24. Bend two pieces of $\frac{3}{32}$ in. wire as shown in photo 22. Solder in place on swing arm. Try not to unsolder the short pieces of $\frac{1}{16}$ in. rod as they are there to prevent the chassis from being bashed to the side over the swing arm in the unlikely event of a shunt. Cut off excess wire as seen in photo.

Springs and Things

25. Bend two floppy springs out of super fine spring wire, about .010 in. to .015 in., and solder in place as in photo of finished frame. Don't apply heat too long or you will unsolder hinge tubes.
Cut a piece of $\frac{1}{32}$ in. wire $2\frac{1}{4}$ in. long. Lay in place on right side of swing arm with front end on top of the tie bar (see step 20). Solder only $\frac{1}{2}$ in. of this wire to swing arm at rear end (in front of swing arm hinge).

SWING ARM

A Use available pre-made swing arm cut and modified to dimensions in photo 23 or make up from .050 brass sheet to same dimensions. Use guide pivot block made of .050 in. brass as seen in photo 23.

B Cut two pieces of $\frac{3}{32}$ in. o.d. x $\frac{1}{16}$ in. i.d. tubing $\frac{3}{4}$ in. long and solder to swing arm. These are the plumber hinge tubes. Be sure they are in direct line with each other. See photo 23.

C Cut a 3 in. piece of .055 in. piano wire and lay in place under guide tongue and in front of plumber hinge tubes. (It may be necessary to grind or file away part of this wire to allow swing arm to lay flat on jig.) Solder wire to plumber hinge tubes and guide tongue. See photos for top and bottom views. This wire acts as a nerf bar to prevent batpans from being knocked off in a crash. Cut two 2 in. pieces of brass rod and square off one end of each piece. Lay rod along edge of swing arm with finished end of rod against plumber hinge tube. Solder only the end $\frac{3}{8}$ in. of an inch to the swing arm. Measure $\frac{1}{4}$ in. from finished end, mark, and cut off excess rod at mark. Clean off excess solder. Don't ask why – just do it.

Setting Up Rear Axle and Motor Assembly

1. Cut a piece of $\frac{1}{4}$ in. i.d. x $\frac{3}{32}$ in. o.d. tubing $1\frac{1}{16}$ in. long for rear axle tubing, be sure ends are cut square or the ball bearings will not be properly aligned.
2. Notch axle tube as shown in photo 24. The square part of the notch is to clear the bullet proof plates on motor. Photo number 25 shows how bullet proof plates bearing plate and heat sink caps must be modified to fit motor into chassis.
3. Set up rear axle assembly as shown in photo housing gears, wheels and tyres of your choice. I have been using Cox gears on my own cars because of their light weight, smooth mesh, minimum power loss, and they allow quite low motor angle. Use one space between the bear and bearing, and as many spacers as necessary at the other end to make your outside to outside (of tyres) dimension $3\frac{1}{16}$ in. Replace racing wheels and tyres with jig wheels (don't forget the spacers).
4. Modify production bracket as seen in photo 27. This is done to reduce high weight and lower chassis c.g. The use of $\frac{1}{16}$ in. tubing and $\frac{1}{32}$ in. wire in swing arm hinge instead of the 'old faithful' $\frac{3}{32}$ in. tubing and $\frac{1}{16}$ in. wire is also to beat the high c.g. devil. Screw bracket to jig motor centring it as much as possible.
5. Put rear axle assembly into jig. If you are using Cox 34- or 36-tooth gears, it will be necessary to cut or file off a few teeth on the bottom of the gear to allow the jig wheel on gear side to touch. Jig motor – and old endbell, can, and clapped out armature, just be sure they are the same type as the motor you plan to use in the chassis. Hold jig motor in place against rear axle tube with a piece of $\frac{1}{16}$ in. rod or wire between bracket and gear. Mesh gears and tack solder motor to rear axle tube.

If you've come this far with me I sure hope the frame works as well for you as it did for me at the Open Meeting. Thanks for your patience and tolerance. See you at the next Open Meeting – I hope !

BOB EMOTT.