CARE AND USE OF

CHUCKS

WORKSHOP HINTS and TIPS

By GEOMETER

IN essentials, lathe chucks are no more than specialised vices, much more complicated in construction of course than ordinary bench types, and capable of gripping a greater variety of shapes. Still, as gripping is their function, their efficiency depends upon the accuracy of their jaws, which is particularly important as they must be relied on for squareness and running truth.

With an independent chuck, for example, the squareness of end-facing on flat-sided bar material depends on the accuracy of the jaws; and in using a self-centring chuck, we rely on the quality for squareness, and also on the accuracy of centring to bring about true spinning or concentricity.

Often a bench vice will withstand a good deal of hard use, such as fitting a pipe on its handle for extra leverage, gripping at the side of its jaws instead of centrally, hammering to bend or straighten material; while neglect to clean the handle and slide results in sticking and wearing. Obviously, these are in the category of " Don'ts " if efficiency is to be maintained. Broadly, but more emphatically, and for like reason, the same or similar actions are to be avoided with lathe chucks.

Clogging of jaws, screws or scrolls of chucks with swarf or fragmented metal is not usually a problem, except in boring operations. In ordinary use, a centre can remain in the spindle taper, or a cork be used instead, while a well-fitting rubber disc, ***A,*** next to the chuck backplate, prevents particles of metal from entering any exposed threads. Usually, of course, it is advisable to stand a chuck with its jaws down, to keep metal out of the threads; and always before a chuck is fitted, the threads in the backplate and on the spindle nose, and the faces of both, should be examined and, if necessary, cleaned.

After right-through boring operations, when metal particles have been whirled in a chuck, their presence often prevents its jaws from being opened freely. Rather than strain and indent the threads by forcibly opening the jaws, they should be closed in when the work has been removed; the chuck is-taken off, and cleaning is done from the back with paraffin, a brush or syringe. In a bad case, the backplate should be removed, ***B,*** to clean the vital threads Y. Graphite grease or special assembling paste can be used on threads and jaws of chucks to promote smooth working and guard against wear.

There is often no choice but to grip components or material near the ends of the chuck jaws, which in time results in strain and wear. It is to be avoided when possible, especially as a much firmer and more accurate hold always follows from placing material well into a chuck. Sometimes narrow material can be held as effectively by reversing the jaws of an independent chuck, C right, as by using them normally, C left. At the same time they are aligned. Gripping large diameters like this gives the additional advantage that the jaws remain guided, often full length, in the body of the chuck.

In fitting a chuck, it should go to the shoulder on the lathe spindle with a well-regulated bump, to fit firmly but not with excessive trghtness. Removal should not then be a problem. On a back-geared lathe, this can be effected by using backgear with a broad-based block on the bed up to a jaw of the chuck. For an independent chuck which is narrow, with its jaws above the gap, a long bar, ***D,*** can be used to the bed for removal

Using' a cup-type grinding wheel, worn chuck jaws can be trued on the lathe with a set-up of each on the vertical slide. Those of a self-centring chuck have to be ground for centring work, and so a check should be made, ***E,*** for wobble with material gripped. The jaw with the lowest reading is ground first, ***F,*** to dimension Z; then the others are longer than Z according to their wobble. To set each jaw on the slide, a pair of parallel steel blocks can be fitted to it on the chuck, and then transferred with it to the slide, where they are clamped. El