Oct. 9, 1951 P. N. OTTERSLAND 2,570,845

ROTARY CHIPPER-KNIFE MOUNTING

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Fig. 2.

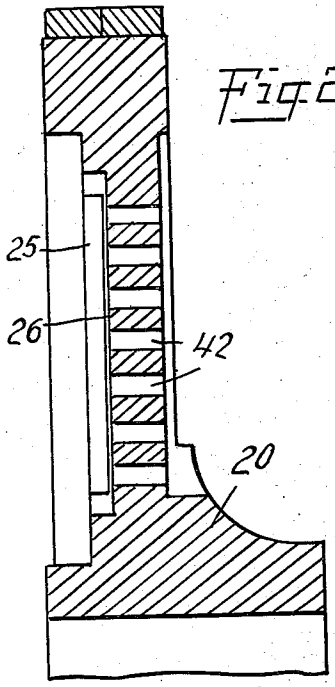


Fig. 1.

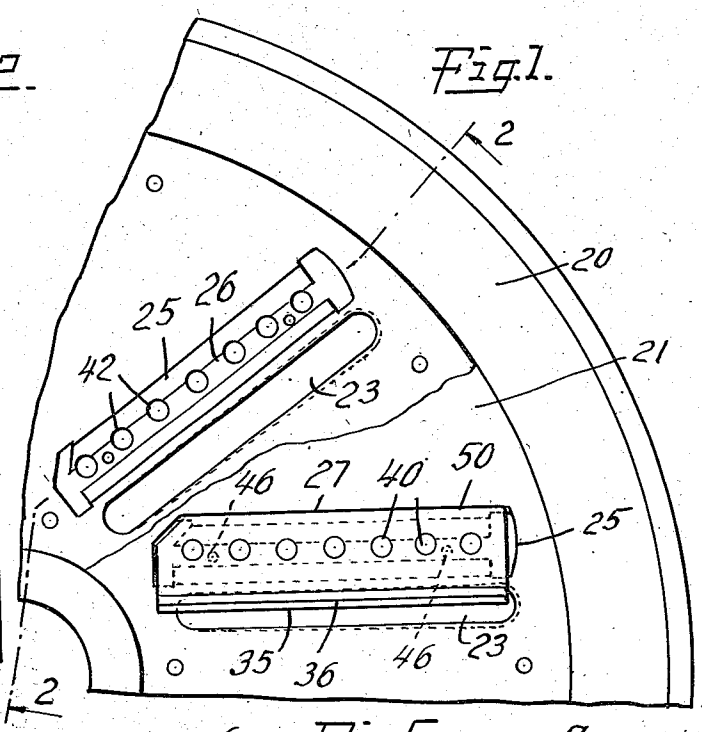


Fig. 6.

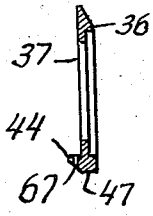


Fig. 7.

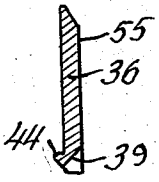


Fig. 5.

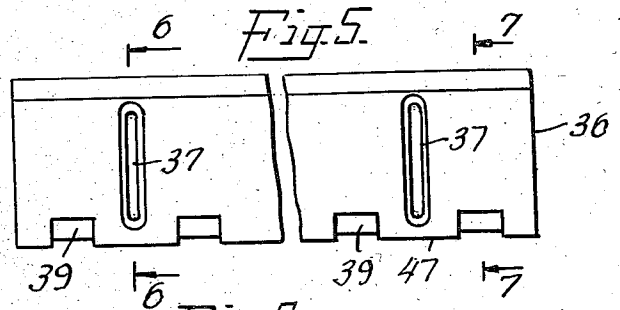


Fig. 9.



Fig. 8.

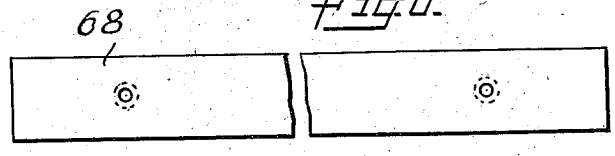
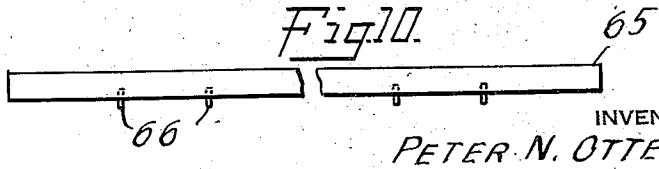


Fig. 11.



Fig. 10.



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Fig. 3.

