July 14, 1942. W. KROMER 2,289,504

WOODWORKING TOOL

Filed July 15, 1941

FIG. 1.

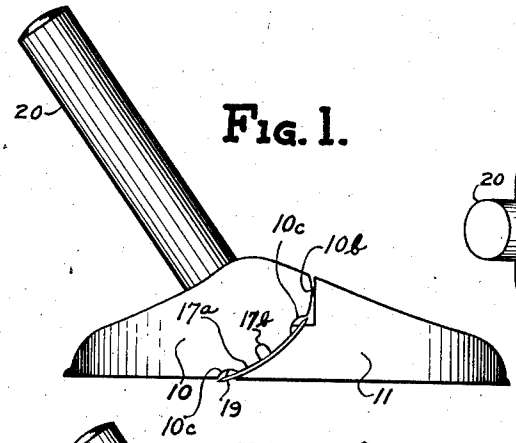


FIG. 2.

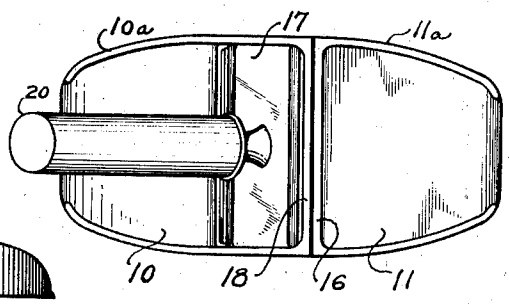


FIG. 4

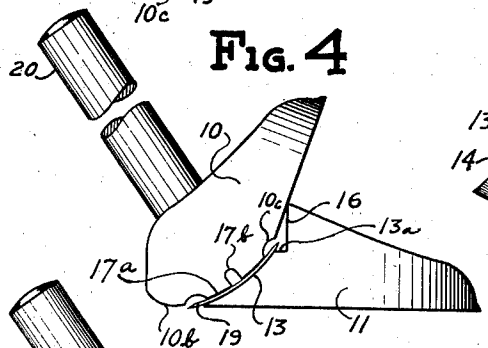


FIG. 5.

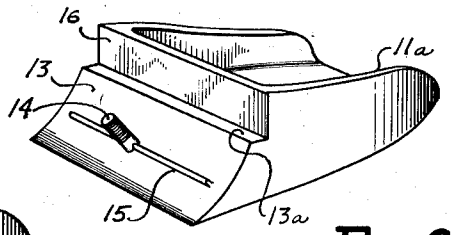


FIG. 6.

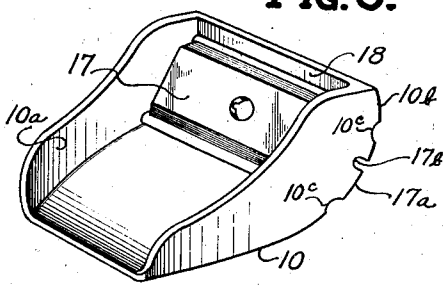


FIG. 7

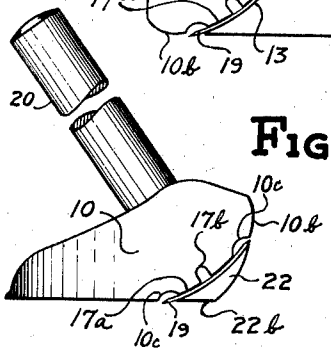


FIG. 3

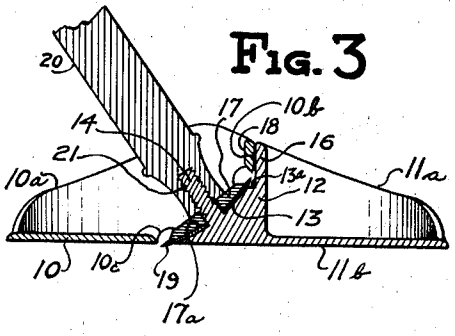


FIG. 9.

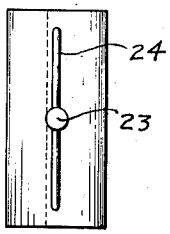
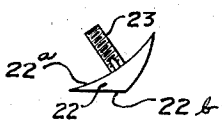


FIG. 8.



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UNITED STATES PATENT OFFICE

2,289,504

WOODWORKING TOOL

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6 Claims. (Cl. 30—294)

This invention relates to planing and shaping tools, and has for its principal object to provide a tool of this character which is simple in construction and which may be quickly and conveniently converted from a plane having a rather elongated base extending both rearwardly and forwardly from the blade to a planing tool having a short base extending forwardly from the blade, whereby it is capable of working close to corners and walls and also which is capable of operating upon surfaces having, or to be given, a rounded contour, the tool operating in the manner of a spoke shave.

