

## supporting and steadying

By Geometer

**T**HERE ARE TIMES when even the simplest operation would be greatly facilitated if one had a third hand. In some instances, of course, work cannot proceed unless assistance is available or means are devised to enable one to work single handed. This is especially pertinent when long or weighty material has to be mounted with one end in the vice, or a pedestal or bench drilling machine is employed for parts which are extensive or overhanging.

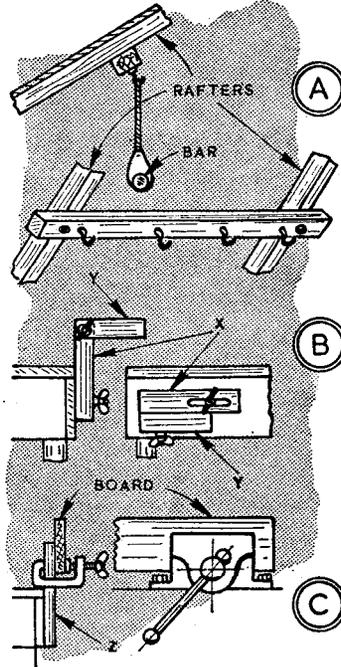
Ordinarily, gripping material in the vice presents no problem. It can be held with one hand while the vice is tightened with the other. If it is heavy but short and needs to be mounted centrally at a certain height out of the vice jaws, a piece of wood or similar packing can be laid in the jaws on the slide and the material rested on this while the vice is tightened.

Again, should such a piece of material be no longer than a comfortable arm's reach, one can still hold the distant end and operate the vice handle oneself. Beyond this length, however, the distant end must be supported in some manner.

Nor is it a question only of initial mounting, for often the support must be maintained. A piece of heavy steel bar, for example, will twist in the vice and descend when let go—or if extremely heavy pressure is applied the vice may be unnecessarily strained and lighter material, like a board, may have to be gripped so hard that the vice jaws leave marks.

In a low building it is generally convenient to support from the roof via a cord or piece of light chain. To find the spot where the support needs to be, the material is placed one end in the vice jaws, the other on the floor, then a plumb-line (a weight on a string) carried up from the floor to the roof where a bent nail or screw hook can be placed in a nearby rafter

if cord is used it should be tied to a wire ring or loop in which the material rests as cord alone grips the material, which then proves more difficult to move along. If chain is used it can be looped round the



material and a bolt passed through the links—which also affords a means of height adjustment. Should the support line come between rafters a member can be fixed across them, when, if desired, a number of hooks can be fitted, A.

### Bench supports

Brackets or supports attached to the bench are other means of maintaining the distant end of material level with vice jaws. The type at B is compact, adjustable, folds down to the bench when not in use and may be constructed either from light angle iron or wood about 1-1/2 in. square.

Part x swings up and may be slotted to set for height while part y turns out horizontally. Fixing can be by bolts and wing nuts.

Support for the distant end of a board when planing the edge may be provided, C, by attaching a strip of wood, z, vertically to the front of the bench, then gripping the board with a clamp. Should such a mounting be impracticable, however, alternative means of mounting are inverted boxes

on the floor with pieces of square or similar wood nailed or screwed to the bottom. These form a channel in which the board can be placed vertically, D. Endwise movement of the board, under plane pressure, is prevented by a crossblock at the end of the channel.

Boxes also provide support when strip sawing or splitting boards. For a narrow strip, clamping to the side of a box is convenient, E, when a bolt may be used instead of a clamp. For cutting down a length two boxes may be spaced, F, one having a nailed-on guide to align the board while the saw, passing down the marked line, is kept central between the boxes.

Support of a different nature to hold small parts in alignment for soldering, brazing, etc., may be provided as G. The parts may be laid or clipped on strip metal supports and these pressed into sand in a box or held while sand is packed round them—a method avoiding strain.

