Making B Accumulators from Old Battery Plates

MR. J. B. BARRINGTON, Marton, an enthusiastic constructor, supplies information as to a method of making B accumulators from old car battery plates, an idea which is said to have turned out very satisfactorily. The cost of such a battery is stated to be about 5s. per 100-volt unit.

Old battery plates can be obtained at most garages for a small sum. The C.A.V. and "Mac" dry plates especially are stated to be good at any age or condition. Plates that have been allowed to dry for a length of time should be avoided, as the negatives may be found hard and useless. Keep the negative plates under water except when cutting up and soldering. Positive plates are not harmed by exposure, and must be thoroughly dry before cutting. The plates are cut up with a fine hack-saw, containing a new blade.

The Containers.

THE requisite number of small glass jars must be collected, 3½ to 4½in deep and 1 to 1½ wide at the mouth. These jars are used for various kinds of paste for table use, and may be arranged in rows in a suitable box.

The Plates.

The question of ribs in the grids is immaterial, providing each small plate has at one end, a portion of the outer frame which is found round the grid of the original plates. To this end the bridge which couples the negative and positive plates will be soldered. The constructor who does not consider himself an expert at soldering need not feel timid at undertaking this job for a clumsy, bulky joint will last longer in acid than the nice-looking, neat one.

The bridges should be of fairly heavy sheet lead, ¼ to 3-8ths in. wide, so that it offers a good surface for making a strong joint. The length of the bridges will depend on the size of the containers. It is therefore a good plan to stand the required number of jars in their respective rows, then cut the bridges to the possibly varying lengths.

Soldering Plates to Bridges.

The plates and bridges having been cut to the required sizes and the parts to be soldered thoroughly scraped with a file or knife (the whole surface of the bridges will have to be cleaned on both sides) lay the plate and bridge down end-to-end, allowing a slight opening between them, say 1-64thin. On no account attempt to lap the bridge over the plate. There is a little knack in the actual soldering which if the constructor can grasp, he will find this part of the job easy. Wrap a piece of soft cloth round the thumb of your left hand. With your hot copper drop a liberal supply of resin core solder on the place to be joined. Now place the tip of the little finger of the left hand at the extreme end of the plate and the thumb of the same hand on the bridge. Then touch the solder on the joint with the hot copper point until you notice the solder bubble, instantly giving the plate a push towards the bridge, and holding it in position until the solder has set. When dropping the solder on the joint, hold the solder and copper just over the joint. Avoid touching the lead with the copper point as if you do this the copper will require tinning after every two or three joints.

The Separators.

Out of the same old battery that the plates came from, the constructor will find more than enough separators, whether wood or rubber. In placing the plates into the cells it is advisable to keep the rough side of the soldered joint on the back of each plate, not on the separator side.

When the plates are in their cells, connected up to taps and positive and negative terminals, fill with acid at about 1200. The battery will now give a reading of 1.8 to 2 volts per cell, according to the condition the plates were in when taken from the old battery. After the first charge the battery should read 2.10 to 2.25 volts per cell. The method of charging would be out of place here. I use an electrolytic rectifier with 75 watt lamp in series with the a.c. mains.

The Second Type of Battery.

AS far as my own requirements go, this type of B battery is the monarch of the whole of my collection of H.T. units. The only regret I have in connection with this one is that I did not resort to this type before I bought a good reliable eliminator and 25 dozen test tubes, and collected about ten-dozen paste jars.

The chief advantage of the battery about to be described is that the containers are of wood, and can be made cheaply at any woodware or sash and door factory in sizes to suit individual requirements. The cost of this battery will be more than double that of the one previously described, but still insignificant when compared with its enormous capacity and the service to be had from it. This is the test I put my battery to. After the first charge I left it standing for 21 days, taking voltage readings each day and employing all manner of tests for possible shorts between rows of cells, and after being satisfied that the battery was holding the charge and the insulation between the rows of cells had stood the test of 650 volts, I then coupled up to the set.

The plates, bridges and separators are the same as previously described, the sizes, of course, being in proportion with the containers.

Making and Preparing Containers.

THE containers are of wood. These can be had at any sash and door factory that possesses a chain mortising machine, at about 8s. for 50 or 15s. per 100 containers. The making of these containers will be out of the machinist's line, and it will be necessary to explain to him how the work is done. I will use the dimensions of the containers in my battery as a standard. If the constructor desires a smaller capacity he can reduce these dimensions accordingly. To make 100 containers, ask the foreman or machinist at the factory to take a dressed board 9 inches wide and 1 1-8 inches thick. Cross-cut this into 25 pieces of 5½in. each. Each of these pieces will make four containers. The inside measurement will be 1½ x 5-8th and 5 inches deep, with a wall ¾in. thick on all sides, and ⅝in. thick at the bottom. The mortising must be done on the grain end of the wood so that the grain will run vertically with the depth of the container. If horizontal, the container would be useless for our purpose, but the reason for this would take time and space to explain. This container is not the outcome of a single dream; it had to pass through many tests and changes before it evolved into the shape it is at present. The machinist will have to allow sufficient space between each container in the block so that when he rips them into individual pieces there will be ¼in. wall left. If the machinist attempted to mortise them singly it would take him just four times as long to do them than in blocks of four, and he would charge accordingly.

Insulating Cells.

The containers are first immersed in clean boiling fat or tallow for 10 or 15 minutes. My battery is assembled in a benzine case, cut down to a depth of 6½in. This case holds 56 cells allowing 1-8in. on all sides for insulation, consisting of bitumen or pitch. Get a narrow strip of wood the length of the case for each row of cells. Pour in the hot pitch to a depth of half an inch all over the bottom of the case. Now quickly stand the cells in a row at a time. Place the narrow strip of wood on top, and wedge in tightly to hold the cells in place, remembering the requisite space all round. Then proceed with the next row in the same manner. It is a good plan to add a few spoonfuls of fat or tar to this first lot of pitch. This will prevent it from setting too quickly and allow the cells to be arranged nicely. When the cells are all in and the first lot of pitch has set, fill the remaining space up to within 1-8in. from the tops of the cells. For this remaining 1-8in. sealing wax is preferable. I gathered up a lot of "dud" 45-volt dry batteries and melted all the sealing wax out of them for this purpose. Fill up to the level of the cells with hot sealing wax. Then melt some wax so that it will only just run out of the tin, and pour a fair quantity all round the cells. Now with a hot soldering iron smear the wax all over the tops of the cells as if you were painting with a brush. This will leave a good finish and an excellent insulation.

The separators for the cells, if of rubber which are mostly corrugated, will need to be flattened out with a hot iron or they will not fit in between the plates. In measuring the depth of these wooden containers it is well