April 18, 1950 E. GAIRING 2,504,192

CUTTER BLADE LOCK

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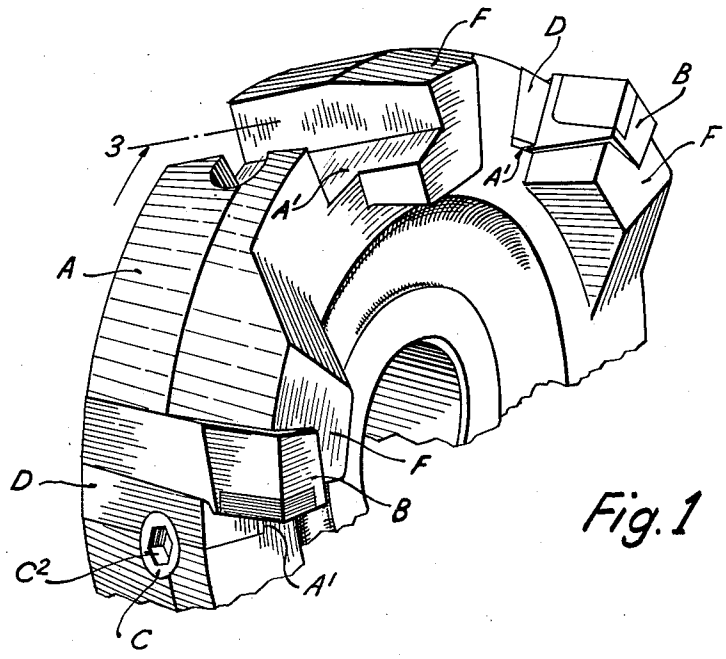


Fig. 1

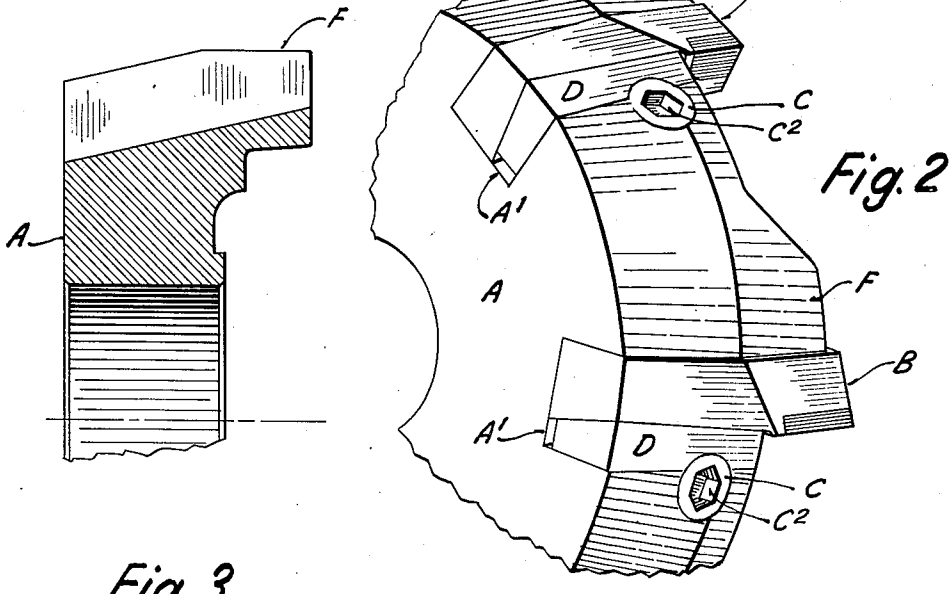


Fig. 2

Fig. 3

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Fig. 4

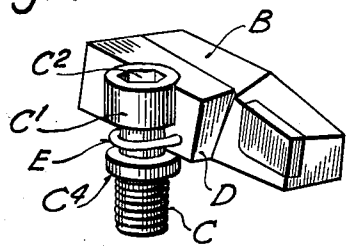


Fig. 5

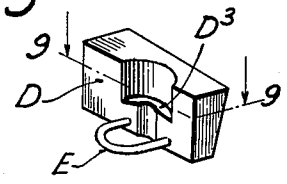


Fig. 6

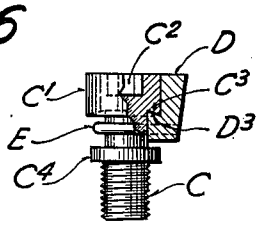


Fig. 7



Fig. 8

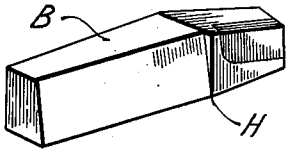
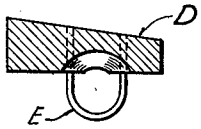


