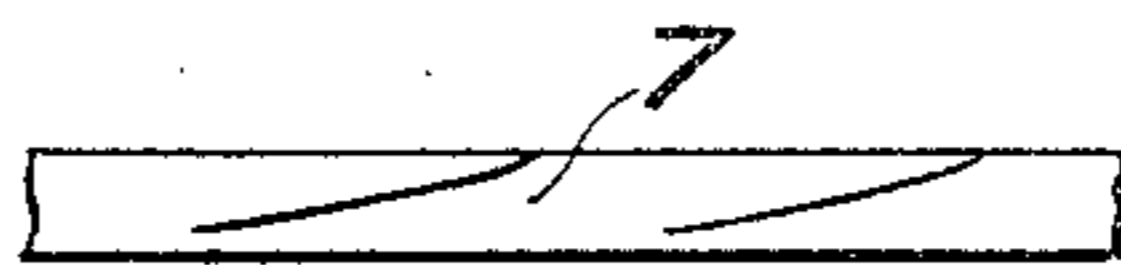
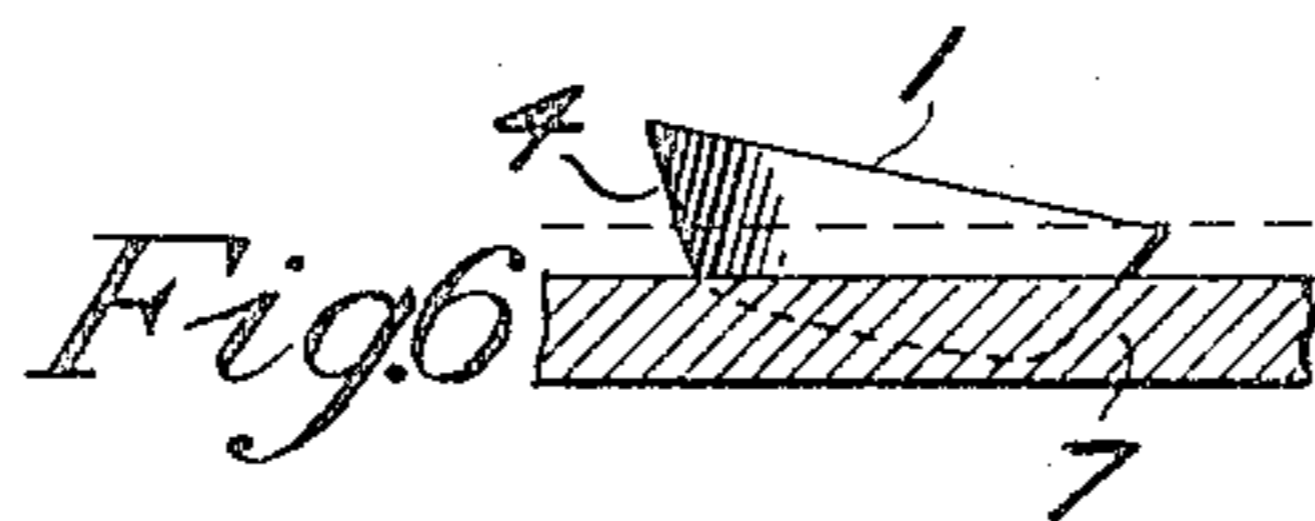
