WOODWORKING PLANE WITH RAZOR BLADE
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The present invention relates to a woodworking tool using a relatively thin blade such as a razor blade for its cutting edge.

The primary object of the present invention is to provide a plane and shaper using a replaceable razor blade as its cutting element.

Another object of the present invention is to provide a lightweight and compactly shaped body and shaper of construction, comprising a one-piece frame construction which may be fabricated by pressure casting in a single operation.

A further object of the present invention is to provide a relatively small plane and shaper which is extremely useful in planing and shaping curved surfaces and one which is economical to manufacture and readily assemble and disassemble.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in connection with the annexed drawings, in which:

Figure 1 is a top plan view of the first embodiment of the present invention;

Figure 2 is a side elevational view in cross section of the first embodiment;

Figure 3 is a bottom view of the first embodiment;

Figure 4 is an isometric view of the first embodiment of the present invention, showing it assembled with handles for use as a spoke shave;

Figure 5 is a partial end view in cross section on line 5—5 of Figure 4;

Figure 6 is a top plan view of a second embodiment of the present invention;

Figure 7 is a side elevational view in cross section of the second embodiment of the present invention; and

Figure 8 is an end view in cross section on line 8—8 of Figure 7.

Referring in greater detail to the drawings, in which like numerals indicate like parts throughout the several views, the present invention in its first embodiment consists of a tool comprising a chute or shoe 10 having a bottom 11 and a pair of spaced side walls 12 and 13 rising upwardly from each of the opposed sides of the bottom 11. The bottom 11 has a portion of its under face flat, as indicated by the reference numeral 14. A closed slot 15 extends inwardly from the flat under surface portion 14 and is arranged transversely of the bottom 11. Between the side walls 12 and 13 within the chute 10 is disposed a saddle 16 adjacent the slot 15. The saddle 16 slopes upwardly toward the front or nose 17 of the chute 16, there being a short rounded portion 18 of the bottom under face forwardly of the edge of the slot 15 terminating in a transversely arranged high point indicated by the reference numeral 19 and then followed by another rounded portion 20. A second transversely arranged closed slot 21 extends inwardly from the under face of the nose 17 adjacent the edge of the second rounded portion 20.

A mounting element or threaded stud 22 projects perpendicularly from the intermediate portion of the saddle 16 between the side walls 12 and 13 and an upstanding bar or ridge 22' extends parallel to the slots 15 and 21 interterming the edges of the saddle 16.

A razor blade 23 of the double edge kind having opposed cutting edges and a central opening 24 and with a longitudinally arranged slotted opening 25 connecting to the central opening 24 rests upon the saddle with its central opening 24 surrounding the stud 22 with the slotted opening surrounding the ridge 22', and with its cutting edges projecting through the slots 15 and 21. The slotted opening 25 and the central opening 24 are shown in dotted lines in Figure 1.

A backing member 26 conformably shaped to wholly cover the blade 23 is provided with a central opening 27 for receiving the stud 22 adjacent with a recess 26' receiving the ridge 22', and a nut 28 having a knurled outer periphery forces the backing member 26 into abutment against the body of the blade 23. The upper face of the saddle 16 is concave, as shown in Figure 2, and the lower face of the backing member 26 is convexly curved complementally to the upper surface of the saddle 14 to permit the blade 23 to be held in a curved position. The cutting edges 29 of the blade 23 extend outwardly from each of the slots 15 and 21.

Each of the side walls 12 and 13 is provided with an outwardly extending boss 30 in which is provided a circular recess 31 receiving the outwardly projecting pin 32 of the adjacent handle 33, and a screw 34 securing each of the handles 33 to the respective side walls 12 and 13, as shown in Figures 4 and 5.

In the second embodiment of the present invention the shoe 35 has a bottom 36 with a flat under face 37 and is provided with upwardly rising side walls 38 and 39. A transversely arranged closed slot 40 in the bottom 36 extends inwardly from the under face 37 and a saddle 41 is positioned between the side walls 38 and 39 on one side of the slot 40 and slopes upwardly from the bottom 36 toward the back end 42 of the shoe 35.

