

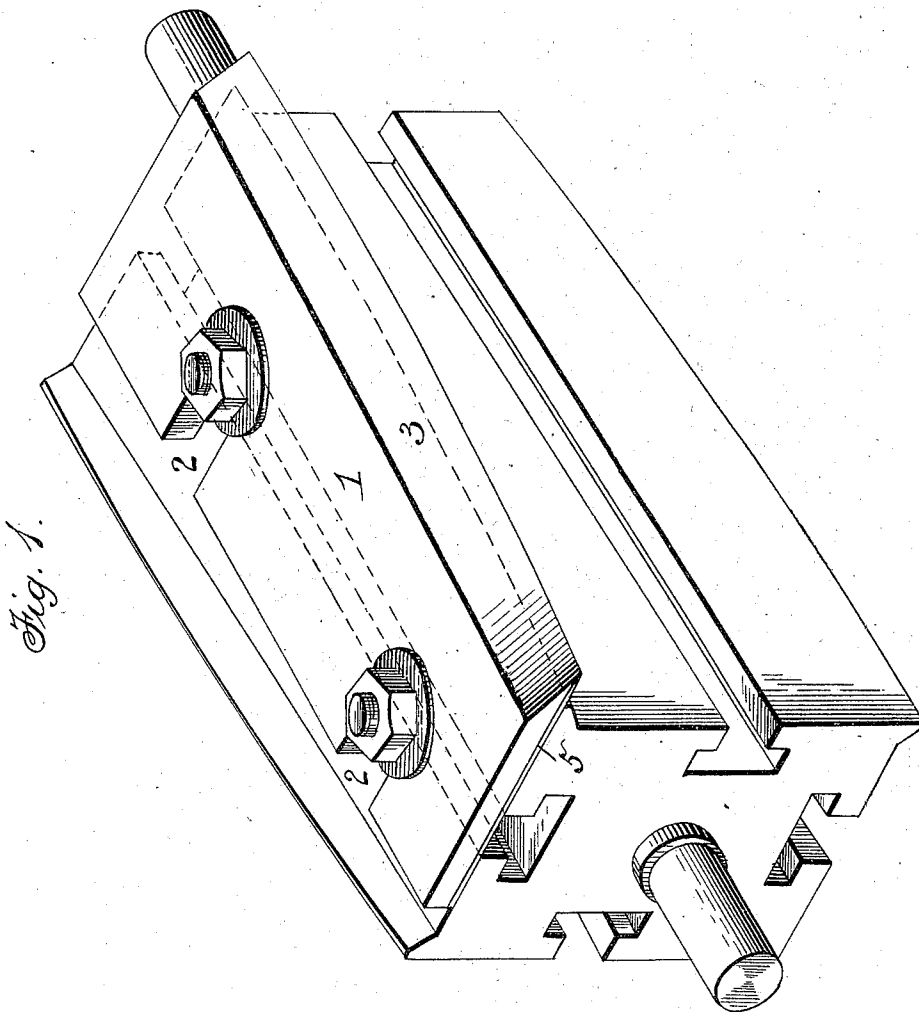
(Model.)

2 Sheets—Sheet 1.

S. J. SHIMER.
PLANER KNIFE.

No. 555,741.

Patented Mar. 3, 1896.



Witnesses:
Frank L. Ourand.
H. L. Coombs

Inventor:
Samuel J. Shimer,
G. Lewis Pappas & Co.
Attorneys

(Model.)

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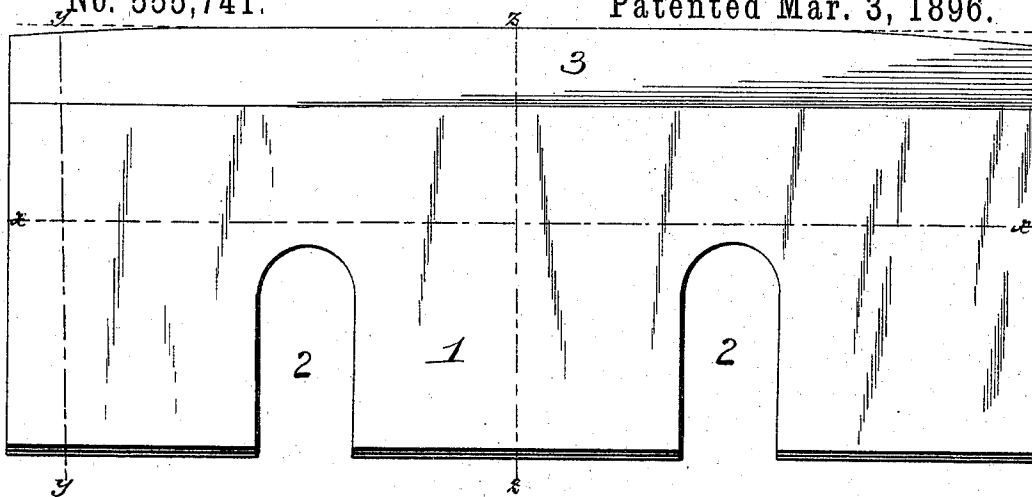


Fig. 2.

