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 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 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 slideable 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 12 provided with 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 slidable 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 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 bored 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 30, which bore is of a size larger than the slot 38. It 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 65 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 a pin 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 any adjustment 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 by the thumb and finger.
bushing down into engagement with said surface to clamp said standard in adjusted position on said base.

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 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 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.

5. 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 base, a member 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 means on the same side as the swivel securing means for holding the arm in adjusted position in said sleeve.

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 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.

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