

March 18, 1924.

W. H. BLACKMER

1,487,529

PLANE BLADE

Filed Dec. 5, 1922

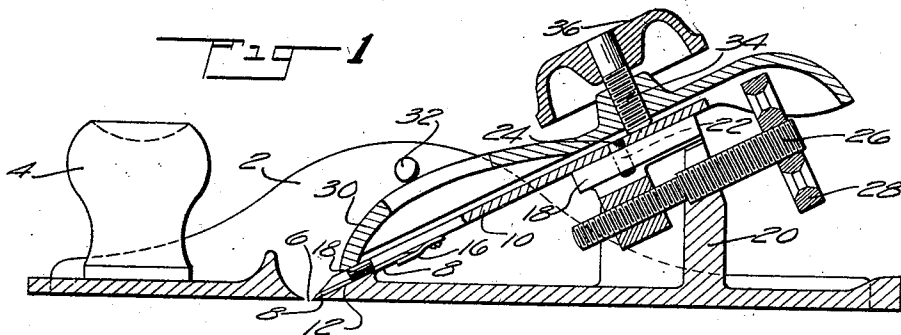


Fig. 2

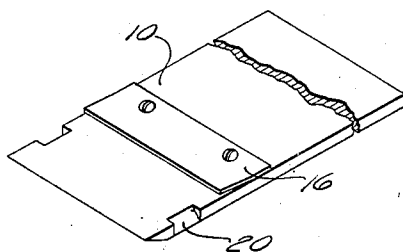


Fig. 4

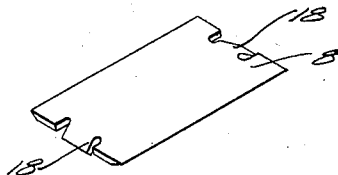


Fig. 3

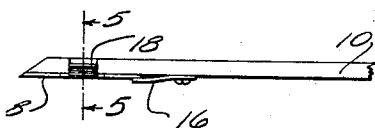
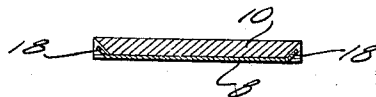


Fig. 5



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UNITED STATES PATENT OFFICE.

WALDO H. BLACKMER, OF NEW YORK, N. Y., ASSIGNOR TO TVEDT-SMITH COMPANY, A FIRM CONSISTING OF THOMAS T. TVEDT AND CHANNING SMITH.

PLANE BLADE.

Application filed December 5, 1922. Serial No. 605,026.

To all whom it may concern:

Be it known that I, WALDO H. BLACKMER, a citizen of the United States, residing at New York city, New York, have invented a certain new and useful Improvement in Plane Blades, of which the following is a clear, full, and exact description.

This invention relates to planes of the general character disclosed in Thomas T. Tvedt's application Serial Number 516,908, filed November 22, 1921. The plane shown and described in said application comprises a small thin blade mounted so that it may be quickly and easily removed from the plane and discarded when it becomes dull and a sharp blade inserted in its place.

One object of the present invention is to produce a novel and improved blade for a plane of this character which is constructed to enable the blade readily to be located in the desired position with relation to the supporting devices therefor and held securely in position when the plane is in operation and which is strong and capable of withstanding the strains to which it may be subjected in use.

With this and other objects in view, the invention comprises the novel and improved constructions, arrangements and combinations of parts hereinafter described and particularly pointed out in the claims, the advantages of which will be readily understood and appreciated by those skilled in the art.

The invention will be clearly understood from the accompanying drawings illustrating a plane embodying the invention in its preferred form and the following detailed description of the construction therein shown.

In the drawings—

Fig. 1 is a view in longitudinal vertical section of a plane embodying the invention;

Fig. 2 is a perspective view of the iron;

Fig. 3 is an edge view of the iron with the blade applied thereto;

Fig. 4 is a perspective view of the blade; and

Fig. 5 is a sectional view of the iron and blade taken substantially on the line 5—5 of Fig. 3.

In the embodiment of the invention illustrated in the drawings, the plane comprises

a stock 2 having a stud 4 at its forward end to be grasped by the operator in operating the plane and formed with an opening 6 through which the blade projects below the lower surface of the stock. The small thin removable blade is indicated at 8 and is mounted on the lower end of an iron indicated at 10 which is supported on the stock for sliding adjustment at an angle to the lower surface of the stock.

