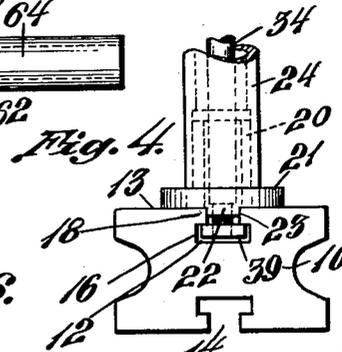
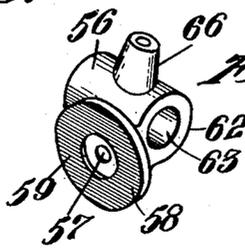
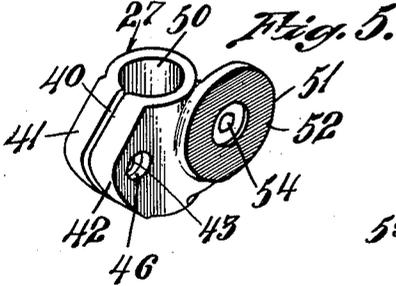
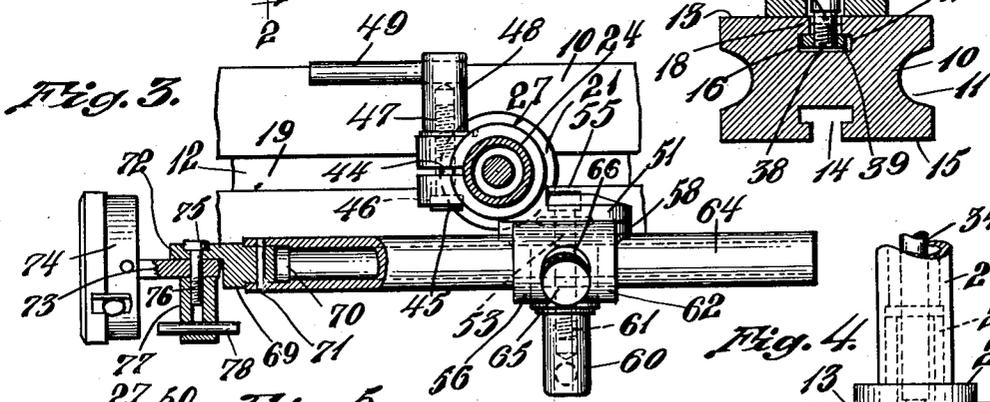
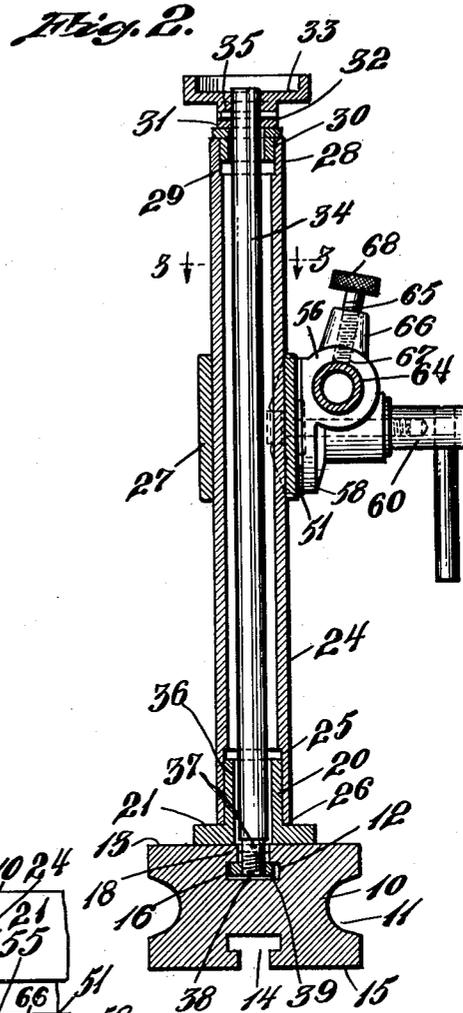
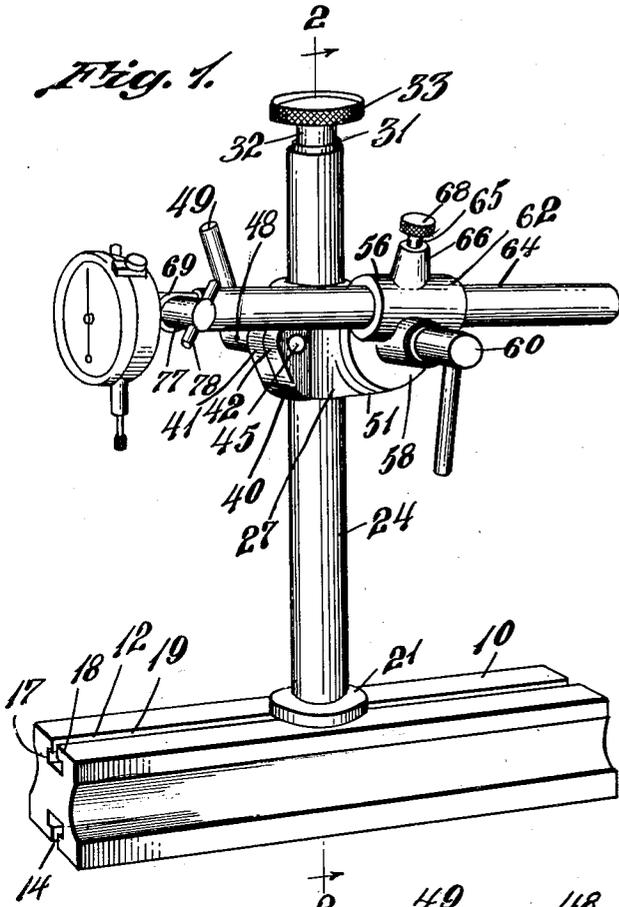


