

A. S. TENNANT
DIVIDING ATTACHMENT FOR LATHES

2 Sheets-Sheet 1

Fig . 1 .

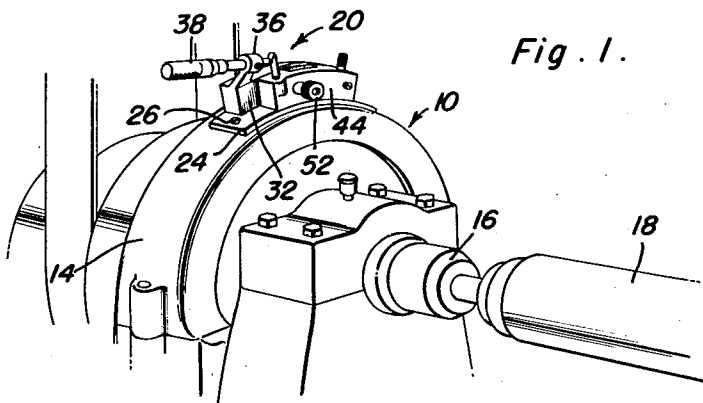


Fig. 2.

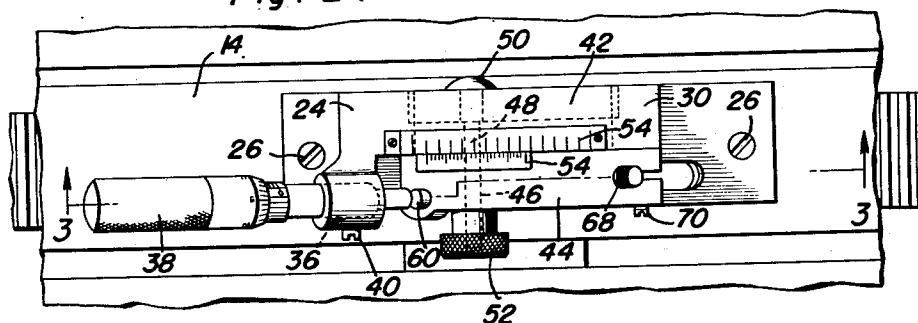
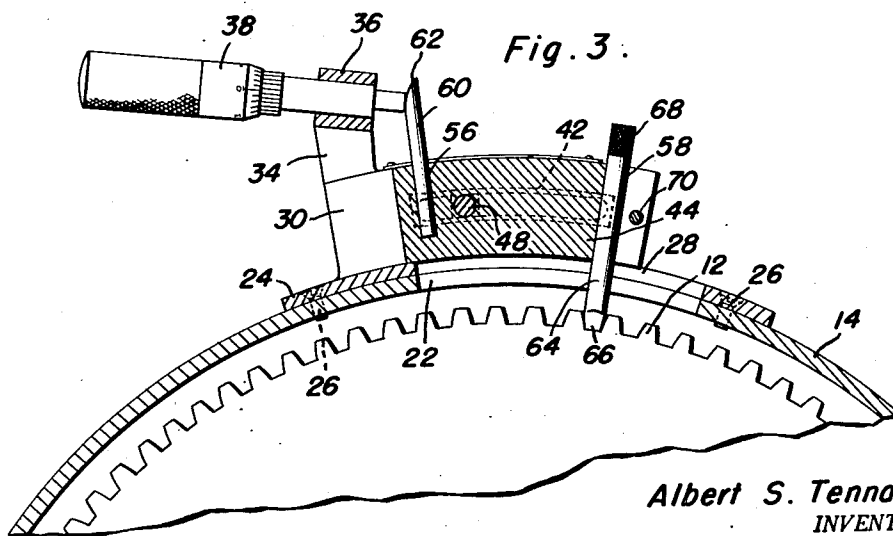


Fig. 3 :



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DIVIDING ATTACHMENT FOR LATHES

