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Holmstrom

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[54] **REPLACEABLE CUTTING EDGE WITH PLURAL TANGS**

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[73] Assignee: **Caterpillar Tractor Co.,** Peoria, Ill.

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[52] **U.S. Cl.** ..... **37/141 R,** 37/142 R, 83/831, 287/103 R

[51] **Int. Cl.** **E02f 9/28**

[58] **Field of Search** ..... 37/141 R, 141 T, 142 R, 37/142 A

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Attorney, Agent, or Firm—Phillips, Moore, Weissenberger, Lempio & Strabala

[57] **ABSTRACT**

A replaceable cutting edge for a material handling implement including a floor forming a leading edge with a plurality of adjacent openings, the cutting edge having an elongated slot for receiving the leading edge of the floor and a plurality of downwardly and rearwardly extending tangs for penetrating the respective openings, a tapered element urged into engagement between the floor and cutting edge to urge the leading edge of the floor into the slot and to simultaneously urge the tangs rearwardly into locking engagement with the respective holes.

4 Claims, 5 Drawing Figures

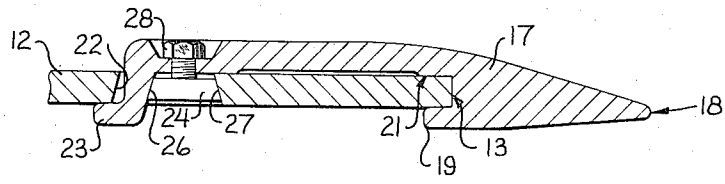


Fig. 1

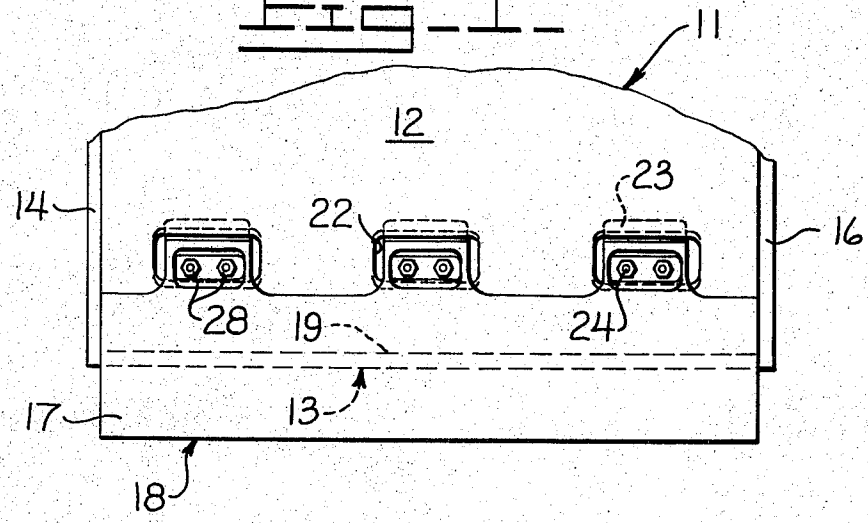


Fig. 2

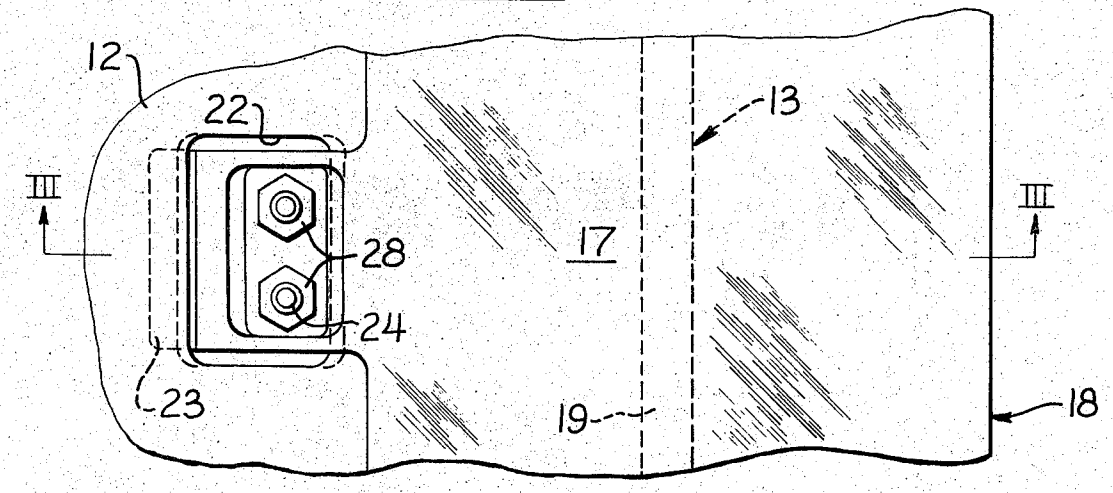


Fig. 3

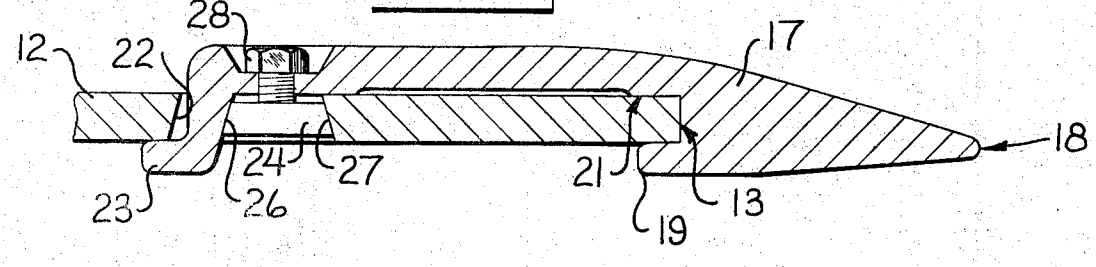
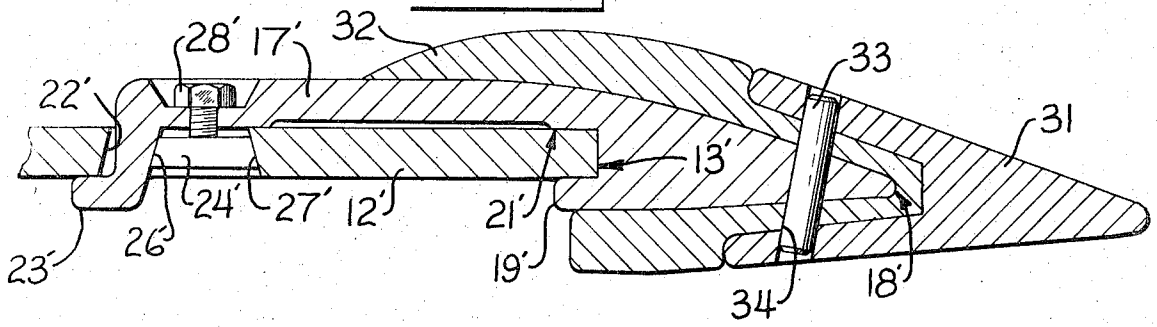


Fig. 5


28'
17'
32
33
22'
31
13'