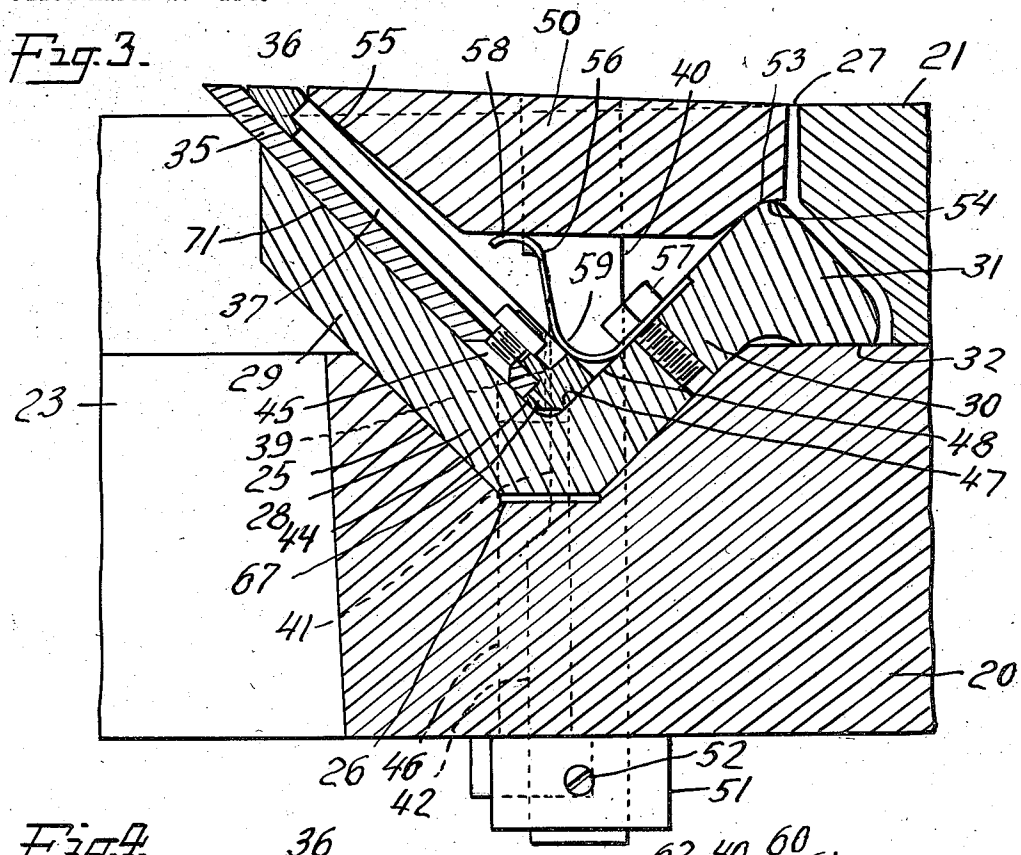
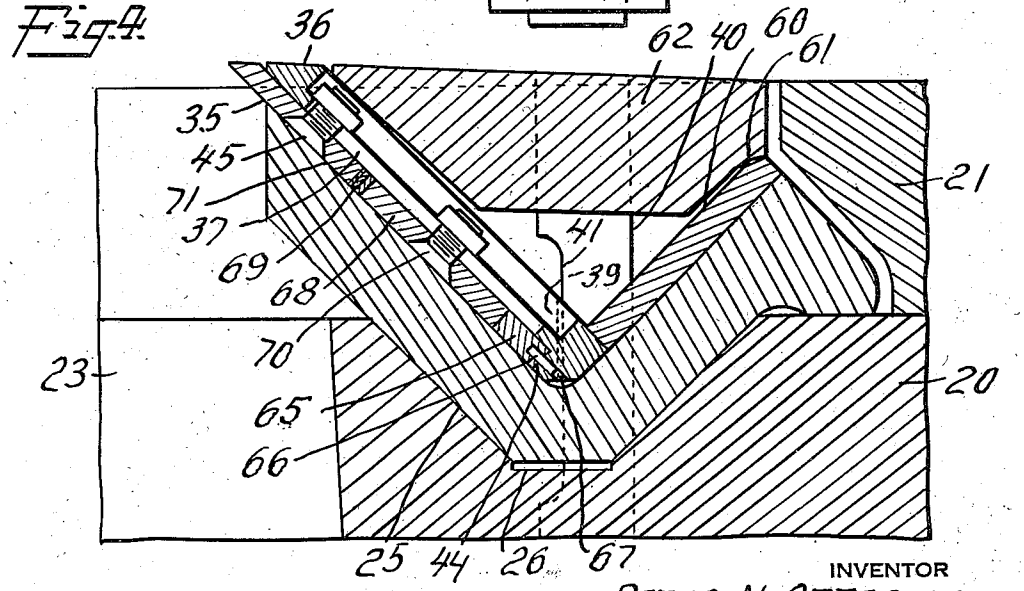


Fig. 4.