In the present embodiment of the invention the blade is mounted on the lower surface of the iron so that when the iron is placed in position in the stock the blade is located between an inclined surface 12 formed on the stock and the iron. The blade is clamped between the stock and the iron by forcing the forward end of the iron toward the stock. The plane illustrated in the drawing is especially adapted for use as a block plane to plane across the grain of the wood. It will be noted that each edge of the blade is formed by a single bevel extending from one face of the blade toward the other face thereof. To enable the blade to cut more efficiently and reliably across the grain of the wood the blade is placed on the iron so that the bevel on its forward cutting edge will be uppermost. The character of the blade which is preferably employed is such that it has considerable flexibility and therefore requires support adjacent its cutting edge when it is in operation. In the construction shown the blade is supported on its rear side adjacent its cutting edge by the edge of the stock at the lower end of the inclined surface 12 and the blade is supported on its forward side adjacent this edge by the lower end of the iron.

In the blade construction employed in the present embodiment of the invention, the blade is formed at its opposite ends with projections 18 extending at an angle to the plane of the blade. Preferably the iron is formed with recesses 20 at its opposite edges to receive the projections 18 on the blade, the projections fitting into the recesses when the blade is applied to the iron as clearly shown in Figs. 1, 3 and 5. The engagement of these projections on the blade with the recesses in the iron locates the iron with its operative cutting edge in a predetermined and definite position with relation to the forward end of the iron by which the blade

is supported adjacent its cutting edge and also holds the blade securely against displacement edgewise under the strain exerted on the blade when the plane is in operation. 5 The engagement of the projections 18 on the blade also locates the blade laterally with relation to the iron. When a blade having two cutting edges is employed, as in the present embodiment of the invention, the 10 projections 18 are located substantially in the centers of the ends of the blade so that the blade may be reversed to place either edge thereof in cutting position. The projections 18 preferably extend at an angle of 15 45° or less to the plane of the blade so that the blades may readily be stacked. The projections 18 preferably are made by forming slits at each end of the blade extending substantially parallel with the blade edges 20 and bending the parts of the blade between the slits at an angle to the plane of the blade. Blades of this character may be cheaply manufactured and the blade is not materially weakened by the formation of the projections in the manner described as is the 25 case when one or more openings is formed in the body of the blade. To hold the blade in position on the iron while the iron is placed in or removed from the stock, a spring plate 30 16 is secured to the iron and is arranged so that the rear portion of the blade may be inserted beneath the same when the blade is applied to the iron.

The rear end of the iron is supported on a 35 slide block 18 mounted to slide on an inclined guideway formed at the upper end of an upright 20 on the stock. This slide block carries a pin 22 which engages in an opening 24 in the iron. The slide block 18 40 is adjusted to adjust the iron with relation to the stock by means of a differential screw 26, the lower portion of which is threaded into a projection on the slide block and the upper portion of which is threaded into the 45 upright 20, this screw carrying a hand wheel 28.

The forward end of the iron is forced toward the stock to clamp the blade between the iron and the stock by means of a clamping 50 plate 30 the forward portion of which is located beneath a transverse pin 32 mounted on the stock and the forward end of which is arranged to engage the iron as shown in Fig. 1. The rear end of the clamping plate 55 30 is moved outwardly to force the forward end thereof against the iron by means of an adjusting screw 34 threaded through said clamping plate and arranged to engage at

its inner end, the iron. This screw carries a 60 hand wheel 36.

Having explained the nature and object of the invention and having specifically described a plane embodying the invention in its preferred form, what is claimed is—

1. A plane having in combination a stock, 65 a blade having projections at its ends extending at an angle to the plane of the blade and means for engaging said projections to locate the blade in operating position.

2. A plane having in combination a stock, 70 means for supporting the blade adjacent its cutting edge, a blade having projections at its ends extending at an angle to the plane of the blade and means for engaging said projections to locate the cutting edge of the 75 plane in a predetermined and definite position with relation to said supporting means.

3. A plane blade having projections at its opposite ends extending at an angle to the plane of the blade for engagement with 80 blade locating means to locate the blade in a predetermined operating position.

4. A plane having in combination a stock, a blade having projections at its opposite 85 ends extending at an angle to the plane of the blade and an iron arranged to support the blade by engagement with one face thereof and having recesses to receive said projections to locate the blade in a predetermined 90 and definite position with relation to the iron.

5. A blade for planes having projections at its opposite ends extending at an angle 95 of 45° or less to the plane of the blade for engagement with cooperating blade locating means to locate the blade in a predetermined operating position.

6. A blade for planes having two cutting edges and projections at its opposite ends 100 extending at an angle to the plane of the blades for engagement with cooperating blade locating means to locate said blade with either edge thereof in a predetermined operating position.

7. A plane having in combination a stock, 105 an iron arranged to support the blade adjacent its cutting edge and having blade locating means, a blade having one or more projections extending at an angle to the plane of the blade to locate the blade with 110 its operative cutting edge in a predetermined and definite position with relation to the iron.

Signed at New York, N. Y., this 1st day of December, 1922.

WALDO H. BLACKMER.