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12'
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34
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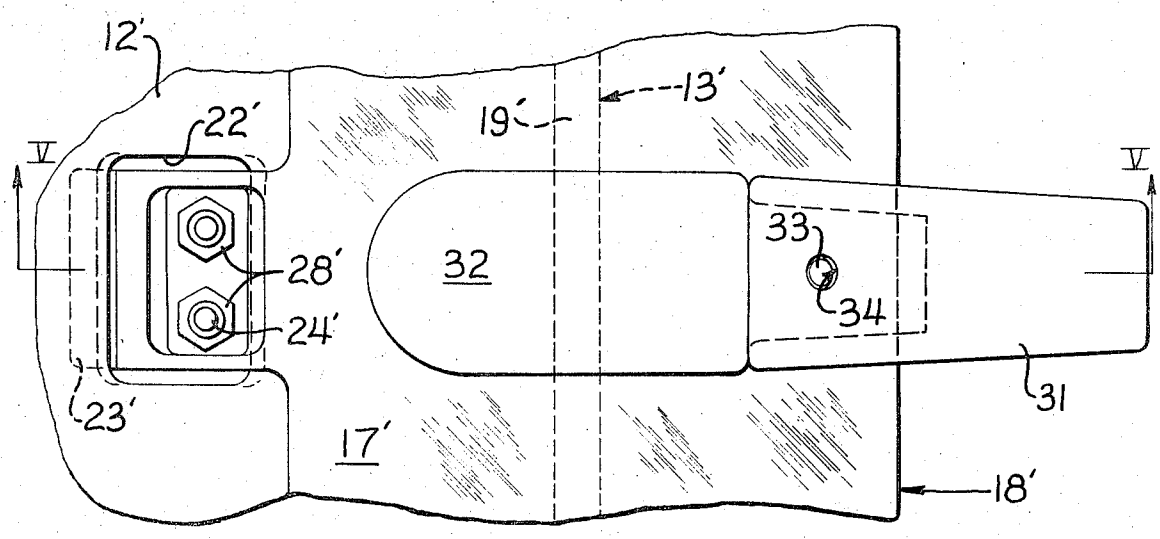
Fig. 4


12'
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REPLACEABLE CUTTING EDGE WITH PLURAL TANGS

BACKGROUND OF THE INVENTION

The present invention relates to a cutting edge for material handling implements and more particularly to such a cutting edge integrally formed by a replaceable member.

Numerous material handling implements such as loader buckets and scrapers, for example, include cutting edges which are arranged upon leading edges and are subject to substantial wear. It is necessary that the cutting edge be firmly secured in place to facilitate operation of the implement. However, because of the substantial wear experienced by the cutting edge, it is necessary to provide for periodical replacement thereof. One typical solution to this problem has been to weld a cutting edge of hardened metal onto a leading edge of the implement. However, when it is necessary to replace the cutting edge, substantial equipment is necessary to make the replacement. For example, a cutting torch is required to remove the worn cutting edge while welding equipment must be provided to secure a replacement cutting edge in place.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a replaceable cutting edge for material handling implements which may be firmly secured in place during use while also facilitating replacement.

