B. D. STEVENS.

HOLDING DEVICE FOR PLANER HEAD KNIVES.

APPLICATION FILED MAR. 14, 1910.

995,040.

Patented June 13, 1911.

2 SHEETS—SHEET 1.

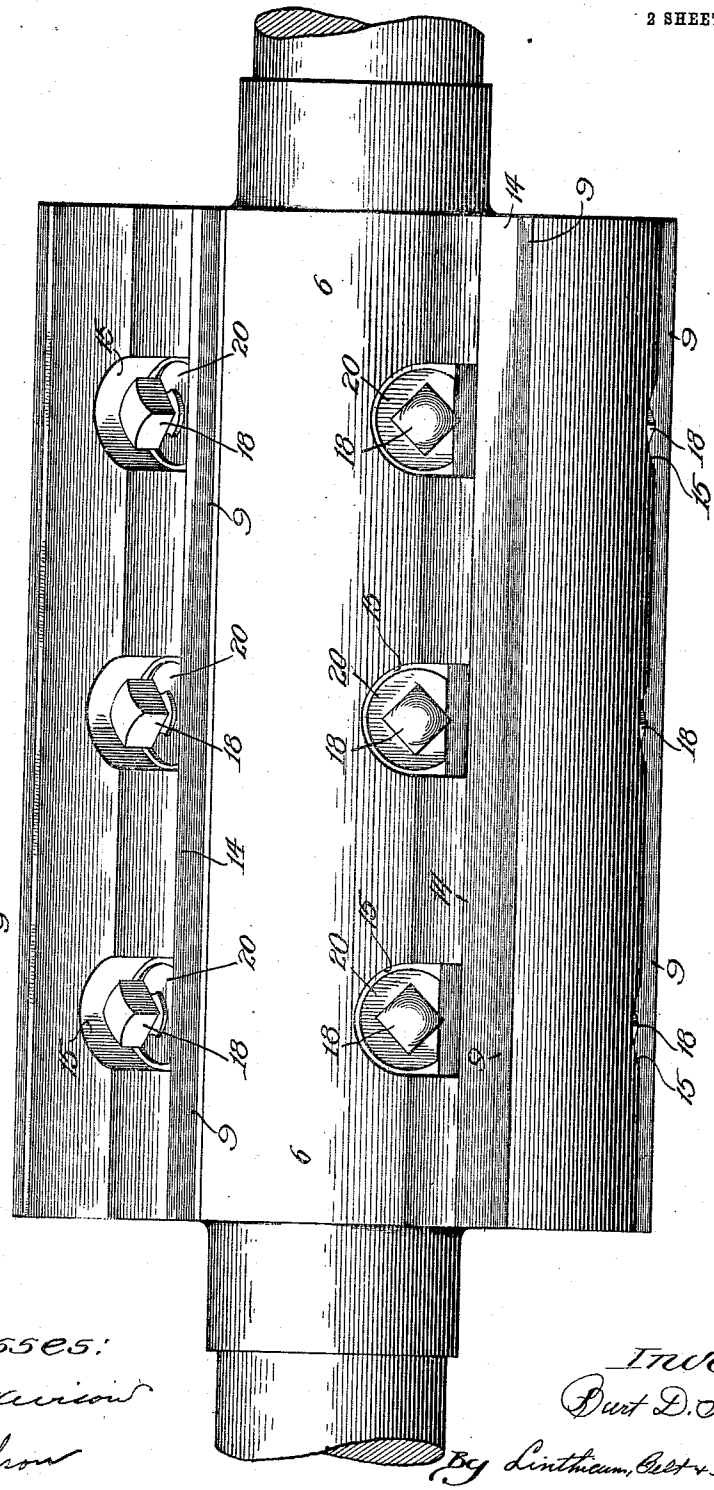

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

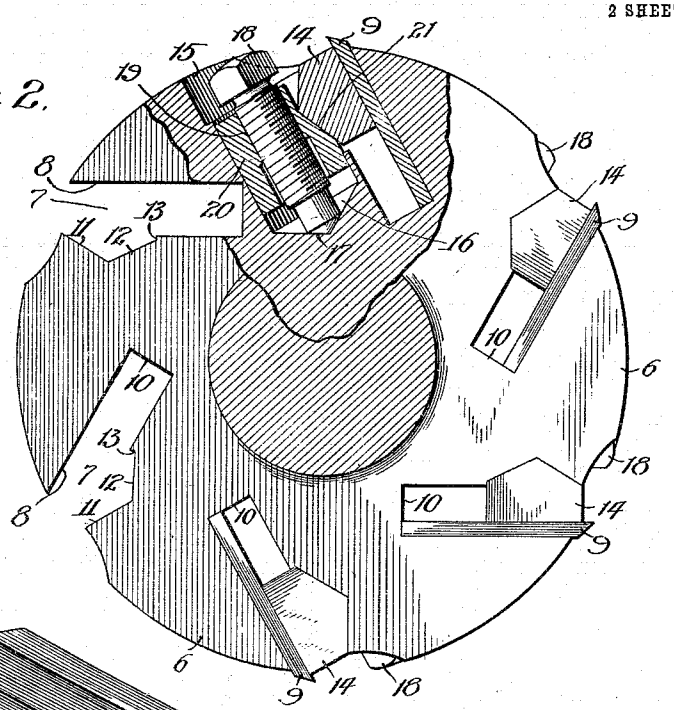


Fig. 3.