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J. W. PARKER  
DIAL TEST INDICATOR

2,124,006

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# UNITED STATES PATENT OFFICE

2,124,006

## DIAL TEST INDICATOR

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Application October 18, 1934, Serial No. 748,971

8 Claims. (Cl. 248—124)

This invention relates to a dial test indicator, and has for one of its objects the provision of means for securing the movable vertical standard in position, which means is more easily operable and accessible than the securing means which have heretofore been provided for such standards.

Another object of the invention is the provision of a securing means for the standard, which will permit the gage supporting arm to be lowered closer to the base than has heretofore been permitted.

Another object of the invention is the provision of a more efficient and smoother acting guide for the upright standard than has heretofore been provided.

Another object of the invention is the provision of means by which the standard will be slid upon a finished outer surface in its movement from one position to another rather than on the unfinished bottom of a groove so that easier sliding may be had of the standard along the base.

Another object of the invention is the provision of a lighter and yet stronger and more rigid standard extending upwardly from the base.

Another object of the invention is the provision of a standard providing increased surface for engagement with the bracket which carries the gage mounting arm.

Another object of the invention is the provision of a standard which will be stronger in proportion to its weight than standards of previous constructions.

A further object of the invention is the provision of a plurality of entirely independent adjustments so that the operator may more nicely adjust the position of the gage without exercising care in preventing the disturbing of a previous adjustment.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a perspective view of the dial test indicator complete;

Fig. 2 is a central section through the supporting standard on substantially line 2—2 of Figure 1;

Fig. 3 is a top plan view partially broken away and in section to show the connection of the gage to its supporting arm;

Fig. 4 is a fragmental detailed view showing the tongue at the lower end of the upright standard entering the slot in the base;

Fig. 5 is a perspective view of the bracket which embraces the upright standard;

Fig. 6 is a perspective view of the swivel member which is mounted on the bracket and through which the gage supporting arm extends.

The usual dial test indicator has its clamping means adjacent its base, thereby preventing the bracket which carries the gage supporting arm from being lowered close down to the base and rendering the clamping means very inaccessible especially when this bracket is in close adjacency thereto. Further, heretofore the upright support although it may be adjusted along the base, is supported in a block slidable in a groove and this block which carries the standard slides along the bottom of the groove which although milled, gives a jumpy or jerky action, and in order to improve upon this type of indicator, I have provided a clamp which is operable at the upper end of the upright standard, thereby permitting the bracket to be lowered close to the base and positioning the clamp so that it will be readily accessible at all times for easy and tighter adjustment. Further, I support the upright standard on the more highly finished upper surface of the base so that easy and even sliding action can be had along the base; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished.

With reference to the drawing, 10 designates the base which is heavy with reference to the other parts of the device and provides a firm and rigid support for the structure above it. This base is concaved as at 11 for convenience in grasping the same to move it about, and is provided with an inverted T-shaped slot as at 12 in its upper finished surface 13 and a duplicate slot 14 in the lower finished surface 15. The head portion 16 of the inverted T-shaped slot 12 provides an undercut 17 with overhanging portions 18 which have finished edges along the narrower or stem portion 19 of the T opening.