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Patented Oct. 9, 1951 2,570,845

UNITED STATES PATENT OFFICE

2,570,845

ROTARY CHIPPER-KNIFE MOUNTING

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Application March 29, 1946, Serial No. 657,924

7 Claims. (Cl. 144—176)

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This invention relates to chipper knives and knife mountings.

Chipper knives are subjected to heavy and severe usage and when used in chipping logs wear rapidly. In order to withstand the severe strains sustained when they engage the logs and cut chips therefrom, they must be made of high grade steel and must be very firmly and rigidly supported.

This invention has for its salient object to provide an improved knife and knife mounting or support so constructed and arranged that the maximum width of the knife can be utilized and the knife will be firmly and rigidly held in all positions of adjustment.

Another object of the invention is to provide a knife and knife mounting so relatively constructed and arranged that the knife can be preadjusted in the knife holder or retainer to the proper position prior to clamping the knife and holder in position on the chipper disk.

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

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

Fig. 2 is a sectional elevation taken substantially on line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a sectional elevation, on an enlarged scale, taken at right angles to Fig. 2 and illustrating a knife, knife retainer, and clamp secured in operative position on a chipper disk;

Fig. 4 is a view similar to Fig. 3 but illustrating the method or means for adjusting and backing the knife to secure the full use thereof and, furthermore, illustrating a slightly modified means for holding the rear or inner end of the knife retainer in position;

Fig. 5 is an elevational view of the knife retainer bar;

Figs. 6 and 7 are transverse sectional elevations taken substantially on lines 6—6 and 7—7 of Fig. 5, looking in the direction of the arrows;

Fig. 8 is an elevational view of the backing bar used to form a backing support for the knife as it becomes worn and is ground off;

Fig. 9 is an edge view or end elevation of the bar shown in Fig. 8;

Fig. 10 is an elevational view similar to Fig. 8 but showing another form of backing bar; and

Fig. 11 is an end elevation of the bar shown in Fig. 10.

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The invention briefly described consists of a knife mounting for chipper knives. The chipper disk is recessed to receive a holder for the knife assembly and the knife is adjustably mounted in a retainer bar which is clamped in the holder by clamping means engaging the outer edge portion of the retainer bar and also the inner edge portion thereof. The retainer bar forms an abutment for the knife and in turn abuts against a surface of the holder which is mounted in the recess or pocket in the chipper disk. The knife is adjustably mounted in the retainer bar and as the cutting edge wears away and is reground the knife can be adjusted outwardly on the bar to dispose the cutting edge in the correct position relative to the retainer bar. As the knife is so adjusted backing means is secured to the retainer bar to fill in the space between the rear edge of the knife and the abutment or supporting surface on the retainer bar.

Further details of the invention will appear from the following description.

In the particular embodiment of the invention illustrated in the drawings, there is shown a chipper disk 20 to which is secured a wear plate or ring 21.

The chipper knives are mounted on the disk in the positions illustrated in Fig. 1, from which it will be seen that the cutting edge of each knife is disposed tangent to a circle drawn about the axis of the chipper disk as a center.

The chipper disk 20 and wear plate 21 are slotted or provided with openings 23 which receive the chips cut from the logs by the knives. The disk 20 has also formed therein a substantially V-shaped recess 25, the inner end of the V-shaped recess being illustrated as slabbed off or flat as shown at 26. The wear plate is also recessed, as shown at 27, this recess communicating with the recess 25 of the disk 20 and also with the portion of the slot or opening 23 formed in the wear plate.

Each knife mounting comprises a holder 28 which is substantially V-shaped in section, as shown in Figs. 3 and 4, having angularly disposed portions 29 and 30. The portion 30 has an extension 31 which bears against the surface 32 of the disk 20 when the holder is clamped in position, in the manner hereinafter described. The holder 28, as clearly illustrated in Figs. 3 and 4, is so constructed as to fit within the V-shaped recess 25 formed in the disk 20.

The knife blade or knife 35 is adjustably mounted in a knife retainer bar 36 which is provided with transverse slots 37. The retainer bar 36 also has spaced, inclined notches 39 which are

formed for the purpose of permitting the passage of bolts 40, the bolts being recessed or slabbed off, as shown at 41, these slabbed off portions extending through the notches 39. The chipper disk 20 has a plurality of openings 42 through which the bolts 40 extend.

The retainer bar 36 has a ledge or abutment 44 extending laterally from its inner end, this abutment forming a backing for the rear edge of the knife 35 when the knife is new or has its full width, as shown in Fig. 3. The knife is secured to the retainer bar by means of bolts 45 which extend through the slots 37.

