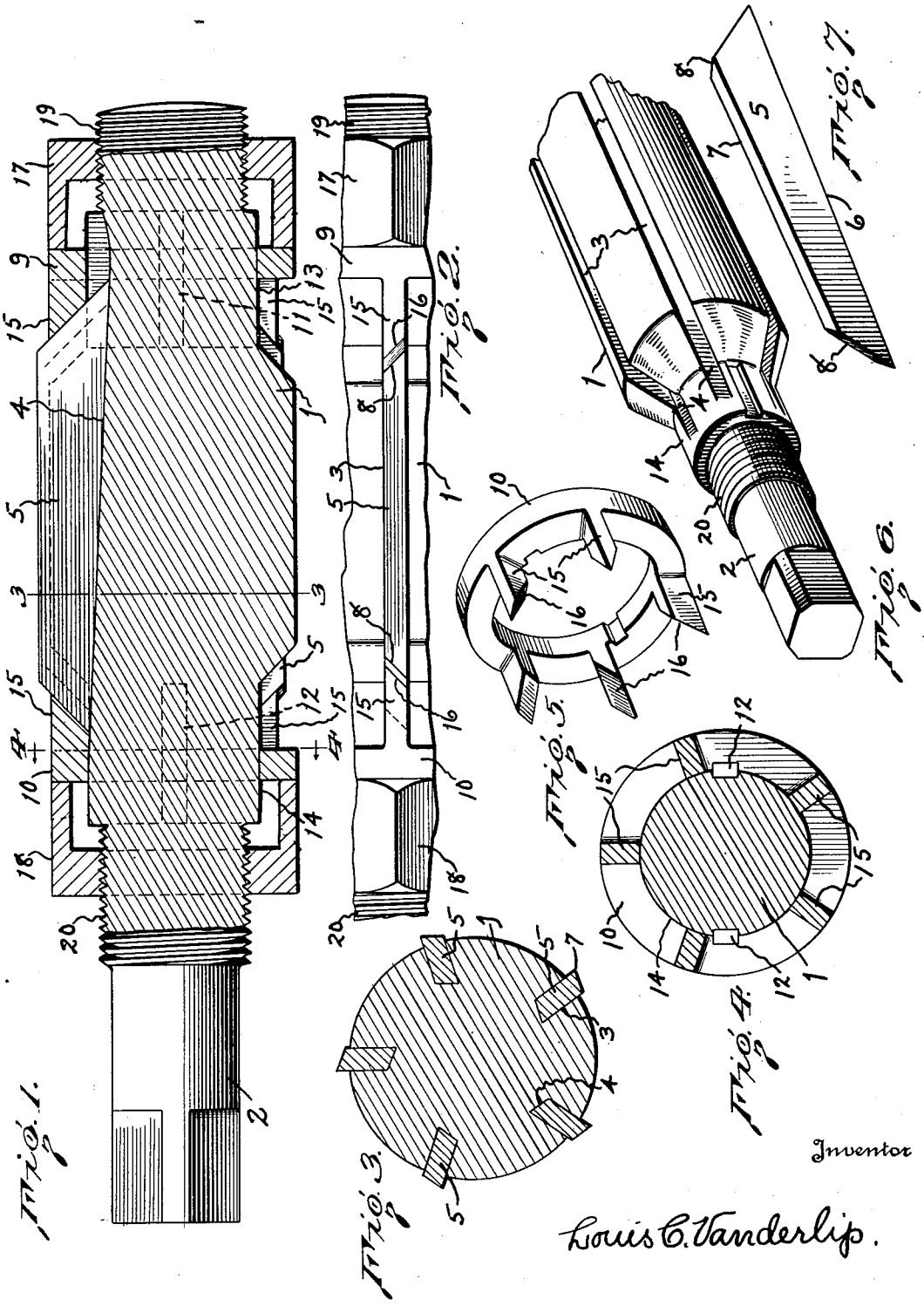
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ADJUSTABLE REAMER

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ADJUSTABLE REAMER

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5 Claims. (Cl. 77—75.5)

This invention relates to improvements in rotary cutting tools, and particularly to adjustable reamers.

The principal object of my invention is to provide a rotary cutting tool of the character described which is simple in construction and which is provided with improved means for clamping the cutting blades of the tool in adjusted position.

Another object of the invention is to provide an adjustable reamer, or the like, with improved means for clamping the cutting blades upon their seats and also laterally against the blade slot wall to prevent chatter of the blades when in use.

A third object of the invention is to provide an adjustable reamer, or the like, with compound cam means engaging the ends of the blades to clamp the cutting blades laterally against the blade slot wall.

Other objects of the invention are mentioned herein or suggested by the description and drawing.

