

In Fig. 104 is shown a form of adjustable limit gauge. When used as a limit gauge the outer screw is adjusted to the maximum allowable dimension and the inner screw to the smallest allowable dimension. The work to pass inspection must pass through the outer gauge and not through the inner. This tool when used as a snap gauge is provided with but one screw. It is customary to set the gauge on a plug or other standard and by means of the jamb nut, lock the screw in position. The screws and anvils are hardened and ground.

A test indicator is a tool used in determining small variations from the true rotation of a cylindrical surface and irregularities or inaccuracies in its cylindrical truth. It can also be used in determining the inaccuracies of a plane surface, and small

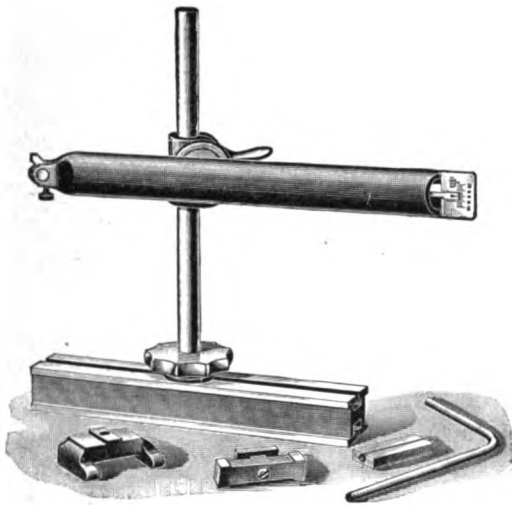


FIG. 105.

amounts of end or lateral motion, as for example, the end motion of a spindle or the deflection, give or wink between gibbed surfaces, etc. These tools are of two types; those which simply indicate, and those which give a reading that shows the exact amount of the error or untruth. In Fig. 105 is shown an instrument of the latter class. The adjustments of this tool are quite evident from the figure. The long pointer, the one end of which moves over a graduated arc with readings to one one-thousandth of an inch, as fulcrumed, bears the hardened point, which comes

in contact with the surface to be tested. The reading is magnified by the long pointer, and the zero of the scale is at the center of the arc, which reads ten-thousandths of an inch each side of this point. A light spring, secured to the pointer, and held between adjusting screws near the pivot, provides for the convenient adjustment of the pointer to the zero reading, no matter what the position of the arm.

Instruments of this character must be carefully made, and are of great value in the erection and testing of accurate machinery. When, however, only an indication of untruth is required, as in the chucking, centering or setting up of work, a much cheaper tool serves the purpose, as for example, the one shown in Fig. 106. In this tool the pointer is held in a universal socket, which is carried on the end of a bar of suitable form to clamp in the tool post of the lathe. If the point is brought against the rotating work, the amount of motion at the outer end of the pointer indicates

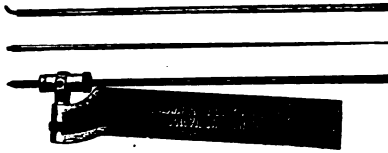


FIG. 106.

the extent to which the work is out and the way in which to move it in truing. It is a superior method of truing nice work, which will not injure its surface, as is so apt to be the case when trued to the point of a lathe tool.

One of the neat applications of this tool is in the centering of a piece of work, in the chuck or against the face plate, to a point. The sharp end of the indicator pointer is set in the point to be centered, and the work revolved. This causes the outer end of the pointer to describe a circle, the diameter of which determines how much the point is out of center. By properly setting the instrument this circle will be described around the tail center, and when the work is exactly centered the pointer remains stationary in front of the tail center.

The above serve to illustrate a few of the many applications of an exceedingly satisfactory, yet not extensively used, class of test tools.

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