H. SMILEY.

DADO PLANE.

APPLICATION FILED OCT. 12, 1910.

1,011,648. Patented Dec. 12, 1911.

Fig. 3

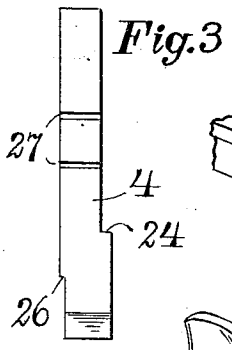

Fig. 4

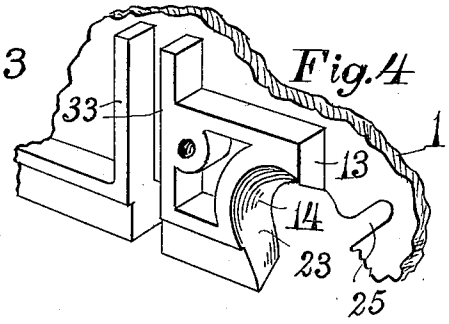

Fig. 5

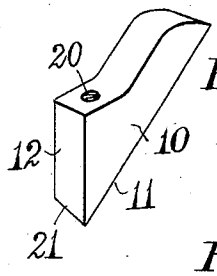

Fig. 6

Fig. 1

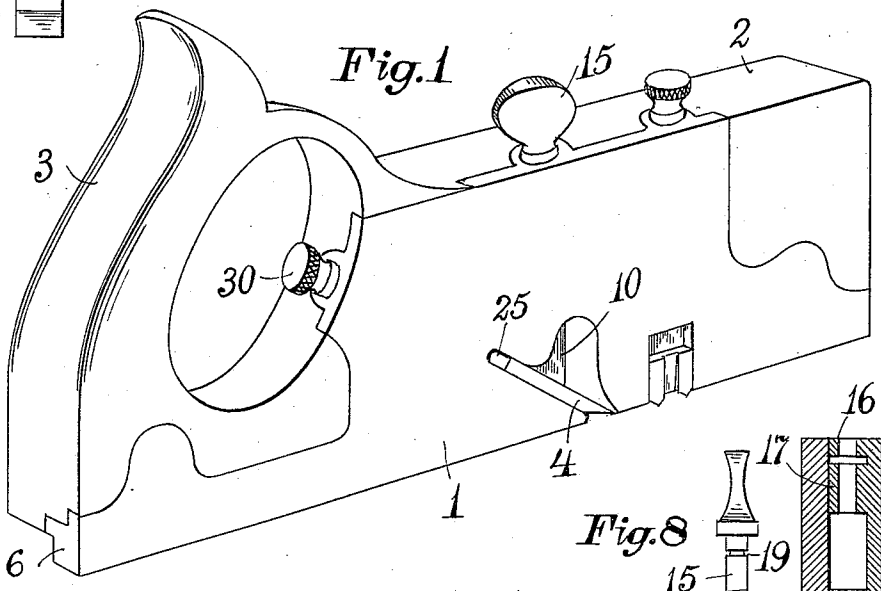

Fig. 8

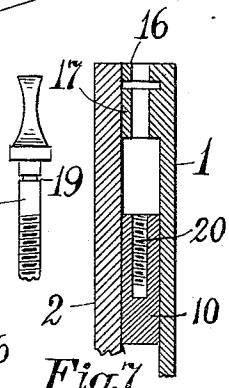

Fig. 7

Fig. 9

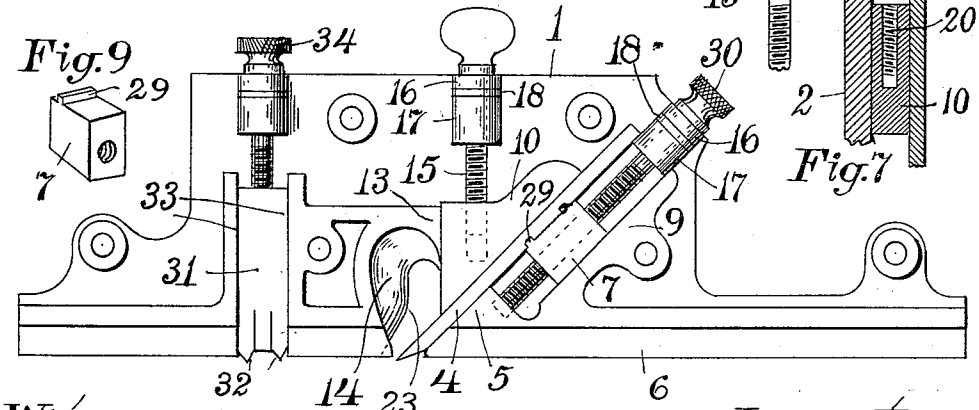

Fig. 2

Witnesses;

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UNITED STATES PATENT OFFICE.

HENRY SMILEY, OF BOSTON, MASSACHUSETTS.

DADO-PLANE.

1,011,648. Specification of Letters Patent. Patented Dec. 12, 1911.

Original application filed November 30, 1909, Serial No. 530,706. Divided and this application filed October 12, 1910. Serial No. 586,718.

To all whom it may concern:

Be it known that I, HENRY SMILEY, a citizen of the United States, and a resident of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Dado-Planes, of which the following is a specification.

This invention relates to that class of planes known as dado planes, and my invention consists in the improved means for cutting grooves and clamping and adjusting the blade and cutter thereof.

Referring to the drawings forming part of this specification, Figure 1 is a perspective view of a dado plane embodying my improvements. Fig. 2 is a face view of the metallic section of the plane, with the wooden section removed, showing my improvements complete. Fig. 3 is an under view of the blade. Fig. 4 is a perspective view of a portion of the metallic section of the plane. Fig. 5 is a perspective view of the blade-clamping block. Fig. 6 is a face view of one of the U-shaped fastening devices. Fig. 7 is a sectional view on a vertical transverse plane, of the clamping block and associated parts of the plane. Fig. 8 is a detail view of the thumb-screw for actuating the clamping-block. Fig. 9 is a perspective view of the adjusting block.

Looking first at Fig. 1, the metallic section of the plane is designated by the reference numeral 1, and the wooden section by the numeral 2; the latter section being formed with a handle or grip 3. The blade 4 is supported by the inclined seat 5 and the tongue 6, and also by the adjusting block 7. The latter is slidable upon the way 9 which is parallel with said seat, and is proportioned to bring its upper surface in the same plane with said seat. Above the blade 4 is the clamping block 10, shown also in Fig. 5, the elongated