Fig. 9



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CUTTER BLADE LOCK

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4 Claims. (Cl. 29—105)

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My invention relates to an insertable blade cutter body having slots accurately machined to width—and of a uniform distance from the center of the cutter to receive the flat surfaces of the cutting blades at the bottom and rear wall of said body; the slots of said body having integral extended lugs to give maximum support the full length of the blades adjacent to the locking wedge and bottom of the slot.

The same blades are used for all sizes of cutter bodies, and are separately adapted for replacements. The blades are of the tool-bit type, having a compound angle at the rear of the tipped section which co-ordinates with a draw-down holding wedge provided with matching angles which hold the blade firmly against the bottom and rear wall of the slots in the body, thereby preventing the blade from moving laterally under cutting pressure.

The blades are interchangeable, the assembled cutter need not be placed in a cutter grinder for sharpening, as the blades may be ground individually when required or necessary.

The insertion of the blades are made by hand and they are held in place by tightening the lock screw.

When the cutter is set up in the machine the blades may be lined up against the cut in the work; or the cutter may be placed face down on a surface plate, with the ground faces of the lugs adjacent to the blades resting on a bushing.

In either case the blades are inserted by hand, pushed down, and the locks tightened.

The same locks are used for all sizes of blades assembled in the cutter body, and they remained attached to the cutter-body, when changing blades.

The locking mechanism comprises a wedge and a screw bolt held together by a U-shaped clip as shown in the accompanying drawings, thus providing a unitary device, hereinafter described in further detail.

In the drawings—

Figure 1 is a fragmentary perspective view of the front of the cutter indicating two blades in place, and one blade removed, to show a rectangular slot to receive and engage the blade and the wedge together, the view also shows the extended supporting lugs on the body for additional rigidity.

Figure 2 is a fragmentary perspective view of the back of the cutter showing the blades and wedges lodged in the rectangular slots in the body and held in place by the draw-down bolts;

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also the compound angle on the blades and wedges to prevent movement when in operation.

Figure 3 is a fragmentary cross-sectional view through the cutter, taken on line 3—3, of Figure 1, showing one of the extended lugs.

Figure 4 is a perspective view of an assembly of several parts, comprising the blade, the wedge, a screw-threaded holding bolt, and also a U-shaped retaining clip encircling the holding bolt, secured to the wedge.

Figure 5 is a perspective view of the wedge—with the holding bolt removed—showing a counterbore for the bolt-head provided in the wedge, and also the U-shaped clip secured to the wedge.

Figure 6 is a cross-sectional view of the wedge, the holding bolt, and the clip; showing the engaging angle on the underside of the head of the bolt, and also the angle on the counterbored section of the wedge; this feature is to secure the wedge and bolt together when locked in the body; the collar on the bolt below the wedge serves to lift the wedge from the body when the bolt is withdrawn.

Figure 7 is a detail view of the clip, for securing the holding bolt to the wedge.

Figure 8 is a perspective view of the blade, as viewed from the rear end, and illustrates the double or compound angle on the locking portion of said blade; these angles start at the same point on the front face of the blade where the blade engages the locking wedge; both angles tapering from the same position on the base of the blade as shown in Figure 4; the wedge is provided with corresponding angles to engage the blade when held in place by the draw-down bolt.

Figure 9 is a cross-sectional view of the locking wedge, taken on line 9—9 of Figure 5, showing the counter-bore formed in the wedge to receive the head of the bolt, and also the U-shaped clip, secured to the wedge.

Referring now to the letters of reference on the drawings; A, denotes the cutter-body, having slots A', of uniform distance from the center of the cutter-body to receive the flat surface of the blades B.

