Aug. 24, 1965 C. W. CARSON 3,202,226

REPLACEABLE CUTTING EDGE FOR A BLADE ASSEMBLY

Filed Nov. 13, 1963 2 Sheets-Sheet 1

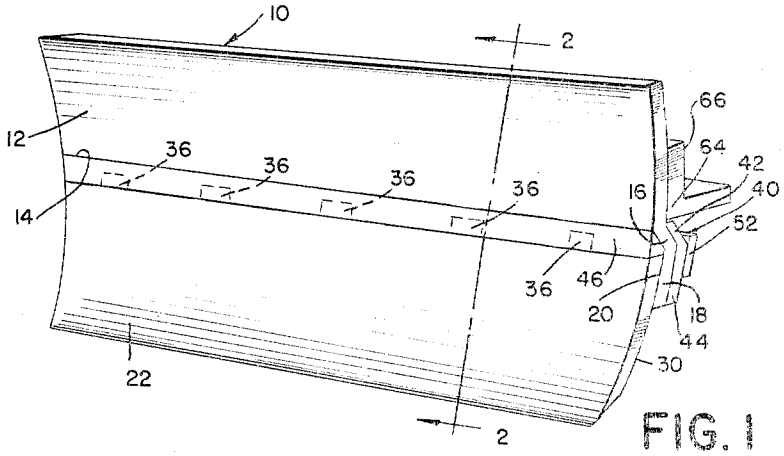


FIG. 1

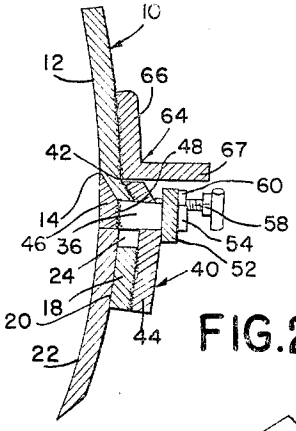


FIG. 2

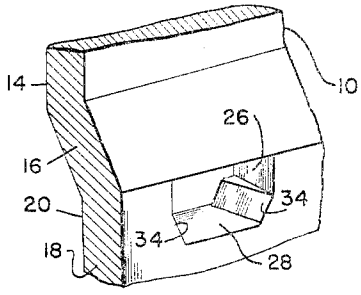


FIG. 3

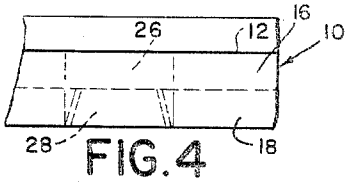


FIG. 4

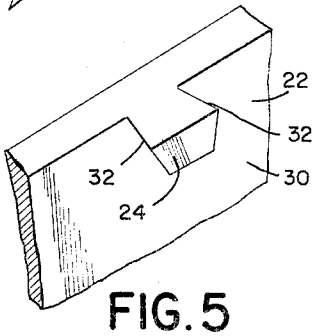


FIG. 5

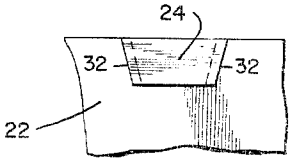


FIG. 6

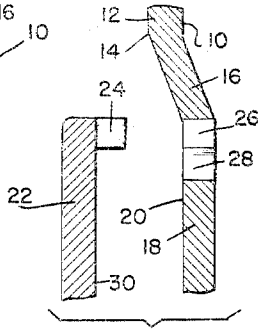


FIG. 7

INVENTOR
CYRIL W. CARSON

BY Raymond W. Colton

ATTORNEY

Aug. 24, 1965 C. W. CARSON 3,202,226

REPLACEABLE CUTTING EDGE FOR A BLADE ASSEMBLY

Filed Nov. 13, 1963 2 Sheets-Sheet 2

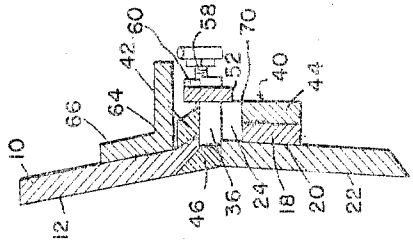


FIG. 9

FIG. 8

INVENTOR
CYRIL W. CARSON
BY Raymond Wolfe
ATTORNEY

United States Patent Office 3,202,226 Patented Aug. 24, 1965

3,202,226 REPLACEABLE CUTTING EDGE FOR A BLADE ASSEMBLY

Cyril W. Carson, 615 Division Ave., Ionia, Mich.

