

Some methods of mounting work

By GEOMETER

NOTHING is perhaps truer for the man with a lathe than that there are almost as many ways of mounting work on it as there are operations which can be performed on it.

On a variety of work especially, half the battle usually consists of suitably mounting the job; and when the subsequent operation is efficiently performed, there is no better example of the maxim that "the end justifies the means."

This is true when lathe facing operations are substituted for milling operations, which is often possible on small components where it would not be practicable on large ones. Moreover, a single-point lathe tool can then be used instead of a milling cutter, which is more costly to buy or takes longer to make.

Examples of work on which a facing operation can be substituted for a

milling operation are small connecting rods and coupling rods, which are generally machined from solid rectangular material. Owing to the length of material needed, it is not too rigid to resist cutting forces by itself, and as more and more of it is machined away its rigidity further diminishes. This means that it is essential to hold the material along its whole length, as it would be in the jaws of a machine vice were the operation to be milling.

A mounting on this principle can be made as at A. Two pieces of accurate angle iron are marked off and drilled (and reamed if needed) for the centres of the connecting rod. The material for this is similarly prepared: then it is bolted between the pieces of iron, which are clamped or bolted to the faceplate of the lathe, so that points W-X spin about the spindle centre line. Material between them is machined away to depth, including a small amount from each piece of iron.

If the bolts through the centres are too small to hold firmly, additional grip is required. It can be provided by two blocks with pressure screws. Each can be made from square material? drilled to bolt to the faceplate beside the angle iron, and drilled and tapped for two pressure screws to force up to the iron. This corresponds to the jaws of a vice.

Obviously, the angle iron must be accurate it may have to be faced. Two round plugs, as at B1, can be made and mounted to the faceplate with nuts. The two angles are clamped to them, face outwards. Alternatively, the plugs can be square, each drilled to take a bolt through the two pieces of iron. To face short pieces, which are often useful, they can be bolted to rectangular bar which is held in the four-jaw chuck, B2.

To machine the sides of a connecting rod, it can be mounted as at C. Commercial studding is used, with nuts each side of the faceplate, or with tapped distance pieces, as shown, to the front side. Each stud is turned to enter the bore of the connecting rod and is threaded for a nut. At correct location, points Y-Z spin truly. To take cutting thrust at the centre, a support screw with locknut

is fitted to a taper plug in the spindle.

Small work, which can be soldered, can be mounted on a solder chuck, for which an old valve, D1, serves when it is faced and tinned. For the tinning, the valve is held in the vice and heated with a small flame. Flux is applied, and then solder, which is spread about. Finally, all but a thin coating is wiped off with rag. The work is similarly prepared, held firmly to the valve, and soldered.

Non-solderable small work can be mounted on a small faceplate, D2, which consists basically of rectangular bar with a brazed-on stem to hold in the chuck.

To cut a large disc from sheet metal (a boiler end) the mounting can be to a wood backing, as at E: while at the other extreme, a small pinion can be mounted for boring in a split holder, F. This is made from rod, bored in the chuck, and then slit lengthwise for clamping. □