I accomplish the foregoing objects, as well as additional and more limited objects which will be explained hereinafter, in and through the construction and arrangement of parts shown in the drawing hereof wherein Fig. 1 represents a side elevation of a planing tool having an extended base and constructed in accordance with my invention; Fig. 2 a plan view of the tool shown in Fig. 1; Fig. 3 a central longitudinal sectional view through the tool shown in Figs. 1 and 2; Fig. 4 a view, similar to Fig. 1, showing the construction of the tool when used for the purpose of working close to corners or walls; Fig. 5 is a detail in perspective of the elongated guard member of the plane, shown in the preceding views; Fig. 6 a similar view of what I have designated the main piece of the tool shown in said views; Fig. 7 a view, similar to Figs. 1 and 3, showing the manner in which my tool may be used both as a plane and in the manner of a spoke shave; Fig. 8 a detail in side elevation of the blade clamping member employed in Fig. 7; and Fig. 9 a plan view of the blade clamping member shown in Fig. 7.

Describing by reference characters the various parts shown in the drawing, and first with particular reference to Figs. 1–6, 10 denotes what I will refer to as the main piece or forward member of the elongated plane body and 11 the rearwardly extending guard member of the elongated plane body, the two members providing means for detachably clamping the blade 19 therebetween, the plane members forming a bearing surface extending a considerable distance both rearwardly and forwardly from the blade. As will be seen more particularly by reference to Fig. 3, the guard member is provided at its forward end with a transverse diagonal clamping wall 12 having a forwardly concave seat 13 from the central portion of which a threaded stud 14 extends radially, there being a rib 15 extending longitudinally and centrally of the seat 13 from both sides of the said stud. A shoulder 13^a is provided above the seat 13 and a wall 16 extends vertically from said shoulder to the top of the side walls 11^a of the rear or guard member.

The forward member 10, to which I have referred, comprises the side walls 10^a having the lower rear portions thereof connected by a transverse diagonal clamping wall 17, preferably having the lower surface 17^a convexed complementary to the concave surface 13 and having the rear upper ends of the side walls connected by a substantially vertical wall 18, the rear ends of the side walls being convexly curved as shown at 10^b. The central portion of the clamping wall 17 is provided with a centrally arranged transverse slot 17^b for the reception of the rib 15. I prefer to use with planes constructed in accordance with my invention flexible blades substantially identical with the safety razor blades now on the market, one of such blades being shown at 19 and each having an elongated central slot adapted to receive the stud 14 through the central portion thereof and also to receive the rib 15, the ends of the rib fitting fairly closely within the ends of the slot with which the blade is provided. 20 denotes a handle which may be conveniently constructed similarly to the handles with which safety razors now on the market are provided and which comprises a handle proper provided at its lower end with an internally threaded bore 21 adapted to receive therewithin the threaded stud 14. By setting up on the handle, the blade may be clamped securely between the parts 17 and 13, and the wall 18 will engage the adjacent vertical surface of the wall 16. The blade will be centered by means of the rib 15 fitted within the longitudinal slot thereof, and the clamping surfaces 17^a and 13 are of such extent as to enable the lower edge of the blade to project a short distance below the lower surfaces of the parts 10 and 11, it being noted that the rib is narrower than the slot, thereby enabling the blade to be adjusted between the clamping surfaces.

It will be noted that the walls 10^a of the forward member are provided with upwardly concaved notches 10^c adjacent to the opposite ends of the clamping wall 17, these notches providing spaces for the passage of shavings into the hollow upper portion of the forward member 10.

With the parts constructed and arranged as described, the operation will be readily understood. The plane may be manipulated by means of the handle 20. Whenever the blade becomes so dull as to require renewal, reversal or replacement, this result can be readily accomplished

by unscrewing the handle 20 which will permit the forward members to be removed and a new blade placed upon the stud 14 and rib 15, or the blade to be inverted, thereby to make use of the opposite edge of the same.

In Fig. 4 I have shown the manner in which the parts 10 and 11 may be secured together thereby to enable the plane to be operated in close proximity to corners or walls. When so used, the forward member is merely turned 180° to the position shown in Fig. 4, which will enable the surface 17a thereof and the surface 13 to clamp the blade 19 therebetween. The height of the wall 16 on the guard member is such that it may form a convenient brace for the bottom wall of the forward member 10.

In Figs. 7 to 9 there is shown a modification of my invention wherein the elongated rear or guard member 11 is substituted by a shorter member and the base of the member 10 constitutes the main base of the tool; the blade 19 in this case being clamped between the surface 17a and the concave clamping surface 22a of the rear member 22, which is provided with the threaded stud 23 and also with a centrally arranged rib 24 extending longitudinally thereof on opposite sides of the said stud and adapted to receive the medial slots of standard razor blades. It will be noted that the rear member 22 comprises not only a clamping wall, but that it is also provided with a plane bottom surface 22b which functions, although in a less degree, in the same manner as the bottom surface of the wall 11b of the member 11, to form with the bottom surface of the wall 11 a plane surface adapted to rest upon the work when the tool is used in the position shown in Fig. 7. By mounting the blade upon the rear member 22 with its slot registering with the rib 24 and by setting up on the handle 20 in the manner hereinbefore set forth, the blade may be detachably clamped between the front and rear members and the tool thus provided may be used in the same manner as a spoke shave, this use being facilitated by the convexity of the front ends 10b of the sides 10. The tool thus formed may also be used as a plane having a short base.

