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W. J. HOGG

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CIRCULAR CHASER GRINDING GAUGE

Filed June 9, 1931

Fig. 1.

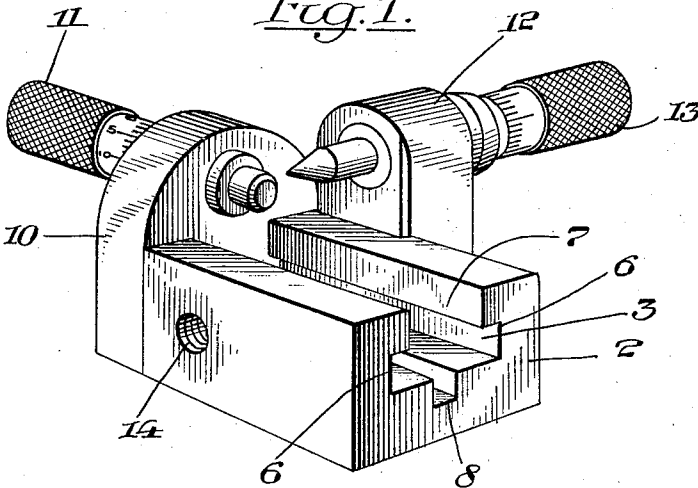


Fig. 2.

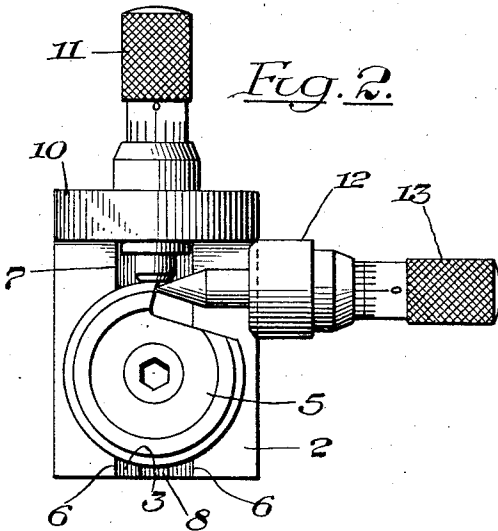


Fig. 3.

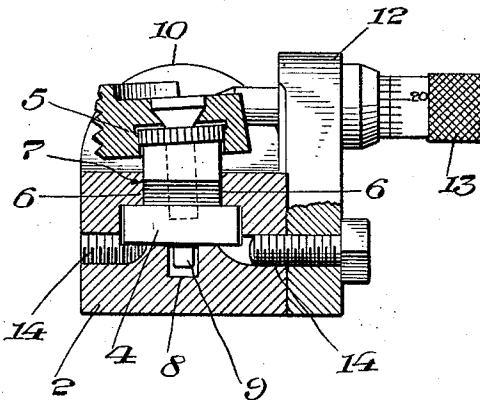
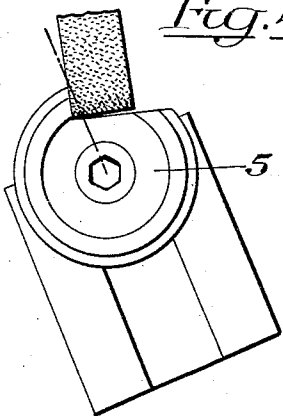


Fig. 4.



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CIRCULAR CHASER GRINDING GAUGE

Application filed June 9, 1931. Serial No. 543,098.

This invention relates to gauges for use with circular chasers or cutters of threading dies, the object of the invention being to provide a simple, efficient, inexpensive and accurate micrometer gauge for use with such circular chasers, whereby a uniform and accurate grinding of the chasers may be quickly and readily obtained in an expeditious manner.

10 In the grinding of circular chasers, it is extremely difficult to grind them accurately after they have been used and for the purpose of determining the accuracy of this grinding and also for the purpose of insur-
15 ing the proper setting of all of the chasers in the die, the present improvement has been devised.

A further object of the invention is the provision of a gauge which may be used as a guiding and gauging means for the accurate grinding of a series of circular chasers so that each chaser of the set or sets may be ground precisely alike and, therefore, so positioned in the die that they will all start
25 cutting the work at the same time.

