

CHUCK MOUNTINGS - 2

LAST week I described how a four-jaw independent chuck can be set up in a split clamp on the slotted cross-slide of a lathe, so that work can be held for centring, drilling and machining. Various settings were mentioned to show the scope of the arrangement which, for some things, exceeds that of the vertical slide and machine vice.

Points in its favour are that the four jaws of the chuck are usually more accommodating than the two of the vice, and the chuck itself can be adjusted at angles in its mounting, or on occasion made to rotate. Even so, I do not suggest that the arrangement supersedes the vertical slide and machine vice.

This week we examine in greater detail some typical settings. The basic one, as I mentioned a week ago, is with the axis of the chuck at centre height and its face to the headstock. Looking down on it, you see it as A.

If the clamp is accurate, it should provide a precise horizontal mounting for the chuck, gripping by the boss of the backplate, so that the face of the chuck is vertical.

If you are doubtful about this there are several ways of checking alignment; and if you find an error, you can correct it by packing under the clamp.

One way of checking is to use a steel square with its stock on the bed of the lathe, and its blade up the face of the chuck. Alternatively, you can mount a test indicator in another chuck on the spindle, or on a driving plate, and let the plunger touch on the face of the four-jaw chuck. You should see the same reading top and bottom. Again, you can use the end of a cranked bar in the same way as an indicator.

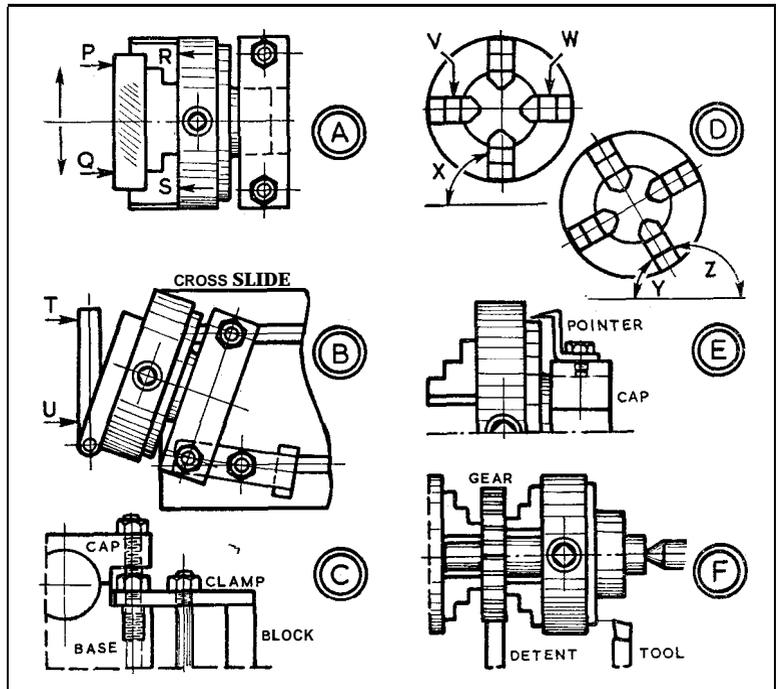
By the same principle, the cross-wise setting of the work or of the chuck can be checked. With the test indicator, you should get the same reading at points P and Q on true work, or the same clearance here when using a cranked bar. When you test on the face of the chuck, you should get the same reading or the same clearance at points R and S. The chuck mounting can be adjusted on the cross-slide for this.

The square mounting for the split

clamp and the chuck is made by bolts in the T-slots of the cross-slide, the holes and the slots having the same spacing. As a result, only small divergencies from the basic setting are possible, unless one side of the mounting is clamped to the cross-slide.

Large angles can be taken from an adjustable angle gauge, or work-

at an angle to the bed of the lathe, as at D. For a square setting, checks are made at V and W with a surface gauge or indicator; or a steel square can be used for angle X. For an angle setting, an angle gauge can be used for either of the complementary angles Y, Z. These methods and their variations are, of course, applicable to work which is part-



shop protractor, as a B, placing one side of this to the face of the chuck, or to the work, and testing points T and U on the other side. Diagram B together with C shows how the base of the mounting is clamped.

You tap the bolt hole in the base for a special stud with a larger thread at the bottom. Then a clamp or strap can be fitted to the base, with a short bolt in the T-slot and a block to take the reaction. The cap of the mounting you can fit by a nut at the top of the stud.

With the mounting square or at an angle, you can adjust the chuck in it so that the jaws are square or

machined, or on which lines have been scribed in marking off.

You can obtain further angles, or quick angular settings, after graduating the edge of the chuck backplate and fitting a pointer to the cap with a short setscrew, as at E.

Divide the backplate as at F. Centre and machine a mild-steel mandrel for a lathe change wheel. Hold one end in the three-jaw chuck, with the change wheel keyed on, grip the four-jaw chuck on the length, and support the other end by the tailstock. Use a detent to the change wheel and a pointed tool to the backplate.