In order to enable the use of ordinary types of safety razor blades in the tool described herein, it is essential that the radius of curvature of the surfaces 13, 22a and 17a shall be such that the operating edge or edges of the blades shall project therefrom at the angle substantially shown in the drawing hereof since, if they should make a materially greater angle with the surface on which they operate, the blades are liable to be broken and since if they should make a materially smaller angle with such surface they would be ineffective for operation on such surface. The ribs 15 and 24 provide means for preventing the operating edges of the blades from projecting beyond the operating surfaces of the tools to an extent that will render the blades liable to breakage.

It will be evident from the foregoing description and drawing that I have produced a tool of the character described which is simple and inexpensive of construction, which will permit of the convenient utilization therewith of cheap and easily replaceable blades such as are used with safety razors, and which is capable of being used either with an extended supporting base for the blade, or with a front base and a shorter rear supporting base, or with a rear supporting base which will permit the use of the plane in close proximity to walls and corners, or which may be used in place of or as a conventional spoke shave.

Having thus described my invention, what I claim is:

1. A tool of the character described comprising a forward member having a bottom wall provided with a plane external surface and with side walls extending above said bottom wall, a clamping wall at the rear of the side walls and extending diagonally upwardly across said member above the plane external surface of the bottom wall, the side walls being provided with notches at each end of the said clamping wall, and a rear member also having a bottom wall provided with a plane external surface and a clamping wall extending diagonally across the front end thereof above the said external surface of the bottom wall of said rear member, a blade adapted to be inserted between the said clamping walls, and means for securing the two members together with the blade inserted between the clamping walls thereof, the clamping walls and the means for securing the two members together being so located and arranged that the plane external surfaces of the forward and rear members will be in the same plane, with the lower edge of the blade projecting below the plane external surfaces of the said members.

2. A tool of the character described comprising a forward member having a bottom wall provided with a plane external surface and with side walls extending above said bottom wall, a clamping wall at the rear of the said walls and extending diagonally upwardly across said member above the plane external surface of the bottom wall, the side walls being provided with notches at each end of the said clamping wall, and a rear member also having a bottom wall with a plane external surface and a clamping wall extending diagonally across the front end thereof above the said external surface of the bottom wall of said member, the rear member being provided with a wall projecting above the upper end of the clamping wall thereof, a blade adapted to be inserted between the said clamping walls, and means for clamping the said blade between the said walls with its lower edge projecting below the external surface of the bottom wall of the rear member and with the bottom wall of the forward member extending in substantially the same plane as the external surface of the bottom wall of the rear member, or with the bottom wall of the forward member in engagement with the wall projecting above the clamping wall on the rear member.

3. In the tool recited in claim 1, the ends of the side walls of the front member being outwardly convex beyond the upper end of the clamping wall thereof.

4. A tool of the character described comprising a forward member having an extended plane bottom surface adapted to rest on the surface of the work and also having a clamping wall extending diagonally upwardly across the rear end thereof above the said bottom surface, the rear member also having a plane bottom surface adapted to rest on the surface of the work and provided with a clamping wall extending diagonally upwardly from the front end of the bottom surface thereof across the front end thereof, and being complementary to the first-mentioned clamping wall, and means for detachably clamping a blade between the said clamping walls, with its lower edge projecting below the

adjacent portions of the plane bottom surfaces of the said forward and rear members.

5. A tool of the character described comprising a forward member having an extended plane bottom surface adapted to rest on the surface of the work and also having a clamping wall extending diagonally upwardly across the rear end thereof above the said bottom surface, the rear member also having a plane bottom surface adapted to rest on the surface of the work and provided with a clamping wall extending diagonally upwardly from the front end of the bottom surface thereof across the front end thereof, and being complementary to the first mentioned clamping wall, and means for detachably clamping a blade between the said clamping walls, with its lower edge projecting below the adjacent portions of the bottom plane surfaces of the said forward and rear members, the clamping means comprising a central threaded stud projecting at substantially right angles forwardly from the clamping wall of the rear member and the clamping wall of the forward member having an opening for the passage of said stud, the blade having a central opening for the reception of the said stud, and a handle having an internally threaded bore whereby it is adapted to be mounted upon said stud and, by its adjustment, to force the said clamping walls into close clamping engagement with the said blade, the said stud being so located and the width of the blade being such that the lower edge of the blade will extend below the adjacent portions of the plane bottom surfaces of the front and rear members when the blade is clamped between the said walls.

6. In the tool recited in claim 5, the clamping wall on the forward end of the rear member being provided with a rib extending centrally and longitudinally thereof in opposite directions from the said stud, and the blade being slotted for the reception of said stud.

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