There are many lathe operations which need to be initiated by truing the workpiece mounted in the chuck or on the faceplate, the reference mark being more necessary than not being a light punch dot; on the accuracy with which this mark is centred the precision of all subsequent operations may depend. Of course, if accuracy is not of prime importance it suffices to use the dead centre as a reference point.

However, sooner or later, the precision job presents itself and it becomes necessary to employ methods which will ensure a finer degree of accuracy. If the work already has a concentric turned surface a dial test indicator is the ideal instrument to use, but not everybody can afford this luxury. However, there is no earthly reason why the owner of the most modest of workshops should not possess a centre finder familiarly known as the "wobbler".

The cost can be measured in pence and a few hours of pleasurable work. In its essentials nothing could be simpler mechanically, and for those who have never got round to making one, perhaps the drawings which accompany these notes may provide that incentive.

Although this tool is simple in principle, it should possess certain essential features, and one in particular, that of flexibility, seems to have been overlooked in some of the designs which I have seen. Therefore, although there is no world-shattering novelty in the design submitted, it does combine great flexibility with accuracy in its application; once it is set up adjustments to the workpiece can be made without repeated adjustments to the wobbler itself.

As an aid to precision work this tool is invaluable. J. NIXON supplies full constructional details

The pointer is a standard length of silver steel and the full 12 in. or 13 in. of it may be used if desired, as the arm ratios are not of vital importance; the figures given in Fig. 1-a ratio of 6 to 1—ensure a fair degree of accuracy in application. The points at either end should be hardened andtempered down to a deep straw.

TRUNNION BLOCK

For the simple reason that square section material lends itself more kindly to accurate cross drilling, the pointer trunnion block (Fig. 1) is made from 1/4 in. square silver steel. Drill a hole No 56 through one side and, with a BSI Slocomb centre drill and countersink the holes at either side until the top of the countersink is 3/32 in. dia.

Set up the stock in the independent chuck and centre it very carefully; as you don't possess a wobbler this can be done by setting to the tool until all four corners just touch. After drilling the 1/8 in. hole for the pointer along the stock, turn the corners off until the turned surface just touches the edges of the countersink. Next turn the tapered ends, again until the edges of the countersink are just touched; the second tapered end will part off the piece. The pointer is sweated, or, better still, silver soldered into the trunnion block.

THE GIMBAL

For the reason given in the case of the trunnion the gimbal should also be started by selecting a length of 1/2 in. square mild steel stock. Drill cross-holes right through two adjacent faces; one, again with a No 56 followed by a BSI countersink, the other with a No 43 which is tapped 6 BA. After boring and turning to dimensions (Fig. 2) not forgetting the large radius at the mouth of the bore which permits maximum latitude to the pointer, the piece is parted off or sawn from the stock; all that remains is to repeat the radius at the parted face.

This piece should finish with four 3/16 in. square faces on the periphery.

GIMBAL FORK AND SPRING

Across-hole, 6 BA tapping (No 43), is drilled through the narrow face of the stock before cutting the gap; you may have to tap it from both ends of the hole as an ordinary 6 BA will hardly have the reach to do this operation from one end. The flat spring does not require an unusual amount of resilience or latitude, as a very small deflection will keep the pointer firmly in place as the job is turned slowly for setting. Failing spring steel for this part, an old kitchen knife can be made to serve well enough (see Fig. 3).

THE PIVOTS

The pivots should be made from silver steel and, if you so desire, you can harden and temper them. However, if the pivot bearings are filled with light grease on assembly, the
chances are that you will be able to hand down the wobbler to your grandson as a going concern!

THE STOCK

The spring (Fig. 4) is made a working fit in the slot in the stock, which is mounted in the tool post; vertical alignment of the pointer is attained by manipulation of the clamping bolt.

Although this fitting can be most useful under certain circumstances, I have a rooted objection to dismounting a carefully-adjusted turning tool except for sharpening purposes; therefore, in order to avoid this I prefer for general use an alternative method of mounting, which, incidentally, I use for the dial test indicator—when the use of this particular instrument is indicated.

MOUNTING BASE

This contrivance (Fig. 5) strongly resembles a surface gauge except that, with its solid, wide base it is much less liable to slip off the shears or tip over if accidentally touched as a surface gauge is so liable to do; being free, too, it can be moved out of the way quickly when no longer required.

The foundation of the thing will be readily recognised as an old cast-iron flat iron. If you haven't one of these defunct domestic appliances lurking in some obscure corner of the house there is no doubt that the nearest second-hand dealer will be happy to sell you one very cheaply.

First, saw off the handle. The bottom face will be smooth, of course, but not necessarily flat; therefore it should be machined so that it will stand on the shears of the lathe without rock in any position. The top face is also machined to take two slide bars, milled or planed to the section shown.

The fittings are wholly conventional, and detail drawings of them are included only to present a complete picture of the rig (Fig. 6).