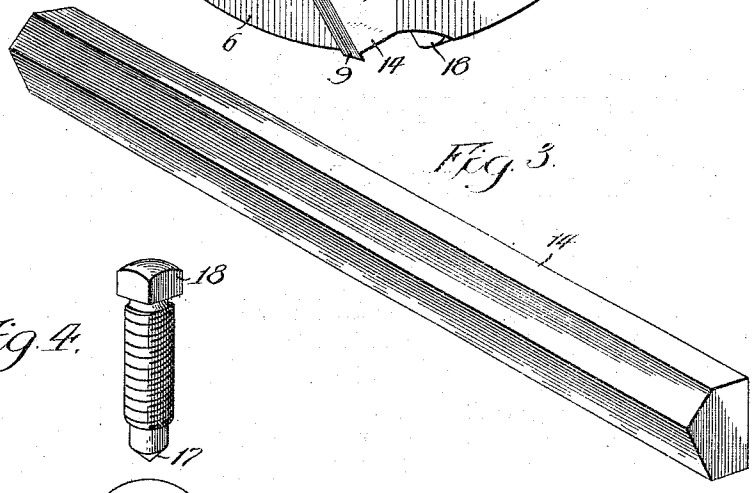
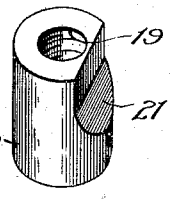


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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HOLDING DEVICE FOR PLANER-HEAD KNIVES.

995,040. Specification of Letters Patent. **Patented June 13, 1911.**

Application filed March 14, 1910. Serial No. 549,114.

To all whom it may concern:

Be it known that I, BURT D. STEVENS, a citizen of the United States, residing at Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Holding Devices for Planer-Head Knives, of which the following is a specification.

My invention relates to improvements in the heads or cylinders of planer machines, and concerns more particularly improved means for fixedly securing and holding the planer knives in place.

My improved securing and locking devices are simple in construction, easy to operate, and effectively and efficiently maintain the knife in operative cutting position. The ordinary straight planer knives are positioned in undercut grooves on the periphery of the cylinder or head, and wedge-shaped gibs or keys are positioned in the grooves with their flat faces bearing against the faces of the knives, and are adapted to be thrust against the knives with sufficient force to act as locking or securing means for holding and maintaining the knives in cutting or operative position. For the purpose of thrusting these gibs into locking engagement with the knives, there is provided a number of wedge blocks for each gib, located in holes or recesses spaced at intervals along side the grooves and connecting with the undercut portions thereof. These blocks are capable of adjustment longitudinally of the holes, and for the purpose of forcing them into operative engagement with the wedge gibs to thrust the gibs against the knives, each block is provided with a screw passing through a threaded opening therein, and adapted to engage with the bottom of the recess whereby the wedge may be adjusted to force it into engagement with the gib.

In the accompanying drawings forming a part of this application and throughout the various views of which, like reference characters refer to the same parts, I have illustrated a desirable embodiment of this invention, and referring to the drawings Figure 1 is a plan view of a cylinder-head showing a plurality of knives secured in position thereon by my improved knife securing means. Fig. 2 is an end elevation partially in section, of a cylinder-head, and showing the locking means as applied to one of the knives. Fig. 3 is a perspective of the double wedge gib, and, Figs. 4 and 5 are perspectives of the adjusting screw and wedge-block into which said screw is adapted to be threaded, respectively.

By reference to the drawings it will be noted that the planer head 6, has extended longitudinally of its outer cylindrical surface, a plurality of undercut grooves 7, having a flat inclined surface 8, against which the back face of the flat planer knife 9, is adapted to bear, the inner portion of such knife occupying the elongated inner extension 10 of the groove. Opposite the surface 8, the groove has an inclined surface 11 extending inwardly from the contracted mouth of the groove, giving the latter its general undercut formation, while the inner face 12 of the undercut portion inclines toward the elongated inner extension of the groove and provides a shoulder 13 adapted to support the inner edge of the gib 14.

Each gib has preferably a flat surface adapted to bear against the front face of the cutting knife and a double wedge portion substantially of the same shape as the undercut portion of the slot. When the knife and gib are positioned in the slot it will be evident that outward movement of the gib will bring its outer wedge face into wedging engagement with the face 11 of the undercut portion of the groove, which will tend to force the gib against the front face of the knife and clamp the knife between the gib and the back wall 8 of the slot.

