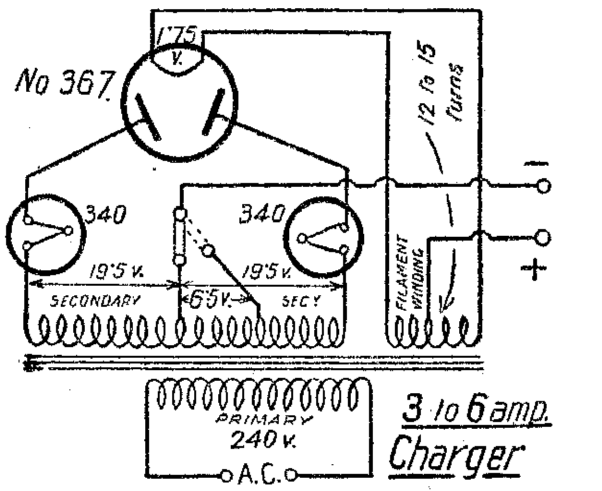
Battery Charger Giving 3 to 6 amps.

SOON after the publication of the 1.3 amp. A battery charger on March 2, an experimenter wrote inquiring if it would be possible to alter this charger to give a greater amperage. The charger can easily be constructed with differences in the winding that will allow a charging rate up to 6 amperes for a 12-volt battery. This correspondent very kindly reported at a later date that the alterations advised had been carried out, and gave the required result.

The only alteration to the trans-



former are in the primary and filament windings. For the primary winding, 24's s.w.g. d.c.c. wire should be used in place of 26's enamelled previously specified. In addition to previous recommendations it would be an advantage to put 35 less turns on the primary winding, making the total 1065. As the filament winding has to carry the output amperes in addition to its own 8.5 amps., 14's d.c.c. wire must be used instead of 18's. The stalloy should not be cut until the spool is wound, in case a slight increase of the window width is found necesasry, but this would only be 1-8in. or ¼in. at the most.

A Philips 367 valve is the rectifier used, which cost 17s. 6d. Two resistance lamps No. 340 costing 10s. 6d. each go with these valves, but the experimenter in question used in their place two variable resistances, presumably power type rheostats, by means of which the output is controlled. Whether lamps or rheostats are used, one is placed in each plate circuit, and the two centres of the secondary winding are joined to form the negative output. The positive is the centre tap of the filament winding as usual.

There is a method by which the charging rate can be varied from 3 to 6 amps. by means of a switch as shown in the diagram, which switches over to a tap in one side of the secondary winding in order to reduce the charging rate to about 3 amps.

Original Specifications.

THE original transformer specifications require a stalloy core 1¼ by 1¼in., requiring strips 1¼in. wide. 3 dozen 3ft. long or 4½ dozen 2ft. long, costing about 7s. 6d. at Johns, Ltd., Auckland. The spool ends are 3 x 2¾ in., and the inside width 2¾in. The secondary windings each consist of 126 turns of 18's d.c.c.

Constructors should obtain the March 2 "Record" from the office, full instructions being there given. If there is any difficulty in procuring Philips rectifiers and resistances through dealers, send direct to Philips Lamps, Ltd., Hope Gibbons' Buildings, Courtenay Place, Wellington.

This charging transformer rises very little in temperature on the higher rate.

Two constructors of the original 1.3 amp. charger state that they are charging with it 20-volt Varta B battery blocks in parellel, placing the resistance lamp in its socket so that only two pins are engaged, thus converting the charger to half-wave for that purpose.

When winding the 1.3 amp. primary the secondary voltage can be slightly increased by reducing the primary turns to 1060.

Erecting the Aerial Mast

Putting Up a 40-Footer

LAST week a handy mounting for an aerial mast was given which greatly facilitates erection. Putting up a 40-foot pole is no small matter, but if proper arrangements are made, all will go smoothly, and no mishaps occur.

A 40-foot pole should have three sets of galvanised stays of stranded wire similar to that used for clothes-lines, the latter being very suitable, and obtainable anywhere. One set of stays should be attached to the top extremity of the pole, and not from one to three feet down, as is often seen. The two other sets of stays are spaced out to divide the height about into thirds. Thus it will be seen that there will be three backstays, and three stays at each side to be secured at an angle towards the opposite pole or other end of the aerial, so that the pole is properly supported without depending upon the aerial in any way for support.

