(No Model.)

S. J. SHIMER.

BIT HOLDER FOR CUTTER HEADS.

No. 353,509. Patented Nov. 30, 1886.

Fig. 1.

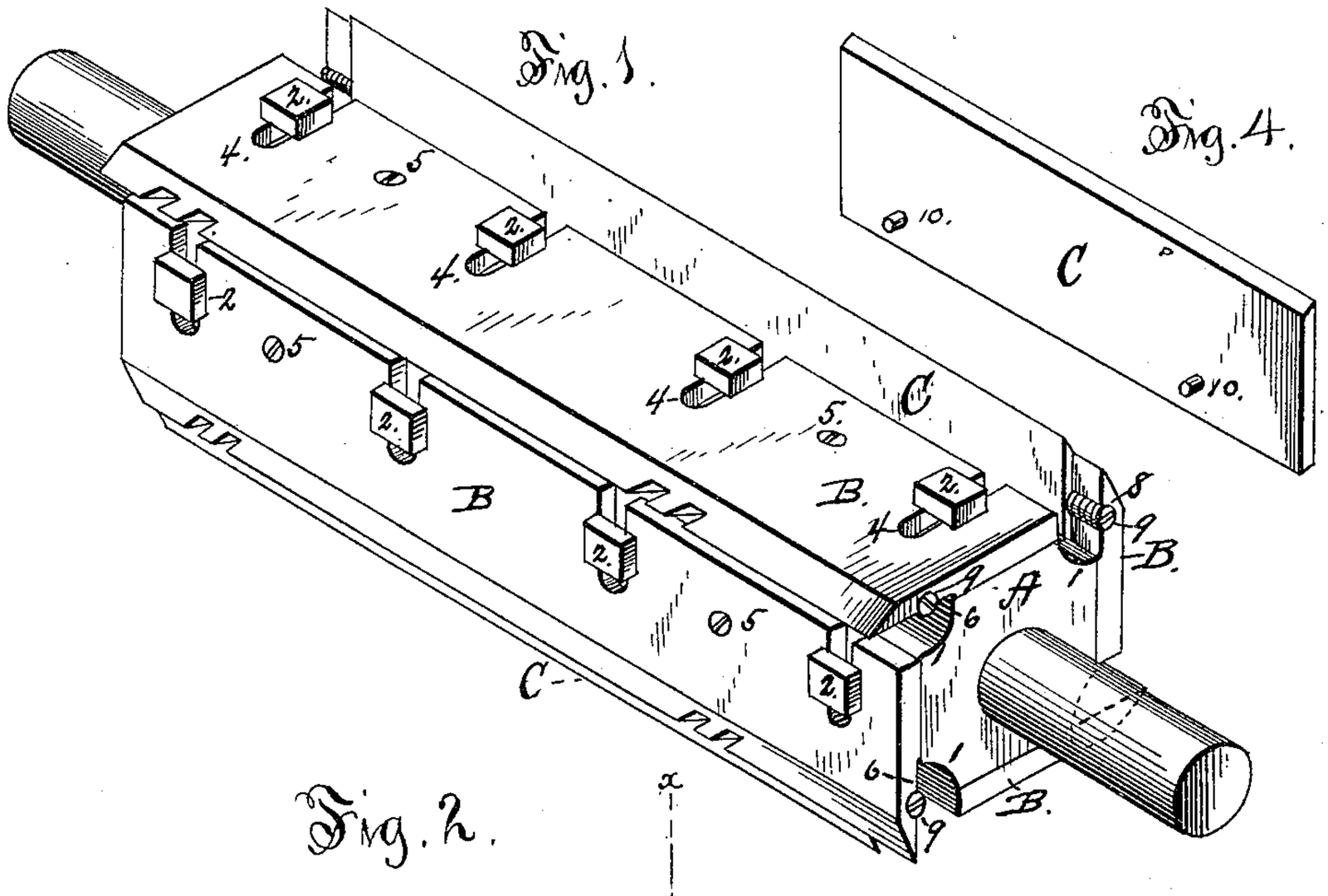


Fig. 4.

Fig. 2.

