cross-section. The bodies of the knives, or the parts by which the blades are held, are arranged as has been usual in channelling-machine knives, hence no description of said bodies is needed.

Figure 5 shows, in cross-section, a piece of leather in which channels have been formed by the employment of knives, in accordance with my invention, the change in the cross-sectional area of the leather removed to form the grooves being effected solely by the relative adjustment of the two knives. The leading-knife, besides cutting a mere slit in the leather, displaces it, and throws up a portion at each side of the slit above the general surface of the leather, but, when the seam is sewed in the channel, the displaced leather is rubbed back into place, and the chain of the stitches occupies the place from which the following-knife has removed the leather. The dotted lines in fig. 5 are intended to represent surfaces of the leather, so that in this single view the channels are represented as deep-sunken or shallow.

Figure 6 represents a section of leather, with such a channel formed therein as has heretofore been made. In said figure it will be seen that a wide flap is cut in the leather, and that a groove is cut in the leather at or near the angle of the flap with the main body of the leather. This channel, with its groove covered by a flap

from one side, the flap being made by a cut which is mainly horizontal, is objectionable, because it cannot be made so near to the edges of soles, as is often desirable; also because, when the flap is made thin, it starts up from its bed directly upon wear, while, if the flap is made thick enough to prevent such starting, the groove for the reception of the thread has to be sunken so deeply as not to leave enough undivided leather for strength.

The improved channel, formed as shown and described, is free from all the objectionable features of the old one, as there is no wide flap to be displaced in wear, and to prevent near approach of the sewing to the edge of the sole, or requiring deep sinking of the groove which receives the thread.

I claim the combination of leading and following-knives, for the purpose of forming different-sized grooves in channels, when the leading-knife is constructed with such a breadth of back as will cover the cutting-edge of the following-knife, substantially as described.

Also, the formation of the channel, substantially as shown and described.

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Witnesses:

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