The blades B, are flat on the bottom, and sides adjacent to the locking wedges and are used for all sizes of cutter bodies, and being interchangeable, the assembled cutter need not be placed in a cutter grinder for sharpening, as the blades may be individually ground on an ordinary wet carbide grinder.

The insertion of the blades in the cutter body are made by hand, and they are held in place by the adjustment of a draw-down locking screw-

bolt C, threaded at one end to engage the cutter body.

The head C', of the bolt has a socket C^2, adapted to receive a detachable bar wrench—not shown—for manually adjusting the bolt, which is linked to the wedge D, below the head of the bolt C, by a U-shaped clip E, encircling the bolt and secured to the wedge.

As indicated in Figure 6, an engaging angular face C^3, on the underside of the bolt head C', co-ordinates with the angular face D^3, on counterbored section of the locking wedge D, to insure the wedge and bolt being held firmly together when locked in the cutter-body.

A collar C^4, on the bolt serves upon contacting the wedge D, to lift the wedge from the cutter body when required, or necessary.

The lugs F, extend outwardly from the cutter-body A, adjacent to the rectangular slots A', to add additional rigidity to the blade.

The wedges D, are recessed to receive the heads of the draw-down bolts C', and have an inclined face adapted to contact the angles of the rear portion of the blade B, to force the blade into locked relation with the wall of the cutter body.

The upstanding angular wall D^3 at the bottom of the counterbored socket of the wedge, see Figures 5 and 6, upon the entry of the bolt head C' in the socket of the wedge, co-ordinates with the angular wall C^3, formed on the underside of the bolt head, to insure the wedge and bolt being firmly secured together, upon a rotary adjustment of the bolt.

What I claim is:

1. A fastener for detachably securing a blade to a cutter head, said fastener comprising a wedge having a sloping side face for contacting an inclined wall of a cutter blade to be secured, said wedge being formed with a socket having an inclined upstanding cone-shaped bottom adapted to receive the head of a pull-down bolt; and a draw-down bolt adapted for screw-threaded connection with a cutter body, the head of said bolt having a cone-shaped recess on its underside face, to receive and coordinate with the inclined walls of the socket of the wedge and hold the head in concentric relation to the socket.

2. A fastener of the character described comprising a wedge having upper and lower faces and side faces, one side face extending at an incline between the upper and lower faces and the other side face being formed with a vertical recess and a socket about the upper end of the recess, a draw-down screw rotatably fitting in the recess and having at its upper end a turning head rotatably fitting into said socket in countersunk relation to the upper face of the wedge, a collar surrounding said screw and spaced downwardly from the head and overlapping the lower face of the wedge and serving to force the wedge upwardly to a releasing position when the screw is loosened, the bottom of said socket being cone-shaped and the head of the screw having a cone-shaped recess in its under face in which the cone-shaped bottom of the socket fits, and a U-shaped clip detachably carried by and projecting laterally from the wedge in straddling relation to the recess and fitting loosely about the portion of the screw between the head and the collar and holding the wedge in connection with the screw.

3. A fastener comprising a wedge having upper and lower faces and side faces, one side face extending at an incline between the upper and lower faces of the wedge, a draw-down screw at the opposite side of the wedge from the inclined side face thereof having a turning head overlapping the adjoining side portion of the wedge and serving to force the wedge downwardly to a gripping position when the screw is tightened, a collar about said screw spaced downwardly from the head and overlapped by the wedge and serving to force the wedge upwardly to a releasing position when the screw is loosened and a member carried by said wedge and loosely engaged about the screw between the head and the collar and holding the wedge in connection with the screw.

4. A fastener comprising a wedge having upper and lower faces and side faces, one side face extending at an incline between the upper and lower faces of the wedge, a draw-down screw at the opposite side of the wedge from the inclined side face thereof having a turning head at its upper end, said wedge being formed with a recess into which the head of the screw fits and serves to force the wedge downwardly to a gripping position when the screw is tightened, a collar about said screw rigid therewith and spaced downwardly from the head and overlapping the lower face of the wedge and serving to force the wedge upwardly to a releasing position when the screw is loosened, and a U-shaped clip carried by said wedge and fitting loosely about the portion of the screw between the head and the collar and holding the wedge in connection with the screw.

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