

April 23, 1940.

L. FRANCIS

2,198,530

WOODWORKING PLANE

Filed Jan. 12, 1939

Fig. 1.

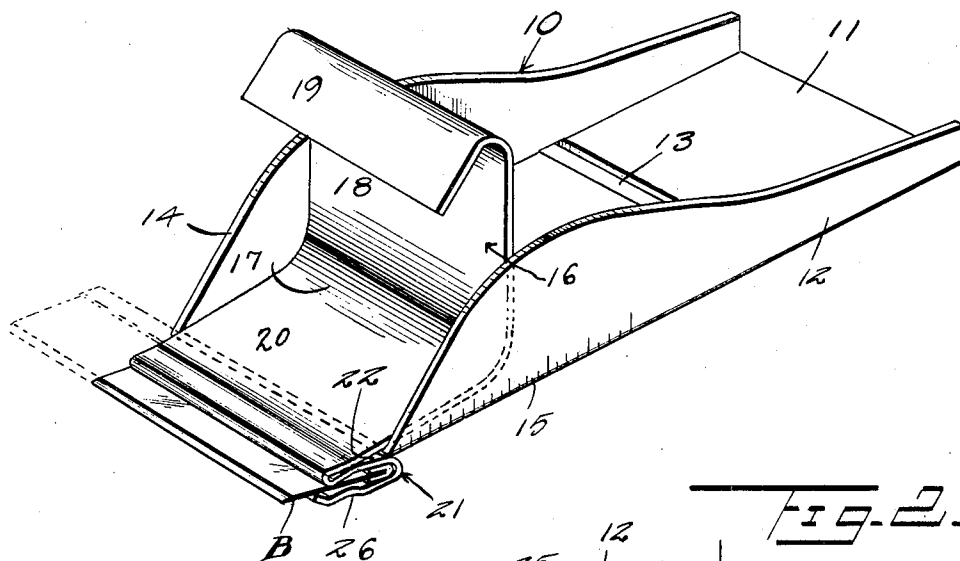


Fig. 2.

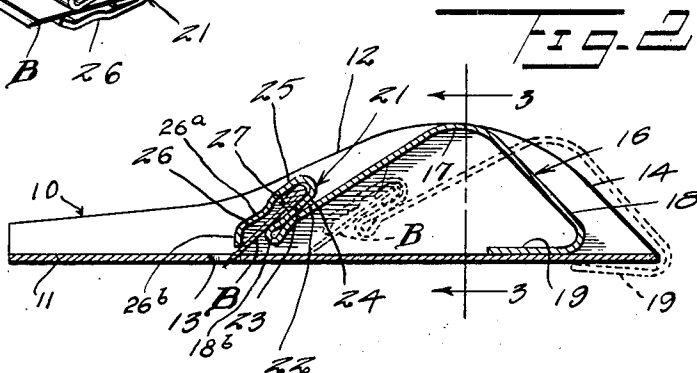


Fig. 3.

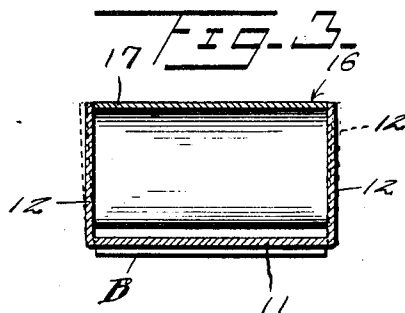
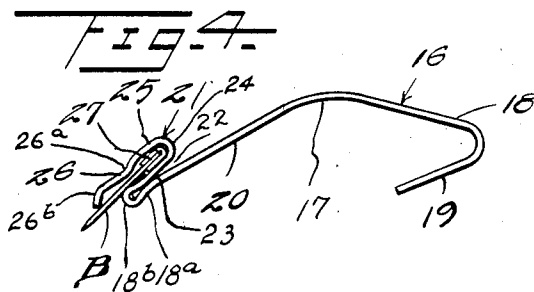


Fig. 4.



Invertor

Louis Francis

By Kimmel & Crowell

Attorneys

UNITED STATES PATENT OFFICE

2,198,530

WOODWORKING PLANE

Louis Francis, Miami, Fla.

Application January 12, 1939, Serial No. 250,631

2 Claims. (Cl. 145-11)

This invention relates to planes and more particularly to an improved woodworking plane.

An object of this invention is to provide an improved woodworking plane which is constructed of three parts, the plane being constructed out of metal which has an inherent resiliency and rigidity so that it will retain its shape, the body of the plane being formed out of sheet metal which is at present available from waste material in the form of duraluminum.