Filed Nov. 13, 1963, Ser. No. 323,291
8 Claims. (Cl. 172—719)

This invention relates to a blade assembly eminently suited for use with road graders, scrapers, bulldozers, snow plows and other analogous types of equipment in which it may be desired to use a readily detachable blade or cutting edge.

By virtue of the present invention, it becomes possible with a relatively simple structure to eliminate to a large degree, the use of bolts, while providing a rugged construction wherein the components are relatively rigidly interconnected under assembled conditions.

It is among the objects of the present invention to provide a blade assembly comprising a moldboard providing a forward work engaging wall having a lower edge defined by an angularly disposed rearwardly directed flange, and an off-set wall substantially parallel to the work engaging wall depending from the flange and defining a seat; a detachable blade having an upper portion engaging the seat, the blade carrying a rearwardly divergent lug having a trapezoidal cross section projecting from its upper portion; the off-set wall containing an opening defining a passage for the lug, and containing in communication with the opening a socket substantially complementing the lug, and locking means retaining the lug in the socket.

In a preferred form of the invention, the socket is formed in the depending wall and the locking means assumes the form of a wedge appropriately retained in the opening. The opening and wedge are preferably similarly tapered and the lug preferably has trapezoidal cross sections in two dimensions disposed at right angles.

The blade preferably carries a plurality of rearwardly divergent lugs each having a trapezoidal cross section projecting from its upper edge, the off-set wall preferably contains an opening defining a passage for each of such lugs, and communicating with each opening, a socket substantially complementing each of the lugs, and locking means retains the lugs in their respective sockets. A wedge is received in each such opening in combination with means removably retaining the wedges in their respective openings.

A reinforcing member is preferably attached to the moldboard and projects rearwardly therefrom above the rearwardly directed flange.

A more complete understanding of the invention will follow from a detailed description of the accompanying drawings wherein:

FIG. 1 is a perspective view of a blade assembly incorporating the present invention;

FIG. 2 is a section taken along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary perspective view on an enlarged scale depicting a portion of the moldboard;

FIG. 4 is a plan view of the portion of the moldboard depicted in FIG. 3;

FIG. 5 is a fragmentary perspective view on an enlarged scale depicting a portion of a blade;

FIG. 6 is a fragmentary elevation of the portion of the blade depicted in FIG. 5;

FIG. 7 is a fragmentary sectional elevation depicting the interfitting portions of the blade and moldboard prior to assembly;

FIG. 8 is a fragmentary exploded view depicting the prinicpal components of the blade assembly constituting the subject matter of the present invention; and

FIG. 9 is a section corresponding to that of FIG. 2 depicting a modification.

The moldboard 10 provides a forward work engaging wall 12 having a lower edge 14 defined by an angularly disposed rearwardly directed flange 16, and an off-set wall 18 depending from the flange and defining a seat 20 for the upper portion of a blade 22. The blade carries one or more, preferably a plurality, of rearwardly divergent prismoidal lugs 24, which are also preferably downwardly divergent, as shown in FIG. 6, so as to have trapezoidal cross sections in two dimensions at right angles to one another.

For each lug 24, the moldboard contains an opening 26 extending completely through its off-set wall 18, the width of each opening substantially conforming with the maximum width of each lug 24. The opening 26 through the off-set wall intersects a trapezoidal opening 28 complementing the lug 24 and also contained by the off-set depending wall 18. Thus it will follow, particularly with reference to FIG. 7, that the blade will be assembled with respect to its moldboard by moving the blade 22 substantially horizontally with its lugs 24 in registry with the openings 26 until the rear surface 30 of the blade engages the seat 20 defined by the forward surface of the depending flange 18, whereupon the blade 22 will be moved downwardly so that its lugs 24 will be received by the complementary trapezoidal openings or sockets 28 provided in the off-set depending wall 18 of the moldboard. Inasmuch as the side walls 32 of the lugs 24 are downwardly convergent and the side walls 34 of the complementary socket 28 are similarly downwardly convergent, a wedging action occurs to assure a substantially rigid interconnection between the blade and moldboard.

The opening 26 formed through the off-set wall 18 of the moldboard is slightly convergent in a rearward direction for cooperation with a similarly tapered element or wedge 36 introduced into each of the openings 26 to maintain the blade and moldboard in their assembled relationship. The wedges 36 also extend through similarly tapered openings 38 formed in a bridging member 40 of angular cross section, having a short upper leg 42 welded to the rear surface of the moldboard along the flange 16 and a longer leg 44 welded to the rear surface of the depending flange 18 below the flange 16.

The wedges 36 are welded or otherwise suitably secured to an elongated locking member 46 of trapezoidal cross section which carries the wedges on its rear surface 48. In assembled relationship, the inclined upper surface 41 of the locking member 46 engages the forward face of the flange 16 while its lower surface 43 engages the upper surface of the blade 22.

