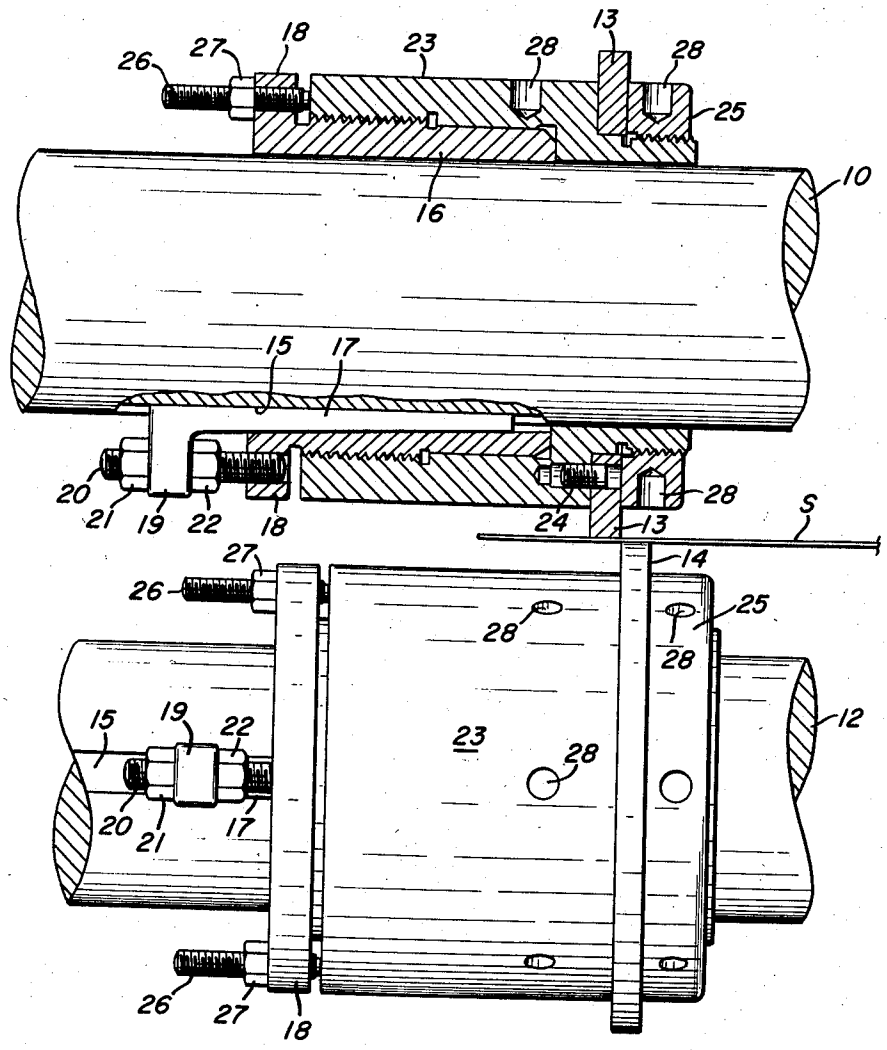
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ADJUSTABLE MOUNTING FOR ROTARY KNIVES

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ADJUSTABLE MOUNTING FOR ROTARY KNIVES

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This invention relates to an improved mounting for rotary knives, such as those embodied in shears for longitudinally slitting continuous strip.

An object of the invention is to provide a mounting which allows both coarse and fine adjustments in the knife position to be made readily.

A more specific object is to provide a mounting which enables cooperating upper and lower knives first to be positioned approximately in accordance with a cutting line and later positioned accurately, both as to the exact cutting line and with respect to each other to make a smooth cut.

In accomplishing these and other objects of the invention I have provided improved details of structure, a preferred form of which is shown in the accompanying drawing, in which:

The single figure is a side elevational view, partly in section, of a portion of a shear, the knives of which are mounted in accordance with my invention.

The figure shows upper and lower rotatable shafts **10** and **12** of a shear for longitudinally slitting a continuous strip S, for example of steel or other metal. Annular upper and lower knives **13** and **14** having opposed circumferential cutting edges are mounted on the respective shafts. The mountings for the two knives are similar; hence only the upper is shown in detail. The remainder of the shear mechanism can be of any conventional construction, and hence is not shown nor described herein. However, showings of typical shear mechanisms for which my knife mounting is suitable can be found in my prior Patent No. 2,710,062, dated June 7, 1955, and in references cited in the file thereof.

