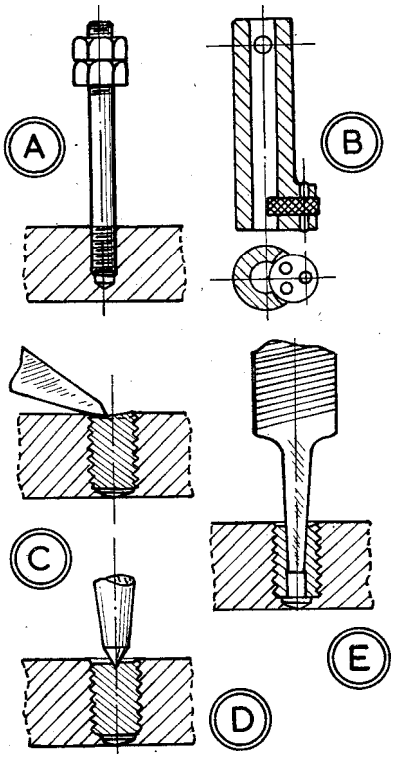
STUD FITTING AND REMOVAL



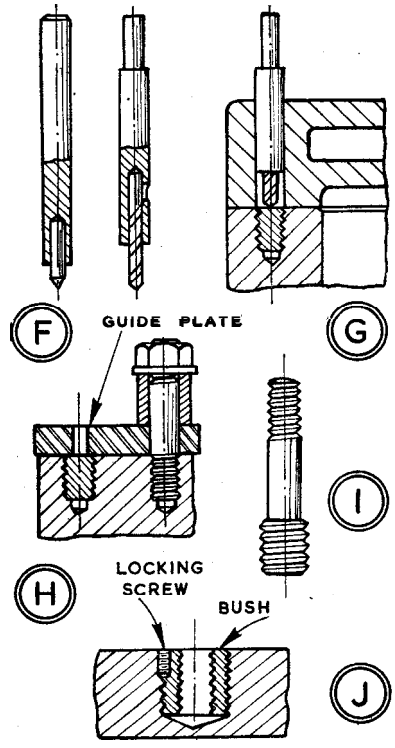
IN ASSEMBLIES where bolts would be impracticable, studs are an alternative to setscrews and, being permanently fitted, possess advantages.

Obviously there is no wear of threads in holes fitted with studs, nor possibility of mistakes in assemblies where different lengths of setscrews would be needed-mistakes such as the fitting of too-short setscrews with the danger of stripped threads, or the opposite, over-long setscrews which bottom m the holes.

With studs, too, once they are fitted there is no chance of foreign matter entering their holes, as can occur when setscrews are removed. Studs also provide location for the components fitted on them-which, at times, when space is limited., is their only disadvantageyb compartson with setscrews, for with studs it is essential there is distance to present components squarely.

Employing a pair of nuts, ***A***, locked tightly with spanners, a stud may be fitted turning on the top one, or removed turning on the bottom one. On the stud being in place in fitting, the bottom nut should be slackened rather than the top one, to obviate the tendency to loosening.

When studs are numerous, as on a motor cylinder block, the tool at ***B*** is useful. This consists of a sleeve fitting over studs and havmg at the. bottom an eccentrically-mounted knurled roller feeding and gripping automatically on turning the tool with a tommy bar. Several holes in the roller provide for shifting its position as the knurling wears. The tool marks studs on which it is used, the same as would grips or pliers, so it is not always advisable to use it.



A hole to take a stud should be slightly chamfered to avoid the beginning of the thread lifting; and if the material is light-alloy it should not be overlooked that studs may have different threads at opposite ends-course threads (Whit.) to screw into the component, fine threads (B.S.F.) to take the nuts.

A stud tight to remove may be lightly hammered on the end to break adhesion from rust or corrosion, and treated with paraffin or penetrating oil.

Broken studs

The end of a broken stud which cannot be gripped by pliers can sometimes be turned with a centre punch and hammer. Normally, however, drilling out is necessary. If rough and sloping, the broken end should be filed, or levelled by chiselling, C, then, with a centre punch, carefully centred, ***D***.

To begin the hole; a small drill is advisable, changing it for another sufficiently substantial to drill without the risk of breakage, and enlarging on this if the stud demands it.

An attempt at'removal may be made using the tang of a file which has been ground to sharpen the corners. This is tapped into the hole, ***E,*** and a spanner used on it. The stud remaining firm, discretion is needed not to wring off the tang in the hole. Extreme caution is also necessary when using " Easy-Out " stud removal tools of the type having a left-hand taper spiral which bites into the hole.

The top component can afford a guide when centring and drilling if a lathe is available for drilling mild-steel holders, ***F,*** to take a silver-steel centre punch and small drill, which latter can be soldered in. These ensure that the hole is commenced and drilled centrally, G, and afterwards, if it has to be enlarged, there is little chance of its moving eccentrically. Alternatively, a guide plate,, ***H,*** can be made to clamp from an adjacent stud.

When the threads in a stud hole are stripped and it cannot be deepened, the choice rests between the next size larger stud, if possible, a special stepped stud, I, or a threaded bush ***J,*** to return the hole to standard size. The last when fitted should be fixed with a locking screw as shown., in a hole drilled and tapped half the bush, half in the component. ❑