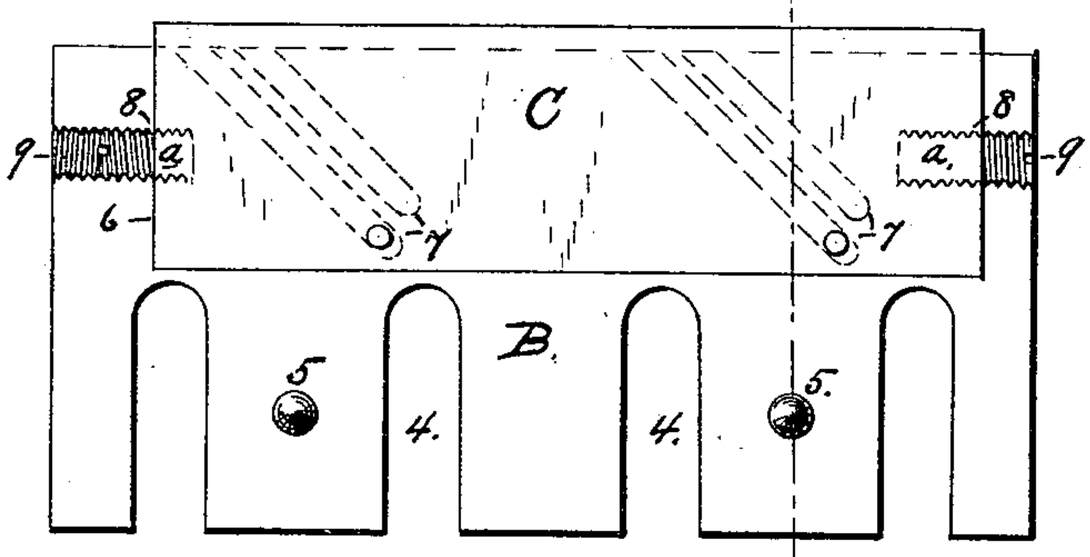


Fig. 3.

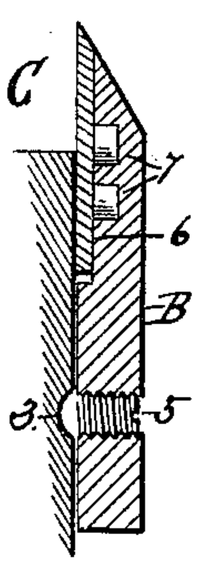


Fig. 5.

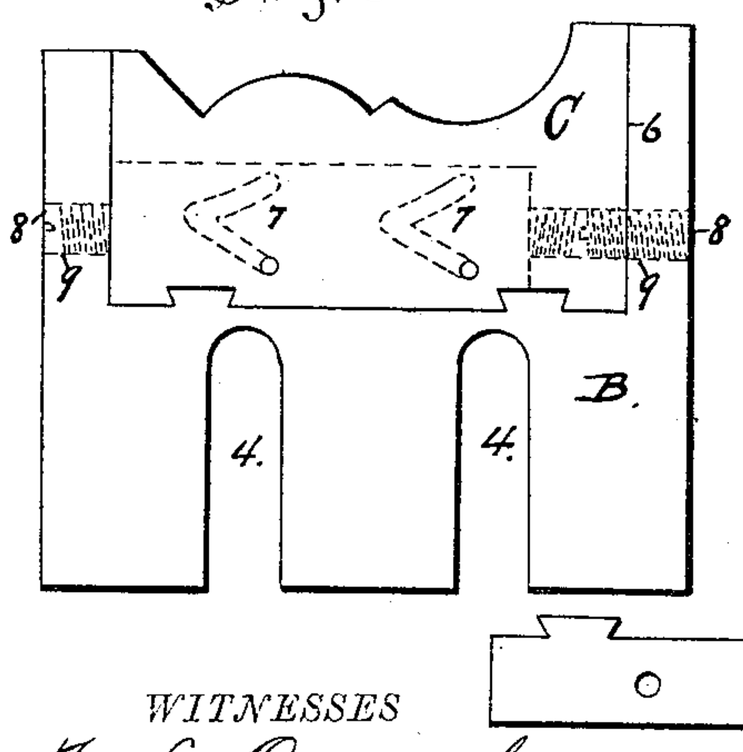


Fig. 7.

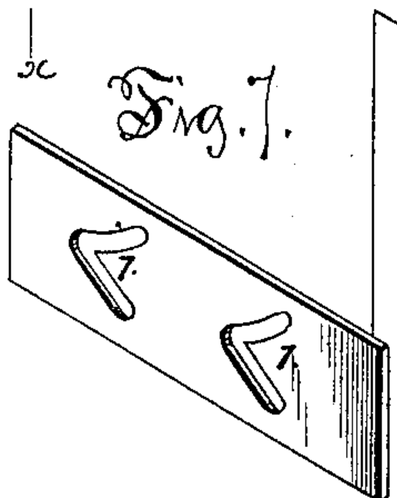


Fig. 8.

