

937,558.

A. VICTOR.
 ROTARY CUTTER.
 APPLICATION FILED DEC. 30, 1908.

Patented Oct. 19, 1909.
 2 SHEETS—SHEET 1.

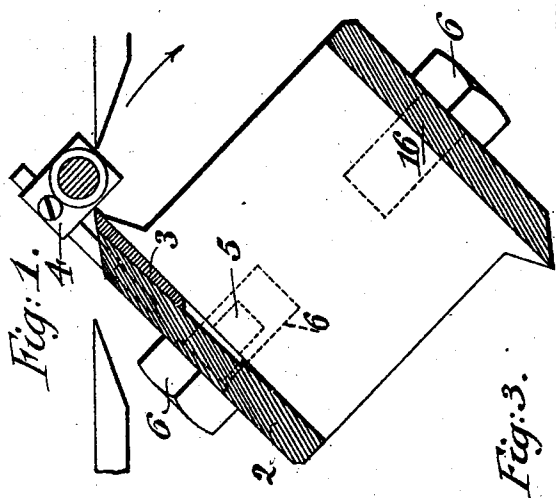


Fig. 1.

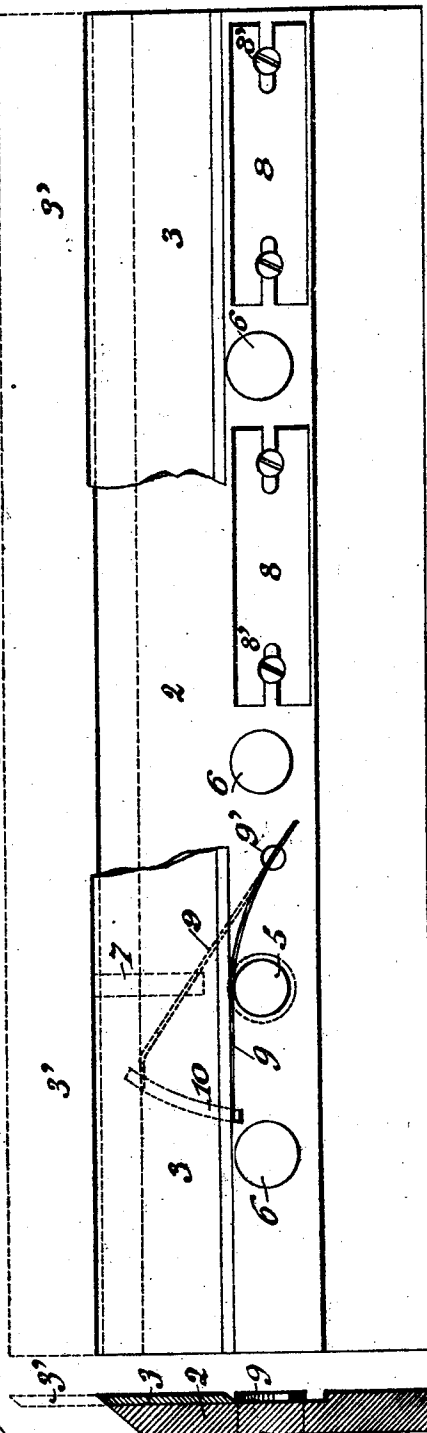


Fig. 3.