It is a further object of the invention to provide such a replaceable cutting member which is secured to the leading edge of a material handling implement by means of a slot for receiving the leading edge and a plurality of downwardly and rearwardly tangs penetrating openings adjacent the leading edge, tapered means urging both the slot and tangs on the cutting element into engagement upon the leading edge of the implement.

Additional objects and advantages of the present invention are made apparent in the following description having reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary plan view of a material handling implement with a replaceable cutting member arranged upon a leading edge of the implement.

FIG. 2 is an enlarged fragmentary view to more clearly illustrate means for securing the cutting member upon the implement.

FIG. 3 is a view taken along section line III—III of FIG. 2.

FIG. 4 and FIG. 5 are views similar respectively to FIGS. 2 and 3 while illustrating a variation of the construction of FIGS. 1–3.

DESCRIPTION OF A PREFERRED EMBODIMENT

A portion of a loader bucket is illustrated at 11 in FIG. 1 as an exemplary implement with which the replaceable cutting edge of the present invention may be employed. The loader bucket includes a floor 12 formed from plate metal and having a leading edge 13. The loader bucket also has side walls as indicated at 14 and 16.

An elongated member 17 having a cutting edge 18 is constructed according to the present invention for replaceable mounting upon the leading edge 13 of the bucket floor 12.

In order to firmly secure the cutting member 17 in place upon the leading edge 13 of the bucket floor, the cutting member is formed with an elongated shoulder 19 providing a slot 21 facing rearwardly or away from the cutting edge 18 to receive the leading edge 13 of the floor 12.

The bucket floor 12 is also formed with a plurality of openings 22 adjacent and rearwardly of the leading edge 13. The cutting edge is formed with a like number of downwardly and rearwardly extending tangs 23 suitably spaced to be received by the respective openings 22. The tangs 23 and the slot 21 cooperate in a manner discussed immediately below to firmly secure the cutting member 17 in place upon the implement floor 12.

The cutting member 17 is urged into engagement with the bucket floor 12 by means of a plurality of tapered bolts 24. Referring particularly to FIG. 3, it may be seen that a forwardly facing portion of each tang 23 is tapered as indicated at 26. Similarly, an opposed surface 27 formed by each of the openings 22 has a similar taper. The bolts 24 penetrate the cutting member 17 for threaded engagement with nuts indicated at 28. Thus, as the bolts are drawn upwardly by tightening of the nuts 28, as viewed in FIG. 3, the cutting member 17 is urged rearwardly or in a leftward direction as viewed in FIG. 3. Accordingly, the slot 21 is urged into engagement with the leading edge 13 of the bucket floor 12. Simultaneously, the tangs 23 are locked within the openings 22 in a position which may be best seen in FIG. 3.

FIGS. 4 and 5 illustrate a variation of the replaceable cutting member construction of FIGS. 1–3. The cutting member 17′ of FIGS. 4 and 5 is similarly mounted adjacent the leading edge 13′ of a bucket floor 12′ but is further adapted for the mounting of spaced apart digging teeth 31. For the purpose of receiving the digging teeth 31, the cutting member 17′ has a somewhat differently figured cutting edge as indicated at 18′. A plurality of adapters 32 are secured to the cutting member 17, for example, by welding, in spaced apart relation to provide mountings adapted to receive the respective digging teeth 31. The digging teeth 31 are secured in place upon the respective adapters by means of retaining pins 33 arranged in vertical bores 34 passing through each tooth 31, the respective adapter 32 and the cutting member 17′ adjacent its cutting edge 18′.

What is claimed is:

1. A replaceable cutting member for a material handling implement including plate means forming a forwardly facing leading edge for the implement, a plurality of openings being formed in the plate means rearwardly of the leading edge, the cutting member forming an elongated cutting edge and a slot facing away from the cutting edge to receive the leading edge of the plate means, the cutting member having downwardly and rearwardly extending tangs for penetrating the respective openings in the plates means, tapered means engaging the plate means and cutting member to urge the leading edge of the plate means into the slot and to simultaneously urge the tangs rearwardly into locking engagement with the holes of the plate means.

2. The cutting member of claim 1 wherein each of the tangs has a tapered, forwardly facing surface and each of the openings is formed with a tapered, rearwardly facing surface, the tapered means comprising a tapered member urged into engagement with the tapered surfaces of each tang and its respective opening.

3. The replaceable cutting member of claim 2 wherein the tapered members are bolts which are

threadedly secured in place upon the cutting member.

4. The replaceable cutting member of claim 1 comprising a plurality of digging teeth arranged along the cutting edge thereof in spaced apart relation and secured to the cutting member by suitable adapter means and retaining means.

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