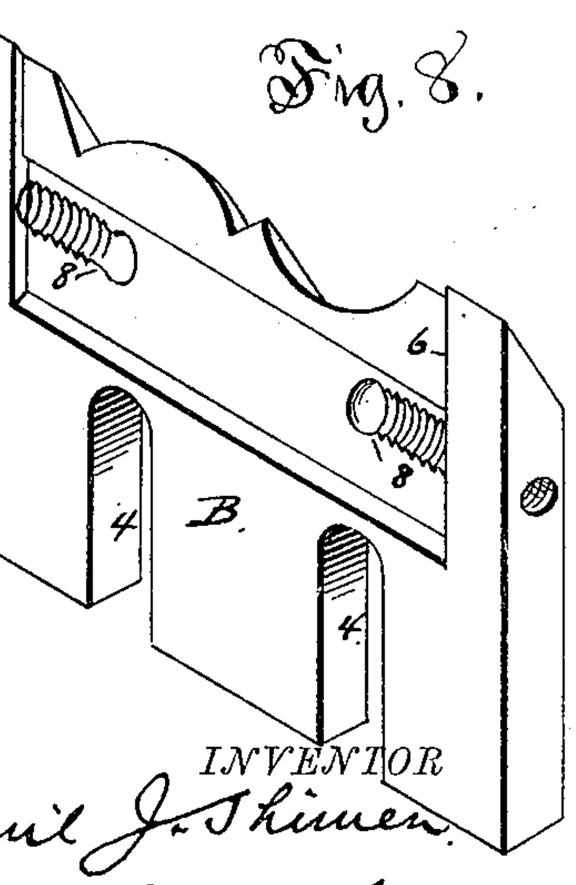
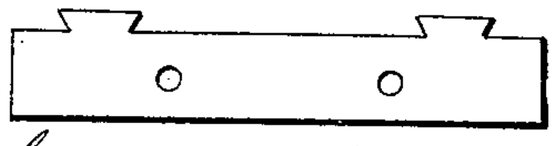


Fig. 6.



WITNESSES

F. L. Ourand.

J. Thomson Cross.

INVENTOR

Saml J. Shimer.

by A. G. Dayhuff.

Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL J. SHIMER, OF MILTON, PENNSYLVANIA.

BIT-HOLDER FOR CUTTER-HEADS.

SPECIFICATION forming part of Letters Patent No. 353,509, dated November 30, 1886.

Application filed March 22, 1886. Serial No. 196,066. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. SHIMER, a citizen of the United States of America, residing at Milton, in the county of Northumberland, in the State of Pennsylvania, have invented a new and useful Cutter-Head, of which the following is a specification.

My invention has relation to improvements in cutter-heads used in surface planing and molding machines, and the objects are, first, to simplify and improve the construction of implements of the kind named, and, second, to provide ready, accurate, and reliable means for adjusting the position of the knife or knives in the cutter-head. I attain these objects by the means and construction hereinafter described, and which are illustrated in the drawings; and with these ends in view my invention consists in the novel construction of the parts and their combination, as will be fully described and especially as will be pointed out and distinctly claimed.

In the drawings, to be taken as a part hereof, I have fully and clearly illustrated my improvements, and reference being had thereto, Figure 1 is a perspective view of a cutter-head knife-stock with my improvements applied. Fig. 2 is a bottom view of the holding-plate, wherein the knife is shown in dotted lines. Fig. 3 is a transverse sectional view of the knife and holding-plate, taken on the line *x x* of Fig. 2. Fig. 4 is a view of the knife, showing the guiding-studs. Fig. 5 is a bottom view of a holding-plate adapted to take a molding-knife. Fig. 6 is a view of an auxiliary plate to splice a narrow knife. Fig. 7 is a perspective view of a removable plate with guiding-slots made V shape, and Fig. 8 is a holding-plate formed for a molding-knife.

The letter A designates the cutter-head stock, shown as made with four plane sides, and having chip-chucks 1 formed in the angles of the stock. The stock is also provided with threaded holes in which are screwed the fastening-bolts 2. The faces of the cutter-head stock are also provided with countersinks 3, arranged back of the line of the fastening-bolts, to serve as seats for the ends of adjusting-screws let through the clamping-plate, as hereinafter stated.

I have illustrated the cutter-head stock as one having four plain sides; but it will be apparent to the trade that cutter-heads of two or three sides may be substituted with equal adaptability and utility; and that cutter-heads with surfaces arranged on different planes may have the adjusting means applied, (this being the primary object of the invention,) to provide convenient means by which the knives may be readily and accurately adjusted in their position on the cutter-head.

The letter B designates the holding-plate, which not only serves to clamp the knife to the head-stock, but also constitutes the element having formed and affixed therein the appliances and vehicles for adjusting the knives. This holding-plate is provided with two or more open-ended slots, 4, through which the clamping-bolts 2 are passed, and is also provided with adjusting-screws 5, the ends of which set within the countersinks 3 of the head-stock for the purpose of giving accuracy to the set of the holding-plate, and also may be used as a means for slightly pitching the knife-edge of the plate on the knife, and thus give additional stress where the strain is greatest, and solidity of union of the parts necessary. The under face of the holding-plate is formed with a wide rabbet, 6, which forms the seat for the knife, the rabbet being barely as deep as the knife is thick, in order that the latter shall set with its face flush above the wall of the rabbet and be clamped tight when the parts are in combination.