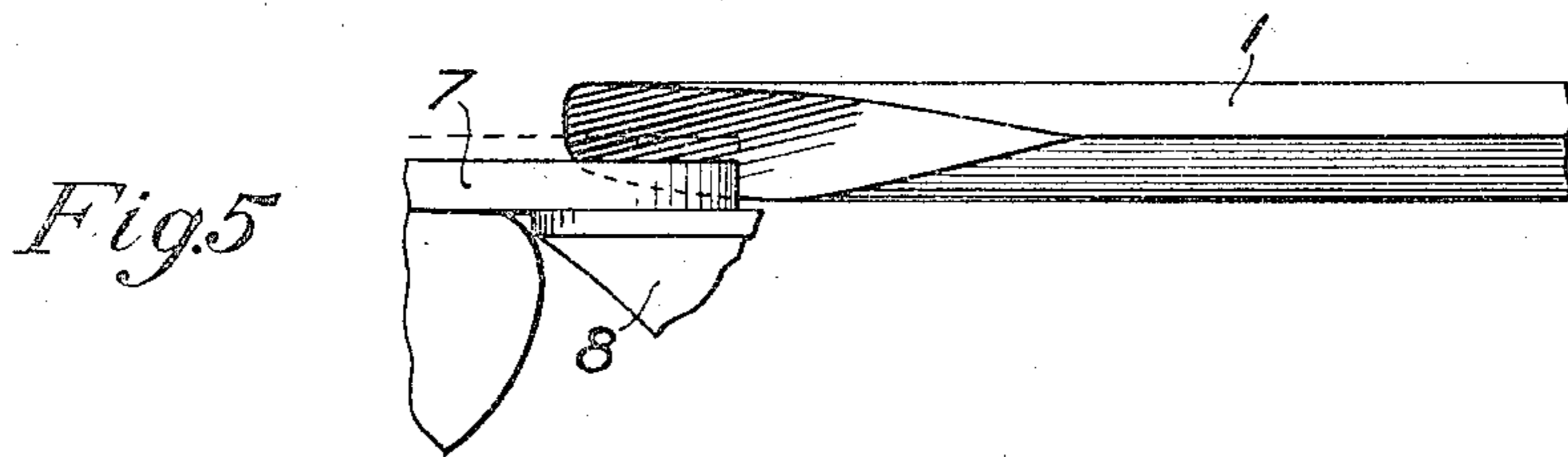
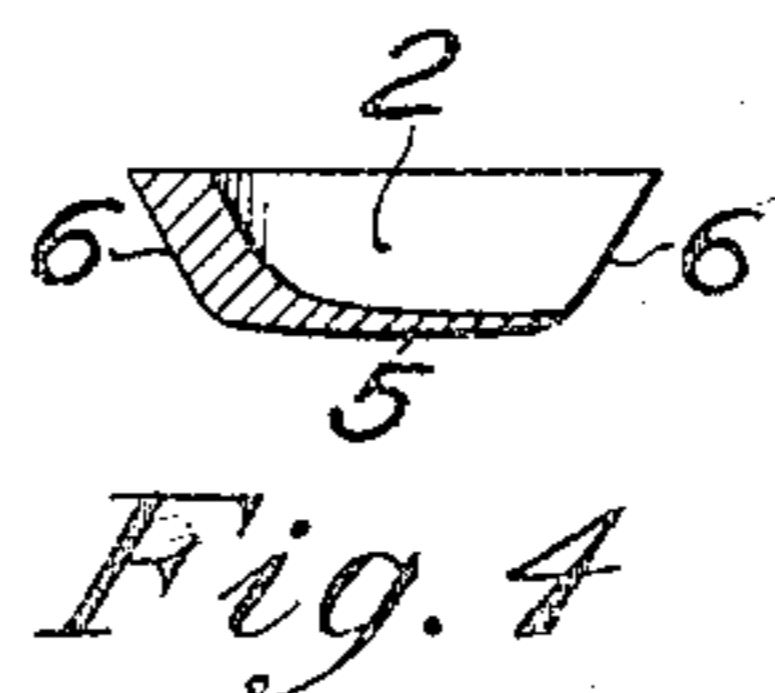
