Sept. 19, 1961 D. G. RICHES ET AL 3,000,578

WOOD CHIPPERS

Filed Feb. 24, 1960

Fig. 1.

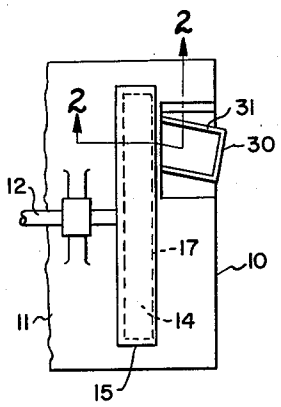


Fig. 3.

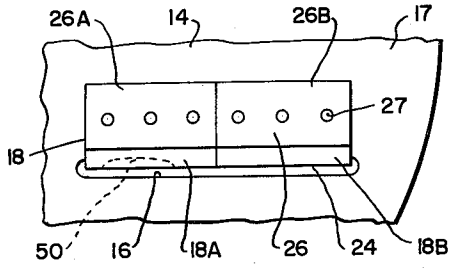


Fig. 4.

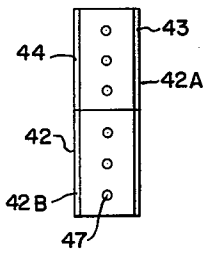
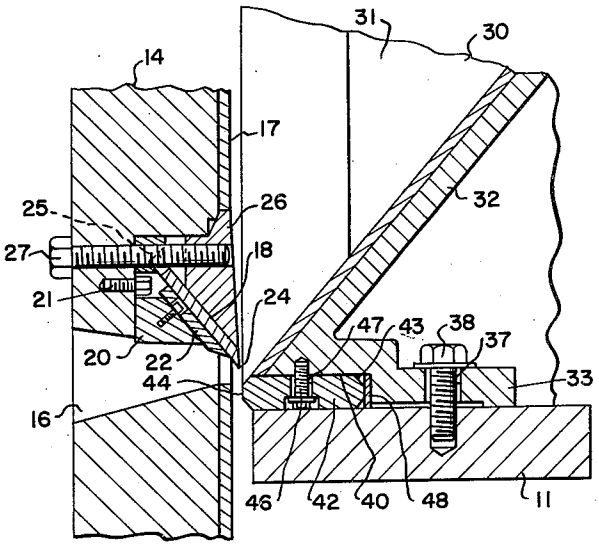


Fig. 2.



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WOOD CHIPPERS

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The invention relates to wood cutting machines having rotating knives which coact with a bed knife or anvil to cut chips from a log. These devices are commonly called chippers.

In existing machines, the coacting cutting elements become dulled through normal wear, or damaged as from steel or other foreign material entering the chipper. The wear and/or damage necessitates resharpening, or replacement, of one or more of these parts at intervals.

The objects of our invention are to reduce the cost of resharpening, to prolong the operating cycle between replacements, and to reduce the down time heretofore necessary to effect these operations. Further objects and advantages will appear as the disclosure proceeds.

We attain these objects by providing that the coacting cutting elements, and members ancillary thereto, are made in two interchangeable parts. A particular embodiment is described in the following specification and illustrated by the drawings in which:

FIGURE 1 is a fragmentary plan of the wood chipper.

FIGURE 2 is an enlarged section taken on the line 2—2 of FIGURE 1.

FIGURE 3 is an elevation of a two part knife and clamp secured to the rotary disc.

FIGURE 4 is a plan of a two part anvil.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral **10** indicates generally a chipper having a base **11** on which a motor driven shaft **12** is journalled. A vertically disposed rotary disc **14** is mounted upon the shaft **12** and is partly enclosed within a casing **15**. Extending through the rotary disc are a plurality of slots **16** and secured to the working face **17** of the disc adjacent to each slot is a knife **18**.

Each knife **18** is supported upon a holder **20** which is secured to the disc **14** by bolts **21** and said holder is fitted with a counter knife **22**. The cutting edge **24** of the knife **18** is projected beyond the working face **17** of the rotary disc a distance determined by the thickness of a spacer block **25**, and a clamp **26** is secured to said knife and disc by suitably spaced bolts **27**. The knife **18** and its clamp **26** are divided longitudinally into two parts. The spacing of the bolts **27** is such that the knife **18A** and clamp **26A** may be interchanged with parts **18B** and **26B**, if desired.

