Nov. 13, 1934. J. F. SMITH 1,980,885

CHIPPER KNIFE

Filed Jan. 20, 1933

Fig. 1.

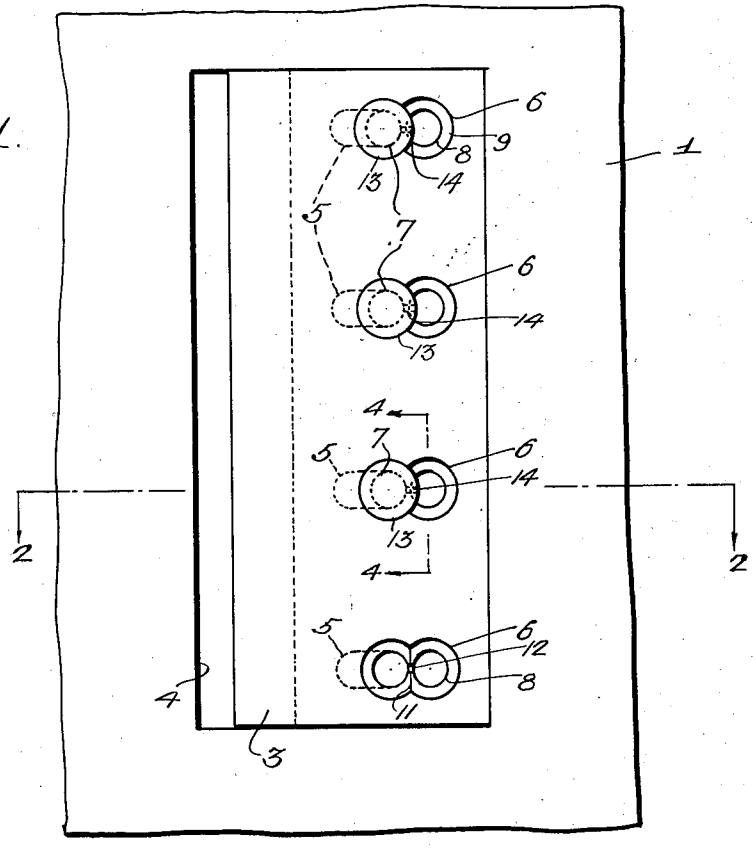


Fig. 2.

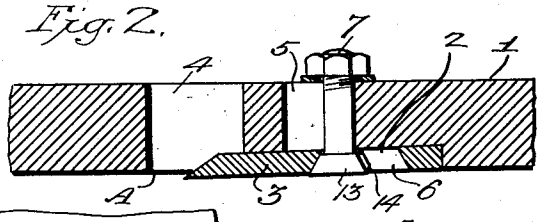


Fig. 3.

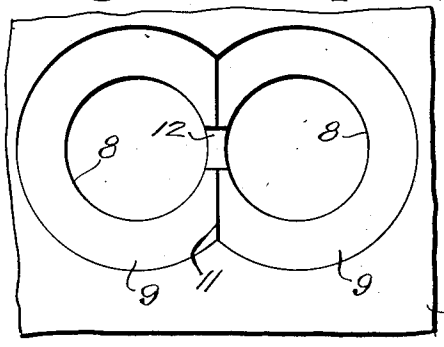


Fig. 5

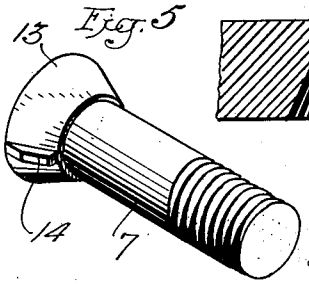
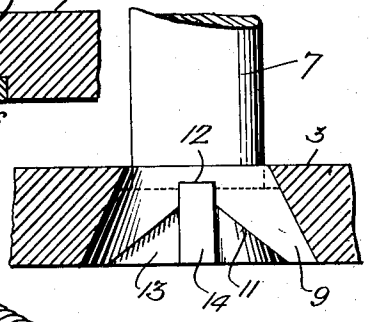


Fig. 4.



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UNITED STATES PATENT OFFICE

1,980,885

CHIPPER KNIFE

James F. Smith, Longview, Wash.

Application January 20, 1933, Serial No. 652,755

1 Claim. (Cl. 146—1)

This invention relates to improvements in chipper knives, and the principal object of the invention is to provide an improved fastening for the knife blades in the disks.