In the drawing accompanying and forming a part of this specification, Fig. 1 is a perspective view of this improved micrometer gauge.

30 Fig. 2 is a top view thereof illustrating a chaser in position to be gauged.

Fig. 3 is a cross-sectional view of the gauge showing a chaser and chaser block in position to be gauged; and

35 Fig. 4 is a top view illustrating the manner of grinding a circular chaser.

Similar characters of reference indicate corresponding parts in the several views.

Before explaining in detail the present improvement and mode of operation thereof, I desire to have it understood that the invention is not limited to the details of construction and arrangement of parts which are illustrated in the accompanying drawing since the invention is capable of other
45 embodiments, and that the phraseology which I employ is for the purpose of description and not of limitation.

In the preferred form, the micrometer
50 gauge comprises a suitable support or base

2 having a guideway 3 for the reception of the chaser carrying block or back plate 4, carrying the circular chaser 5.

This guideway comprises a pair of parallel grooves or ways 6 open at its top as at 55 7, and having a slot or recess 8 at its bottom for the reception of the guide pin 9 of the chaser block.

Carried by the supporting block is an up-
standing apron 10 for the reception of a
60 blunt ended micrometer adjusting member 11 and detachably secured to the side of the block 2 is a bracket 12 for the reception of a pointed micrometer device 13, both micrometers having the usual micrometer
65 scales for setting and reading the micrometers.

The micrometer 11 is in position to act as a stop to engage the periphery of the cutter in the manner shown in Fig. 2 and
70 may be left in this position when any other circular cutters of the same set or diameter are to be engaged, or may be adjusted to correspond with various diameters of cutter, this micrometer 11 thus locating the cir-
75 cular chaser in the proper position.

The micrometer 13 is operative to measure the face of the circular chaser to determine the accuracy of the grinding operation before the chaser and its block is inserted
80 into the die head, and also to determine the angle at which the chaser or cutter is to be placed for cutting when set into the die head. In practice, it is sometimes necessary to have the cutter set in the die head so that it
85 will be in line with the center line and at other times it is necessary to have the cutter ground on an angle, this depending on the material to be threaded.

The supporting base may be of different
90 sizes and have various shapes of T-slots to suit different sizes of chasers for the various sizes of die heads manufactured.

The block is provided at both sides thereof with a threaded opening 14 whereby the
95 bracket 12 may be adjustably secured to either side of the block so that the micrometer gauge 13 may be used to gauge either right or left hand cutters. In the form shown, it is in position for right hand gaug-
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ing. When adjusted to the opposite side, it is in position for left hand gauging.

In practice, when a set of chasers need grinding the one which is in the greatest need thereof is ground first and then set into the gauge with the micrometer 11 set at a predetermined reading according to the size of chaser to be gauged so that it will act as a stop. The micrometer 13 is then set up against the cutting edge of the cutter to determine the amount that has been ground off after which this chaser is removed and another chaser of the same set placed in the gauge until it contacts with the micrometer 11 which acts as a stop and then by reading the micrometer 13, it is easily determined how much is to be ground off to make this chaser precisely the same as the first one.

To eliminate overgrinding, the chasers are secured to the chaser block by means of a serrated bushing having two different diameters as described in my contemporaneously pending application filed June 7th, 1930, Serial No. 459,700. This serrated bushing enables the chaser to be turned back different degrees until the slightest amount of grinding will make the chasers uniform.

This operation is then repeated with other chasers of the same or other sets so that they may all be ground and reset at the same angles, after which they are inserted in the die head and will all be at the same angle, thus enabling all of the chasers to have their cutting edge in perfect relation to the work to be operated upon and to start cutting at the same time.

Thus, this particular fixture is used to get a uniform grinding of the four chasers used in one set in the die head so that the cutting edge is uniform when the chasers are set in the die and all four start at the same time. When the first chaser is ground, this chaser is put into the checking block and so located that the micrometer screw will be set at zero. This zero line is for material such as cast iron and malleable iron.

