

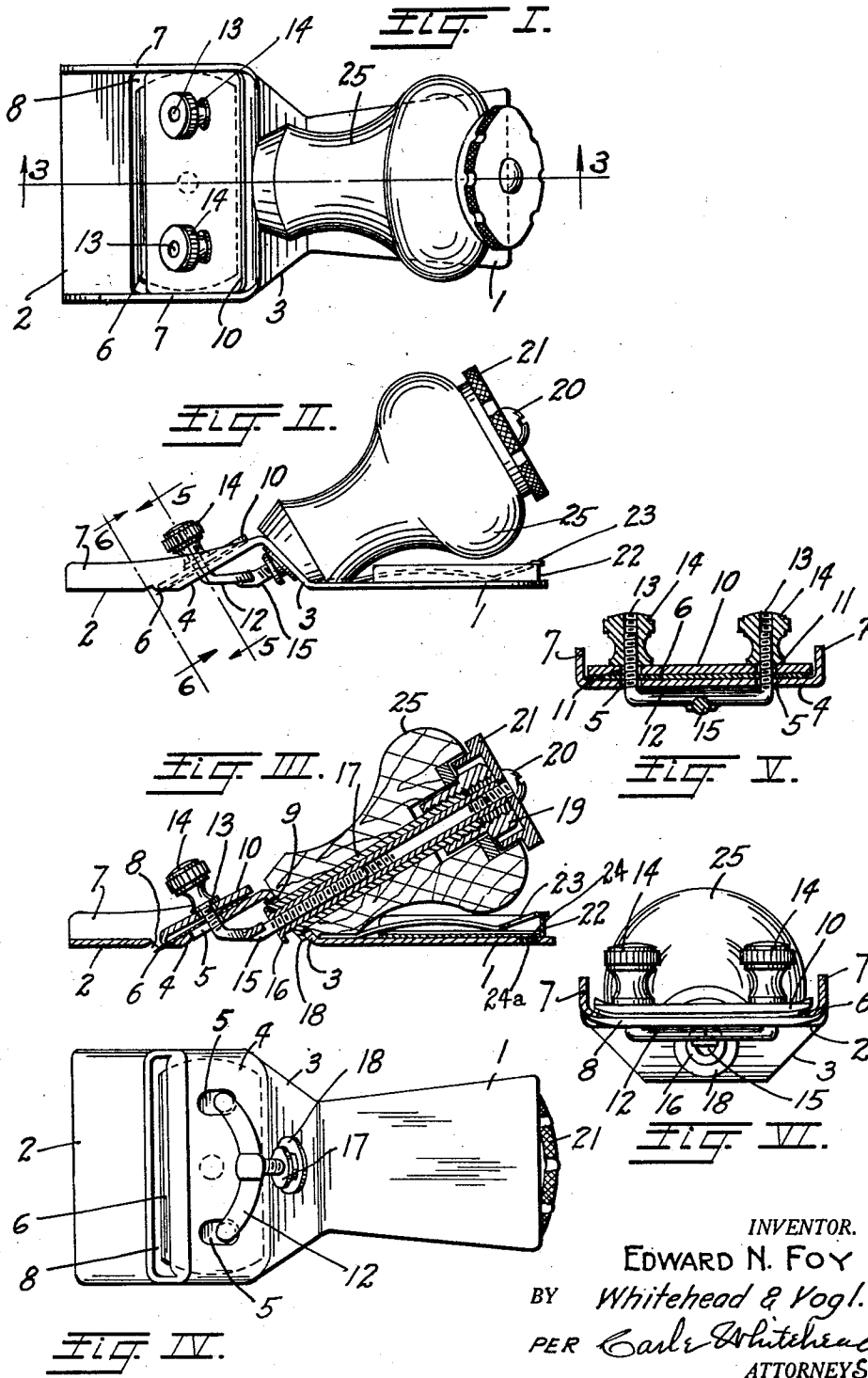
Oct. 6, 1931.

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1,825,859

PLANE

Filed April 29, 1930



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PLANE

Application filed April 29, 1930. Serial No. 448,407.

This invention relates to improvements in planes and particularly to that type of plane in which the blade is thin and flexible and is double edged, such as safety razor blades of a common type.