Mounted upon the base **11** is a feed spout **30** which may be a substantially rectangular structure disposed at any suitable angle to the working face **17** of the disc **14**. The feed spout has spaced side walls **31**, an inclined rear wall **32** and a bottom wall **33**. Aligned openings **37** are formed in the bottom wall **33** of the feed spout and extending through said openings into the base **11** are bolts **38** which are of a size to permit the spout to be adjusted towards and away from the face **17** of the disc **14**. The underside of the bottom wall **33** is provided with a rebate **40** and housed within said rebate is a bed knife or anvil **42**.

The anvil **42** is a flat rectangular member with its side edges being beveled to provide inclined faces **43** and vertical faces **44**, see particularly FIGURE 2, and said faces are suitably hardened to offer greater resistance to wear. As in the case of the knife **18**, the anvil **42** is divided into two parts **42A** and **42B** and said parts are separately secured to the wall **33** of the feed spout by spaced bolts **46**. The bolts **46** extend through enlarged openings **47** formed in the anvil **42** which is positioned so that a face **43** is disposed in the same plane as the inner surface of the inclined rear wall **32** of the feed spout. Appropriately sized shims **48** are interposed between the anvil **42** and the rear edge of the rebate **40** to enable the anvil to be positioned correctly with respect to the inclined wall **32**.

A log to be cut into pulp chips is entered into the feed spout **30** and moves therethrough into contact with the working face **17** of the disc **14**. The knives **18** carried by the rotating disc slice off chips from the end of the log and the chips are carried through the slots **16** to discharge. It has been found that, over an extended period of operation, a point of greatest wear will develop on the knives **18** and the anvil **42** particularly when the logs being fed to the chipper are all substantially of the same size and shape. For example the cutting edge **24** of a knife **18A** may wear in the area **50** shown in dotted line in FIGURE 3. In these circumstances, the positions of the knife **18A** and clamp **26A** are interchanged with the adjoining parts **18B** and **26B** and this will enable the chipper to be run until wear and/or damage again develops. It is to be understood that either knives, or clamps, or both, may be interchanged according to necessity. Alternatively, if time permits knife **18A** and its clamp **26A** are removed from the disc **14** and the cutting edge of the knife ground to remove the area **50**, whereupon the parts are replaced upon the disc.

Local wear similarly may appear as for example on **42A** of the anvil. The feed spout **30** may then be removed from the base **11** and the worn part of the anvil is unbolted from the bottom wall **33** of said spout. The anvil part **42A** is positioned in the rebate **40** so as to present an unworn face **43** to the cutting edges **24** of the knives **18** and is again secured in position by means of the bolts **46**. If desired, this repositioning of the anvil part may be repeated as required until all the inclined faces **43** exhibit signs of wear at which time the part **42A** may be interchanged with the part **42B** and the chip cutting operation continued.

When it is finally necessary to sharpen the bed knife or anvil **42** the inclined faces **43** are ground down to remove the worn areas and the vertical faces **44** are also subjected to grinding to remove an equivalent amount of metal therefrom. The resharpened anvil will enable the wood chipper to be run for another lengthy period with periodic shut downs for changing the position of one or both of the anvil parts.

Thus, in a chipping machine constructed according to our invention, the amount of grinding to effect one resharpening is reduced, the interval between replacements is prolonged, the total non-operating time is reduced, and a smaller inventory of replacement parts is required.

We have described a chipper in which specific elements are made in two parts and, in the drawings, these two parts are shown as being of the same size. The two parts

may be of unequal size and, as well, for certain applications and capacities, the number of such parts may exceed two, and either be of the same or of different size. We have described and illustrated a drop feed chipper, obviously the invention is applicable to chippers having horizontal or other feed.

What we claim as our invention is:

1. In a chipper having a base, a rotary disc normal to the base, chip cutting knives projecting from the working face of the disc, a log feed spout supported on the base and having a bottom wall and a rear wall inclined at an acute angle to the disc working face, said bottom wall having a rebate on its underside adjacent to the working face of the disc, an anvil within the rebate, said anvil having parallel side edges, each of said side edges being beveled to provide upper and lower wear faces, said wear faces being inclined at substantially the same angle as the inclined rear wall of the feed spout, said anvil being divided longitudinally into a plurality of identical and interchangeable parts, and means for adjustably securing each anvil part to the bottom wall of the feed spout.

2. In a chipper as claimed in claim 1, and means for adjusting the feed spout towards and away from the chipper knives.

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