For softer material such as screw stock, the cutting edge must be ground on an angle and the chaser should be set slightly above center, which is determined according to the analysis of the steel. Therefore, the micrometer screw with the flat stop surface will hold the chaser in relation to the micrometer screw so as to give an incline cut. This pointed micrometer screw is absolutely necessary because the measurement is taken on an angle approximately at the root diameter of the chaser.

Thus, by means of this gauge, it can be readily determined just how to grind the chasers so that they will all be uniformly ground and when they are applied to the die, they will all start to cut at the same time and, further, if one chaser has been ground more than another, this can be recti-

fied, insuring that all chasers are uniformly ground and uniformly set in relation to the work.

The chasers may likewise be placed in the gauge to determine their proper setting in the chaser block with the proper serration before assembling the chaser and chaser block in the die head, assuring a uniform start for the thread, uniform angles of thread and perfect work.

It is to be understood that by describing in detail herein any particular form, structure or arrangement of parts, it is not intended to limit the invention beyond the terms of the several claims or the requirements of the prior art.

In practice, by reason of the fact that the fixture is constructed to receive both the chaser block and the chaser, the chaser can be set on its block so that it can be mounted in the die in the same position to insure alignment of the cutting edges of all of the chasers and uniform cutting of the threads without any further adjustment. Thus this fixture is not only used for grinding but also for setting the chasers in the proper position in the die.

Having thus explained the nature of my said invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I claim:

1. A circular chaser gauge comprising a supporting block for the reception of an adjustable chaser block carrying slide, an adjustable micrometer stop carried at one end thereof, and an adjustable micrometer at the side thereof for determining the amount to grind off the chaser.

2. A circular chaser gauge comprising a supporting block for the reception of an adjustable chaser block carrying slide, an adjustable micrometer stop carried at one end thereof, and a detachable block carrying an adjustable micrometer at the side thereof and attachable to either side of said supporting block.

3. A circular chaser gauge having a chaser supporting block having a guide-way for the insertion of a chaser slide therein, an adjustable stop and an adjustable micrometer located transversely to each other on said block.

4. A circular chaser gauge having a chaser supporting block having a guide-way for the insertion of a chaser slide therein, an adjustable micrometer stop and an adjustable micrometer located transversely to each other on said block.

5. A circular chaser gauge having a chaser supporting block having a guide-way for the insertion of a chaser slide therein, an adjustable blunt ended micrometer stop and an adjustable pointed micrometer located

transversely to each other on said block above said guide-way.

6. A circular chaser gauge comprising a supporting block having a guide-way for the insertion of an inverted T-shaped chaser carrying block, an adjustable stop at one end thereof, and an adjustable micrometer at the side thereof.

7. A circular chaser gauge comprising a supporting block having a guide-way for the insertion of an inverted T-shaped chaser carrying block, said block having a recess for the reception of a guide pin projecting from said chaser carrying block, an adjustable stop at one end thereof and an adjustable micrometer at the side thereof.

8. A circular chaser gauge comprising a supporting block having a guide-way therein for the reception of a circular chaser slide and a pair of micrometer adjusting devices located transversely to each other on said block, one having a blunt end and the other a pointed end.

9. A circular chaser gauge comprising a supporting block having a guide-way therein for the reception of a circular chaser slide and a pair of micrometer adjusting devices located transversely to each other on said block, one having a blunt end and the other a pointed end, and one located in line with the guide-way and the other transversely thereto.

10. A circular chaser gauge comprising a supporting block having a guide-way therein for the reception of a circular chaser slide and a pair of micrometer adjusting devices located transversely to each other on said block, one having a blunt end and the other a pointed end, and one located in line with the guide-way and the other transversely thereto, and detachable means for carrying the last named micrometer device and attachable to either side of the supporting block.

11. A circular chaser gauge comprising a supporting block having a pair of parallel grooves and a recess therebelow for the reception of a chaser carrying member, an upstanding apron carried by said block at one end, a blunt ended micrometer carried by said apron and projecting into alignment with said recess and a transversely located pointed micrometer detachably secured to the side of the block whereby it may be attached to either side of the block for right or left hand grinding and adjustable to determine the character of the grinding to which the chaser is to be subjected.

Signed at Cleveland, Ohio, this 29th day of May, 1931.

WILLIAM J. HOGG.