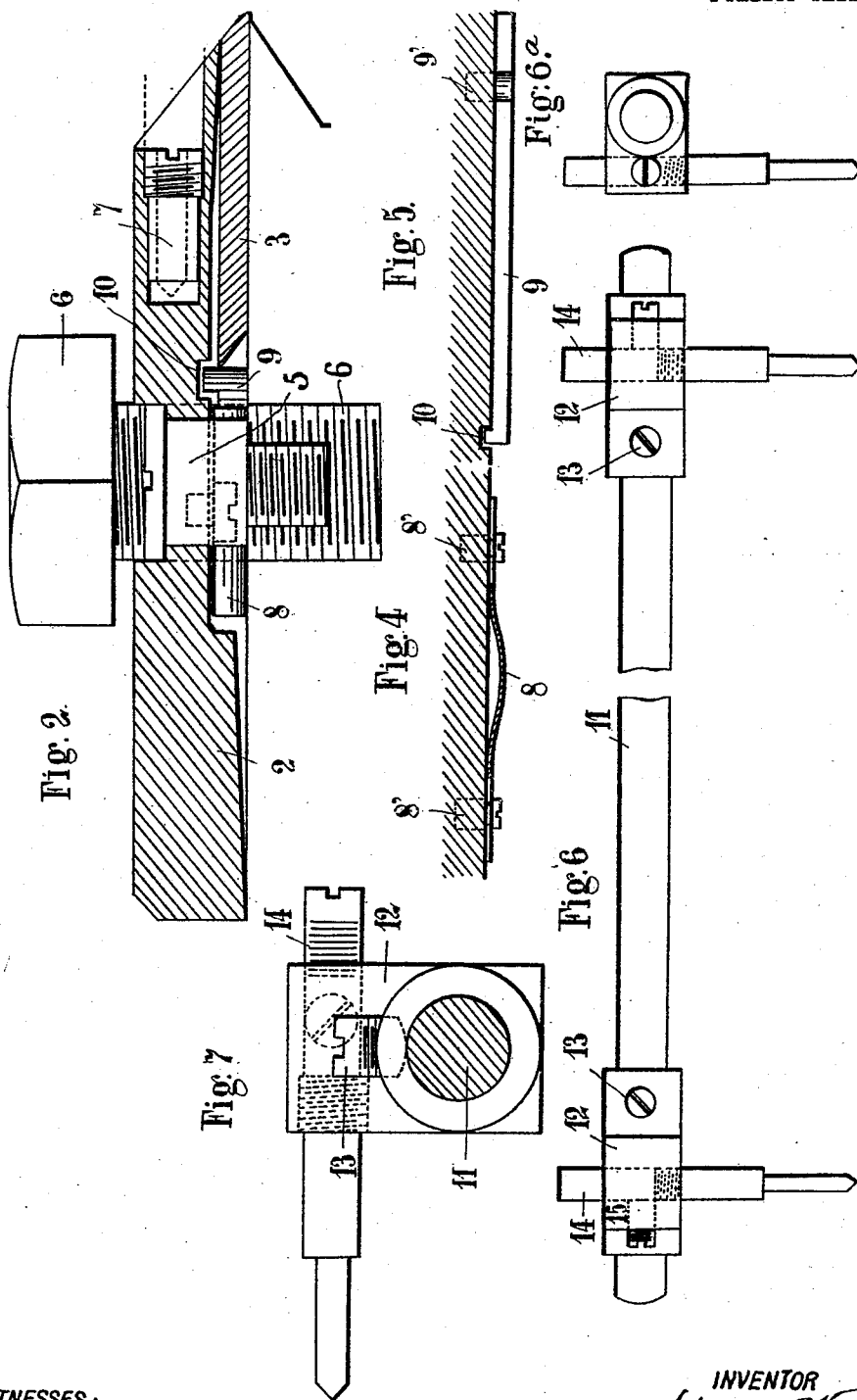
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UNITED STATES PATENT OFFICE.

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ROTARY CUTTER.

937,558.

Specification of Letters Patent.

Patented Oct. 19, 1909.

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To all whom it may concern:

Be it known that I, ALEXANDRE VICTOR, a citizen of the Republic of France, and resident of Lyon, France, have invented a new and useful Rotary Cutter, which is fully set forth in the following specification.

This invention has for its object to make it possible to use in planing machines and the like, knives of very small thickness and to make their fitting easy, quick and perfectly regular.

The object in question is attained by the use of a counterplate recessed on one of its faces, so as to insure perfect tightening of the knife against the tool-holder of the machine, and to provide space for all the raising or extension springs.

The counterplate is provided with means for receiving a gage against which the knife may be adjusted. The counterplate renders possible the use of knives or tools of extreme thinness, costing much less than the thick ones at present used. Their temper is more uniform and the sharpening costs very little. Moreover, by the use of the counterplate, the danger of choking is completely avoided. Finally, owing to the regulating device, a perfect and instantaneous adjustment is obtained.

The construction of the counterplate forming the subject of this invention, is represented, by way of example, in the accompanying drawings.

Figure 1 is a vertical section of a rotatable tool-holder of a wood planing or "straightening" machine; Fig. 2 is a vertical section showing on an enlarged scale the detail of the counterplate; Fig. 3 is a partial plan of the counterplate seen from below; Fig. 3^a shows a transverse section of the same; Fig. 4 shows details of a raising spring; Fig. 5 shows details of an extension spring in the position of rest; Fig. 6 is a plan showing details of the regulating device; Fig. 6^a is an end view of the same; Fig. 7 shows, on an enlarged scale, details of the gage or regulating device.

The counterplate 2 (Figs. 1-3) is entirely of cast steel. Its outer face is perfectly straight, so as to make possible satisfactory seating of the adjusting bolts 6. (See Figs. 1, 2 and 3.) Its inner face is recessed in the shape shown in the drawing in Fig. 2. On examining Fig. 2, which shows the plate free from the pressure of

the bolts 6, it will be seen that it comprises at each of its ends a sloping portion, then in the center a recess in which can be arranged the various springs hereinafter referred to. Under the pressure of the bolts 6, the surface of the counterplate which is curved, is forced to engage the knife or tool at one edge, and the tool holder at the other end. On being loosened, it resumes, owing to the elasticity of the metal, the shape shown in Fig. 2.

