

where the wood is purchased. These two faces are the ones which butt together, the junction forming the line of the bend.

The hinges used must be of a solid type, capable of handling the rather severe stresses involved without straining, since any sloppiness at this point will adversely affect the accuracy and usefulness of the device.

The ones we used measured 4in square when opened flat and were made from 16-gauge steel. They appear to be more than adequate and it is possible that smaller ones may have been suitable. However, considering that the extra cost is only a few pence, there would seem to be little point in not using the larger ones.

EXTRA HOLES

Our only modification was to drill a couple of extra holes in each wing, since those provided were further away from the pin than we thought desirable for work of this kind. The holes were $\frac{1}{2}$ in diameter countersunk and we used $1\frac{1}{2}$ in x $\frac{1}{2}$ in countersunk steel screws, with appropriate nuts and washers, to fasten them to the wood.

The location of the hinges, relative to the junction of the two pieces of wood, is most important and worth considering in detail. When the upper piece of wood is moved through 90 degrees during the bending process the front edges of both pieces should, ideally, remain in contact. In practice, something less than this can probably be tolerated, but we managed to achieve it without a great deal of trouble.

One result of incorrect alignment is that the upper section moves forward from the lower one at the same time as it folds over. This is serious if the amount of metal being bent is less than the gap so formed because, obviously, the fold cannot be completed.

The effect is brought about by the centre of the hinge pin being forward of the bending face, as when the hinges are mounted directly on the wood without recessing.

The other fault, which may or may not occur with that just mentioned, is that the bending face of the upper portion finishes its movement in a line above or below the upper edge of the lower portion. This makes it difficult to set the work out correctly before bending and to allow accurately for the thickness of the material.

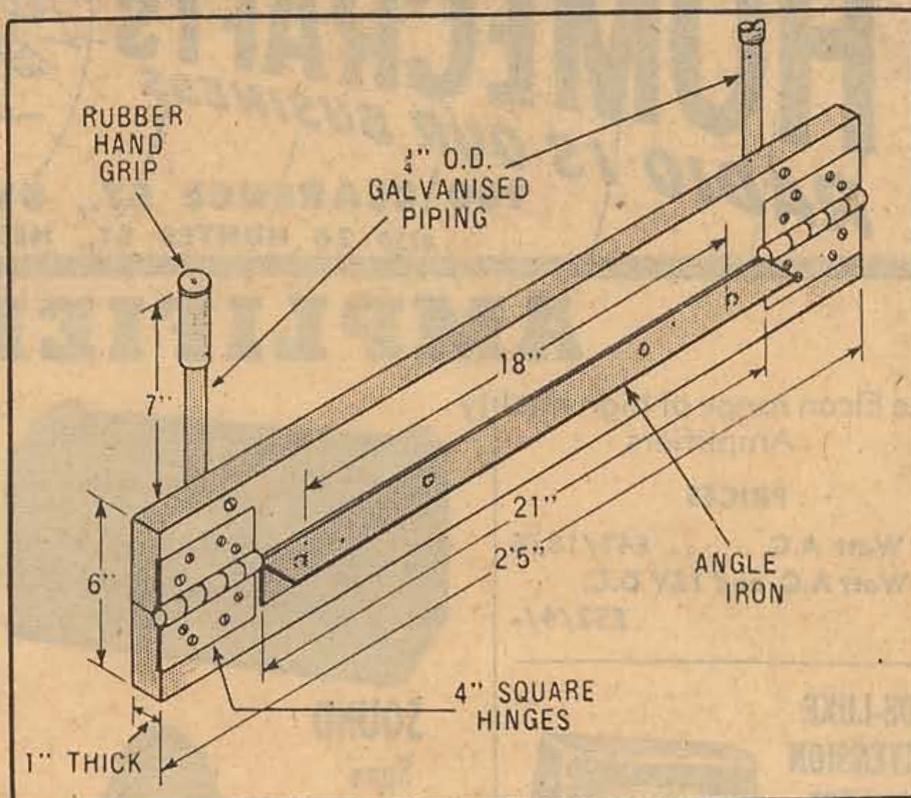
It is caused by the centre of the hinge being above or below the junction of the two pieces of wood.

CORRECT POSITION

Ideally, the centre of the hinge pin should correspond exactly with a vertical line formed by the face of the two pieces of wood, and with a horizontal line passing through their junction.

To satisfy the first requirement it is necessary to recess the hinges into both pieces of wood by a depth approximately equal to the thickness of the metal. Once again some carpentry is called for, but even the beginner should be able to make a satisfactory job with a sharp chisel and some patience.

GENERAL LAYOUT OF FOLDER



This diagram shows the main features of construction.

The second requirement simply calls for care in placing the hinges before finally bolting them into place, it being a good idea to allow a little leeway in the recessed portion to permit some adjustment as required. This final adjustment is easier if the hinges can be held temporarily while the movement is checked and before the mounting holes in the wood are finally drilled.

MOUNTING METHOD

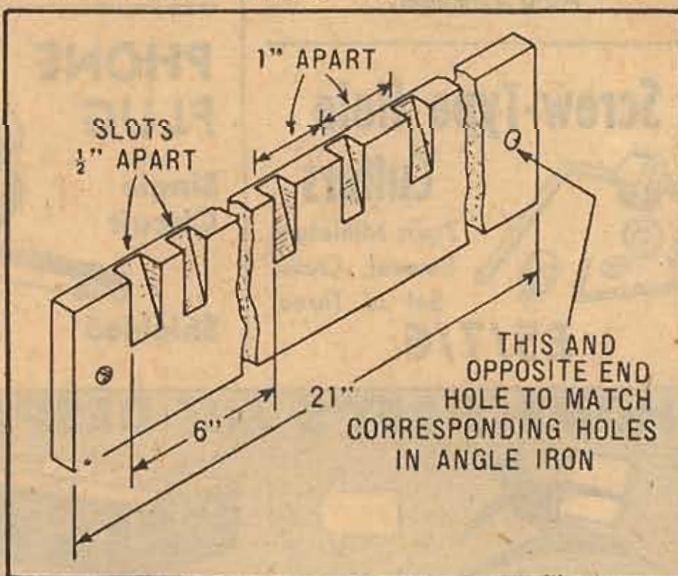
One idea is to drill only one mounting hole for each wing of the two hinges, making the hole slightly oversize, and use these to hold the hinges while the movement is checked. If it is not correct the hinge may be moved slightly as required, and, when a satisfactory placing is found, the remaining holes may be drilled, correct size, and the bolts fitted.

In our case we used one of the hinge mounting bolts to attach a handle to each end of the upper portion. The screw will ob-

viously have to be longer than the others by the thickness of the handle.

Our handles were made from a scrap length of heavy duty galvanised conduit approximately $\frac{1}{2}$ in outside diameter. About 10in is required for each, and, after allowing for mounting, the effective length is about 7in. This provides adequate leverage and, in fact, it is undesirable to provide excessive leverage, since one may be tempted to tackle jobs too heavy for the device.

A second support point for each handle is provided by a bolt through the wood into a tapped hole in the pipe. We used another $1\frac{1}{2}$ in x $\frac{1}{2}$ in countersunk bolt for this and the support point is near the top of



How the grooves are cut in the metal strip.