An object of the invention is to provide a tool of the class above mentioned, which shall be efficient and durable as a plane, but of extreme simplicity in construction and cheapness as to manufacturing cost.

A further object is the provision of a tool of the class mentioned, which shall have a minimum number of parts, including a stock so designed that the same may be stamped from a single piece of metal.

A further object is to provide, in such a tool, improved, simplified, compact, and efficient adjusting means.

A further object is the provision of a plane having a stock with an arched or recessed central portion and also the provision of a comparatively narrow tail portion.

I am aware of the use of safety razor blades in planes of substantially conventional design, but such planes, when adapted for using thin flexible, double edged blades are comparatively clumsy, heavy and complicated in design, involving numerous parts and comparatively large expense for manufacturing. The present invention provides as a plane adapted for using such a blade, a tool that is light, handy, simple, involving the minimum number of parts and the minimum of expense in manufacture.

With these and other objects in view, all of which will more fully hereinafter appear, the invention comprises certain novel constructions, combinations and arrangements of parts more fully described and defined in the following specification and claims, and illustrated in the accompanying drawings in which like reference characters indicate corresponding parts throughout and in which:

Figure I is a plan view of a plane constructed in accordance with the present invention.

Figure II is a side elevation of the plane.

Figure III is a view in section on line 3—3 of Fig. I.

Figure IV is a plan of plane turned bottom up.

Figure V is a section on line 5—5 of Fig. II.

Figure VI is a section on line 6—6 of Fig. II.

My invention comprises a stock, which may be stamped from a single piece of metal, consisting of a heel piece 1, a toe piece 2, and a central flat sided arch, having flattened sides 3 and 4, which form seats respectively for the handle 25 and the blade 6. The stock is also preferably provided with side guides and stiffening members 7. The forward portion of the stock is preferably about the width of the blade to be used, while the edges of side 3 converge and merge into the heel piece 1 which is narrower than the forward portion, all as clearly shown at Figs. I and IV.

The toe piece 2 is provided with a slot 8 to permit the edge of the blade 6 to project through the toe piece in the manner usual in planes. The seat 4 is provided with apertures 5, so positioned that when the safety razor blade with the usual apertures therein, as in the well-known Gillette razor blade, is placed upon the seat 4, two of the holes in such blade will lie within the area of the apertures 5 for the purpose hereinafter described.

The seat 3 is provided with an aperture 9 to accommodate the combined handle securing means and adjustment means hereinafter described.

A clamp plate 10 is provided having apertures 11 aligned with the holes in the razor blade and having a sliding fit between members 7 which act as guides for the plate 10.

The securing of the blade to the seat 4 and to the adjustment mechanism hereinafter described is accomplished by a fork 12, provided with threaded lugs 13, adapted to project upwardly through the apertures 5, the aforesaid holes in the blade and the apertures 11 in the clamp plate 10 and thereabove to be engaged by thumb nuts 14 by means of which thumb nuts the clamp plate 10 may be forced downwardly, thus clamping the blade securely against seat 4.

The fork 12 is rigidly attached to the shank

15, threaded into a sleeve 16 slidingly and revolvably fitting within bushing 17, extending centrally through the handle 25 and through the aperture 9 in seat 3 against the underside of which seat the bushing may be riveted or flanged as at 18. The outer end of the bushing is threaded to receive lock nut 19 for securing handle 25 firmly against seat 3.

10 The sleeve 16 projects slightly above the end of the bushing 17 and the nut 19 and is interiorly threaded to receive screw 20 whereby the knurled adjusting cap 21 is rigidly secured to the end of the sleeve 16.

15 From the foregoing description it will be obvious that the sleeve 16 may be rotated in either direction as desired by the turning of the knurled cap 21, and that the rotation of the sleeve in one direction will project the shank 15 and thereby, through the fork 12, move the blade 6 forward and down, projecting it beyond the under face of the toe piece 2; while the reverse rotation of the sleeve 16 will retract the shank 15 and with it the fork 12 and blade 6, and that by this simple means the extent of the projection of the cutting edge below the under face of the plane may be regulated or adjusted.

