

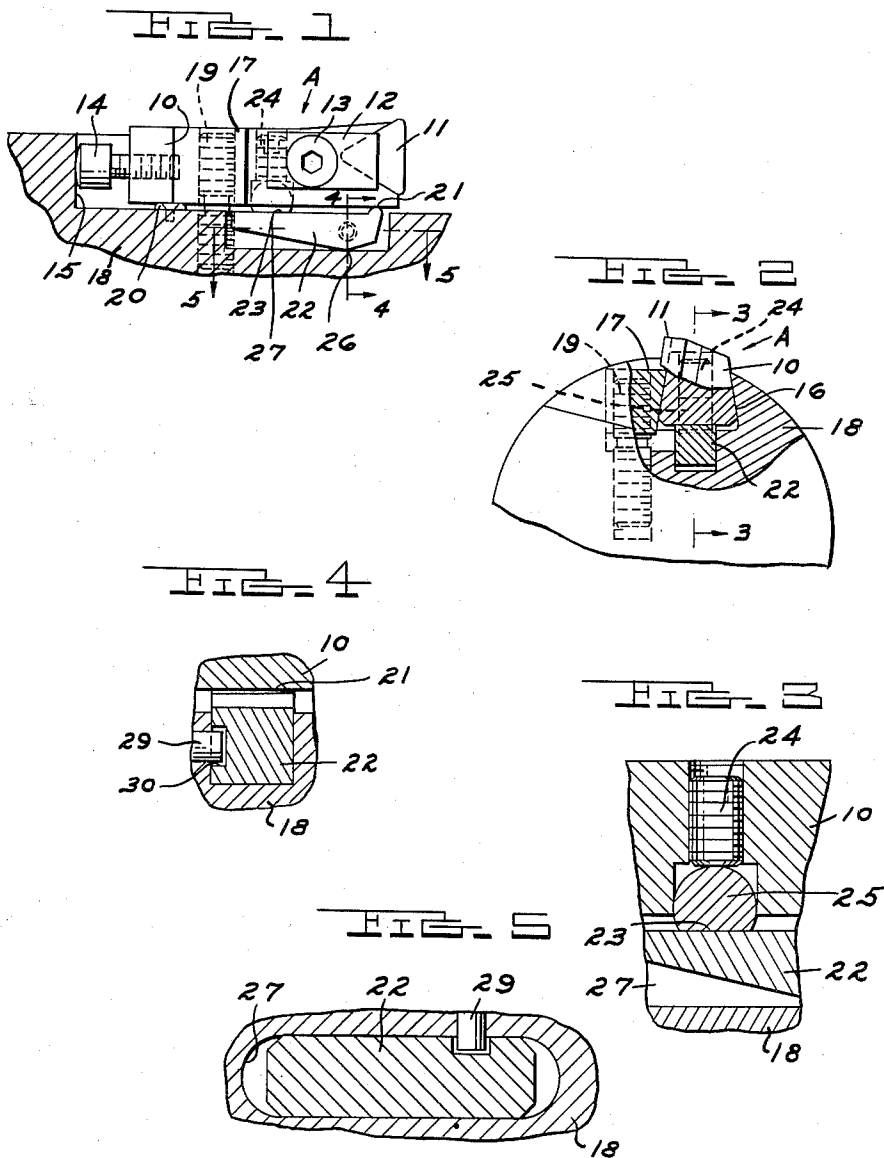
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LEVER ADJUSTMENT FOR CUTTER CARTRIDGE

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LEVER ADJUSTMENT FOR CUTTER
CARTRIDGE

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This invention relates to a lever adjustment for laterally positioning a cutter cartridge of the type generally disclosed in the co-pending application of William Yogus and John D. MacPetric, Serial No. 847,139 filed on October 19, 1959, issued as Patent No. 2,998,737.

The cutter cartridge comprises a cutter holder removably mounted in a recess in a tool body which is adapted for attachment to a machine spindle. It has been past practice as shown in said application to provide an adjustment screw at one end of the cartridge remote from the cutter adapted to engage a surface in the tool body to provide for longitudinal adjustment of the cartridge and a further transverse adjustment screw in the cutter end of the cartridge to engage a second surface in the tool body providing for lateral adjustment of the cartridge.

In accordance with the present invention, a slot is provided under the cartridge recess in the tool body within which a lever is positioned, one end of which is adapted to engage the cartridge at the cutter end and the other end of which is actuated by an adjustment screw located transversely in the cartridge substantially spaced from the cutter end, the lever being further adapted to fulcrum against a tool body surface at the bottom of the slot at a point intermediate its length closer to the cutter end than the adjustment screw engagement point.

This arrangement provides an adjustment screw location remote from the cutter end while providing adjustment contact through the lever at a point immediately adjacent the cutter element and, in addition, provides an amplified degree of accuracy of adjustment through the mechanical advantage and movement reduction of the lever.

