

H. A. PERKINS & F. H. CLEMENT.

PLANING MACHINE CUTTER HEAD.

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910,413.

Patented Jan. 19, 1909.

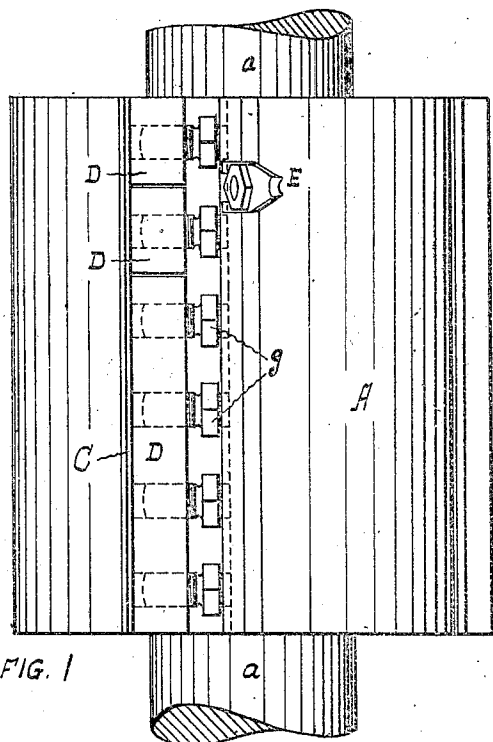


FIG. 1

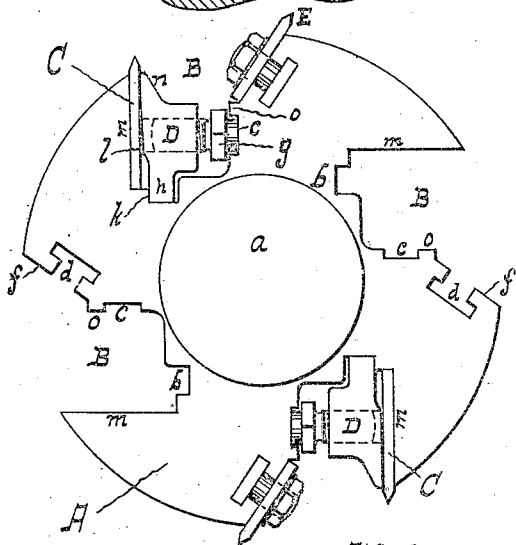


FIG. 2

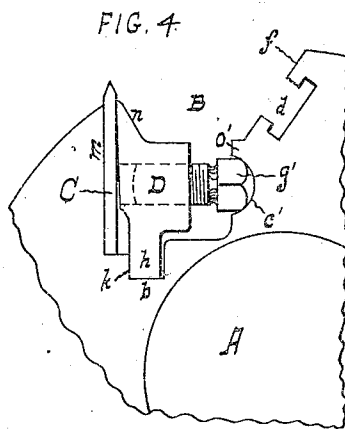


FIG. 4

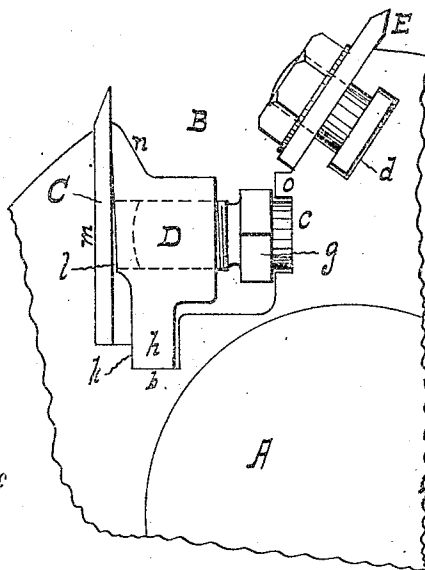


FIG. 3

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HIRAM A. PERKINS AND FRANK H. CLEMENT, OF ROCHESTER, NEW YORK, ASSIGNORS TO AMERICAN WOOD WORKING MACHINERY CO., OF ROCHESTER, NEW YORK, A CORPORATION OF PENNSYLVANIA.

PLANING-MACHINE CUTTER-HEAD.

No. 910,413.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed April 27, 1908. Serial No. 429,392.

To all whom it may concern:

Be it known that we, HIRAM A. PERKINS and FRANK H. CLEMENT, citizens of the United States, and residents of the city of Rochester and State of New York, have invented certain Improvements in Planing-Machine Cutter-Heads, of which the following is a specification.

Our improvement relates to surfacing cutter heads for wood planing machines and consists principally in a peculiar construction of knife, receiving slots and clamping blocks by means of which the knives can be safely clamped into cutting position.

It further consists in means of retaining the clamping blocks in the slots in case the knives are removed, and in means of attaching beading or molding cutters independently of the surfacing knives.

In the drawings Figure 1 is a plan view of a cutter head made according to our invention. Fig. 2 is an end elevation: Fig. 3 is an enlarged view of one slot and attachments: Fig. 4 shows a modification of the clamping screws.

A, is the cutter head made cylindrical in form with the usual journals *a* of any desired diameter and length. In this head we provide a number of longitudinal slots B, corresponding to the number of knives desired to be used: we have shown four slots as being best adapted to an ordinary head 7 in. to 8 in. in diameter. In Fig. 2 two slots are shown unoccupied and they are made up of the main slot B, a bottom recess *b* and a side slot *c*, which forms a tongue *o*: an additional T slot *d* may also be provided, located on the extended wall *f* of the main slot B.