One object of the invention is to provide a novel form of fastening means materially simplifying the construction of the knives and correspondingly reducing the cost of manufacture.

Another object of the invention is to provide a fastening means for the blades of chipper knives which will permit maintenance in a predetermined desired position of the cutting edges of the knives, thereby insuring that the cut chips shall be of uniform size.

Still another object of the invention is to provide a fastening means which will give a knife blade of a given size a longer effective life than heretofore has been found practical.

In the attached drawing:

Figure 1 shows a fragment of a chipper knife made in accordance with my invention;

Fig. 2 is a section on the line 2—2, Fig. 1;

Fig. 3 is an enlarged fragmentary plan view illustrating a detail of the invention;

Fig. 4 is a section on the line 4—4, Fig. 1; and

Fig. 5 is a view in perspective of the bolt constituting an element of the knife assembly.

With reference to the drawing, 1 constitutes a portion of the disk of a chipper knife, this disk having in one face a recess 2 for reception of a cutting blade 3. The recess terminates at one side in an opening 4 extending completely through the disk from one face to the other, while a series of slots 5 extends from the bottom of the recess 2 to the back of the disk. A corresponding series of openings is formed in the blade 3, these openings being designated generally in Fig. 1 by the reference numeral 6, and when the blade is inserted in the recess 2 as shown in Fig. 1, the openings 6 are adapted to register with the slots 5. A series of bolts 7 extends through the openings 6 and the slots 5, as shown in Figs. 1 and 2, to thereby secure the blade 3 to the disk.

The character of the openings 6 is illustrated in Figs. 2, 3 and 4. As therein illustrated, each of the said openings comprises two round holes extending through the blade in proximity to each other, and each of these holes is provided on the outer face of the blade with a tapered countersink, as indicated at 9. By reason of the proximity of the holes 8, these countersinks intersect on a line intermediate the said holes, which line is indicated by the reference numeral 11, and at the mid section of this intersecting line a recess 12 is formed. The bolt 7, as shown in Fig. 5, is provided with a tapered head 13 corresponding in form with the tapered countersink 9 so that the head fits neatly within the countersunk opening, as shown in Figs. 2 and 4. On the tapered side of the head 13, the bolt is provided with a projecting lug 14, the lower portion of which when the bolt is inserted in either of the openings 8 is adapted to rest within the recess 12, see Fig. 4, to thereby prevent the bolt from turning in the openings. The device, therefore, has all the advantages of a rectangular countersink in conjunction with a square-headed bolt, since the bolt is prevented from turning. My construction, however, effects a material economy in production by reason of the relative simplicity of forming the round tapered countersinks as compared with a countersink of rectangular form.

It will be apparent that the slots 5 provide a certain amount of forward adjustment of the blades as the latter become worn, and that an additional adjustment is afforded by provision of the two round openings 8. Thus when the blade 3 has been adjusted from the position in which it is shown in Fig. 2 until the bolt contacts the opposite end of the slot 5, a still further adjustment of the blade is permitted by shifting the bolt from the opening which it occupies closest to the cutting edge to the rear opening. Not only does this arrangement make possible maintaining the cutting edge of the blade at a fixed distance from that edge of the opening 4 designated A in Fig. 2, whereby a uniform chip product is insured, but a relatively large portion of the blade may be worn away before the blade must be discarded. It will be noted that the use of the two countersunk openings 8 has the same general effect as a single countersunk slot, but is relatively compact, and in either position the head of the bolt is confined securely and on all sides within the pocket formed by the tapered countersink. In this respect, the device combines the advantages of an open slot with those of a single countersunk bolt hole.

The device, while extremely simple and capable of manufacture at low cost, affords an extremely flexible adjustment of the blade, and constitutes a material improvement over the prior devices. While having an application of considerable value to chipper knives, as described, my fastening means is not limited in its utility to that single application.

I claim:

The combination with a blade, of a holder for said blade, a slot in said holder, and a pair of openings in said blade adapted to register with said slot for accommodation of a blade-securing bolt, each of said holes being countersunk and being so relatively positioned that the said countersinks intersect, a recess at the juncture of said countersinks, and a bolt having a head fitting the countersunk holes and having on the head portion thereof a projecting lug adapted when the bolt is inserted in either of said openings to fit within said recess.

JAMES F. SMITH.