It will be understood that the surface of the fork 12 contacts with the under side of seat 4 whereby, when the thumb nuts 14 are screwed down, the seat 4 and clamp plate 10 with the intervening blade 6 will be clamped securely together thus holding the blade 6 in that position to which it has theretofore been adjusted. For subsequent adjustment of the blade the thumb nuts 14 will be slightly loosened, thus permitting operation of the adjustment mechanism above described.

40 As hereinabove indicated and as clearly shown at Fig. IV, the apertures 5 in seat 4 are elongated. The threaded lugs 13 fit snugly in the holes in the blade and have a sliding fit in the apertures 5, thus permitting the sliding movement of the lugs 13 within the apertures 5 for adjustment of the blade.

For convenience in carrying a supply of blades there may be seated on the heel plate 1 beneath the handle 25 a box 22 of suitable size for the reception of the blades. A spring retaining member 23 attached to heel piece 1 is provided for normally holding reserve blades securely within the box while permitting easy removal thereof, and also for retaining box 22 in position by depressing it so that seat 24 in the bottom of the box will be held in yielding engagement with depression 24a in the heel piece 1.

Blade 6 may be readily removed for replacement or sharpening by removal of the thumb nuts 14 and the clamp plate 10.

It will be noted that the provision of the seats 3 and 4 and the angular recess therebetween not only permits the use of stamped sheet metal for the stock and the positioning

of all of the adjusting apparatus within said recess and the handle, thus further simplifying the structure by eliminating the numerous and complicated parts of adjusting mechanism common in planes, but said recess together with the narrow rear portion of the stock also permits the use of the plane in a variety of positions, for chamfering and for work on and adjacent concave, convex and otherwise irregular surfaces, not possible with a plane stock having the usual continuous face of uniform width.

Changes in detail of construction will be obvious to those skilled in the art and may be made within scope and spirit of the foregoing specification and the appended claims.

I claim:

1. In a plane, a stock having a bottom face comprising toe and heel portions in a common plane and an upstanding central portion having relatively angular sides, a blade seated on one of said sides, a handle seated on another of said sides and means for adjusting said blade, said means being positioned partly in said handle and partly in engagement with said blade and linking means between said sides for operatively connecting said parts of said adjusting means.

2. In a plane, a stock having in its bottom face an upstanding central inverted V shaped portion, a blade seated on one side of said central portion, a handle seated on the other side of said central portion, a sleeve in said handle, a shank threaded into the sleeve and projecting into the space between the sides of said central portion, a fork carried by the shank within said space, slideways in the first mentioned side of said central portion, means carried by the fork and projecting through said slideways for engaging said blade and means for rotating said sleeve to move said blade.

3. In a plane a stock having a recessed bottom face comprising a toe portion forward of said recess and having a slot therein for the edge of a blade, a heel portion rearward of said recess and a raised portion forming said recess and supporting the blade.

4. In a plane a stock having a bottom face comprising a toe portion having a slot for a blade, a heel portion and a raised portion supporting the blade to the rear of said slot, said raised portion connecting the toe and heel portions.

5. In a plane a stock comprising a recessed face, a toe piece having a slot for a blade forward of said recess and a heel piece rearward of said recess, said heel piece being narrower than the blade.

6. In a plane a stock comprising a toe portion carrying a blade, a heel portion narrower than the blade-carrying portion of the toe portion and a flat-sided arch connecting said toe and heel pieces, the side of said arch adjoining said heel piece having edges con-

verging from the width of the toe piece to the width of the heel piece.

7. In a plane, a stock comprising toe and heel portions, an upstanding central portion, having relatively angular sides constituting seats for a blade and for a handle, and a blade container on the heel piece having a resilient member for retaining said container upon said heel piece and for retaining blades therein.

8. In a plane, a stock comprising a toe piece having a slot for a blade therein, a heel piece narrower than the toe piece, an intermediate portion of inverted V-shape connecting said toe piece and heel piece, the relatively angular sides of said intermediate portion constituting seats for a blade and for a handle and means for adjusting said blade including a threaded means extending longitudinally through said handle.

9. In a plane, a stock comprising toe and heel portions and a connecting portion intermediate said toe and heel portions having relatively angular sides constituting seats for a blade and for a handle, and means for adjusting said blade including a U-shaped member associated with the relatively angular side of the connecting portion constituting the blade seat.

In testimony whereof I affix my signature.
EDWARD NICHOLAS FOY.

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