C, represents the knives which are plain pieces of bar steel cut to the required length and beveled to a cutting edge. They are clamped tightly against the plain wall *m* of the main slots by means of blocks D, and set screws *g*, the latter being threaded into the blocks and having heads fitted to enter loosely the side slots *c*. A portion of the screw head is made square or hexagon to receive a wrench and is provided with a cylindrical extension integral therewith and adapted to bear on the bottom of the slot *c*. We are aware that a nut having a dove tail extension adapted to be slid endwise into a slot of like form in cross section has been combined with a separate screw and with a

block. Our improvement reduces the number of separable parts and provides for their more convenient assemblage.

It will be seen that the blocks D, can be forced against the knives and thus clamp them rigidly against the wall *m*, of the main slots. A portion *h* of each block projects into the sub-slot or recess *b*, and the ledge *k*, of this slot or recess becomes a fulcrum for the toes *h*, thus bringing the pressure obtained by the screws *g*, primarily on the knives at the lip *n*, near their cutting edge and secondarily on the ledge *k*. The said block portion *h* extends below the knife and nearly fills the recess *b* transversely, and in manner to limit the transverse rocking of the block when loosened, thereby hindering its accidental removal. We prefer also to clear the blocks D, toward the heel of the knives as indicated at *l*, Fig. 3 so as to bring the heaviest pressure on the lips *n*, insuring absolute contact of the knife near the cutting edge and wall *m* of the main slot: the elasticity of blocks D, is thus utilized between the fulcrum line *k* and lips *n*, the screws *g*, finally forcing the block against the knife all along the bearing face *n* to *l*. This construction also enables us to use the knives until they are nearly worn away by use and resharpening. The tongue *o*, and the projecting end of the screws *g* form an element in the locking of the blocks D, into the main slots B, and the toes *h* another element, so that even if the knives become loose or are accidentally omitted, the blocks can not fly out, being held by the toes *h* acting with the ledge *k*, and tongue *o*, the depth of which latter is sufficient to retain the end of the screws *g*, when the knives C, are removed.

We have shown in Fig. 4 a modification of the slots *c*, tongues *o*: and clamp screws in which the heads *g'*, are hemispherical and the slots *c'* concave to correspond, the action being the same as above described.

E, Figs. 1, 2 and 3 is a beading or molding knife which is clamped to a surface *f*, formed preferably at an angle to the face of the wall *m* of the main slots. We prefer to cut a T slot *d*, Fig. 2 and provide bolts to fit them for holding the molding or beading knives at any point required on the cylinder, but tap bolts may be used if desired threaded into the cylinder at necessary points along the face *f*. By this construction of main knife slots with

the extended face *f*, the molding or beading knives can be attached at any time without disturbing the surfacing knives, a great convenience to the mill operator, because much time is consumed in removing the surfacing knives or a part of them and substituting beading knives as has heretofore been the practice. This is especially the case in high speed planers where the surfacing knives have to be jointed up to an exact cutting circle, on the cylinder itself, while running.

We have shown the clamp blocks *D*, of different lengths but it may be found desirable to use continuous blocks as long as the cutting face of the knives. On an ordinary diameter of cylinder the knife seat *f* would need to be beveling at a greater or less angle than that shown, but on a large cylinder it would be possible to arrange these knife seats parallel or nearly so to the walls *m*, and the beading or molding knives would thus make a scraping cut on the material.

It will be seen that the cutting action of the surfacing knives can be varied by grinding the edges with a single bevel as in Fig. 3 or a double bevel as in Figs. 2 and 4 and the same is true of the molding knives *E*.

It is evident that when it is desired to remove the blocks *D*, the screws *g*, can be run into the blocks far enough to let the ends pass the tongue *o*, but this condition would not occur in ordinary running unless at the will of the operator.

Having described our invention, what we claim and desire to secure by Letters Patent is:

1. A planer machine cutter head having two or more recessed knife slots, blocks in the slots to clamp each knife against a wall of its slot, said blocks having portions extending into the slot recesses, a screw to actuate each of said blocks transversely to the length of the knife, a recess for the screw head, and a

ledge *k* in the bottom of each block-containing slot and having a continuous block-bearing face parallel with the knife wall to engage the inner end of the block, all substantially as set forth to prevent its accidental detachment when loosened or when a knife is removed.

2. A cutter head having two or more longitudinal slots with knife receiving walls, knife clamping blocks in said slots, screws in said clamping blocks having each an angular part to provide for its manipulation and a rounded extension to loosely enter a safety slot or recess in a wall opposite the knife wall, whereby the blocks and knives are hindered from flying out when in motion.

3. A cutter head having a series of knife slots, each slot having a knife-receiving wall, knives, clamping blocks located in said slots and bearing on the knives near their cutting edge and cleared below said bearing and fulcrum at or near the bottom of the knife slots, and screws engaging the blocks at a point intermediate said bearing and fulcrum whereby the knife is pinched hardest near the cutting edge by means of the elasticity of the blocks.

4. A cutter head having a series of knife slots, each slot having a knife receiving wall, a clamping block for securing the knife to said wall, and means to actuate the block co-acting with a slot wall opposite said knife wall, said opposite wall having a beveled face and means to secure on said face a supplementary knife.

In testimony whereof we have hereto subscribed our names in the presence of two subscribing witnesses.

HIRAM A. PERKINS,
FRANK H. CLEMENT.

Witnesses:

G. C. SOUTHARD,
GRACE GRAHAM.