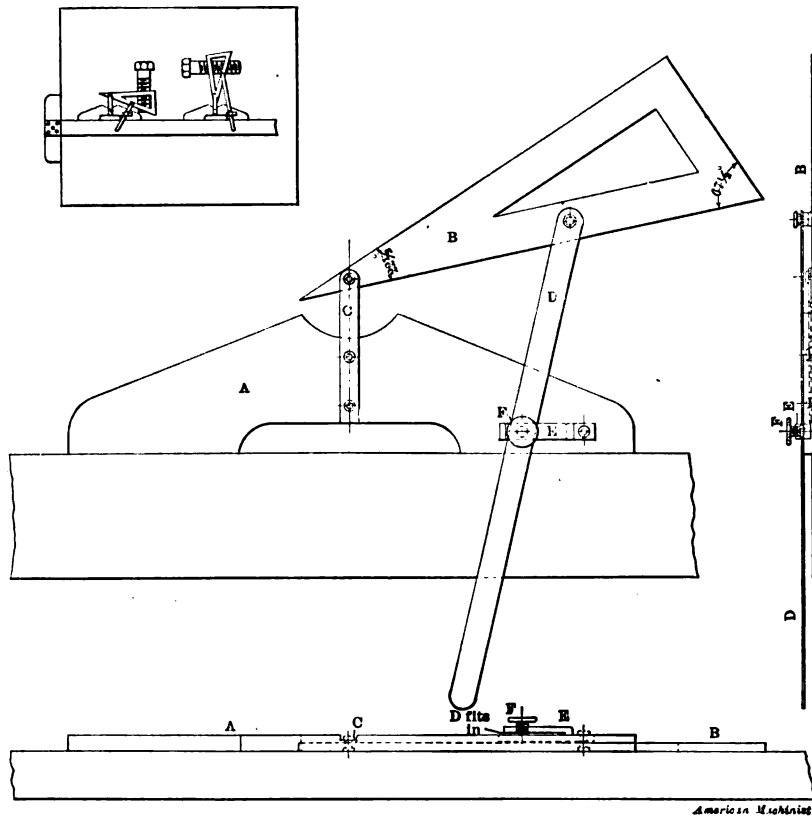


whom they do not wish to make it known, and a reply can in any event be of no substantial benefit. At any rate, it is a matter over which we have no control. We think every one who answers such an advertisement should make himself familiar with the note we publish at the head of these advertisements, and we do not believe that stamps should be enclosed or that it is any advantage to enclose them. If a business concern wishes to reply to an advertisement of this kind, it will not be burdensome to pay for the two-cent stamp necessary to place upon the letter, and they probably regard the enclosing of a stamp as simply an attempt to force them to reply—an attempt which in most cases they successfully resist. No original letters of reference or other papers of value should ever be enclosed to an unknown correspondent. Where such things are necessary, copies will answer just as well.—Ed.]

**A Draftsman's Adjustable Triangle.**

Editor American Machinist:

The accompanying sketch shows an adjustable triangle of my invention. The base *A* is made of wood and shaped as



DRAFTSMAN'S ADJUSTABLE TRIANGLE.

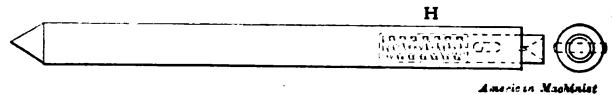
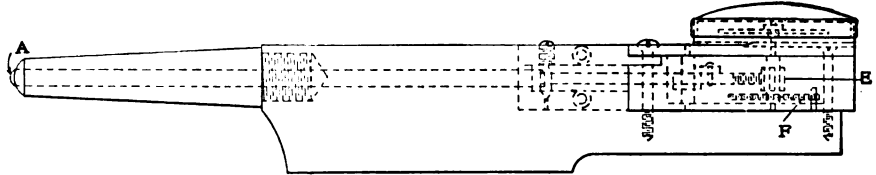
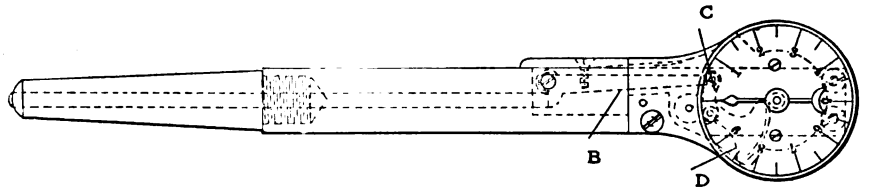
shown. *B* is a triangle of 22½ or 30 degrees and of wood. *C* and *D* are hacksaw blades, ground, polished and drilled for small screws. *E* is made of ¼-inch square steel, shaped as shown. *F* is a large thumb screw.

I have one with both 22½-degree and 30-degree triangles, and find the 30-degree the handier. I have been using it daily for about a year, and find it very useful. Many times the usual 45-, 30- and 60-

degree triangles cannot be used unless shifted and held by the hand, but with the adjustable triangle the angle is first found, and the triangle then set, giving at

eter, gives room to show errors highly magnified, the ratio being 350 to 1.

The graduations read in half-thousandths, but quarter-thousandths, or even



American Machinist

A TEST INDICATOR.

smaller amounts, can easily be estimated. The limit is ten one-thousandths—or one turn of the pointer. When in use, the plunger *A* touches the work, and any imperfection will cause it to move the lever *B*, which, through link *C*, actuates the gear segment *D* and rotates the pinion *E* with the spindle carrying the pointer. The latter is returned to zero by a volute spring *F*.

The attachment *G* is used for inside work, or for testing any surface at right angles to the indicator. The tool *H* is used in testing centers in lathe work held on the face-plate or in the chuck.

All working parts are encased, and the dial is covered with a heavy watch crystal, which makes it dust proof. A watch crystal may seem out of place in a machinist's kit, but it is a good thing, if for no other reason than that it silently demands the careful treatment such a tool deserves.

This indicator is not only adapted to lathe work, but is often found very useful when setting work in the shaper or planer, and especially in setting shaper vises perfectly true.

C. HAMER.

**Circular Planing.**

Editor American Machinist:

The sketch of the arc planing at page 1773, Vol. 26, reminds me. Being superintendent of a rolling mill near Chicago, I had to do with an engine journal brass for a 15-inch shaft which needed overhauling. The "boys" said none of our tools would bore it, and were at it with hand tools when I had it put on the planer, set the tool so that the radius to the center of the swivel plate was right, put leather washers behind the hold-down nuts of the swivel plate, set the friction tight and with

the same time the right angle to the line. The smaller view shows the use of the instrument in drawing threads.

A. W. McALPINE.

**A Test Indicator.**

Editor American Machinist:

The accompanying drawing illustrates an indicator which I designed and made. The important feature of this tool is the dial, which, though only 1½ inches diam-