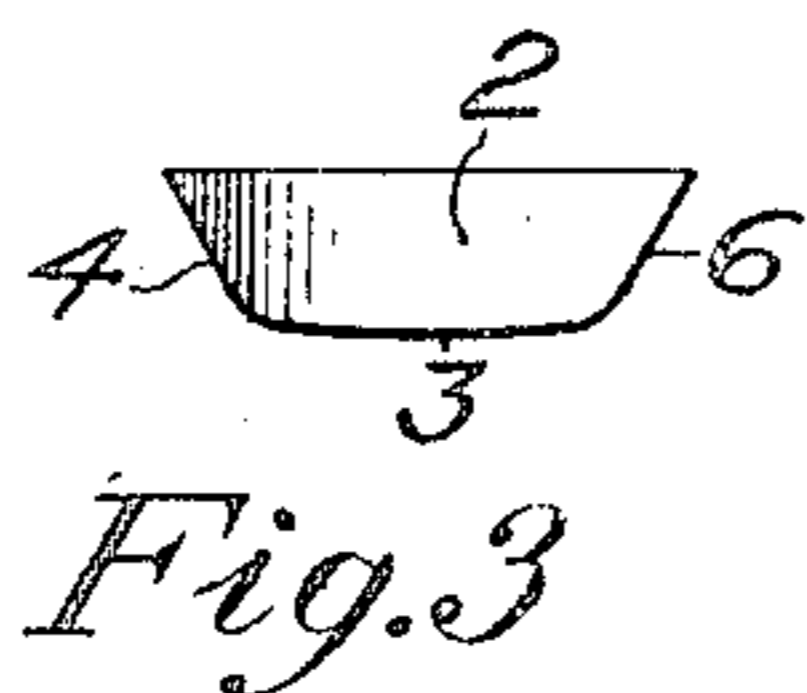
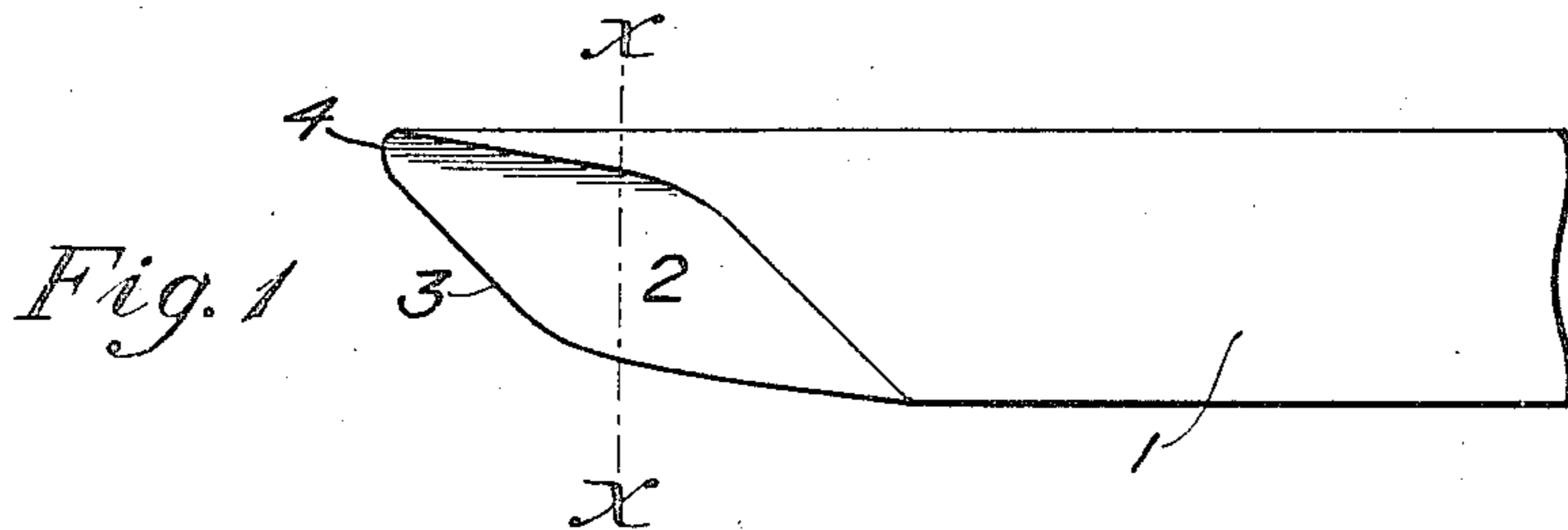