With the lower end of the pole bolted in the double support, the top bolt is placed in the upright with a hammer handy for knocking it in at the proper moment. The pole lays along the ground, halyards in place and secured to the lower end of pole. All stays must be secured in their respective positions, and the cleats to which all stays are to be fastened must be fixed in position, a separate cleat for each stay. A handy way of making cleats on fences is to hammer in two four-inch nails two or three inches apart, then bend them over in opposite directions, forming a secure fixing around which the stays can be fastened or "belayed," as a nautical man would term it.

Not less than six, and if possible eight, people should be prevailed upon to lend their aid for a few minutes when all is ready. Two are required to attend to the backstays, and as soon as the pole has been raised to a sufficient angle they must assist in the raising by hauling on the backstay connected to two-thirds the total height. If the top backstay is hauled at this juncture, the pull only serves to accentuate the bending of the pole, and does not admit of the same lifting power being applied.

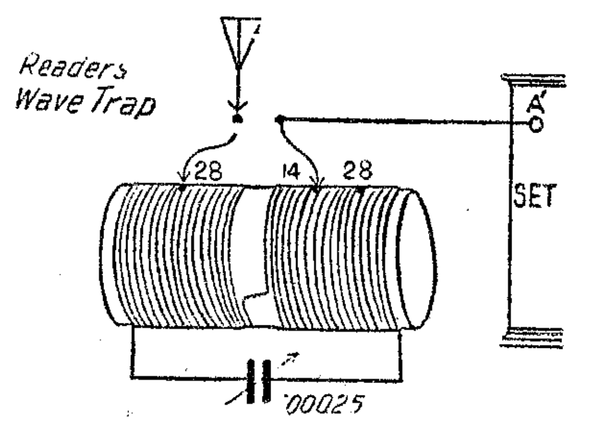
The two tallest assistants may lift the pole at a position near its base, whilst two others, each armed with a 10 or 12-foot pole with T-piece nailed at the top, alternately lift and support the mast, moving the point of support lower as the mast rises.

A person on each side looks after the side stays, steadying the mast to prevent it diverging unduly to either side. All persons handling stays must be ready to quickly secure them to the cleats whenever necessary.

If procedure similar to the above is carried out, the operation will soon be successfully concluded. Once the pole is upright the top bolt is hammered in, and all stays are secured as rapidly as possible, after which their lengths may be adjusted at leisure in order to get the mast exactly vertical. A 2½in. square pole 40 feet long is very flexible when in a horizontal position, and far more difficult to handle for this reason than would be supposed, without experience

A Reader's Wave-Trap

An Auckland experimenter sends the following wave-trap, which he claims will give very good results, increasing rather than decreasing volume. Our correspondent states that the trap has been tried out on four different sets in Auckland, and proved effective, cutting out 1YA and enabling Australian stations to be received on



the loudspeaker. An aerial and lead-in totalling 58 feet is used. The trap, it is stated, is also useful on a short-wave set.

Two separate coils consisting of 42 turns each of 24's d.c.c. wire are wound on a 3in. former 4½in. long, a space of at least one inch between each coil. One coil is tapped at the twenty-eighth turn from centre, and the other at the fourteenth and twenty-eighth. The aerial is to be tried connected to each of the taps for best effect.

There has been no opportunity for the writer to test this circuit. It is given here as it will no doubt interest some experimenters. It does not appear to differ very radically from other wave-traps in which a tapped coil and variable condenser are used.

Solution for Daniel Cells.

CONSTRUCTORS of the Daniel cell, gravity type, are reminded that the strength of acid solution should not be stronger than 1 of acid to 40 of water, and as weak a solution as 1 in 80 works very satisfactorily, and is often stated as the correct strength.

Short-wave Coil Connections.

WHEN connecting up coils in a short-wave receiver it should be remembered that the side of the primary connected to the aerial goes towards the secondary coil, and the side of the secondary coil connected to the grid is placed towards the aerial coil. The side of the tickler away from the secondary connects to the plate. The winding of all coils must be executed in the same direction