Upon the upper surface 13 of the base a bushing 20 is slidably mounted with its flange portion 21 engaging the upper finished surface 13 of the base and with a tongue projection 22 extending into the slot 19 and engaging the opposite edges 23 thereof, so that this bushing will be guided in its sliding movement by means of the opposite edges of this slot. A tubular standard 24 has a bore 25 tightly receiving the outer surface of the bushing, and at its lower end 26 engaging the flange 21. This standard being tubular is com-

paratively large in diameter and provides an enlarged engaging surface for a bracket 27 which will presently be more fully described, and is also desirably lighter and stronger than a solid standard.

The upper end 28 of the tubular standard has a bore 29 receiving a bushing 30, which bushing provides an upper abutment surface 31 for the bottom of a hub 32 of the wheel or handle 33 secured on the upper end of the rod 34 by pin 35 so that the rod may be turned by the handle. This rod 34 extends downwardly through the standard and through a bore 36 in the bushing 20, which bore is of a size larger than the slot 19 and tongue 22. The rod at its lower end is reduced in diameter as at 37 and threaded as at 38 to engage a nut 39 which is slidably received in the wider portion of the inverted T-shaped slot, and thus extends beneath the overhanging portions 18 of the base, so that as the rod 34 is rotated by means of the handle 33, the nut 39 will be drawn up tightly against the under surface of the overhanging portion 18 and a downward thrust will be transmitted from the hub 35 of the handle through the bushing 30 and tubular standard 24 to the flange 21 of the bushing 20 to force the bushing snugly against the upper surface 13 of the base, and thus this standard will be bound firmly in adjusted position along the base.

By reason of the above construction, the entire superstructure is carried by the bushing 20 which engages the surface 13 and even the rod and nut when the nut is loosened, is carried by this support so that the entire weight is supported upon the bushing, and by reason of the finished engaging surface 13 and the under finished surface of the bushing this standard may be easily and evenly slid along the base to the desired adjusted position and there easily and quickly clamped by reason of the handle 33 at the upper end of the standard.

The bracket 27 shown in perspective in Figure 5 is split as at 40 with ears 41 and 42 drilled as at 43 for the reception of a bolt 44 having a head 45 suitably sunk into a recess 46 in one of the ears while the threaded portion 47 projects beyond the other ear to receive the tubular nut 48 operated by means of a lever handle 49 for forcing the ears toward each other and contracting the opening 50 through the bracket for binding it upon the standard and holding it in adjusted position therealong. This bracket is provided with a disc-like extension 51 having a finished face 52 with a pin 53 extending through opening 54 in the center thereof. This pin is provided with a head 55 suitably sunk into the back portion of the extension and pivotally mounted upon the pin I have provided a swivel member 56 having an opening 57 in the center of a disc-like portion 58 to receive the pin 53. The face of this portion 58 has a finished surface 59 to engage the surface 52 and be bound snugly thereagainst by means of a nut 60 engaging threaded portion 61 of the pin 53 and forcing this member so that the abutments 52 and 59 snugly and firmly engage.

The swivel member 56 is provided with a sleeve portion 62 having a bore 63 to receive the tubular arm 64 which provides a substantial engaging surface and is held in adjusted position in the sleeve by means of a set screw 65 threaded thru the boss 66 so that its end 67 will engage the surface of the arm and apply sufficient pressure thereon to hold it in adjusted position. The head

68 may be knurled so as to be more easily operated by the thumb and finger.

At the outer end of the tubular arm 64 I have provided a member 69 which fits the bore 70 of this arm and is held therein by a pin 71. This member 69 is half cut away at one end 72 to receive along one of its surfaces the projecting lug 73 fixed on the back of the gage 74. This portion 72 and the lug 73 are provided with registering openings thru which the bolt 75 extends with its threaded surface 76 projecting beyond the lug and engaged by the nut 77 operated by handle 78 so that adjustment of the gage may be had at the end of the arm.