face 11 of which rests against the upper surface of said blade, while its face 12 is preferably exactly vertical. This vertical face contacts with the stop 13 which forms a part of the clearing mouth 14, and coacts with said block to press it against said blade when the block is forced downward by the thumb screw 15. This stop 13 is also illustrated in Fig. 4, as well as in Fig. 2. By having the adjusting block 7 proportioned and supported as above set forth, the blade is tightly gripped for the larger part of its length and not only securely held by the clamping block, but the latter is prevented from bending the blade and so causing it to chatter while in use. The thumb screw 15 is loosely mounted in the two bosses 16 and 17 and is kept from longitudinal displacement therein by the U-shaped fastening device 18 located between said bosses and engaging the annular groove 19 in the screw. See Figs. 6, 7 and 8. The lower end of said screw being tapped into the clamping block 10, and the internally threaded hole 20 therein being sufficiently deep, the turning of said screw in one direction will elevate said block far enough to permit the removal of the blade 4 whenever desired. By thus having the clamping block descend at a constant angle upon the blade so that it preserves a perfectly flush contact therewith, the corner or edge 21 of said block is always sharply down upon the same so that there can be no crevice thereat for catching shavings and splinters. Instead, the vertical face of the clamping block is always clear and clean to act against the shavings as they rise from the cutting-edge of the blade, and so to coil them over upon themselves and into coaction with the discharge-mouth 14 of the plane. Immediately below the point 23 and terminating at the under surface or bottom of the plane, is what is usually termed the throat of the discharge mouth. I have discovered that by giving a twist to this throat, that is, by forming said surface by a horizonal line slowly rising and at the same time revolving through a limited arc upon a vertical axis at the middle of said throat, the shavings rising from the cutting edge will more perfectly and with certainty clear themselves from the plane and be laterally discharged through the mouth. This is most clearly indicated in Fig. 2 where the dotted line represents the lowermost part of the opposite edge of said throat where it descends ou of sight behind the edge nearer the spectator.