A mounting element or stud 43 projects perpendicular from the intermediate portion of the saddle 41. A razor blade 44, having opposed cutting edges, a central opening 45 and a slotted opening 46, as shown in Figure 6 in dotted lines, is positioned upon the saddle 41 with a central opening 45 surrounding the stud 43.

A backing member 47 is conformably shaped to wholly cover the body of the blade 44 and is provided with a central opening in registry with the central opening 45 in the blade 44 so that when the blade and backing member are received on the stud 43, the blade is held with one of its cutting edges projecting from the slot 40 with the portion of the backing member 47 adjacent the slot 40 cutting the portion of the body of the blade 44 adjacent to its cutting edge. The under surface of the backing member 47 is provided with a cut-away portion or recess indicated by the reference numeral 48 in Figure 7, the same figure showing that the saddle 41 has its upper surface concavely curved, as indicated by the reference numeral 49.

The upper surface of the blade 44 is provided with an upwardly projecting ridge 50 which extends longitudinally on the saddle 41 parallel with the slot 40, there being a slotted recess formed in the under face of the backing member 47, as indicated by the reference numeral 51 in Figure 8, a recess not extending to each end of the backing member 47, as shown in that figure. The ridge 50 is received in the slotted opening 46 in the blade for positioning the blade with its cutting edge projecting outwardly from the slot 40.

A nut 52 is threadedly received upon the stud 43 and secures the backing member 47 in its abutting position with the portion of the body of the blade 44.
The side walls 38 and 39 of the shoe of the second embodiment of the present invention are curved inwardly at each end so as to conformably fit the hand of the user. Referring to Figure 8, it will be seen that each of the side walls 38 and 39 are cut away, as indicated by the reference numeral 53 adjacent to the ends of the blade 44, the latter projecting outwardly from each end into the cut-away portion or opening so that the fingers of the user may grasp the nonsharp ends of the blade 44 for adjusting the blade relative to the slot 40, a ridge 50 being narrower than the slotted opening 46, permitting adjustment of the blade into and out of the opening at a distance sufficient that the depth of cut of the material being worked may be regulated. The edge of the cut-away portion 53 is indicated by a curved dotted line in Figure 7.

In use, either of the embodiments of the present invention may be used as a plane or a shaping tool, the first embodiment being selectively used with the handles 33 or without the handles, as desired.

The plane or shaping tool of the first embodiment is especially useful for cutting concavely curved surfaces, there being a first flat under surface portion 14 with one cutting edge of the blade projecting through the slot 15 and a shorter flat surface adjacent to the nose 17 of the plane with the other edge of the blade projecting through the slot 21. This allows a plane to cut within concave curves of short radii.

What is claimed is:

1. A woodworking tool comprising a shoe having a bottom and a pair of side walls rising from said bottom, said bottom having at least a portion of its under-face which is flat, said bottom having a closed slot extending transversely thereof and also extending inwardly from said flat under-face, a saddle positioned between said side walls and on one side of said slot and sloping upwardly from said bottom, an upstanding ridge on the inner surface of said saddle, a mounting element projecting perpendicularly from the intermediate portion of said saddle, a razor blade having opposed cutting edges and a centrally disposed opening positioned so that the opening surrounds said mounting element and the body of the blade rests upon said saddle with one of its cutting edges projecting through said slot, a backing member wholly covering and abutting the body of said blade, said backing member having a recess in its under face receiving said saddle ridge, and means detachably securing said backing member to said mounting element.

2. A woodworking tool comprising a shoe having a bottom and a pair of side walls rising from said bottom, said bottom having at least a portion of its under-face which is flat, said bottom having a closed slot extending transversely thereof and also extending inwardly from said flat under-face, a saddle positioned between said side walls and on one side of said slot and sloping upwardly from said bottom, an upstanding ridge on the inner surface of said saddle, a mounting element projecting perpendicularly from the intermediate portion of said saddle, a razor blade having opposed cutting edges and a centrally disposed opening positioned so that the opening surrounds said mounting element and the body of the blade rests upon said saddle with one of its cutting edges projecting through said slot, a backing member wholly covering and abutting the body of said blade, said backing member having a recess in its under face receiving said saddle ridge, and means detachably securing said backing member to said mounting element.

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