Another object of this invention is to provide a plane of this kind which is adapted to use a razor blade as a cutter.

A further object of this invention is to provide a plane of this kind which is so constructed that the cutting angle of the cutter may be readily adjusted to meet varying conditions arising from the use of the device.

A still further object of this invention is to provide a tool of this kind which may not only be used as an ordinary wood plane but may also be used as a scraper or chisel or for other cutting operations, the blade and the holder therefor being shiftable to one end of the body of the device and removably engaging one end of the device so that the blade will project beyond the body and may be used for various cutting operations.

A further object of this invention is to provide a tool of this kind which may be also used as a gage, the opposite ends of the tool being cut off on a predetermined angle, preferably, a forty-five degree angle so that the device may be used for miter work.

To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred and illustrated in the accompanying drawing, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a perspective view of a tool constructed according to an embodiment of this invention showing the blade holder engaged with one end of the device,

Figure 2 is a longitudinal section of the tool,

Figure 3 is a sectional view taken on the line 3-3 of Figure 2, and

Figure 4 is a detailed side elevation of the blade holder in extended position.

Referring to the drawing, the numeral 10

designates generally a plane body comprising a flat base portion 11 provided with upstanding parallel side members 12. The base portion 11 at a point intermediate the opposite ends thereof is provided with a transversely disposed blade opening 13 which extends substantially entirely across the base 11.

The upstanding side wall members 12 are constructed integrally with the base 11 and are preferably constructed out of relatively light weight sheet metal which has a degree of resiliency and at the same time will retain the desired shape, the purpose for which will be hereinafter described. One end of each side wall member 12 is provided with a miter edge 14 which is cut on substantially a forty-five degree angle to the lower edge of the body 10 and the side wall members 12 or at least one of them may be provided with graduations 15 extending inwardly from the miter edge 14. In this manner the length of the body 10 may serve as a scale or rule for relatively short measurements.

A longitudinally extendible and contractible carrier element for a blade clamping element and which is generally designated as 16 is positioned between the upstanding side members 12 and comprises an inverted substantially V-shaped member 17 which is disposed with the bight portion thereof uppermost and one leg 18 of the member 17 extends rearwardly and may be provided with an inwardly bent portion 19 adapted to seat on the upper face of the base 11. The opposite or forward leg 20 of the member 17 has its lower end portion 18^a directed rearwardly and merging into the inner end of a curved coupling part 18^b of a contour corresponding to the segment of a circle. The outer end of the coupling part 18^b merges into the inner end of the inner side of a substantially U-shaped resilient blade clamping or holding element 21 which is positioned slightly forward of the leg 20 to form a space 22 therebetween. The element 21 is disposed substantially at an inclination corresponding to the inclination of the leg 20.

The blade clamping holding element 21 extends entirely across the space between the two side members 12 and comprises a resilient inner clamping member 23 which extends upwardly and rearwardly and terminates in an arcuate member 24 which is adapted to engage about the rear or upper edge of a blade B which is resiliently held within the element 21. The arcuate portion 24 is continued upwardly and forwardly as at 25 and then terminates into an outer resili-

ient clamping member 26 aligned in spaced relation with the clamping member 23. The member 26 is of greater length than and is disposed substantially at an inclination corresponding to the inclination of the member 23. The member 26 is of a length having its inner or lower terminal portion extending beyond the coupling part 18^b. The member 26 is formed with a depressed portion 26^a directed towards the blade B. The member 26 has its lower or inner terminal portion 26^b angularly disposed with respect to its remaining portion and such portion 26^b is directed towards and is of a length to bear against the upper or outer face of the blade B. When the latter is arranged in the element 21 it is clamped by the portion 26^b of the member 26 against the point of mergence of the part 18^b with the member 23 in a manner as shown by Figures 1, 2, and 4. By providing a construction of this kind, a razor blade provided with a reinforced back 27 may be inserted in the element 21 although if desired, a double-edged blade may be inserted in the clamping element 21 with one edge thereof engaging in the bight or closed portion of the clamping element 21.