It can be seen by the above that many adjustments may be had and that each of these adjustments is secured individually and separately from any of the other adjustments so that practically any position of the gage may be had to cause it to engage work, such for instance as might be required in checking the true running of a spindle or a cutter or the inside or outside running diameter of some rotative part. The device is simple and with regard to similar devices heretofore manufactured, is stronger and more rigid, although its superstructure parts weigh less. Its operating parts are more accessible and by reason of the provision of increased bearing surfaces tighter and firmer clamping action may be had, and adjustments may be more smoothly and easily effected for obtaining greater accuracy and speed in setting the device for operation.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. In a dial test indicator, a base having a finished upper surface and a slot opening into said surface, a bushing having a flange slidable on said surface with a depending portion entering said slot and engaging the opposite sides thereof to guide said bushing and prevent rotation thereof, a tubular standard embracing said bushing and extending upwardly from said flange, and means for clamping said bushing to said surface and the standard to said bushing.
2. In a dial test indicator, a base having a finished upper surface with a slot therein, a bushing having a flange slidably engaging said surface and provided with a tongue projection extending into said slot and engaging the edges thereof to guide the bushing in its sliding movement, a tubular standard embracing said bushing and resting on said flange and extending upwardly therefrom, and means operable at the upper end of said standard for clamping it in adjusted position on said base to draw the bushing in engagement with said surface.
3. In a dial test indicator, a base having a finished upper surface with an inverted T-shaped slot therein providing undercut portions and opening into said surface, a bushing having a flange slidably engaging said surface and provided with a depending projection extending into said slot and engaging the edges thereof to guide the bushing in its movement, a tubular standard embracing said bushing and resting on said flange and extending upwardly therefrom, a nut in the undercut portions of said slot, and movable means extending through said standard and engaging the nut for drawing said nut up and the

bushing down into engagement with said surface to clamp said standard in adjusted position on said base.

5 4. In a dial test indicator, a base having a finished upper surface with an inverted T-shaped slot therein providing undercut portions and opening into said surface, a bushing having a flange slidably engaging said surface and provided with a tongue projection extending into said slot  
10 and engaging the edges thereof to guide the bushing in its movement, a tubular standard embracing said bushing and resting on said flange and extending upwardly therefrom, a nut in the undercut portions of said slot, and means including a rotatable rod extending through said  
15 standard and operable at the upper end thereof engaging said nut for drawing it up and the bushing down into engagement with said surface to clamp said standard in adjusted position.

20 5. In a dial test indicator, a base having a finished upper surface with an inverted T-shaped slot therein providing undercut portions and opening into said surface, a bushing having a flange slidably engaging said surface and provided with a bottom finished surface and a projection thereon extending into said slot and engaging the edges thereof to guide the bushing in  
25 its movement, a tubular standard embracing said bushing and resting on said flange and extending upwardly therefrom, a nut in the undercut portions of said slot, and a rotatable rod extending through said standard, a handle at the upper  
30 end having an abutting surface to engage the upper end of the standard for drawing the nut up and the bushing down into engagement with said surface to clamp the parts in adjusted position.

35 6. In a dial test indicator, a base, a tubular standard, means for slidably and non-rotatably mounting said standard on said base, means operable at the top portion of said standard for

clamping it in adjusted position, a bracket embracing said standard, independent means on one side of said bracket for securing it in adjusted position on said standard, a member  
5 swivelly mounted on said bracket provided with a sleeve, a gage supporting arm extending through said sleeve, means provided on the other side of the bracket for securing said swivel member in adjusted position on said bracket and independent  
10 means on the same side as the swivel securing means for holding the arm in adjusted position in said sleeve.

7. In a dial test indicator, a base, a tubular standard, means for slidably and non-rotatably  
15 mounting said standard on said base, means operable at the top portion of said standard for clamping it in adjusted position, a split sleeve bracket embracing said standard, a screw for contracting said bracket for securing it in adjusted position thereon, a pin extending from said  
20 bracket threaded at one end, a member pivotally mounted on said pin and provided with a sleeve, a gage supporting arm slidable through said sleeve, a nut engaging the threads of said pin for applying pressure on said member to force it  
25 against said bracket and hold it in adjusted position, a set screw threaded through said sleeve to engage said arm to hold the arm in adjusted position in said sleeve, and swivel connections at the end of said slidable arm for adjustably supporting a gage thereto.

8. In a dial test indicator, a base having a finished upper surface, a tubular standard, tongue and groove connections for slidably and non-rotatably mounting said standard on said surface  
35 of said base, and means acting through said standard and operable from the top of the standard for clamping said standard in adjusted position on said base and in engagement with said surface thereof.

40 JOHN W. PARKER.