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C. WILLRICH ET AL
TURRET INDICATOR AND STOP

2,797,488

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2 Sheets-Sheet 1

FIG. 1

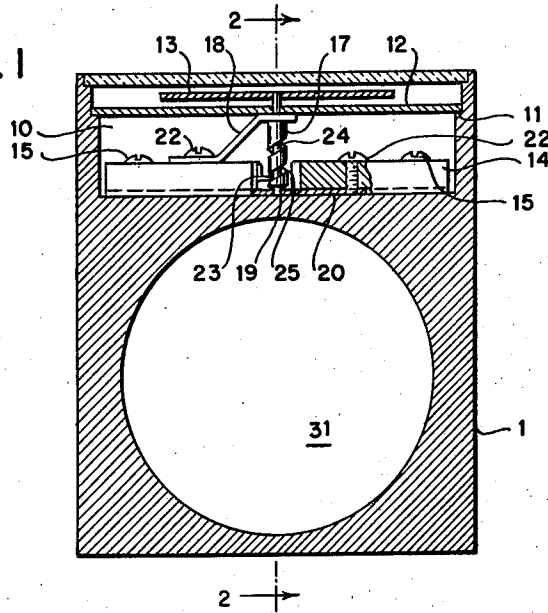
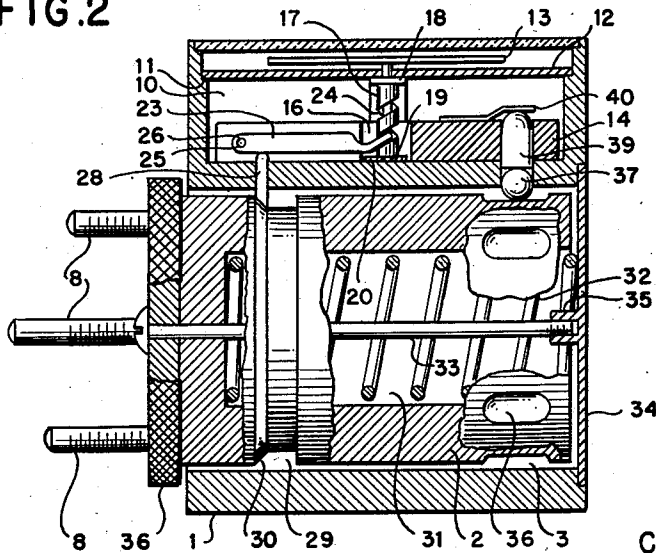


FIG. 2



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FIG. 5

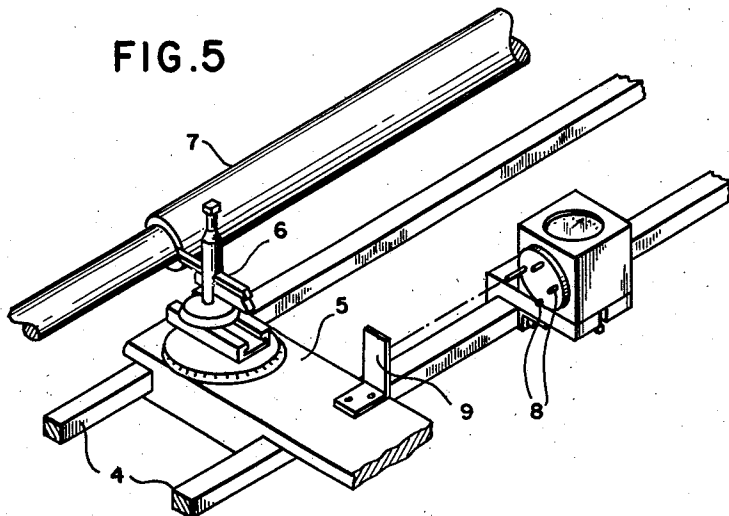


FIG. 4

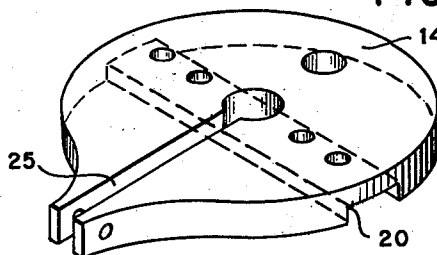
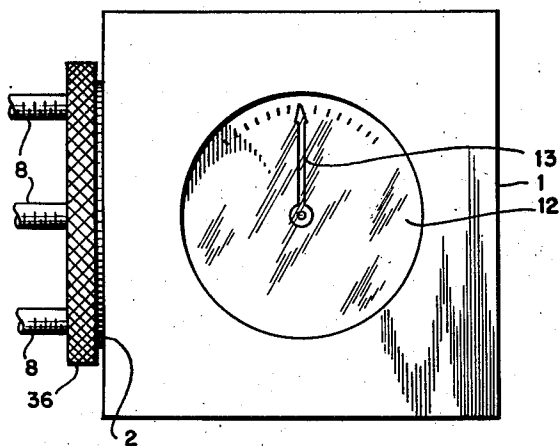


