

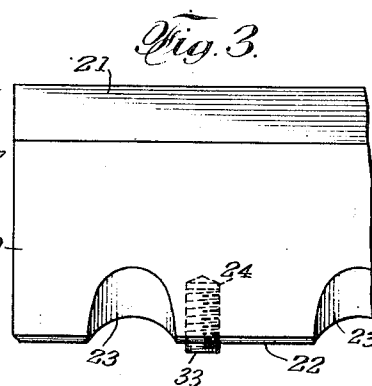
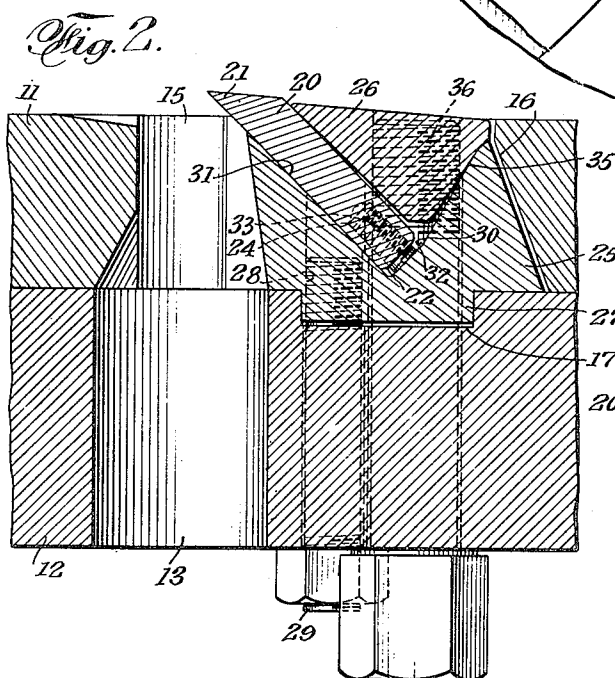
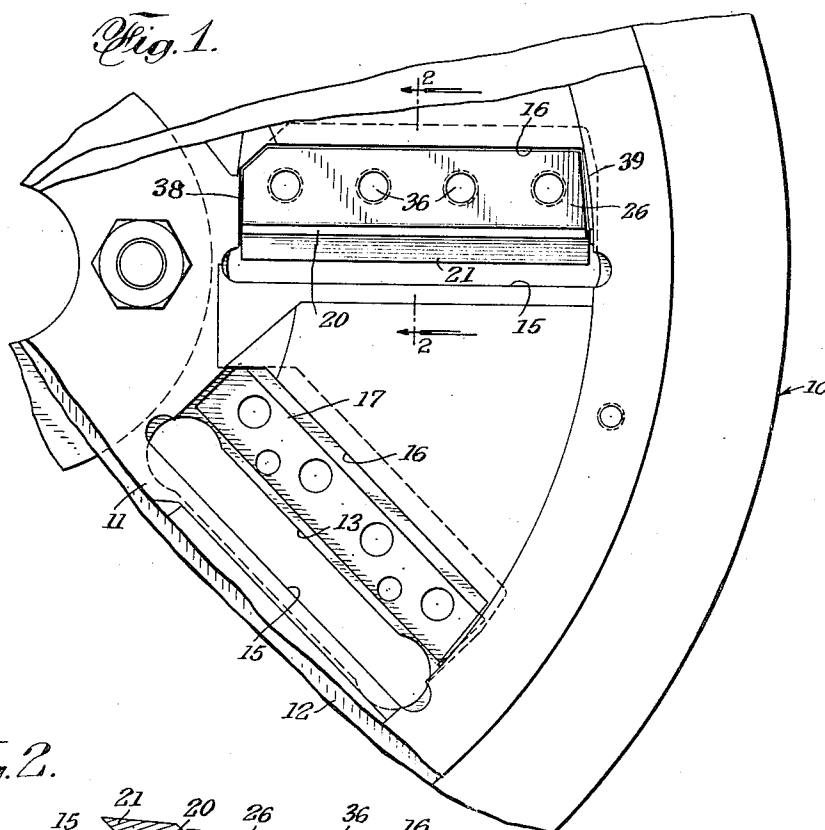
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2,337,407

KNIFE MOUNTING

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## UNITED STATES PATENT OFFICE

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## KNIFE MOUNTING

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5 Claims. (Cl. 144—212)

This invention relates to a knife mounting, and more particularly to a knife mounting for chippers.