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2 Sheets-Sheet 2

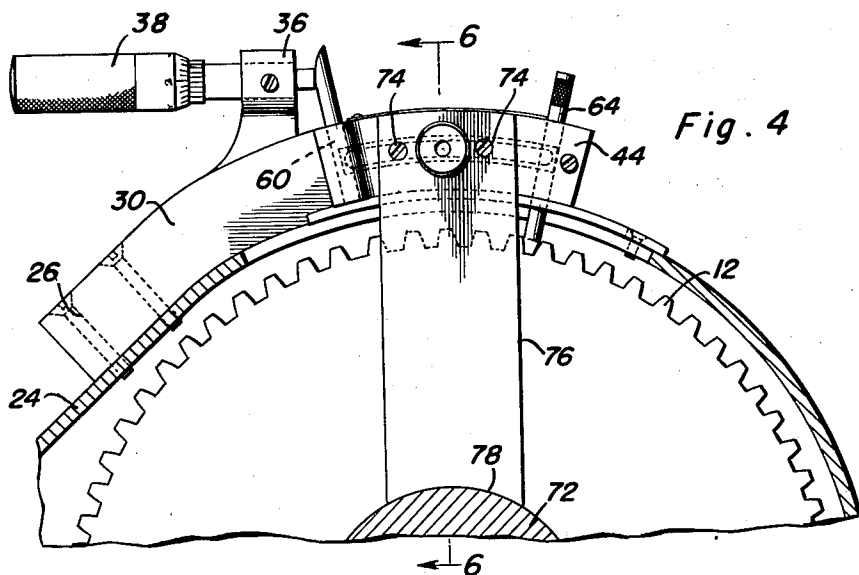


Fig. 4

Fig. 5

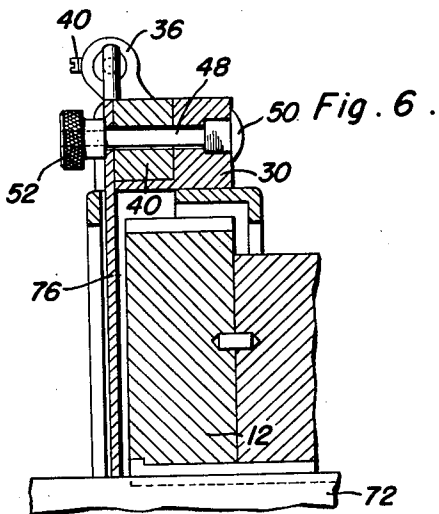
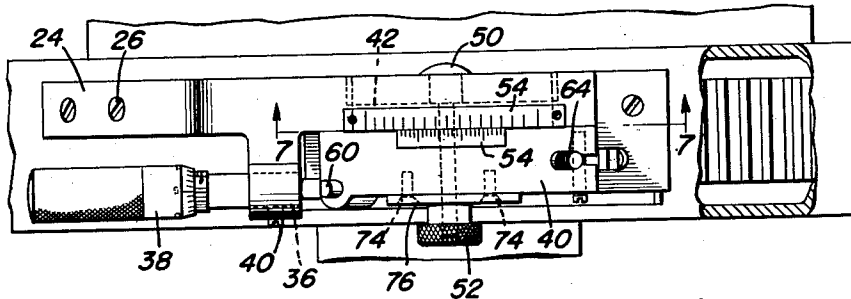


Fig. 6

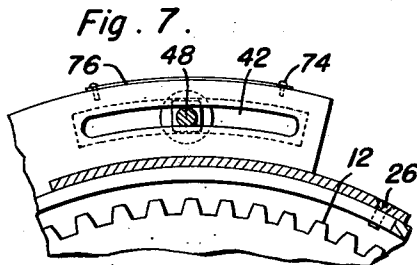


Fig. 7

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DIVIDING ATTACHMENT FOR LATHES

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2 Claims. (Cl. 90—56)

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This invention relates to improvements in dividing heads for lathes and has for an object the provision of a mechanism by means of which accurate angular rotation or adjustment of the lathe spindle may be effected.

Another important object of this invention is the provision of a novel dividing head attachment that can be completely constructed in one unit and may be adapted for use with slight modification for most small metal turning lathes.

Another object of this invention is to provide a novel dividing head attachment which can be used to engrave degree marks or a variety of other divisions on work in the lathe.

Yet another object of this invention is to provide a device of the character described for making indexing plates.

Yet another object of this invention is to provide a novel attachment for dividing heads constructed of a small number of parts and which can be manufactured inexpensively so that the small lathe owner can make his own indexing head and plate for use on the lathe compound.

These, together with various ancillary objects and features of the invention which will later become apparent as the following description proceeds, are attained by the device, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a perspective view of the attachment associated with a South Bend lathe;

Figure 2 is a top plan view of the device shown in Figure 1;

Figure 3 is a longitudinal sectional view taken substantially in the plane of section line 3—3 of Figure 2;

Figure 4 is a side elevational view of a modified form of the attachment positioned upon a Logan lathe;

Figure 5 is a top plan view of the device shown in Figure 4;

Figure 6 is a transverse sectional view taken substantially in the plane of section line 6—6 of Figure 4; and

Figure 7 is a longitudinal sectional view taken substantially in the plane of section line 7—7 of Figure 5.

Specific reference is now made to the drawings. In the several views in the accompanying drawings and in the following specification, similar reference characters indicate corresponding elements throughout.

Indicated generally at 10 is a lathe of the South Bend type having a bull gear 12 and a curved gear

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cover 14. The chuck of the lathe is shown at 16 and the work to be divided at 18.