Across the face of the rabbet are cut four grooves, diagonally arranged thereon, as 7, set parallel to each other in pairs near each end of the holding-plate, the different grooves of each couple being thus adapted to take knives of different widths, and to permit the worn knife to be taken from the longer of the grooves and set in the shorter. This is essential, since the knife in its progress forward is also moved endwise, and would thus be moved beyond the desired limit of its stroke if kept in the longer slots. By having the shorter grooves arranged on the same plane, with a determined interval from the longer and primary grooves, the knife can be brought back to satisfy its end-cut, by removing it from its seat in the longer grooves and setting it in the shorter ones.

Formed in each end of the holding-plate are threaded holes 8, projected in the plate par-

allel to the axis of the cutter-head, and in these threaded holes are fitted threaded plugs 9, a section of which projects above the slot *a* in the sides of the lower part of the holes to set against the end of the knife, and these plugs 9 serve as the adjusting means for setting the knife at any desired cut, and then for clamping it in such position. The manipulation of the parts will be more specifically stated in the description relating to the knife.

The letter C designates the knife, which consists of a plane piece of steel of the length and breadth to suit the seat in the holding-plate. In the knife are arranged two studs, 10. These may be rigidly fixed in the blade, if used for a common planer-head; or may consist of threaded studs let in holes in case of a knife used in a molding head or shaper. The studs register to fit the grooves in the plate, and traverse the grooves in the progress of the knife in its seat.

In Figs. 5, 6, 7, and 8 is shown the application of the adjusting-screws to a molding-knife. A knife or blade of this character must move forward in a direct line to maintain the regularity of the shaping-edge to a line of molding. Therefore I provide a plate, as seen in Fig. 7, with grooves, which plate has a seat in the holding-plate, and the studs of the knife set in the grooves of the plate and the adjusting-screws set against the ends of the plate, instead of the ends of the knife. This arrangement of the parts permits the knife to set in a prescribed bed in the holding-plate, and to move forward or back without varying from a direct line of the shaped cut of the molding. In case the knife becomes worn and narrowed, I provide a splice-piece to set back of and be joined to the knife, as seen in the drawings.

The operation of the device is as follows: The knife is laid on the seat in the holding-plate with the studs in the grooves, and is then clamped by the end screws, or it may be laid in the seat and then clamped by adjusting it with the holding-plate to the head-stock, after which the adjusting-screws may be operated and the knife set at such point as may be desired. Now to set the knife, one of the adjusting-screws is unscrewed and the other is screwed up, both being of identical thread. The result is, the knife is thrown forward or backward to the extent of the space covered by the movements of the screws.

From the foregoing method of adjustment, it will be perceived that the knives on the head may be adjusted with accuracy and great convenience, since the screws of one knife being given one turn, or whatever movement is required, those of the other knives may be given like movement, and thus all are moved the same distance.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a cutter-head stock, a holding-plate removably secured to the said stock and having a knife-seat formed thereon, and a knife provided with studs to move in diagonally-arranged grooves in its seat, of adjusting-screws let in the ends of the holding-plate, whereby the knife may be moved forward or backward in its seat, substantially as described.

2. The combination, with a cutter-head stock and a holding-plate detachably secured thereto and formed with a knife-seat, and diagonally-arranged grooves across the knife-seat, of a knife formed with studs to set within the said grooves in the knife-seat and adjusting-screws let into the ends of the holding-plate, whereby the knife may be adjusted to any desired cut, substantially as described.

3. The combination, with a cutter-head stock formed with countersinks on its faces, a holding-plate secured to the stock and provided with set-screws to set within the countersinks of the head-stock and having a knife-seat formed with diagonal grooves across its face, and a knife formed with studs to set within the grooves of the knife-seat, of adjusting-screws let in the ends of the holding-plate to move the knife backward and forward, substantially as described.

4. The cutter-head knife herein described, consisting of a plate of steel formed or provided with studs 10, projected from its face, near opposite ends of the knife, and arranged to set in and traverse parallel guiding-grooves in the cutter-holder plate of a cutter-head, substantially as described.

5. In combination with a cutter-head and a knife thereof formed with studs on its face disposed in diagonal grooves in the holding-plate, of adjusting-screws let into the head from both ends parallel to the knife-bed and engaging with the ends of said knife, whereby the knife may be moved forward and backward and set at any desired cut, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

SAMUEL J. SHIMER.

Attest:
JOHN A. BECK,
W. H. BECK.