The planer head is also provided with a number of preferably cylindrical recesses 15 located laterally of and spaced at intervals longitudinally of the groove. The axes of these recesses are substantially parallel with the back wall of the groove and the recesses are located so that they intersect the cut-away portion of the slot. The bottoms of these recesses are tapered as at 16, to provide a centering means for the conical end 17 of the adjusting screw 18 which is threaded through an opening 19 in the block 20, which is adapted to be adjusted longitudinally of the recess. This block is cut away at one side to provide a wedge surface 21 (Fig. 5),

having an inclination substantially equal to the wedge face of the gib. The screw 18 is preferably provided with a square head and the outer end of the recess is slightly enlarged to accommodate a wrench for turning the screw to adjust the wedge blade longitudinally thereof.

In assembling my device, the wedge-block with the adjusting screw threaded therein, is inserted in the recess, the knife is placed against the back wall of the longitudinal slot, and the gib is then inserted longitudinally into the head. If, now, the screw is threaded downwardly in the block 20, its conical end 17 will be centered in the recess by the tapering bottom thereof, and the block will be adjusted outwardly longitudinally of the recess. Turning of the block with the screw will be prevented by engagement of the flat cut-away face of the block with the gib, and when the block has been adjusted outwardly until its wedge surface 21 engages with the lower wedge surface of the gib, the gib will be forced outwardly until its upper wedge face engages with the undercut face 11 of the groove. Further outward adjusting movement of the wedge-block will thrust the gib against the front face of the knife because of the wedging action between the inner face of the gib and the wedge surface of the block, and the outer face of the gib, and the undercut face of the groove. It will thus be evident that in clamping and locking the knife in position the wedge-block will travel outwardly longitudinally of the recess along the adjusting screw 18, which has its bearing end centered at the bottom of the recess, and that the gib will move in a right line against the front face of the knife, thus clamping the knife and locking it securely in position between the gib and the back wall of the groove. When all of the adjusting screws have been actuated to force the gib tightly against the knife throughout its length, the knife will be securely locked in its operative or cutting position against displacement.

As many adjusting screws and wedge-blocks may be employed for each knife, as appears necessary or desirable, depending of course to a considerable extent upon the length of knife employed.

This embodiment of my invention is simple in construction and efficient in its operation. The strain upon the screw is in a direction longitudinally of its axis, whereby the danger of bending the screw is reduced to a minimum, and by the employment of a plurality of cam or wedge surfaces coöperating to force the gib against the knife, the power applied to the screw is multiplied so that the knife is securely and permanently locked in position.

While I have shown and described a preferred embodiment of my invention, it will be obvious that various changes in the construction and minor mechanical details may be resorted to without departing from the spirit of the invention or sacrificing any of its material benefits and advantages.

What I claim is:

1. The combination of a planer cylinder having a groove and a recess lying in planes substantially parallel with each other, the groove having an undercut portion opening into the side of the recess, a knife in said groove, a gib engaging the knife and extending into the undercut portion of the groove, a wedge member in the recess, and means forcing the wedge member outwardly into engagement with said gib.

2. The combination of a planer cylinder having a groove and a recess lying in planes substantially parallel with each other, the groove having an undercut portion opening into the recess, a knife in said groove, a gib engaging the knife and extending into the undercut portion of the groove, a wedge member in the recess, and means forcing the wedge member outwardly into engagement with said gib.

3. The combination of a planer cylinder having a groove and a recess lying in planes substantially parallel with each other, the groove having an undercut portion opening into the side of the recess, a knife in said groove, a gib engaging the knife and extending into the undercut portion of the groove, a wedge member in the recess, and means forcing the wedge member endwise into engagement with said gib.

4. The combination of a planer cylinder provided with an undercut knife-receiving groove and a cylindrical recess lying in a plane substantially parallel with that of the groove and intersecting the undercut portion of the groove, said recess having a tapering bottom and connecting with the undercut portion of said groove, a knife, and a wedge-shaped gib located in said groove, a wedge-block positioned in and movable longitudinally of said recess, and an adjusting screw passing through a threaded opening in said block and having a conical end adapted to be engaged with the tapering bottom of said recess to force the gib by a wedging action between the gib and block, against the knife to lock said knife in position, substantially as described.

5. The combination of a planer cylinder having an undercut groove on its periphery and a circular recess disposed laterally of said groove in a plane substantially parallel therewith and an opening into the undercut portion of the groove, a knife in said groove, a double-wedge gib in said groove adapted to bear against said knife, a circular block adapted to fit in said recess and having one

side thereof cut away to provide a wedge portion adapted to coöperate with the lower wedge face of said gib, and a screw threaded through an opening in said wedge-block and adapted to bear against the bottom of the recess, whereby the wedge-block may be forced into wedging engagement with the gib to thrust said gib toward the contracted mouth of said groove to lock the knife in place, substantially as described.

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