Think again

more constructional ideas by Jim Whittaker

(Historical & Manchester MRS)

ALTHOUGH probably not easy to achieve, I think most modellers would agree that it is at least commendable to continually try to improve one's standard of workmanship and the historical accuracy of a model as one's experience and knowledge grows over the years.

Looking back, in making a particular component, I have, too often, accepted the first material or method of construction that comes to hand and, of course, the results leave much to be desired.

More thought, before commencement, doesn't necessarily mean taking longer over the model (sometimes quite the contrary) but, in my view, two good models are preferable to perhaps five indifferent ones.

Basically, I now try to critically re-examine every component being made. Does it really look like the prototype? If not, can I make it so? As a result, there is little doubt that a better quality of model is now being produced and in this article I hope to illustrate my point by concentrating on a particularly difficult component used in considerable quantities on both passenger and goods stock and therefore worth much thought and experiment, I refer to Ventilator Bonnets.

My first efforts were based on the use of .035in thick plywood sheet cut into strips approximately 3in long by $\frac{3}{32}$in wide, then grooved longitudinally with an Exacto blade and gramophone needle to form the "louvres" and finally cut to length and the corners rounded with sand paper, resulting in something like fig. 1. These always looked scruffy and bitty, probably through using wood and I couldn't achieve a sharp, clean appearance so necessary in 4mm scale. Good quality paper card about .008in thick was chosen as the next medium and this was cut into 3 or 4 different strip widths, according to the number of louvres required, all strips being of a convenient length (about 3in for ease of handling). These strips were stuck together with gum arabic, forming the section shown in fig. 2 and then the 3in length was cut up to the bonnet length required and each corner of the bonnet nipped off to form a radius, using an Exacto blade throughout. These looked far better than one might imagine, especially when positioned on the vehicle, but it was difficult to stick the paper strips exactly parallel with each other and it was felt that with perseverance, something more like the prototype might be achieved.

I then discovered that some 4mm bonnets (soft metal castings) were available commercially at a very modest price and I bought several dozen, intending to use them as a pattern for my own casting efforts and to generally experiment with the "casting approach" since, of course, more than one size of bonnet was required.

Followed many hours trying out various moulds using Plaster of Paris, Silkoset Rubber, and other materials, along with different "casting" agents, including Araldite and lead, but with no worthwhile results, either in quality or speed of production. I had difficulty convincing the neighbours that I wasn't minting half crowns—no wonder—the workshop was littered with plaster moulds and scrap lead! However, the dawn comes eventually—this time in the shape of a fellow member, who immediately came up with "Have you thought of trying to apply that lead punching technique of yours—it might work" (described in April '67 *mrc*).

It did, and the results obtained helped a little to assuage the disgust of my overlooking this already established method—one with which I am completely familiar and use regularly. The bonnets really started to roll from the production line!

All that was required was a scrap piece of mild steel rod for the punch and some lead for the bottom die. The procedure was as follows:—

(1) Using a piece of mild steel rod about $\frac{1}{4}$in diameter by 4in long, saw and file the rectangular punch (fig. 3) to the particular outside dimentions of the bonnet you require.

(2) Using a standard Eclipse .006in wide coping saw blade (80 teeth per inch) sawcut three slots longitudinally on the punch face to a depth of approximately .020in. The position of these three slots is done by "sighting"—the aim being to produce four faces of equal width (see fig. 4). Some of the earlier GWR bonnets are nearly square and with more louvres—in this case additional slots are put into the punch as required.

(3) Using a smooth file, radius all edges of the punch—the perimeter and all slots. The perimeter needs a substantial radius—say .020in, otherwise the punch in action will tend to pierce the metal strip instead of drawing and embossing (see fig. 5).

After a final polish all over with fine emery paper, the punch is now ready for use (no hardening is required).

(1) The material used was .005in thick soft copper strip. This is placed over a lead base or die, the punch then placed on the copper strip and given two or three sharp blows with the hammer. This produces the effect shown in fig. 6. It will be found that the copper will be slightly distorted ("pulled") at position "X" on fig. 6 and to smooth this out, I simply pinch with a pair of smooth pliers.

(2) Whilst the bonnet is still integral with the copper strip, the recess formed by the drawing and embossing operation above is then filled up with soft solder. This gives useful added strength to the bonnet for subsequent handling operations, but the main purpose is to provide a flat surface at the back for glueing to the vehicle body.

(3) Cut out the bonnet from the copper strip by trimming round its perimeter with scissors or tin snips and finally clean up the back face of the bonnet as required with a smooth file.

(4) Remove all traces of flux with the usual degreasers, before painting. As one might expect, the finished bonnet is clean and sharp and its production time can be measured in minutes—particularly important in view of the quantity involved per vehicle.

NOTE:—

In my previous article, already referred to, describing this punching technique, I used a sheet of approximately $\frac{1}{8}$in thick lead sheet for the bottom die. I now find it better to use any odd pieces of scrap lead melted down in a Woolworth's flat metal dish of substantial thickness to prevent distortion of the base due to heat. Thus, when the lead is full of punched indentations, I simply put the lot on the gas ring for a few minutes to produce a nice flat surface again for re-use. I'm told that melted lead should be kept well away from water, otherwise an explosion would result, so just watch this point if you decide to try it out.

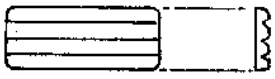

Fig 1

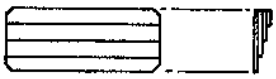

Fig 2

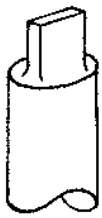

Fig 3

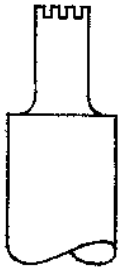

Fig 4

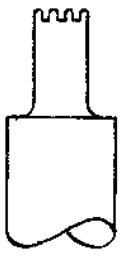

Fig 5

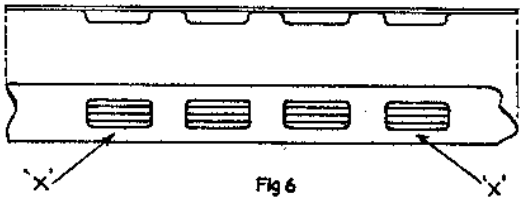

Fig 6