The device of the instant invention generally indicated at 20 is secured to the gear cover 14, the structural elements of which will be described hereinafter. The gear cover 14 is provided with a longitudinally extending slot 22. The dividing attachment consists of a stationary member having an arcuated base plate 24 which is removably secured to the gear cover 14 by means of suitable screws 26. The base plate 24 is additionally provided with a longitudinally extending slot 28 which is disposed above the longitudinally extending slot 22 of the gear cover. Integral with the base plate 24 is a vertical substantially rectangular, arcuated member 30 which is positioned at the rear of the base plate and has a longitudinally extending planar face or surface 32 adjacent the slot 28. The vertical member 30 is additionally provided with an upstanding lug 34 having a circular collar 36 at the top end thereof forming a journal for a conventional micrometer 38. The micrometer is retained in adjusted position upon the collar 36 by means of a conventional set screw 40. As will be seen more clearly in Figures 2 and 3, the vertical member 30 is further provided with a longitudinally extending arcuated slot 42.

Slidably retained upon the base 24 and in front of the vertical member 30 is another arcuated substantially rectangular movable member 44 which is provided with a horizontally extending aperture 46 through which extends a bolt 48 having a head 50 abutting the outer surface of the vertical member 30, the free end of said bolt being screw threaded to receive an adjusting nut 52 at the end thereof for locking the movable member 44 upon the stationary member 30 in adjusted position. The top adjacent surfaces of the movable member and the stationary member are further provided with vernier scales 54.

At one end of the movable member 44 a vertical bore 56 partially extends into the movable member while at the other end a vertical bore 58 is provided which extends completely through the movable member. In the bore 56 a stop means in the form of an upstanding pin 60 is retained, the top end of which is arcuated as at 62 to correct the error produced between the micrometer axis and the arc which the pin 60 must follow. In the bore 58 is positioned a further pin 64 having a tapered bottom end 66 for engageably receiving the teeth of the bull gear 12. The top end of the pin 64 is preferably knurled as at 68. A set screw 70 is carried by the movable member

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44 adjacent the pin 64 for adjusting the pin in proper position in the movable member.

In the modification shown in Figures 4 through 7, the construction of the dividing attachment is exactly the same as that shown in Figures 1 to 3 except that it is adapted for attachment to a Logan lathe which has a square cover for the main gear and consequently must be attached to the bottom section of the Logan lathe gear cover, said bottom section being shown as numeral 72 in Figure 4. In other words, the end of member 30 is shaped to conform to the gear cover 24 while the movable member 44 has secured to it by means of suitable screws 74 a vertically extending plate 76 having an arcuated bottom edge 78 resting upon the spindle 72 of the Logan lathe.

To illustrate the operation of the dividing attachment of the instant invention, suppose there are 74 teeth in the bull gear and the operator desires to engrave a circle in degrees or an indexing plate of 72 holes. The micrometer is set at zero, then the movable member 44 is moved toward the micrometer until the pin 60 rests against the micrometer. The movable member 40 and the stationary member 30 are then locked with the screw 52 and the pin 64 is engaged in the gear. The bull gear is then locked, screw 52 is loosened and the movable member 44 is moved away from the micrometer a distance of two gear teeth and the pin 64 engaged again in the main gear. The movable member 44 and the stationary member 30 are again locked and the micrometer screwed until it touches pin 60 in its new position. The reading on the micrometer now indicates a distance of two main gear teeth. By dividing this distance by 72, a quotient is obtained which must be subtracted from each gear tooth setting as the circle is divided into 72 parts. The teeth to be divided or drilled are located in the chuck of the lathe and are marked by means of a sharp tool or punch in the lathe tool holder. The operator now starts at a point with the micrometer in the position screwed out at a distance of two gear teeth, with the movable member and the stationary member locked together and the pin 60 touching the micrometer. Pin 64 is engaged in any tooth of the main gear and a mark is made on the work in the lathe chuck. Pin 64 is then raised, screw 52 loosened and the micrometer backed out $\frac{1}{72}$ of the distance of two gear teeth, the movable member and stationary member re-locked, the main gear moved one gear tooth until the pin 64 can be engaged, and the above procedure repeated until the circle is divided into 72 parts. At this point, it may be the operator's desire to continue dividing the circle or work into degrees, in which case the width of one degree is computed, the micrometer moved

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the computed distance and the above procedure repeated.

The micrometer scales on the movable and stationary members are used to advantage with the micrometer when subdivisions are made, but the dividing can be accomplished with the micrometer alone.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having thus described the invention, what is claimed as new is:

1. A dividing attachment for a lathe comprising a first arcuate block having a laterally extending base adapted to be secured upon a lathe gear cover, a second arcuate block slidable on said base adjacent said first block, means for adjustably securing the blocks together, said means including aligned elongated slots in said blocks, a headed screw extending through said slots, and a nut received on the free end of said screw, a sleeve carried at one end of said first block, a micrometer received in said sleeve, a first vertical pin removably positioned through one end of said second block and engageable with a tooth of a lathe bull gear, and a second vertical pin extending upwardly from the other end of said second block and adapted to abut said micrometer.

2. The combination of claim 1 wherein said second pin includes an arcuate taper at its free end to correct the error produced between the micrometer axis and the arc in which said second pin moves.

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