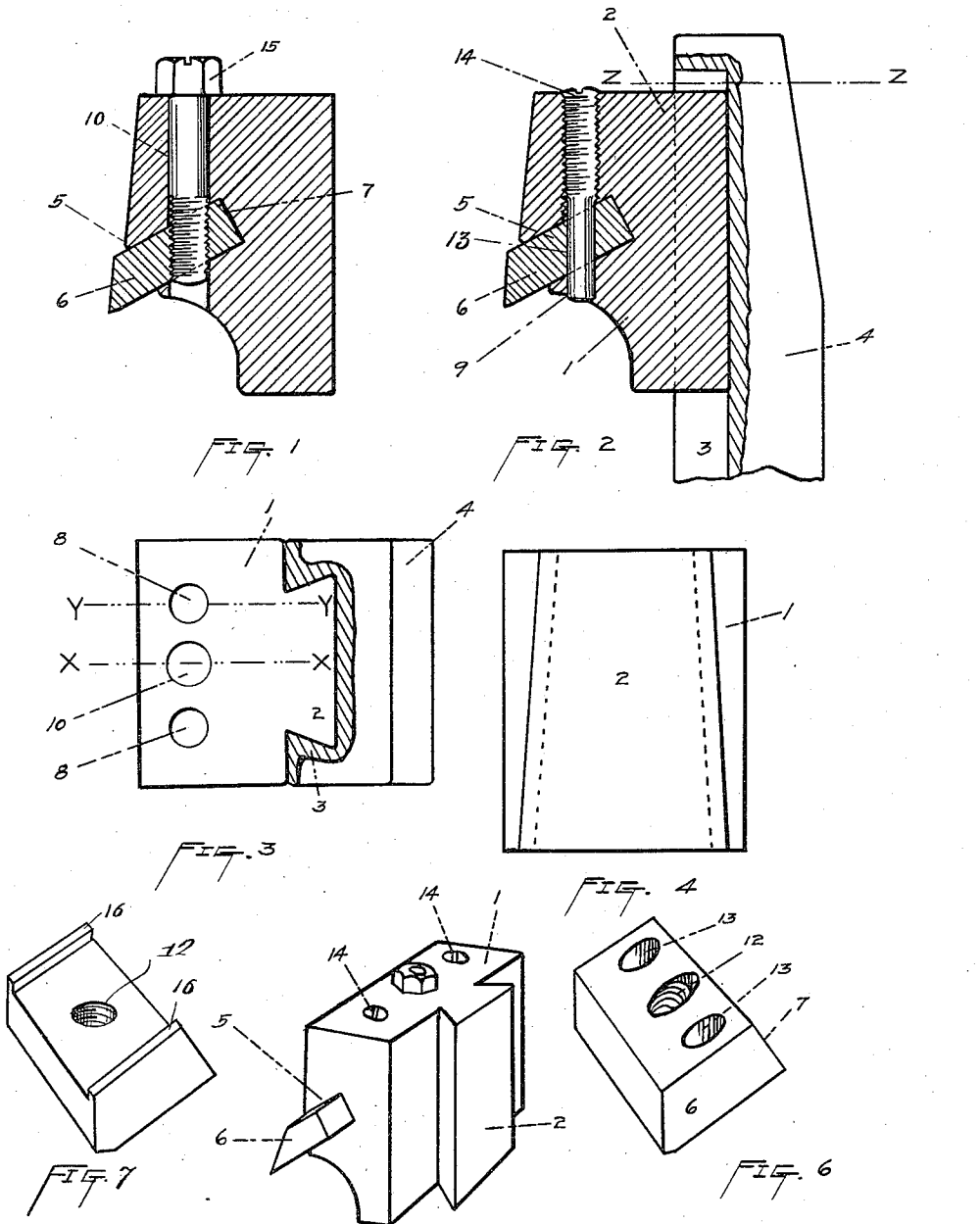


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CUTTER FOR KEY SEATING MACHINES.
APPLICATION FILED APR. 9, 1912.

1,060,749.

Patented May 6, 1913.



WITNESSES:
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FIG. 5
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CUTTER FOR KEY-SEATING MACHINES.

1,060,749.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, TILGHMAN G. FREDERICK, a citizen of the United States, residing at Bernharts, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Cutters for Key-Seating Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is a cutter for key-seating machines and the improvement consists in a cutter head having a removable knife, the head being mounted on a vertically traveling bar such as is common in key-seating machines, but provided with means for securing the knife in the head so that it can be readily removed and inserted and can be firmly held against chattering or skew movement with relation to the head.

With these objects in view and certain others which will appear later in the specifications, my invention consists in the devices described and claimed and the equivalents thereof.

In the drawings, Figure 1 is a vertical section through the cutter head and knife taken on the line $x-x$ of Fig. 3; Fig. 2 is a similar vertical section taken on the line $y-y$ of Fig. 3 and showing the upper end of a cutter bar to which the head is attached; Fig. 3 is a top plan view of the cutter head with the fastening bolts removed, showing in part cross-section the upper end of the cutter bar, the part section of the cutter bar being taken on the line $z-z$ of Fig. 2; Fig. 4 is a rear view of the cutter head; Fig. 5 is a perspective view; and Fig. 6 is a perspective view of the knife; and Fig. 7 is a modified form of knife.