The objects and advantages of the invention may be more readily understood from the following detailed description of a preferred embodiment wherein:

FIGURE 1 is a fragmentary longitudinal sectional view of one side of a boring tool in which is mounted a cutter cartridge adjusted laterally by the leverage system of the present invention;

FIGURE 2 is a fragmentary transverse sectional view of the tool;

FIGURE 3 is a fragmentary sectional view taken along the line 3-3 of FIGURE 2 showing in enlarged detail the adjustment screw engagement of the lever;

FIGURE 4 is a fragmentary sectional view taken along the line 4-4 of FIGURE 1 showing in enlarged detail a retaining pin and slot for the lever; and

FIGURE 5 is a fragmentary sectional view taken along the line 5-5 of FIGURE 1 showing in enlarged detail the longitudinal cross-section of the adjustment lever.

With reference to FIGURES 1 and 2, the cartridge A comprises an elongated holder body 10 recessed to provide a seat for a removable throwaway cutter 11 held by clamp 12 and clamp screw 13. A longitudinal adjustment screw 14 is provided at one end of the cartridge for registration at the end 15 of the elongated recess in the tool body to provide a longitudinal adjustment of the cartridge and cutter axially of the tool. As best shown in FIGURE 2, the cartridge body 10 has tapered faces 16 and 17 for registration respectively with matching faces in the tool body 18 and retaining wedge lock 19 for securely clamping the cartridge in position against lateral or radial locating points established by a rest button 20 and the

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lift point 21 of adjustment lever 22, the other end 23 of which is actuated and positioned by adjustment screw 24 acting through a roller 25. The lever 22 is provided with angular lower surfaces meeting at a fulcrum line 26 which bears against the bottom of the lever slot 27. As best shown in FIGURES 4 and 5, a retaining pin 29 is provided to loosely engage a recess 30 formed in the side of adjustment lever. This does not operate as a pivot bearing but merely holds the lever in assembled relation with the tool when the cartridge is removed.

It will be understood from the above description that when the wedge lock 19 is loosened slightly, inward adjustment of screw 24 operating through the mechanical advantage of lever 22 will produce a reduced radially outward adjustment of the cutter end of the cartridge to a precise desired position. It will be further understood that with this arrangement, the cutter seat in the cartridge body is more solid and rigid than it could be if the adjustment screw passed through the cutter end of the cartridge to engage the tool body at a point comparable to the lift point 21.

While a preferred embodiment of the present invention has been shown as applied to a particular boring tool and described above in detail, other applications and modifications are possible within the scope of the invention as defined by the following claims.

I claim:

1. A tool comprising a tool body, a cutter cartridge having a cutter at one end, means for clamping said cartridge onto said body, and adjustable locating means characterized by a lever seated in said tool body, a lift point on said lever for engaging the cartridge at its cutter end, said lever having a fulcrum point for engaging said tool body at a point spaced from said lift point, and an adjustment screw seated in said cartridge adapted to actuate said lever at a point remote from said lift and fulcrum points when said clamping means is loosened.

2. A cutting tool as set forth in claim 1 wherein said fulcrum point is intermediate said lift and actuating points.

3. A cutting tool as set forth in claim 1 wherein the distance of said adjustment point from said fulcrum point exceeds the distance of said lift point from said fulcrum point providing a multiplication of accuracy of adjustment in the adjustment lever.

4. A cutting tool comprising a tool body, a longitudinally extending cutter cartridge having a cutter at one end and an adjustment screw at the other end for effecting longitudinal adjustment of said cartridge in said cutter body, means for clamping said cartridge in adjusted position on said body, and adjustable locating means for adjusting the lateral position of said cutter relative to said body when said clamping means is loosened characterized by a longitudinally extending slot in said body adjacent and parallel to said cartridge, an adjustment lever seated in said slot, a lift point on said lever adapted to engage the cutter end of said cartridge, a fulcrum point on said lever adapted to engage said body at a point spaced from said lift point, and an adjustment screw seated in said cartridge for movement in a lateral direction adapted to actuate said lever at a point remote from said lift and fulcrum points.

5. A tool comprising a tool body, a recess in said body, a tool cartridge mounted in said recess, and means for positioning said cartridge relative to said body characterized by a lever fulcrumed on said body and having a portion engageable with said cartridge, and adjusting means carried by said cartridge and engageable with said lever.

6. A tool holder with a recess, a cartridge mounted in said recess carrying a cutting element, means for positioning said cartridge relative to one wall of the recess com-

prising a slot formed in said one wall, a lever mounted in said slot, said lever including a portion projecting into engagement with said cartridge, means adjustably carried by said cartridge engaging said lever at a location spaced from said projecting portion, said lever having a fulcrum located between said adjusting means and projecting portion.

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