This invention relates to tube cutters, and more particularly to adjustable internal tube cutters.

Heretofore, internal tube cutters have been provided with various types of supports and cutter elevators requiring stabilizing elements and a multiplicity of parts. An object of this invention is to provide an internal tube cutter which can cut various lengths of tubing, will positively seat within tubes of varying diameter, and firmly position the cutter element in operable elevated position.

A further object of this invention is to provide an internal tube cutter having a minimum number of parts, which will be simple and economical in construction and efficient and durable in use.

The foregoing and other objects and advantages of this invention will be more apparent from reading the following specification, in conjunction with the drawings, forming a part thereof, wherein:

Fig. 1 is a plan view of the internal tube cutter;
Fig. 2 is a side elevational view of the internal tube cutter, with the cutter and cutter arm elevated;
Fig. 3 is a front elevational view of the internal tube cutter, fragmentary section removed;
Fig. 4 is a longitudinal cross-sectional view taken along line 4—4 of Fig. 1, parts shown in elevation for clarity; and

Fig. 5 is a partially broken side elevation view showing parts in section to illustrate the internal working cam elements to raise and lower the cutter arm.

In the drawings, wherein like reference numerals are given the same reference numeral, a hollow, heavy-walled tubular member 1 serves as a hollow cylindrical housing element. The internal wall of the housing 1 is provided with a flat section 4 terminating in a pair of spaced shoulders 3 provided by removing a section of the internal wall.

A longitudinal slot 6 or groove is provided in and through the side wall of the housing 1 diametrically opposite said flat section 4 and extends the length of the housing 1 and communicates with the hollow interior thereof to provide a rectangular channel.

Mounted in this recess or groove 6 is a cutter arm 7 having an aperture 8 in one end thereof to receive a pivot pin 9 extending through the housing 1 to permit pivotal motion of the arm. The other end of the cutter arm is preferably an enlarged section 10 and provided with a transverse slot or groove 11 into which is rotatably mounted a rotary or circular cutter blade 12. The blade is pivotally mounted by a pivot bolt 14 having a reduced threaded section 15 engaging a tapped aperture 16 in the arm 7 in a conventional manner of concentrically aligned apertures in the arm 7 and cutter 12.

The housing 1 is preferably reduced to half section 18 and an enlarged end adjacent the cutter 12 to provide free clearance of the cutter, and the tapered enlarged section 10 of the cutter arm 12 fits into the hollow channel defined by the interior wall of the housing 1 when the cutter arm is lowered.

The invention has been described in detail, but it is intended that this description shall be taken as illustrative and not limitative of the scope of the invention.

This patent contains color illustrations which are hereby incorporated into this specification by reference.
clearly understood that many changes can be made therein without departing from the spirit and scope thereof, as defined in the appended claims.

Having thus described the invention what is claimed as new and desired to secure by grant of United States Letters Patent is:

1. An internal tube cutter comprising an elongated housing, a cutter arm pivotally mounted at one end thereof to said housing, a rotary cutter blade pivotally mounted to the other end of said cutter arm, a channel provided in said housing beneath said cutter arm, a sliding block slidably positioned in said channel, a tapped aperture extending longitudinally in said block, a bolt threadedly engaging said block, means preventing longitudinal movement of said bolt, a downward projection on said cutter arm, cooperation supplementary angular cam faces on said block and said projection, rollers longitudinally journaled in said housing and extending beyond the periphery thereof substantially in the plane of said cutter blade, and manual rotating means fastened to said housing.

2. An internal tube cutter comprising a hollow cylindrical housing, a longitudinal channel provided in and through the wall of said housing, a cutter arm pivotally mounted by one end thereof to said housing, a cutter blade pivotally mounted transversely in the other end of said cutter arm, longitudinal rollers journaled in said housing substantially in the plane of said cutter and extending beyond the periphery of said housing, a sliding block mounted in said hollow housing, a projection extending downward from said cutter arm into said housing adjacent said sliding block, cooperating supplementary angular cam surfaces on said sliding block and said projection, a bolt extending longitudinally in said housing, stop means preventing longitudinal movement of said bolt, a longitudinal tapped aperture in said block threadedly engaging said bolt, means external of said housing for turning said bolt to operably adjust the relationship of said cam surfaces, and means manually rotating said housing.

3. An internal tube cutter comprising a cylindrical housing, a longitudinal channel in said housing, a cutter arm pivotally mounted by one end in said channel, a circular cutter blade pivotally mounted in said transverse groove, elongated pockets in said housing substantially symmetrical to the plane of said cutter, rollers journaled in said pockets and extending beyond the periphery of said housing, a projection extending inwardly of said housing from said cutter arm, a sliding block in said housing intermediate said projection and said cutter, supplementary cam surfaces on said projection and said block, a tapped aperture extending longitudinal through said block, a bolt threadedly engaging said tapped aperture, and means preventing longitudinal movement of said bolt.

4. An internal tube cutter comprising an elongated hollow cylindrical housing, a longitudinal channel in said housing having a portion thereof communicating with the hollow interior of said housing, a cutter arm pivotally mounted by one end thereof in said channel, a transverse groove in the other end of said arm, a circular cutter blade journaled in said transverse groove, a projection extending from said arm into the hollow interior of said housing, a flat section in the hollow interior of said housing diametrically opposite said arm, a sliding block in said housing operable in said flat section, a bolt extending longitudinally in the hollow interior of said housing, means associated with said bolt for threadedly engaging said bolt, means preventing longitudinal movement of said bolt, and roller journaled in said housing and extended beyond the periphery thereof substantially in the longitudinal position of said cutter and spaced equidistant therefrom.

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