As shown in Fig. 3, the blade 4 is formed with an offset shoulder 24 designed to enter the throat 25 (Figs. 1 and 4), and so present the cutting edge of the blade flush with the

corresponding lateral surface of the plane. The opposite side of the blade is also cut away slightly, as at 26, Fig. 3, in order that the blade may be of the same width as the tongue 6.

Fig. 7 shows the wooden section 2 fitted against the bosses 16, 17 and so serving to keep the member 18 in place. At the back of the blade 4 are one or more grooves 27 adapted to be entered by the rib 29 of the block 7, and thereby to hold the blade in engagement with said block and so permit the blade to be adjusted. Said block is adjusted, and the blade therewith, by means of the screw 30 threaded therein; the screw being held against longitudinal play by a U-shaped fastening device 18 located between bosses 16, 17 and engaging a groove 19 in the screw 30, in the same way as the screw 15 already described. The inner end of the screw 30 turns in a suitable recess in the seat 5, as indicated by dotted lines in Fig. 2, so that said screw is given a double suspension by thus having two centers in which to revolve, so that the block 7 can travel the entire length of the screw. In adjusting the blade 4, the thumb screw 15 is first slightly unloosened enough to permit movement of the blade, and then the screw 30 turned until the cutting edge of the blade is brought exactly to the point desired; after which the clamping block is pressed firmly down by its screw 15 to bind the blade immovably in place. To remove the blade, as for sharpening, the thumb-screw 15 is turned until the clamping block is elevated far enough to permit the blade to be disengaged from the rib 29 and then withdrawn from the plane. At a suitable distance in advance of the blade 4 is the cutter comprising a plurality of cutter-points at the lower end of a bar 31, said bar and points 32 being shown in Fig. 2. This cutter bar is vertically slidable between the ways 33, shown in Figs. 2 and 4, and is adjusted by a screw 34 like the screw 15 already described. I do not claim this cutter in this application, inasmuch as it forms the subject matter of my companion application Serial No. 530,706.

What I claim as my invention and for which I desire Letters Patent is as follows, to wit;—

1. The combination with a dado plane and a blade therefor supported at an angle, of a clamping block having a vertical face and an oblique face meeting each other at a sharp angle, said oblique face fitting against the surface of said blade, and means for pressing said block vertically downward against said blade, said plane being formed with a mouth having an arched roof terminating in a stop against which rests said vertical face of the block, and said vertical face being tangential with the curve of said arched roof.

2. A dado plane comprising a body, a blade supported thereby, and clamping and adjusting means for said blade, said blade having a laterally offset lower portion, and said body having a slot through its side slidably receiving the offset portion of said blade, said parts being so disposed that when the cutting edge of the blade is at its proper operative point said offset portion is located in said slot and is held in place thereby when the clamping means is unloosened from the blade.

3. A dado plane comprising a body and a blade carried thereby, said body being formed with a mouth having an arched roof above terminating in a stop, said arched roof curving downward and terminating in a twist in the throat of said mouth near the cutting edge of said blade, said twist extending upward from the bottom of the plane and being and merging insensibly into said downward curve.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 8th day of October, 1910.

HENRY SMILEY.

Witnesses:
A. B. UPHAM,
H. L. WHITTLESEY.