In accordance with my invention, the knife shaft contains a longitudinal keyway **15**. A knife adjustment sleeve **16** is slidably mounted on the shaft, and is retained in any position to which it is adjusted by a tapered gib key **17** fitted into the keyway **15**. For clarity the taper in this key is shown somewhat exaggerated. The sleeve **16** has an annular flange **18**, and gib key a lug **19**. A stud **20** is threadedly engaged with a tapped opening in the flange **18** and extends through an opening in the lug **19**. A lock nut **21** and adjusting nut **22** are threadedly engaged with said stud on opposite sides of said lug. These nuts can be turned to withdraw the key from the sleeve and allow the latter to slide longitudinally of the shaft for effecting coarse adjustments in the knife position, or they can be turned in the opposite direction to force the key into the sleeve for fixing the latter on the shaft.

A knife holder **23** is threadedly engaged with the exterior of the sleeve **16**. The end portion of this holder is of reduced outside diameter and receives the knife **13** or **14**. A drive pin **24** locates the knife in position on the holder, and a nut **25** is threadedly engaged with the holder for fixing the knife thereon. The knife holder **23** is rotated relative to the sleeve **16** to effect fine adjustments in the position of the knife. Set screws **26** are threadedly engaged with tapped openings in the flange **18** on the

sleeve and abut the end of the holder **23** to fix the latter in adjusted position on the sleeve. The set screws **26** carry lock nuts **27**. Preferably the holder **23** and nut **25** have tool receiving sockets **28** in their exterior to facilitate their manipulation.

In operation, the sleeves **16** on both shafts **10** and **12** first are positioned so that the cutting edges of the knives **12** and **13** lie approximately on the line where the strip is to be cut. The knives are then longitudinally adjusted to the exact position with respect to this line and to each other by turning the holders **23** relative to the sleeves **16**. When necessary, the knives are readily removed from their holders and replaced on removal of the nut **25**.

While I have shown and described only a single embodiment of my invention, it is apparent that modifications may arise. Therefore, I do not wish to be limited to the disclosure set forth but only by the scope of the appended claims.

I claim:

1. The combination, with a rotary shaft and an annular knife having a circumferential cutting edge, of a mounting for said knife comprising a sleeve adjustably fixed to said shaft, a holder adjustably fixed to said sleeve, and means fixing said knife to said holder, adjustments in said sleeve relative to said shaft effecting coarse adjustment in the knife position, and adjustments in said holder relative to said sleeve effecting fine adjustment therein.

2. The combination, with a rotary shaft and an annular knife having a circumferential cutting edge, of a mounting for said knife comprising a sleeve slidably carried on said shaft for longitudinal adjustment, means for fixing said sleeve to said shaft in the position to which it is adjusted, a knife holder threadedly engaged with said sleeve for longitudinal adjustment, and means fixing said knife to said holder, adjustments in said sleeve relative to said shaft effecting coarse adjustment in the knife position, and adjustments in said holder relative to said sleeve effecting fine adjustment therein.

3. The combination, with a rotary shaft having a longitudinal keyway and an annular knife having a circumferential cutting edge, of a mounting for said knife comprising a sleeve slidably carried on said shaft, a tapered gib key in said keyway, screw threaded means connecting said sleeve and said key for fixing said sleeve and key in adjusted position on said shaft or releasing them for longitudinal adjustment, a knife holder threadedly engaged with said sleeve for longitudinal adjustment, screw threaded means for fixing said holder in adjusted position on said sleeve, and means fixing said knife to said holder, adjustments in said sleeve relative to said shaft effecting coarse adjustment in the knife position, and adjustments in said holder relative to said sleeve effecting fine adjustment therein.

4. The combination, with a rotary shaft and an annular knife having a circumferential cutting edge, of a mounting for said knife comprising means carried by said shaft for coarse adjustment longitudinally of said shaft, and means fixing said knife to said first named means for fine adjustment longitudinally of said shaft.

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