In order to install a blade, its lugs 24 are introduced into their respective openings 26 and then moved downwardly until they are seated in their respective sockets 28. Then the wedges 36 of the locking member 46 are introduced into their respective openings 26, through the tapered openings 38 formed in the bridging member 40, and through slots 50 provided in a latching or retaining plate 52. The wedges 36 contain notches 54 and inclined edges 55 adapted to engage the rear surface 57 of the plate 52 upon imparting to the plate a sliding movement when the notch 54 comes into registry with it. After the plate 52 has been thus shifted into the notches 54, it will be maintained in proper locked position by the insertion of a tapered wedge or plug 56, fastened to the bridging member 40 by means of a chain 45, into its bracket 68 carried by the bridging member 40. In this position, the tapered wedge or plug 56 will bear tightly against the end surface 59 of the plate 52, and prevent accidental release of the wedges 36. Set screws 58 are threadedly received in tapped and hardened lugs 60 welded to the rear surface of the plate 52 and extend through registering openings in the plate 52. When the set screws 58 are tightened, their ends will bear upon the rear surface of the bridging mem-

ber 40, securing the parts of the assembly firmly in position. A reinforcing angular member 64 is provided with a vertical flange 66 welded to the rear surface of the moldboard 10 above its flange 16, and a horizontal flange 67 appreciably stiffens the structure.

When it is desired to detach the blade 22 from its moldboard, the set screws 58 will be retracted, the wedges 56 removed from the brackets 68, the plate 52 shifted to release the wedges 36, and the locking member 46 removed from the assembly. Then the blade 22 will be elevated to lift the lugs 24 from their sockets 28, followed by horizontal movement to move the lugs 24 forwardly through the openings 26. As will be evident to those skilled in the art, by rearranging the interfitting components, the sockets for the trapezoidal lugs 24 could be provided in the upper portion of the moldboard, in which event, the wedges would be inserted below them from the rear of the moldboard.

As depitced in FIG. 9, the bridging member 40 can be provided with sockets 70 constituting extensions of the sockets 28 in the moldboard 10, and the lugs 24 will be similarly extended to complement the composite socket thus provided. In this case, the general configuration of the lugs and sockets will preferably be the same as described with reference to the preceding figures.

Whereas only one specific form of the invention has been depicted and described, such variations as will occur to those skilled in the art are contemplated as falling within the scope of the appended claims.

I claim:

1. A blade assembly comprising: a moldboard providing a forward work engaging wall having a lower edge defined by an angularly disposed rearwardly directed flange, and an off-set wall substantially parallel to said work engaging wall depending from said flange and defining a seat; a detachable blade having an upper portion engaging said seat, said blade having an upper edge and carrying a plurality of spaced lugs integral therewith, each said lug being prismoidal, having rearwardly divergent walls, and projecting from said upper edge; said off-set wall containing an opening defining a passage for each said lugs, each opening being bounded by walls and including a reduced prismoidal socket portion formed in one

of said bounding walls, complementing at least one of said rearwardly divergent walls; and locking means comprising elements received in said openings and engaging said lugs, substantially filling spaces between said lugs and opening walls, maintaining divergent walls of said lugs in contact with said complementing walls respectively, to lock said moldboard and blade together.

2. A blade assembly according to claim 1 wherein each said socket portion is formed in said depending wall in communication with said opening.

3. A blade assembly according to claim 1 wherein said locking means extends through each said opening.

4. A blade assembly according to claim 1 wherein said locking means includes an element extending through each said opening and restraining means releasably securing each said element in its said opening.

5. A blade assembly according to claim 1 wherein each said lug has trapezoidal cross sections in two dimensions disposed at right angles.

6. A blade assembly according to claim 1 wherein said locking means includes a wedge received in each said opening and means retaining said wedges in their respective openings.

7. A blade assembly according to claim 6 wherein said retaining means includes a slotted plate receiving portions of said wedges, said plate being movable relative to said wedges to secure them against retraction.

8. A blade assembly according to claim 1 wherein a reinforcing member attached to said moldboard projects rearwardly therefrom above said rearwardly directed flange.

References Cited by the Examiner

UNITED STATES PATENTS

1,021,135	3/12	Clark	37—142
2,189,745	2/40	Johnson	37—143
2,339,128	1/44	Younie	37—142
2,472,892	6/49	George	37—142
2,674,052	4/54	Newkirk	37—143

ABRAHAM G. STONE. *Primary Examiner.*

ARNOLD RUEGG, ANTONIO F. GUIDA, *Examiners.*