FIG. 3



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TURRET INDICATOR AND STOP

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1 Claim. (Cl. 33—125)

Our invention relates to the attachment or accessory to be mounted on machines adapted to perform various operations upon pieces of stock, so that the extent of movement of the parts of the machine which directly bring about the desired changes in the stock can be closely determined and the operation discontinued at the precise instant when the required limit is reached.

An important object of the invention is to provide an attachment which can easily be mounted without requiring any change or rearrangement of the working parts of the machine on which it is to be used, which can be readily adjusted to take effect at the selected point; and will indicate to the workman at the machine the exact length to which the operation has to be carried, for completion.

Another object is to provide such an attachment that is small and compact, strong and durable, but simple in design, certain in effect, and relatively inexpensive to make and assemble.

A further object is to provide an attachment or accessory of this kind comprising a scale bearing a dial and an index member in plain view so that the workman may be informed of the precise moment when the particular job he is doing reaches its finish.

The attachment is especially useful in the production end of a number of pieces which require the same operation throughout, so that the results can be duplicated without variations, except such as conditions permit.

These and other objects and the advantages of the device are fully and clearly set forth herein; and the novel features are pointed out in the claim. The drawings illustrate a preferred embodiment of the improvement, but the invention is not restricted to the exact construction disclosed; and numerous alterations in structural details can be adopted without deviation from the general plan containing the invention, and without omission of any of the essential characteristics.

On the drawings:

Figure 1 is a section on line 1—1 in Figure 3;

Figure 2 is a section on line 2—2 of Figure 1;

Figure 3 is a top plan of the attachment;

Figure 4 shows a detail; and

Figure 5 is a perspective view of the attachment mounted in position for use.

In the form shown on the drawings, the attachment comprises a body or block 1, preferably of metal, of any required shape, with a cylindrical barrel 2 movably mounted in a transverse bored-out chamber 3 and projecting from the front of the head or block 1. The attachment is mounted by securing it to a machine as indicated in Figure 5, on which the numeral 4 indicates the top rails or truckway of a lathe, for example, having an operating member or a tool holder 5 which travels along said rails when the machine is running. The carriage or holder 5 carries a fixed cutter 6 which peels off the surface of a piece of stock 7, the tool holder 5 being automatically pushed along the rails 4 as the work proceeds and the stock 7 being continuously rotated in the usual manner.

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The head 1 is secured to the machine in the line of travel of the tool carriage 5, and the barrel 2 has an exposed end from which several screws or studs 8 project to engage a stop 9 affixed to the carriage 5. The attachment can therefore be adjusted lengthwise of the rails 4 as may be needed. Of course the attachment can be adjustably mounted on the movable tool carrier 5, and the stop adjustably secured to the frame of the machine; and the same end will be gained.

The upper end of the block 1 is bored out to make a recess 10 having a shoulder 11, on which rests a calibrated dial 12, over which moves a pointer or index member 13. The recess extends below the shoulder 11 and on the bottom is a disk 14 secured in place by screws 15. The disk has a central opening 16 in which is an upright spindle 17 which carries the pointer 13. This spindle is rotatably mounted adjacent its upper end in a bearing member 18 affixed to the top of the disk 14, and at its lower end in a similar bearing member 19 secured in a groove 20 on the lower face of the disk 14. Screws 22 fasten the bearing members 18 and 19 in position.

The spindle 17 and pointer 13 are turned by a lever 23 which is pinned to the disk 14 and has its outer end in engagement with a spiral groove 24 in thickened body of the spindle 17, the upper and lower ends of which are reduced and occupy round apertures in the bearings 18 and 19. The disk 14 has a radial slot 25 extending into it from one edge and the lever is mounted in this slot on a pin 26 which is near the circumference. When the lever 23 is lifted, the end engaging the slot or groove 24 of course rotates the spindle 17 and impels the pointer 13 away from its position of zero reading on the dial 14 under this pointer.