The keen edge of the blade B is adapted to project downwardly and forwardly of the upper clamping member 26 so that when the carrier element 16 is positioned between the two side members 12 the keen edge of the blade B may project downwardly through the opening 13. The carrier element 16 is constructed of sheet metal somewhat similar to that of which the body member 10 is constructed and while it has a degree of rigidity, this carrier element 16 may be bent so as to vary the inclination or cutting angle of the blade B relative to the base 11. In this manner the device may be used with different kinds of woods and for different kinds of work, it being understood that certain kinds of work will require one particular cutting angle and certain other kinds of work will require a different cutting angle. This cutting angle may be obtained by merely bending the carrier element 16 so as to bring the legs 18 and 20 closer together or spread them out in divergent relation.

Where it is desired to use this device as a scraper, chisel or other implement, the carrier element 16 may be removed from between the side members 12 and then positioned on one end of the body 10. This is accomplished by inserting the end of the base 11 within the space 22 provided by the blade clamping element 21 and the forward leg 20. This space may be relatively narrow so that the inherent resiliency of the carrier element 16 will firmly hold the blade B in forwardly projecting position as shown in Figure 1.

It will also be understood that if desired, the blade B may be shifted laterally of the holder 16 as shown in dotted lines in Figure 1 in which position the blade B may be used as a knife for various cutting operations. The blade B is formed from a new razor blade or optionally, one which has served its usefulness as a razor but which still retains a very sharp cutting edge. In this manner the plane may have the blade thereof removed at will by merely sliding the blade B from between the jaws of the clamping element 21.

In the use and operation of this plane the carrier element 16 is positioned between the two side members 12 and preferably, the two side members 12 are so constructed that in order to

insert the carrier element 16 therebetween it is necessary to spread the side members 12 apart a slight degree and then slide the carrier element 16 therebetween. The inherent resiliency of the material forming the body member 10 will hold the carrier element 16 against lengthwise movement relative to the base 10 and at the same time during the use of the plane, the side members 12 will be gripped in the hand of the user so that these side members will be pressed toward each other and thus increase the pressure placed on the holder 15 by the resiliency of the side members 12.

This device is at present capable of being formed out of waste material and is preferably constructed of a relatively small size and is adapted for relatively small work, although a shaving which is cut by the blade B may be of any desired thickness, the thickness being dependent on the amount of projection of the blade B downwardly through the blade opening 13.

Where it is desired to use the device as a miter, the base member 11 may be engaged against an edge of the wood so that the mitered corner 14 will be in the desired position whereupon the angle of the corner 14 may be marked on the wood. If desired or necessary the carrier 16 may be removed from between the side members 12 during the mitering operation, although for certain work this may not be necessary.

Where the device is used as a scraper or other cutting tool and the blade B is projected forwardly of one end of the base 11 the carrier 16 is in a reverse position, but has a considerable portion thereof positioned between the two side members 12 so that these side members 12 will coact in holding the carrier 16 in any selected position relative to the body 10.

While this device has been designed as a wood plane, it may also be used for paring or cleaning vegetables or other articles, and the body 10 may also be used as door stop or wedge between two articles. The carrier element 16, due to its bendable character may be so shaped that if desired the blade B may be disposed at any desired angle relative to the base 11. Where it is desired to use the device as a scraper the blade B may be disposed at a right angle relative to the base or any other selected cutting angle.

The carrier element 16 may also be shifted rearwardly to the dotted line position shown in Figure 2 so as to dispose the extension 19 beneath the base 11 and position the blade B rearwardly of the opening 13. In this position the device may be carried in a pocket without injury from the blade B.

The blade clamp carrier element 16 also constitutes a means coacting with the plane body for retaining the blade in the position in which it has been set or arranged. The blade clamping element 21 also constitutes a holding means for the blade when the plane is used.

What I claim is:

1. A tool comprising a U-shaped member provided with a transversely extending opening in the bight thereof, a blade for extension through said opening, a blade clamping element, a bendable carrier element for and integral at one end with said clamping element, said carrier element frictionally engaging with and arranged between the sides of said member and being of substantially inverted V-form in side elevation whereby the legs of the carrier element may be shifted relatively to each other to vary the cutting angle of the blade in the clamping element.

2. A tool comprising a substantially U-shaped body having its bight formed with a transverse opening, a blade for being selectively positioned respectively either to extend through said opening or to extend from one end of said body, a shiftable carrier element within the body and formed with a pair of edges frictionally engaging with the sides of said body, a blade clamp bodily shiftable with the carrier for coupling the blade to the latter whereby the blade is capable of being selectively positioned either to extend through said opening or to extend from the said end of said body, and said carrier and clamp having correlated parts frictionally engaging with said body for retaining the blade in extended relation with respect to the said end of said body. 5

LOUIS FRANCIS.