Chippers such as those used for chipping or cutting logs into chips suitable for use in paper pulp machines usually comprise a cutting disk and a plurality of chipper knives mounted thereon. These disks rotate at high speed and the knives are subjected to very heavy strains and wear and must be rigidly mounted. Moreover, the knives should be so constructed and mounted that after they have been re-ground and sharpened the effective width can be maintained by compensating for the amount ground off.

This invention has for its salient object to provide a knife structure and a knife mounting therefor so worked out that the effective width of the knife can be maintained and the amount ground off due to wear can be compensated for.

Another object of the invention is to provide a knife structure and a knife clamp so constructed and arranged that the knife is provided with adjustable means to maintain a uniform effective width, the required compensating adjustment being made prior to securing the knife in the clamp.

Further objects of the invention will appear from the following specification taken in connection with the drawing which forms a part of this application, and in which

Fig. 1 is a fragmentary elevational view of a portion of the cutter disk illustrating a knife and knife mounting constructed in accordance with the invention;

Fig. 2 is an enlarged sectional elevation taken substantially on line 2—2 of Fig. 1; and

Fig. 3 is a plan view of an end portion of the knife.

In the particular embodiment of the invention illustrated in the drawing there is shown a chipper disk 10 comprising a pair of disk members 11 and 12. The disk member 12 is preferably formed of steel and the disk member 11 may be formed of cast iron. It should be understood, however, that if desired the disk can be made of a single thickness of material.

The disk 10 is mounted on a horizontal axis and since the disk mounting forms no part of the present invention further illustration is deemed unnecessary. Attention, however, is directed to applicant's Patent 2,247,665, granted July 1, 1941, for an illustration of a chipper disk assembly.

The disk member 12 is provided with an opening 13 and disk member 11 is provided with an

opening 15 registering with the opening 13. These openings are provided to permit the chips to pass through the disk as they are cut.

The opening 15 communicates with a larger opening 16 in the disk member 11. The disk member 12 is provided with a recess 17 in the face of this disk member which abuts against the disk member 11.

The knife 20 is provided with a beveled front edge 21 and a back edge 22. The rear edge portion of the knife has formed therein a plurality of curved or arcuate recesses 23 and also a plurality of threaded openings 24.

The knife clamp comprises a pair of clamping members 25 and 26. The clamping member 25 has a portion 27 adapted to fit in the recess 17 in the disk member 12 and this clamping member has formed therein a plurality of threaded openings 28 which receive bolts 29 by means of which the clamping member 25 is secured to the disk member 12.

The clamping member 25 has formed in its opposite face a V-shaped recess 30 having an inclined surface 31 which engages one face of the knife and supports the knife in position. The V-shaped recess also has a surface 32 substantially at right angles to the surface 31 and engageable by the rear or back edge 22 of the knife or by the outer ends of a plurality of adjustably mounted screws 33 which are threaded into the threaded openings 24.

After the knife has become chipped or worn, it is removed from the clamp and re-ground and the screws 33 are then adjusted in the openings 24 to bring the width of the knife between the beveled end 21 and the rear end of the knife, back to the original width. In other words, the effective width of the knife is maintained uniform by compensating, by means of the screws 33, for the amount ground off of the front edge. This is done before the knife is replaced in the clamp between the clamping members 25 and 26.

The clamping member 26 is triangular in section and has a V-shaped configuration adapted to fit against the outer surface of the knife 20 and also against the surface 35 of the V-shaped recess 31 in the clamping member 25.