The weight of the lever 23 keeps it in lowermost position, but it can be lifted by a vertical pin 28 mounted in a bore extending from the bottom of the recess 10 down into the chamber 3. The barrel 2 has an annular groove 29, one side 30 of which is bevelled or inclined, and the lower end 27 of the pin 28 is also bevelled. Hence pressure moving the barrel into the chamber will raise the pin 28 to swing the lever 23 upward and turn the spindle 17 and pointer 13.

The barrel 2 has a bore 31 extending into it from its inner end, and in this bore is a spiral spring 32 that seats against the inner end of the bore 3 and tends to force the side 30 of the groove 29 away from the pin 26. A bolt or retaining member 33 passes through an opening in the outer end of the cylinder and extends through the bore and has screw-threaded engagement with the wall 34 that is the inner end of the chamber 3. The chamber 3 may be bored through the block 1 and its inner end closed by the plate 34 fastened by screws, and this plate has a boss 35 on its inner face into which the bolt is turned.

The outer end of the barrel 2 has a milled flange 36 for turning it to bring the right stud 8 in line with the stop 9. The studs are more in number or fewer in number and protrude at different distances from the block 1. They are threaded in holes in the barrel so that they can be adjusted individually. The bolt or screw 33 is turned to draw the barrel 2 into the chamber 3 far enough for the lower end of the pin 28 to rest against the bevelled or inclined side 30 of the groove 29. The tool holder 5 is moved to position to start cutting the stock 7, and when the holder 5 has moved the required distance to turn down the stock 7 over the required length, the stud 8 in line with the stop 9 will make contact with this stop, and the pointer 13 will begin to turn with the spindle 17. The workman will then stop the lathe and note the extent to which the pointer has moved. The dial 12 may be graduated in thousandths of an inch

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and may present 60 divisions; and the workman will be sure to stop the lathe before the tolerance is exceeded. When the next piece of stock is cut down, the workman stops the lathe when the pointer 13 swings to the same mark on the scale and the two pieces of stock are thus worked to the same extent and are exact duplicates after turning. And so with each successive piece of stock. As the operation proceeds the workman may even take into account the wear on the tool 6 and allow an additional movement of the pointer before stopping the machine to compensate for such wear.

The attachment or instrument thus facilitates precision work and enables the workman to duplicate every operation with great accuracy. The attachment can of course be utilized in the same way on drills, milling machines, and other apparatus, and the attachment thus attains all the ends and serves perfectly all the purposes of our invention. The barrel 2 serves as a gauge and it can be rotated to bring any one of the studs 8 in line with the stop 9. In the outer surface of the barrel near the inner end are recesses 36 engaged by a ball stop 37 in an opening 38 of the disk 14. The ball is pressed down by a plug 39 in the opening 38, and a spring 40 on the top of the disk 14 presses on the stud and ball to hold the latter in one of the recesses, so that the barrel is maintained in position according to which stud 8 is chosen. The ball 37 prevents rotary slip of the barrel but the recesses are long enough axially to allow inward movement of the barrel to move the pin 28 and cause actuation of the pointer 13.

Having described our invention, what we believe to be new is:

An indicator attachment for a machine having a travelling operating member, said attachment comprising a body having a chamber therein with one end open at the front of said body, and a wall closing the opposite inner end of said chamber, a cylindrical barrel longitudinally

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movable and rotatably adjustable in said chamber, one end of said barrel being exposed at said open end, adjustable studs projecting from the exposed end of said barrel, a spring in said body engaging said barrel and wall and urging said barrel away from said wall, a retaining member fixed to said body and slidably engaging the barrel to hold said barrel in said chamber, said body having a recess in one side, a disk in said recess, said disk having a central opening and a radial slot extending from said opening, a spindle rotatably mounted in said opening, said spindle having a helical groove in its surface, a lever pivotally mounted in said slot and having its free end engaging said groove, a dial bearing calibrations closing said recess, a pivotally mounted index member on said spindle adjacent said dial and a pin slidably mounted in the bottom of said recess and projecting into said chamber with one end in contact with said lever, the barrel having an annular cam surface engaging the opposite end of the pin to actuate the pin and lever to move said index member upon inward movement of said barrel, the barrel having axially elongated recesses in its outer surface in the chamber and yieldable stop means carried by said body and said disk for selective engagement with one of said recesses.

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