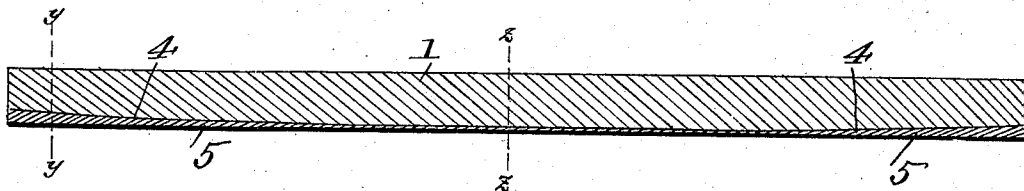


Fig. 3.

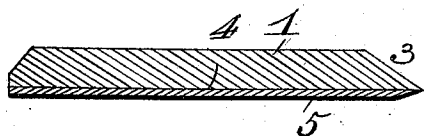


Fig. 4.

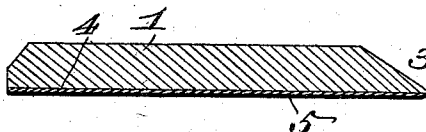


Fig. 5.

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UNITED STATES PATENT OFFICE.

SAMUEL JOHNSTON SHIMER, OF MILTON, PENNSYLVANIA.

PLANER-KNIFE.

SPECIFICATION forming part of Letters Patent No. 555,741, dated March 3, 1896.

Application filed November 27, 1895. Serial No. 570,287. (Model.)

To all whom it may concern:

Be it known that I, SAMUEL JOHNSTON SHIMER, a citizen of the United States, and a resident of Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Planer-Knives; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in planer-knives for the heads of wood-planing machines, and which are formed with a convex or curved cutting-edge extending across the head in a diagonal line or in a line at angle to the axis of the head, so as to produce a draw-cut and also cut a plane surface.

The object of the invention is to provide an improved construction of planer-knife, so that the same will seat squarely on the head, and whereby the work of sharpening the same may be brought within the limit of a straight bevel on the knife, so that the average mechanic may keep the knife in order.

The invention consists essentially in a planer-knife having a convex or curved cutting-edge, the same being a segment of an ellipse such as would be described by the knife cutting the cylinder of revolution at an angle to the axis of rotation, and the under or inner side of the knife made convex or thinner at the ends than at the center and provided with a facing or coating of soft metal on such convex side, which gradually increases in thickness from the center to each end, so as to form a flat surface, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a cutter-head, showing one of my improved knives applied thereto. Fig. 2 is a plan view of the knife. Fig. 3 is a longitudinal section of the knife on the line *x x*, Fig. 2. Fig. 4 is a transverse section on the line *yy*, Fig. 2. Fig. 5 is a similar section on the line *x x*, Fig. 2.

In the said drawings the reference-numeral 1 designates a planer-knife provided with slots 2 for the passage of bolts by which it is secured to a cutter-head. The outer edge of

this knife is beveled, as shown, forming a cutting-edge 3, which is curved or convex, the curve being the segment of an ellipse which lies in the cylinder of rotation, so as to cut a true plane surface. The knife is secured to the cutter-head on a line at an angle to the axis thereof so that the cutting-edge will produce a draw-cut. The inner or under side of the knife is ground or cut away from the center toward each end, forming a convex surface 4 corresponding with the curvature of the edge. The said grooved or cut-away portions are then filled up with a facing 5 of soft metal, and the outer side of which is flat or a true plane, so as to seat squarely on the cutter-head.

In making the knife I first take a flat rectangular plate of steel and lay off the curvature of the knife-edge on the bevel surface upon which the knife is sharpened, and such curved line is made permanent by grinding the under side of the knife to line with said curvature. When this is done it will be found that the under face of the knife will have become convex and will not fit upon the flat side of the planer-head. To compensate for this I replace the metal which has been ground off the under side of the planer-knife with a metal which will wear away as the knife is being used up and at the same time furnish the knife with a flat seating-surface to fit the side of the head just as well as the ordinary knife, which it resembles both as to shape and dimensions, except that it is made up of hard and soft metal. The knife-edge carries its curvature on the line of union between the hard and soft metal, which is soldered or otherwise caused to adhere thereto and spread itself over the entire under surface of the knife, to the right and left of the center line, to restore that part of the knife which was cut away to produce the edge curvature. The knife, after receiving the soft-metal facing, is planed up and given its original shape, having a flat bottom of soft metal, concave on its inner surface, which is secured to the convex inner side of the knife. By this construction, as the knife wears away by use and is set out of line of cut, it presents the same edge curvature to the work until it is used up.

The sharpening of the knife is accomplished

by filling or grinding the bevel edge just as an ordinary planer-knife would be sharpened.

Having thus fully described my invention, what I claim is—

- 5 1. As an improved article, a planer-knife having a continuous cutting-edge in the form of a segment of an ellipse extending from end to end, and convexed on its under side from the center to each end, substantially as specified.
10 fied.
2. As an improved article, a planer-knife having a continuous convex cutting-edge in the form of a segment of an ellipse extending

from end to end, and convexed on its under side from the center to each side and provided 15 on said convexed underside with a soft-metal facing, permanently secured thereto, and the outer surface flat or straight, substantially as specified.

In testimony that I claim the foregoing as 20 my own I have hereunto affixed my signature in presence of two witnesses.

SAMUEL JOHNSTON SHIMER.

Witnesses:

H. E. ANGSTADT,
E. S. SHIMER.