No. 875,172.

PATENTED DEC. 31, 1907.

J. B. HADAWAY.
KNIFE FOR WELT SLITTING MACHINES.

APPLICATION FILED FEB. 27, 1904.



Witnesses
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Fig. 7

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UNITED STATES PATENT OFFICE.

JOHN B. HADAWAY, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

KNIFE FOR WELT-SLITTING MACHINES.

No. 875,172.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed February 27, 1904 Serial No. 195,630.

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Knives for Welt-Slitting Machines; and I do hereby 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.

This invention relates to a knife for welt-slitting machines.

In the manufacture of a welted boot or shoe the welt, which is originally a straight strip of leather, is bent edgewise around the toe, and in order that it may lie in the plane of the sole it is necessary to stretch the outer margin of the welt to a considerable extent. This is done by the operation of beating out and the operation is facilitated by weakening the margin of the welt by slits extending partly through the welt. In machines heretofore proposed for slitting welts the welt-slitting knives have been moved to engage the surface of the welt by a movement substantially perpendicular thereto, and have been formed to cut slits substantially perpendicular to the surface of the welt. This result is unsatisfactory, since only a very narrow portion of the welt is weakened by each slit, and as the stretching is confined chiefly to the slitted portions the welt is liable to crack entirely through at these points, which weakens it and injures its appearance in the finished shoe.

The object of the present invention is to produce a welt-slitting knife which will make oblique cuts extending diagonally from the surface of the welt into the substance thereof so that a considerable portion of the welt will be weakened by each slit to facilitate the stretching of the margin of the welt in the operation of beating out.

To this end the invention consists in a knife for welt slitting machines which may be held in a position laterally inclined to the surface of the welt and moved longitudinally to engage the welt, in substantially the plane of the welt, and which has formed at its forward end a cutting edge shaped to cut a slit inclined to the surface of the welt when the knife is so moved and held.

In order that a knife operated in the above-described manner may have a shearing cut it is desirable to arrange the cutting edge obliquely to the direction of motion of the knife, and in order that welts of varying thickness may be operated upon it is necessary to make the knife of such width and incline it at such an angle that it shall always cut clear through to the surface of the thickest welt which may be operated upon. Where the cutting portion of the knife consists of a single substantially straight edge arranged as above described the length of the slit cut will depend upon the thickness of the welt, so that if the machine be adjusted to cut a slit of proper length for the thinnest welts the slit will extend too close to the seam in the thicker welts.

It is a further object of the present invention to obviate this defect, and to this end the invention contemplates a knife having a cutting edge consisting of two portions, the main portion being oblique so as to make a shearing cut, while the other portion, which forms the termination of the slit and may therefore be called the terminal portion of the edge, is arranged at an angle to the main portion and substantially perpendicular to the direction of motion of the knife. This knife is so arranged and operated that substantially the whole of the oblique portion of the edge will be employed in slitting the thinnest welt that may be operated upon, while in the thicker welts the terminal portion of the slit will be formed by the terminal portion of the edge, and, since this portion does not extend substantially beyond the end of the oblique portion, the slits will be of substantially the same length irrespective of the thickness of the welt.

Other features of the invention will be noted in connection with the description of the illustrated embodiment thereof.

A knife made according to the present invention may be used in any machine capable of holding and operating the knife in the manner above described, but it is particularly adapted for use in the machine shown and described in a pending application for Letters Patent of the United States filed by the present applicant, October 19, 1903, Ser. No. 177,557, for improvements in welt slitting machines, and the illustrated embodi-

ment of the invention is designed for use in such a machine.

In the drawings Figure 1 is a plan view of the knife and Fig. 2 is a side elevation of the same, Fig. 3 is an end view looking from left to right in Fig. 2, and Fig. 4 is a section on line $x-x$, Fig. 1. Fig. 5 is a side elevation showing the knife in the act of slitting a welt, and Fig. 6 is an end elevation looking toward the end of the knife in Fig. 5, the welt being shown in section. Fig. 7 is a view of the edge of a welt which has been operated on by the knife. All the figures are on an enlarged scale.

The illustrated embodiment of the invention comprises a flat bar 1 having one end beveled at 2 to form a cutting edge at the end of the bar. The knife is beveled on its upper surface, and the main portion 3 of the edge lies, therefore, at the bottom of the knife, while the terminal portion 4 lies in the plane of the side of the knife. By this arrangement crowding of the welt against the work support of the machine is avoided. The knife is intended to be moved longitudinally to engage the welt, and the main portion 3 of the edge is therefore arranged oblique to the length of the knife so as to have a shearing cut. The terminal portion 4 of the edge is substantially perpendicular to the length of the knife, as shown particularly in Figs. 2 and 3. The bottom 5 of the knife is slightly convex, so that the knife cuts more deeply into the substance of the welt without bringing the lower extremity of the slit nearer to the lower surface of the welt. The sides 6 of the knife are beveled for convenience in securing the knife in the machine, and also to arrange the portions 3 and 4 of the edge at the proper angle. The lower corners of the knife are rounded off to avoid a sharp angle at the junction between the parts 3 and 4 of the cutting edge.