A special screw 5 loosely secures the counterplate to the tool holder and also has for its object to limit its outward movement relatively to the face of the tool holder. The said screw has three diameters: the screw-threaded portion, being of the smallest diameter, then a cylindrical portion and finally the head. The screwthreaded portion penetrates into the tool holder, the cylindrical portion passing through a hole in the counterplate. The head limits the upward movement of the said counterplate to the difference between the depth of the recess made for the head in the counterplate, and the thickness of the head itself. In this way, the counterplate is prevented from rising whatever be the degree of loosening of the bolts 6—except to the height required for the introduction or the withdrawal of the knife or tool. To the said counterplate are secured;

a. Two raising springs 8 (Figs. 2-4) the object of which is to raise the counterplate as the bolts 6 are loosened, until it meets the obstacle formed by the head of the special screw 5. These springs are secured to the counterplate by means of screws 8' having undercut notches engaging slots in springs 8. When the bolts 6 are tightened, the said springs are flattened and slide in the notches of the screws 8', and resume their shape as soon as the loosening of the counterplates takes place. These springs have the shape shown in Fig. 4, but could also have any other suitable shape.

b. Two expanding springs 9 (Figs. 2, 3 and 5) the object of which is to push outwardly the knife 3 as soon as the counterplate is loosened. It is owing to these springs that it is possible to regulate or adjust instantaneously and in a very exact manner the knives. These springs have the shape shown in Fig. 5, but they can also have any other suitable shape. Their bent end

moves in the recesses 10 made for the purpose in the counterplate.

c. Two special screwthreaded tubes 7 (Figs. 2 and 3), the object of which is to facilitate the adjustment of the knives. They form guides and stops for the finger 14 of the gage shown in Figs. 6 and 6^a. By means of a screwdriver, the position of the tubes can be regulated. These tubes may be replaced by simple holes or mortises if desired. The regulating device or gage comprises a cylindrical rod 11 on which slide two sleeves 12, each provided with a finger 14. The knife or tool to be regulated rests against the face of the said sockets or sleeves. The finger is made of a cylindrical steel rod. It has a shoulder at one end and is provided with a projecting screwthreaded portion and with $\frac{1}{2}$ mm. graduations at the other end.

The operation of this apparatus is very simple. The sleeves 12 are caused to slide on the rod 11 until the fingers 14 are exactly opposite the tubes 7, whereupon they are fixed by means of set-screws 13. The fingers 14 are placed in the tubes 11 and advanced until their shoulders strike the face thereof. Then, by means of a screwdriver, the finger is rotated and the threads thereon cause the sleeve to move relatively to the tubes. In this way the required distance between the counterplate and the gage may be obtained. The regulating device is then brought against the knife 3' into the position shown in Fig. 1. By pressing very slightly against the said device the springs 9 are made to yield and the knife is adjusted, after which the screws 6 are tightened.

Reference numeral 16 (Fig. 1) shows the old-style blade, heretofore used on planing machines, the disadvantages of which the present invention is designed to obviate.

I claim—

1. The combination, with the planer-head, of a counterplate, rabbeted to form a shoulder and a forwardly-projecting reduced portion, a blade disposed between said reduced portion and the planer-head, means to clamp said blade and said counterplate upon the planer-head, stud-bolts secured in the lower face of said reduced portion between said shoulder and said blade and having slots in their outer ends, and springs having their inner ends secured in said slots and their free ends pressing the inner edge of said blade.

2. The combination, with the planer-head, of a counterplate, rabbeted to form a shoulder and a forwardly-projecting reduced portion having arcuate grooves in its inner face, a blade disposed between said reduced portion and the planer-head and having oppositely disposed cutting edges, means to clamp said blade and said counterplate upon the planer-head, stud-bolts secured in the lower

face of said reduced portion between said shoulder and said blade and having diametrically disposed slots in their outer ends, and flat springs having their inner ends secured in said slots and their free ends pressing the inner edge of said blade, said free ends being provided with laterally-extending lugs projecting into said grooves.

3. The combination, with the planer-head, of a counterplate rabbeted to form a forwardly-extending reduced portion, a blade between said reduced portion and the planer-head, adjustable means for pressing said counterplate against said blade to clamp the counterplate and blade in position upon the planer-head, flat pins secured in the inner part of said reduced portion and having heads projecting into the space between the blade and said shoulder, curved springs having slots at their ends, said pins passing through said slots and said heads holding the ends of said springs against the inner face of said reduced portion, the intermediate portion of said springs pressing against the planer-head.

4. The combination, with the planer-head, of the counterplate having screw-threaded bores in its forward edge, a blade clamped between the counterplate and planer-head, and externally screw-threaded tubes screwed into said bores and having slots in their outer ends, whereby said tubes may be adjusted.

5. The combination, with the planer-head, of the counterplate, a blade between said counterplate and the planer-head, adjusting screw-bolts passing through said counterplate and blade and screwed into the planer-head, and additional bolts passing through said counterplate and said blade and screwed into the planer-head, said additional bolts having an inner shoulder to limit the inward movement of the bolt into the planer-head, said additional bolts also having outer inwardly-disposed shoulders to engage the outer face of and limit the outward movement of the counterplate when it is adjusted slightly away from the blade.

6. The combination, with the planer-head, of the counterplate, the blade between the counterplate and the planer-head, means for yieldably pressing the blade forwardly, yieldable means to press the counterplate away from the head, adjustable means to press the counterplate toward the planer-head, and fixed means for limiting the movement of the counterplate away from the head.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ALEXANDRE VICTOR.

Witnesses:

THOS. N. BROWNE,
MARIN VACHON.