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C. C. GOOLSBEE
BLADE PROTECTOR DEVICE

2,554,780

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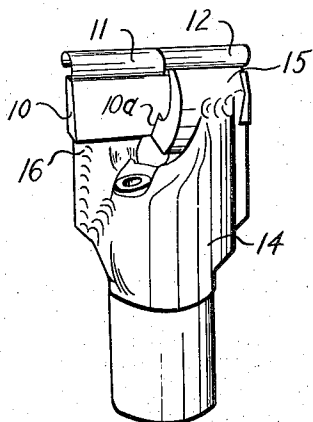


Fig. 3

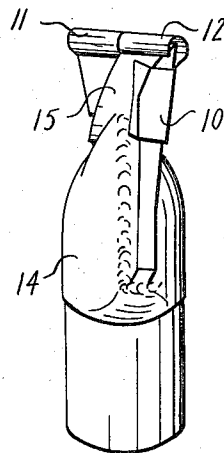


Fig. 4

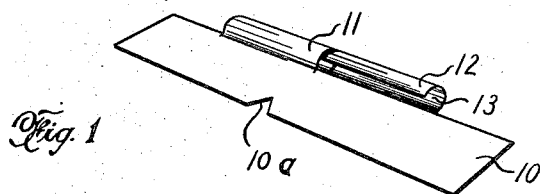


Fig. 1

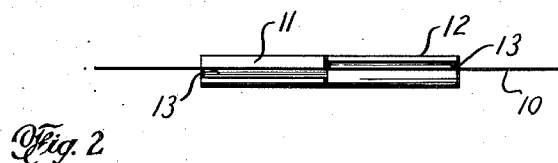


Fig. 2

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BLADE PROTECTOR DEVICE

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5 Claims. (Cl. 255—61)

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This invention relates to protectors for cutter blades and refers more particularly to a protector which may be mounted upon a rotary drill bit to protect the cutter elements thereof during storage, shipping or the like.

Rotary drill bits obviously rely upon their cutter elements for their effectiveness in operation. During storage or shipping of such bits the cutter elements are likely to become broken, chipped or otherwise damaged thus necessitating the expense and delay of replacing the cutters of the bit.

An object of this invention is to provide an inexpensive protector for the cutters of a drill bit that may be readily installed upon the bit and removed therefrom.

Other and further objects of the invention will appear from the following description.

In the accompanying drawings which form a part of the instant specification and are to be read in conjunction therewith and wherein like reference numerals are employed to indicate like parts in the various views;

Fig. 1 is a perspective view of a protector embodying this invention;

Fig. 2 is a side edge view of the protector shown in Fig. 1; and

Figs. 3 and 4 are side elevational views of the protector of Figs. 1 and 2 shown after installation upon a rotary drag type bit.

Referring to the drawings, the numeral 10 designates the carrier portion of the protector. This portion is preferably fabricated of sheet steel but may be made from any suitable rigid, tough material. The carrier is an elongated sheet and projecting from one edge thereof are protector elements 11 and 12. These elements may be curved projections and are formed in such fashion as to provide elongated openings 13 adjacent the side or edge of carrier 10. By referring to Fig. 2 it will be seen that openings 13 are upon opposite sides of carrier 10. These openings permit insertion of the cutter elements of a drag type bit into the hollow interior of the protector elements. Thus the elements 11 and 12 encase or sheath the cutters upon installation of the device upon a bit.

Carrier 10 has portions extending longitudinally past the protector elements and these facilitate mounting of the protector device upon a bit in such fashion that the device may be easily installed upon a bit and removed therefrom. It is preferred that the width of the carrier be as great as the bit can accommodate so it may be

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frictionally secured to the bit. In order to provide extra width for the carrier a cut-away portion 10a may be provided in the edge of the carrier remote from the protector elements and aligned with the division between the elements.

Installation of the protector upon a bit is simple and the method of installation may be readily understood by reference to Figs. 3 and 4. In these figures a drag type bit 14 having removable cutter blades 15 and 16 is shown. The blades 15 and 16 are of the usual form and are oppositely mounted so that the cutter edge of each blade will move in the same direction upon rotation of the bit in drilling. The carrier 10 is slipped between the blades 15 and 16, the cut-away portion 10a spanning the junction between the blades. The end portions of carrier 10 are then bent about the bit to releasably clamp the protector thereto. This may be easily accomplished manually with the aid of a hammer and provides an inexpensive and effective and readily releasable means for securing the protector device to the bit.

It is contemplated that protectors may be provided for bits having more than two cutters such as for example those known as three-way and four-way bits.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having described my invention, I claim:

1. A blade protector device adaptable for use in conjunction with rotary drill bits comprising a carrier formed of tough, rigid sheet material and being substantially rectangular in shape with its end portions adapted to be bent upon themselves and engaged around a bit to releasably mount the carrier thereon, protector elements integral with and projecting from the carrier in a curved path, said elements being disposed in offset planes on opposite sides of the carrier and

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having portions adapted upon installation of the device upon a bit to overlie and encompass the cutter edges of the bit blades.

2. A blade protector device adaptable for use in conjunction with drag type rotary drill bits, comprising a carrier formed of tough, rigid sheet material and being substantially rectangular in shape, protector elements integral with and projecting from one longitudinal edge of the carrier, said elements being curved and directed in opposite directions from the longitudinal edge of the carrier, said elements also being adapted upon installation of the device upon a bit to overlie and encompass the cutter edges of the bit blades, and end extensions upon the carrier, which are adapted to be bent around the blades of the bit to frictionally engage the same and thereby releasably mount the device upon a bit.

3. A blade protector device adaptable for use in conjunction with drag type rotary drill bits having a pair of cutter edges which are in offset planes relative to each other, said device comprising a sheet of tough, rigid material and hollow protector elements secured to and projecting outwardly from one edge of the sheet, said elements having openings adjacent the sheet edge, but upon opposite sides of said sheet, for receiving the offset cutter edges of a bit upon installation of the device upon the bit.

4. A blade protector device adaptable for use in conjunction with drag type rotary drill bits having a pair of cutter edges which are in offset planes relative to each other, said device comprising an elongated rigid metallic sheet, two oppositely curved protector elements projecting from one longitudinal edge of the protector, the protector elements having openings adjacent the sheet which openings are in offset planes relative to each other and are adapted to receive the cut-

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ter blade edges of a bit upon assembly of the device upon a bit, and clamping means carried by the sheet whereby the device may be releasably secured to a bit.

5. A blade protector device adaptable for use in conjunction with drag type rotary drill bits having a pair of cutter edges which are in offset planes relative to each other, said device comprising an elongated rigid metallic sheet, two oppositely curved protector elements projecting from one longitudinal edge of the protector, the protector elements having openings adjacent the sheet which openings are in offset planes relative to each other and are adapted to receive the cutter blade edges of a bit upon assembly of the device upon a bit, and the sheet having end portions extending beyond the protector elements, each end portion being adapted to be bent upon itself and around one of the blades of the bit whereby said device may be releasably mounted upon a bit.

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