The V-shaped holder 28 is secured in the recess 25 by means of bolts 46. After the knife has been secured by the bolts 45 to the retainer bar 36 in the manner shown in Fig. 3, the retainer bar is inserted in the holder 28 with the back edge 47 of the bar disposed against the surface 48 of the portion 30 of the holder 28. The retainer bar and knife are then clamped in position by means of a clamping bar 50 to which are secured the bolts 40 which extend through the other surface of the chipper disk and are tightened by means of nuts 51 and locked in tightened position by set screws 52. The clamping bar 50 has an under surface 53 which engages a shoulder 54 on the portion 30 of the holder 28 and the other edge of the clamping bar 50 engages the outer edge portion 55 of the retainer bar 36.

In order to securely hold the inner edge portion of the retainer bar 36, an S-shaped spring 56 is secured by a bolt 57 to the portion 30 of the holder, and when the clamping bar 50 is drawn to clamping position the outer end 58 of the spring 56 will be engaged by the under surface of the clamping bar 50, thus forcing the portion 59 of the spring against the inner edge portion of the retainer bar 36 in the manner shown in Fig. 3.

In Fig. 4 the inner edge portion of the retainer bar 36 is held downwardly by a bar 60 which is forced into engagement with the retainer bar by an under portion 61 of the clamping bar 62.

After the knife has become worn and is reground, it is necessary to adjust the knife in the slots 37 so as to dispose the outer or cutting edge of the knife in the correct cutting position. After this has been done the space between the lower or inner edge or back of the knife and the abutment surface 44 of the retainer bar 36 is filled in with backing bars sufficiently wide to completely fill this space. In Fig. 4 the backing bar 65 is provided with dowel pins 66 which extend into dowel pin openings 67 formed in the abutment surface 45 of the retainer bar 36. The outer edge of the backing bar 65 is engaged by the inner edge of a second backing bar 68 and the space between the outer edge of this backing bar and the rear edge of the knife is filled in by shims 69. The backing bar 68 is secured in position by bolts 70 which extend through the slots 37. In this manner the necessary backing for the knife is provided at all times regardless of the width of the knife.

Furthermore, it will be evident that the clamping bar 50 will firmly, securely and rigidly hold the knife and knife retainer bar in position with the under surface of the knife disposed against the outer surface 71 of the portion 29 of the holder 28.

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 or scope of the invention, as expressed in the following claims.

What I claim is:

1. In combination, a rotatable knife carrier having a pocket for receiving a knife and knife mounting, said knife mounting having a knife supporting surface adapted for engagement by the back surface of the knife and an abutment surface, a knife retainer bar having a rear edge adapted to engage said abutment surface, and means for adjustably clamping the knife to said retainer bar and means for clamping said retainer bar and knife in said pocket, said clamping means including resilient means carried by the knife mounting engaging the inner edge portion of the retainer bar.

2. In combination, a rotatable knife carrier having a pocket, a knife assembly in said pocket and comprising a member having surfaces disposed substantially at right angles to each other, one surface being adapted to engage the back surface of the knife, a knife retainer bar having a rear edge adapted to engage said other pocket surface and having a shoulder adapted to form a thrust abutment of the knife, means including clamping means engageable with the outer edge portion of the retainer bar and one end of said member for clamping the assembly in the pocket.

3. In combination, a rotatable knife carrier having a pocket for receiving a knife and knife mounting, said knife mounting having a knife supporting surface adapted for engagement by the back surface of the knife and an abutment surface, a knife retainer bar having one edge adapted to engage said abutment surface, and means for adjustably clamping the knife to said retainer bar and separate and additional means for clamping said retainer bar and knife in said pocket, said clamping means including means engaging both edges of said retainer bar.

4. In combination, a knife carrier having a V-shaped recess, a V-shaped knife mounting holder secured in said recess, a knife retainer, a knife adjustably mounted in said retainer, and means engageable with the edge portions of said retainer for clamping the retainer and knife in the holder with one surface of the knife disposed against one surface of the V-shaped holder and the edge of the retainer disposed at the innermost portion of the recess and positioned against the other surface of the V-shaped holder.

5. In combination, a knife carrier having a V-shaped support for a knife, a knife retainer, a knife adjustably mounted in said retainer, and means engageable with the edge portions of said retainer for clamping the retainer and knife in the V-shaped support with one surface of the knife disposed against one surface of the V-shaped support and an edge of the retainer against the other surface of the V-shaped support.

6. In combination, a V-shaped knife holder, a substantially flat knife retainer, means for adjustably mounting a knife on said retainer, and means engageable with the holder and with the longitudinal edge portions of the retainer for securing the knife and retainer in said holder.

7. In combination, a rotatable chipper disk, a V-shaped knife holder, means for securing the holder to said disk, a substantially flat knife retainer, means for adjustably mounting a knife on said retainer, and means engageable with the holder and with the longitudinal edge portions

of the retainer for securing the knife and retainer in said holder.

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