The cutter head consists in a metal block 1 adapted to be secured to a cutter bar in any desired manner, as for illustration by a dove-tailed tenon 2 on its rear face, the tenon received in a corresponding mortise 3 formed in the face of the cutter bar 4 which is of usual construction. A groove 5 extends horizontally across the front face of the block 1 and extends back into the block in a diagonally upward direction, and a central vertical hole 10 is formed in the block, intersecting the groove 5. A knife 6 is re-

movably inserted in the groove 5 and has its cutting edge projecting beyond the front of the block. The knife is provided with a central diagonally disposed threaded hole 12.

In assembling, the knife 6 is inserted in the groove 5 with its back 7 bearing snugly against the block at the back of the groove. A cap screw 15 having its lower end threaded is inserted in the hole 10, which is not threaded, and is screwed into the threaded hole 12 of the blade so that when the cap screw is tightened, it firmly holds the upper face of the groove 5. The screw 15 is also performs the additional function of a tightener to draw the knife 6 rearwardly against the back of the groove 5.

Since there is a small amount of clearance between the threads of the screw and the threads of the knife, and between the screw 15 and the hole 10, and since the knife is set at an angle with reference to the screw, tightening the screw will draw the knife upward and rearward so as to seat it firmly against the back of the groove, while it also seats the upper face of the knife against the top of the groove. The knife is thus held firmly in contact with the metal of the block in all directions that are opposed to the strain of the cut, thereby preventing chattering and "skewing" of the knife when in use.

My invention also provides means whereby the knife can be accurately centered with respect to the work. In cutting key-seats it is important that the middle point of the cutting edge of the knife lie on a radius drawn from the center of the bore of the hub or other article in which the key-seat is being cut, to the center line of the key-seat. This is necessary in order that the key-seat in the hub may be "square" with the key-seat of the shaft upon which the hub is to be keyed, and in order that the key ways in the hub and shaft may register. A slight lateral off-set of the key-seat in the hub, due to the ends of the knife having projected unequally from the center line of the block, impairs the efficiency of the key and makes it difficult to fit. Care is therefore taken in building key-seating machines to set the block 1 so that it shall be accurately centered with reference to the work. Hence it becomes important that the knife 6 be pro-

vided with means by which it can be accurately attached to the block so as to be properly central with reference to the work. To accomplish this purpose I provide two
 5 holes 8, 8, extending vertically through the block, and preferably thread these holes from the upper surface of the block down to the groove 5, as shown in Fig. 2, the lower
 10 ends 9 of the holes in the block being of smaller diameter and not threaded. A pin 14 preferably threaded at its upper end and reduced in diameter at its lower end, as
 15 shown in Fig. 2, is then inserted into each of the openings 8, 8, the lower ends of the pins passing through diagonally disposed
 holes 13 formed in the knife 6 and projecting into the holes 9 in the block below the knife. These pins insure that the knife will
 20 be properly central with reference to the work, as above described, and also make it possible to use interchangeable knives of various lengths, any one of which will be properly centered.

In Fig. 7 I have illustrated a modified
 25 and, for some uses, a preferred form of knife which may be centered in the block without employing the pins 14. In this modified form of knife the threaded hole 12 is the same as in Fig. 6, but projections 16,
 30 16 are provided on one face of the knife, the projections being spaced apart a distance equal to the width of the block so as to engage the side faces of the block when the knife is slipped into the slot, thereby main-
 35 taining the knife in its central position.

Having described my invention, what I claim and desire to secure by Letters Patent, is:—

1. A cutter head comprising a block, the

front of said block provided with a groove 40 projecting diagonally upward, said block formed with a hole intersecting said groove; a knife received in said groove and projecting beyond the front of said block, said
 45 knife formed with a diagonally disposed threaded opening; a clamping bolt loosely received in the hole of said block and threaded at its lower end into the threaded opening of said knife and adapted when tightened to draw said knife upwardly and rearwardly 50 into close engagement with said block at the top and the back of said grooves; and means engaging said block and knife and adapted to maintain said knife in central position with respect to said block. 55

2. A cutter head comprising a block, the front of said block provided with a groove projecting diagonally upward, said block formed with a hole intersecting said groove; a knife received in said groove and project- 60 ing beyond the front of said block, said knife formed with a diagonally disposed threaded opening; a clamping bolt loosely received in the hole of said block and threaded 65 at its lower end into the threaded opening of said knife and adapted when tightened to draw said knife upwardly and rearwardly into close engagement with said block at the top and the back of said grooves; and projec- 70 tions on said knife engaging said block to maintain said knife in central position with respect to said block.

In testimony whereof, I affix my signature in presence of two witnesses.

TILGHMAN G. FREDERICK.

Witnesses:

JOSEPH PRESSER,

THOMAS E. BROWN.