The clamping members 25 and 26 and disk recess or opening 16 thus form a pocket for receiving the knife assembly. This pocket is formed between the members 25 and 26, the surface 32 forming the back surface for screws 22 and forming the back of the pocket. The ends of the

pocket are formed by the ends 38 and 39 of the disk opening or recess 16.

The knife assembly and clamping member 26 are secured by means of a plurality of bolts 36, these bolts extending through the disk member 12, clamp member 25, recesses 23 in the knife and being threaded into the clamp member 26.

From the foregoing specification it will be seen that by means of the knife structure and knife mounting described it is possible to maintain the effective width of the knife uniform even after repeated grinding or re-surfacing of the cutting edge. The effective width being predetermined to permit the knife to project the desired distance beyond the face of the cutting disk, it is necessary only to adjust the screws 33 to bring the distance between the rear ends of the screws and the front end of the knife to the predetermined width. This adjustment is made prior to the re-mounting of the knives in the clamp and on the cutting disk.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit and scope of the invention, as expressed in the following claims.

What I claim is:

1. In combination, a support having a recess therein, a clamp comprising a pair of members adapted to fit in said recess, said clamp members forming a pocket for receiving a knife blade, one of the members having a flat surface for engaging and supporting one face of the blade and a surface inclined to said flat surface and forming the back of said pocket, and a knife blade having means extending rearwardly from the back edge thereof and engageable with said inclined surface, said means being pre-adjustable to an extent to give a predetermined effective width to the knife blade before the knife is inserted in the clamp, the ends of the pocket being closed by the ends of the recess in the support, whereby the adjusting means will be entirely enclosed in the pocket and inaccessible after the knife has been clamped.

2. In combination a knife support having a pocket extending thereinto from one face of the support, said pocket having closed ends and having angularly disposed surfaces arranged to support a knife blade at an angle to the face of the support, one of said surfaces forming a back for the pocket, a knife blade having a cutting edge at one edge and having adjustable means extending rearwardly from the other edge and

adapted to be pre-adjusted before the knife blade is inserted in the pocket to give the blade a predetermined effective width, the ends and back of said pocket being closed when the knife is clamped in place, whereby said adjustable means is inaccessible after the blade has been clamped in place, said blade resting against one surface of the pocket and said adjustable means abutting the other surface of the pocket when the blade is secured therein and means for clamping the blade in the pocket.

3. In combination, a rotatable knife carrier having a pocket extending thereinto from the face of the carrier, said pocket having closed ends and having a knife supporting surface disposed at an angle to the plane of the path of travel of the knife cutting edge, and having a knife backing surface disposed at an angle to said supporting surface, said backing surface forming the back of the pocket, a knife having a cutting edge at one edge and having adjusting means at the other edge for varying the effective width of the knife, and means for clamping the knife in the carrier, said clamping means and carrier pocket being so constructed and arranged that the pocket is closed by the clamping means, end of the carrier pocket and backing surface and the adjusting means is inaccessible when the knife blade is clamped in place on the carrier after being pre-adjusted to a predetermined effective width.

4. A chipper knife for use with a support having angularly related surfaces, said knife having a cutting edge at one edge of the knife blade and having a plurality of adjustable members extending rearwardly from the other edge of the blade and adapted to engage one of said surfaces, the second edge having arcuate notches intermediate said adjusting members, the axes of the arcs of said notches being disposed at an acute angle to the plane of the knife blade, said notches being adapted to permit the passage of knife securing bolts.

5. In combination, a knife support having two surfaces disposed in angular relation to each other and approximately at a right angle, a knife having a flat surface adapted to rest on one surface of the support and having adjustable means at the rear edge adapted to seat against the other surface, a clamping member for clamping the knife blade against said supporting surfaces and bolts for securing the clamping member, the rear edge of the blade being grooved at an acute angle to the plane of the knife blade to permit passage of the bolts.

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