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2,965,989

END BITS FOR BLADES

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1 Claim. (Cl. 37-143)

This invention relates to end bits for bulldozers and more particularly to improvements in end bits for blades of bulldozers or any other type of earth moving equipment which uses a blade as the instrumentality for cutting, moving or otherwise handling soil.

The common type of end bits or cutting bits are made with one set of bolt holes which are used to attach the bit to the blade. After the bit has worn and becomes dull it will not cut into the dirt or rock and has to be discarded. A common type of bit has a smooth cutting edge side and when the bulldozer is pushed into hard earth or rock the bit will slip on the hard surface thereby causing the bulldozer blade to ride over instead of cutting and digging into the earth and rock.

This invention has the special features of an extra set or more of holes provided so that when the bottom or cutting edge of the bit wears down it is only necessary to take out the bolts and move the bit down to the next set of bolt holes and continue using the same. This bit provides sharp edges or points as part of one or more cutters that bite into the hard surfaces such as rock and will rip or tear into the hard earth.

There is a coaction between the cutter or cutters on the bit and the adjustability of it. The cutters are so constructed that even when the bit is adjusted to new positions, there will remain some parts of the cutters to continue to do the effective job until the bit is completely worn out. This not only prolongs the life of the bit but enables the bit to maintain the high level of efficiency commensurate with the efficiency of the bit in its new condition.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is a perspective view of a typical application of the invention, showing a left hand and a right hand bit on a bulldozer blade.

Figure 2 is a sectional view taken on the line 2-2 of Figure 1.

Figure 3 is a perspective view of the bit that typifies either the right hand or the left hand bit.

In the accompanying drawings there is shown a bulldozer 10 provided with a moldboard or blade 12 having a cutting edge strip 14. The bits 16 and 18 respectively are left hand and right hand to fit the lower left hand and right hand corners of the blade. The bits are of identical construction (except for left hand and right hand) and therefore the numerals on the drawings are common to the bits. Bit 16 is typical and is made of a flat plate 17 that functions as a base. The flat plate has four

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transverse rows 20, 22, 24 and 26 of openings within which to receive two rows of bolts 28 and 30 (Figure 2). These bolts have their heads countersunk in the openings in plate 17 and pass through aligned openings in the blade 12 and its strip 14. When the end bit has its lower edge 38 worn down, the bolts are removed and the end bit is slid down to a new position. Then the bolts are replaced, for example, in the transverse rows 22 and 24 of openings thereby correspondingly lowering the bit. When the bit wears down again, it can be again lowered by using rows 24 and 26 of holes.

The end bit has the lower edge 38 together with a parallel upper edge 36 and a side edge 34. There is a wall 42 that rises from the opposite side edge and this wall constitutes a cutter as well as a soil deflector. The cross section of the wall 42 is substantially triangular with the apex part having its front edge extending forwardly of the front face 48 of plate 17. The lower part of wall 42 is essentially straight with the upper part curving smoothly and merging into the upper edge 36. This provides a curved deflector or wall 42 while the lower edge and adjacent portions of wall 42 constitute a cutter.

Two additional cutters 50 and 52 are provided on the plate 17. Each of these has a pair of side walls that are outwardly tapered from face 48 of plate 17 and reduce in cross section as they move upwardly until finally these walls disappear and merge with the front face 48. The lower surface 54 of each of the cutters 50 and 52 is coplanar with the lower edge 38 and the lower edge 56 of wall 42. Accordingly, when the lower part of the bit wears, the cutters 50 and 52 as well as the wall 42 will wear approximately evenly therewith. Yet, as the length of the bit decreases due to wear, there will always be some portions of the cutters 50 and 52 and the wall 42 remaining to continue to serve the cutting, guiding, ripping, etc., functions.

In use the bit is attached to the blade 12 in the ordinary manner. However, when it wears it may be adjusted as described. In addition, the shapes of the cutters 50 and 52 as well as wall 42 are such that when they wear at the lower edge the lower edge will maintain the same essential configuration as when originally produced.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

An end bit for attachment in different forwardly adjusted positions to a blade of an earth moving machine in a downwardly and forwardly inclined position, said bit comprising a substantially rectangular plate having sides, a lower front cutting edge and an upper rear edge, a plurality of longitudinal cutters rising from said plate in laterally spaced relation for clearance therebetween, said cutters being of triangular cross-section to provide sharp cutting edges thereon and tapering rearwardly and downwardly of said plate to merge into said plate with lower front cutting ends coplanar with the front cutting edge of the plate for initial cutting in advance of said cutting edge of the plate, and a wall upstanding from one side edge of said plate with a rear inwardly curved deflector portion for deflecting cuttings inwardly of said bit, said wall having a front cutting edge coplanar with the cutting

edge of the plate and with the cutting ends of said cutters to cut in advance of the cutting edge of the plate and in the same plane as said cutting ends and said cutting edge of the plate.

2,166,800
2,310,396
2,329,831
2,732,639
2,914,868

5

Craig ----- July 18, 1939
Clinkscales ----- Feb. 9, 1943
Ferguson ----- Sept. 21, 1943
Lillengreen ----- Jan. 31, 1956
Lauder ----- Dec. 1, 1959

References Cited in the file of this patent

UNITED STATES PATENTS

309,553 Manning ----- Dec. 23, 1884
1,765,218 Erhart ----- June 17, 1930

OTHER REFERENCES

"Esco," in Engineering News Record, vol. 148, No. 12, Mar. 20, 1952, page 125.