An embodiment of my invention is illustrated in the accompanying drawing, wherein

Figure 1 is a longitudinal axial section of the assembled tool;

Fig. 2 is a fragmental longitudinal plan view;

Fig. 3 is a section taken on line 3—3 of Fig. 1;

Fig. 4 is a section taken on line 4—4 of Fig. 1;

Fig. 5 is a perspective of one of the blade clamping collars;

Fig. 6 is a perspective of a fragment of the body of the reamer;

Fig. 7 is a perspective of one of the cutting blades.

Similar numerals of reference indicate like parts throughout the several views on the drawing.

Referring to the details of the drawing the numeral 1 indicates the reamer body, or blade holder, which may be cylindrical in cross-section, and which may be provided with a shank section 2. The outer face of the body 1 is provided with a series of longitudinally disposed blade slots 3, the bottoms 4 whereof incline somewhat in relation to the axis of the holder 1, and said slot bottoms may be somewhat inclined transversely thereof, that is to say, at an acute angle relatively to the radius of the body 1.

Numeral 5 indicates a series of cutting blades arranged in the slots 3, the inner edge or bottom 6 whereof is formed at an angle to correspond and cooperate with that of the slot bottom 4, both longitudinally and transversely thereof, and the outer edge 7 of said blade is beveled to form a cutting edge thereon. The opposite end of each blade is provided with an inclined face 8 which is laterally beveled to provide a compound cam face which, when acted upon by a coacting compound cam, as hereinafter described, will clamp the blade both inwardly and laterally.

Mounted upon the body 1 at opposite ends of the blades 5 are a pair of clamping collars 9 and 10 which may be splined to the body 1 by keys 11 and 12 to effect sliding movement upon the cylindrical body sections 13 and 14, respectively, of which spline keys there may be a pair in opposition for each of said clamping collars. Both collars 9 and 10 may be alike in construction, and each may be provided with a plurality of cam prongs 15, corresponding with the number of cutting blades, each of which cam prongs is provided with an undercut cam face 16 which is laterally beveled to correspond with the cam face 8 on the blades to provide a compound undercut cam which overlies the inclined compound cam face 8 on the blades.

The clamping collars 9 and 10 may be actuated longitudinally of the holder 1 by the collars 17 and 18, respectively, which are screw threaded upon reduced portions 19 and 20, respectively, of the holder 1, said collars 17 and 18 functioning also as abutments to prevent longitudinal retractive movement of the collars 9 and 10, when the beveled face 16 of the cam prongs 15 coact with and overlie the beveled blade ends 8.

The manner of effecting longitudinal adjustment of the cutting blades 5 by rotary or sliding collars, in a device of this character, is well known, as well as obvious, from the disclosure and the foregoing description, and when thus adjusted and the clamping collars 9 and 10, and cam prongs 15, are rigidly clamped against the blade ends 8 by actuation of the collars 17 and 18, it will be evident that each cutting blade will be rigidly clamped laterally against a wall of the blade slot as well as inwardly against the inclined slot bottom 4, thereby effectually preventing blade chatter when the tool is in use.

I claim:

1. A cutting tool of the character described comprising a body provided with a longitudinal slot having a bottom inclined to the axis of the body, a cutting blade adjustably mounted in the slot having its bottom shaped to correspond to the body bottom, and the end of the blade beveled in a plane at an acute angle to both its side and bottom, and cam means engaging the blade end and operable to force the blade laterally and inwardly to clamp it in the body slot.

2. A cutting tool of the character described comprising a body provided with a longitudinal slot having a bottom inclined to the axis of the body, a cutting blade adjustably mounted in the slot having its bottom shaped to correspond to the slot bottom, and the end of the blade beveled in a plane at an acute angle to both its side and bottom, and cam means complemental in shape to the blade end and engaging the latter and operable to force the blade laterally and inwardly to clamp it in the body slot.

3. A cutting tool of the character described comprising a body provided with a longitudinal slot, a blade having a cutting edge and adjustably mounted in said slot, said blade having each end formed with a face sloping longitudinally thereof from the cutting edge toward the bottom of said blade and from one side toward the other side thereof in converging planes, and means engaging said end faces and operable to force the blade inwardly against the bottom of the slot and laterally against one wall thereof.

4. A cutting tool of the character described comprising a body provided with a longitudinal slot, a cutting blade adjustably mounted in said slot, said blade having each end face thereof inclined both longitudinally from the top to the bottom thereof and from one side toward the other in converging planes, and means engaging said end faces to force the blade against the bottom and one side only of said slot.

5. A cutting tool of the character described comprising a body provided with a longitudinal slot, a cutting blade adjustably mounted in said slot, said blade having each end face thereof inclined both longitudinally from the top to the bottom thereof and from one side toward the other in converging planes, and means engaging said end faces to force the blade against the bottom and one side only of said slot, said means comprising collars mounted for sliding adjustment adjacent each end of said blade slot and carrying opposed cam prongs having ends complemental in shape to said blade ends.

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