The mode of operation of the knife is shown in Figs. 5 and 6, where the knife is shown engaging a portion of a welt 7 resting upon the work support 8 of the machine. The figures show a welt of minimum thickness, and the knife is so adjusted that the whole of the oblique portion 3 of the edge engages and slits the welt, the slit extending inward substantially to the extremity of the knife. It will be seen that even if a much thicker welt, as indicated by the dotted lines, be operated upon, the length of the slit will still be substantially the same, since the terminal portion of the slit will be formed by the terminal portion 4 of the edge, which does not extend substantially beyond the end of the main portion 3.

It is broadly new, so far as the applicant is aware, to make a knife for welt-slitting machines which is adapted to cut an inclined slit in a welt when held in inclined position and reciprocated longitudinally in substan-

tially the plane of the welt, and the invention is not, therefore, in its broadest aspect, limited to the specific form of knife shown and described, but may be embodied in any form of knife which will operate in the above-described manner. It has, however, been found that the features of construction hereinbefore referred to, on account of the advantages hereinbefore set forth, and of other advantages which are inherent in such construction and will be apparent to those skilled in the art, are of great importance in securing the efficient operation of the knife.

The invention having been thus described, what is claimed is:

1. A knife for welt-slitting machines having a cutting edge shaped to cut a transverse inclined slit in a welt when the knife is laterally inclined to the surface of the welt and is reciprocated longitudinally in substantially the plane of the welt, substantially as described.

2. A knife for welt-slitting machines having a cutting edge shaped to cut slits of substantially the same length in welts of various thicknesses when the knife is laterally inclined to the surface of the welt and is reciprocated in substantially the plane of the welt, substantially as described.

3. A knife for welt-slitting machines consisting of a flat bar having an inclined surface at one end meeting the bottom surface of the knife to form a cutting edge oblique to the length of the knife shaped to cut a transverse inclined slit in a welt when the knife is reciprocated longitudinally in substantially the plane of the welt, substantially as described.

4. A knife for welt-slitting machines having a cylindrical lower surface and an inclined surface at one end meeting the lower surface to form a curved cutting edge shaped to cut a transverse inclined slit in a welt when the knife is reciprocated longitudinally in substantially the plane of the welt, substantially as described.

5. A knife for welt-slitting machines consisting of a flat bar having a cutting edge at its end comprising two portions arranged at an angle with each other, and shaped to cut a transverse inclined slit in a welt when the knife is reciprocated longitudinally in substantially the plane of the welt, substantially as described.

6. A knife for welt-slitting machines having a cutting edge comprising a main portion oblique to the length of the knife and a terminal portion arranged at an angle with the main portion and substantially at right angles with the length of the knife, said cutting edge being shaped to cut a transverse inclined slit in a welt when the knife is reciprocated longitudinally in substantially the plane of the welt, substantially as described.

7. A knife for welt-slitting machines having a cutting edge comprising two portions

lying in the bottom and a side, respectively, of the knife, and shaped to cut a transverse inclined slit in a welt when the knife is reciprocated longitudinally in substantially the plane of the welt substantially as described.

5 8. A knife for welt-slitting machines having a convex bottom, oblique sides, and rounded lower corners, and beveled at one end to form a cutting edge lying in the bottom and one side of the knife, substantially as described.

10 9. A knife for welt-slitting machines having a cutting edge comprising two portions lying in the bottom and a side, respectively,

of the knife and arranged at an obtuse angle with each other, substantially as described. 15

10. A knife for welt slitting machines, having, in combination, a convex bottom and a flat side arranged at an obtuse angle therewith, and beveled at one end to form a cutting edge lying in the bottom and side, substantially as described. 20

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

JOHN B. HADAWAY.

Witnesses:

BENJAMIN PHILLIPS,
HORACE VAN EVEREN.