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the gas is rendered harmless and hence the cells will run out with more or less rapidity. This merely means that if the current is drawn from them continuously for any considerable length of time their strength will fail, making the cell appear dead.

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In the case of the wet or salammoniac battery, we have zinc, carbon and a solution of sal-am-moniac. This battery can be recharged by renewing the liquid, and if the zincs are extremely thin or badly eaten away, new ones can be put in. The carbon ele-ment should last indefinitely, but should a battery of this type fail o give a satisfactory current after recharging and connections have been looked over and found to be all right, the carbon element has in all probability become clogged in the pores and requires cleaning. To do this it should be removed from the jar and if it is a hollow cylinder with a small plug in the top, the contents of granulated carbon should be thrown away. The carbon cylinders should then be placed in a pot or pan, filled with water to cover them, and placed over a fire, keeping the water boiling for an hour or two.

After this boiling out process new granulated carbon should be placed in the cylinder. This will. in all probability, remedy the trouble, but in case it fails new carbons will have to be purchased.

When purchasing zincs for this type, have the local druggist amalgamate them and they will be found to last a great deal longer. If salts from the liquid leak over the tops of jars, immerse the tops for about an inch in molten paraffine wax until a deposit is left.

The current which any primary battery gives is not any fixed quantity, but depends upon the resistance of the particular circuit through which the pressure in volts propels the current. The resistance consists of, first, the internal resistance of the primary battery itself, and secondly, the external resistance of the outer circuit, such as the primary winding of the induction coil, or the resistance of the filament of a small electric lamp. Therefore, the amount of current which can be obtained from the primary battery depends upon its condition with regard to internal resis-tance and also the amount of resistance of the external circuit.

Two or more batteries may be coupled together in order to give increased pressure of current (voltage) or increased volume or current (amperage). The two methods of coupling up are termed respectively in "series" and in "parallel." When coupling up batteries in a series, we so arrange the connections between them that the current flows right through all the batteries in serial form, so that the current generated in No. 1 battery of three units must pass through the other two before a circuit can be formed. The positive terminal of one must be connected to the negative terminal of the next and so on throughout the battery.

Some Interesting Facts **About Overlands**

Our 800 dealers now are selling over \$200,000 worth of Overlands daily. That's a far larger sale than was ever attained by any other car in the World.

Some of the Users

The Government is one of the Overland users. For a year and a half some of these cars have been used in carrying the mails. For 500 days they have made their regular trips, winter and summer, without a moment's delay. Each of these cars has done the work of three horse-drawn vehicles.

The J. I. Case Threshing Machine Company some time ago supplied 25 Overland cars to their country salesmen. They report that one man with one of these cars can do two salesmen's work.

The Altman & Taylor Machine Co. have also begun to supply Overlands to their salesmen.

We have recently built delivery car bodies on 900 Overlands for the use of storekeepers who want them for use as light delivery cars.

All Due to Simplicity

All these new uses for Overlands are due to their utter simplicity. A novice can run one as well as an expert.

The operation of the car is by pedal control. One goes forward or backward, fast or slow, by simply pushing pedals. The hands have nothing to do but steer.

Overlands are almost trouble-proof. The usual complexities have been avoided. One of these cars has been run 7,000 miles, night and day, without stopping the engine.

child can master the car in ten minutes. member of the family can run it. And a car that



is relied on to carry the mails is the car which will always keep going.

\$3.000,000 Plants

Over \$3,000.000 has been invested to produce Overland cars in a perfect and economical way. The cars are made—as watches are made—by modern automatic machinery. Thus we get exactness to the one thousandth part of an inch. And thus every part is made exactly like every other similiar part. All parts are interchangeable.

Because of this machinery and our enormous production we are able to make cars for less than anyone else.

This year we are selling a 25-horsepower car, with 102-inch wheel base, for \$1,000. We are selling a 40-horsepower Overland, with 112-inch wheel base, for \$1,250. And these prices include all lamps and magneto.

During the past year alone we have cut the cost of Overlands 20 per cent by multiplied production and this labor-saving machinery.

10,090 Tests

The various parts of each Overland car are subjected to 10,000 rigid inspections. Then every car, before it goes out, is given a long trial run on rough roads. One of our test roads includes the worst hill in Ohio.

roads includes the worst hill in Ohio. Thus we know that cach Overland is a perfect ear before it leaves the shop. There are no mistakes. Those are part of the reasons why Overlands have now come to outsell all other ears that are made. You will want the car which others want when you learn the facts. If you will send us this coupon we will mail you our eatalog. We will also tell you the nearest place where you can see the cars.



When coupling up batteries in parallel, we so arrange the connection between them that the current may flow through any of them or all of them. In this case all the positive terminals are connected together and all the negative terminals are connected together.

As has been stated before, after using batteries for a short time, they gradually lose their power, but if left to rest a short time recuperate again. However, after running down a number of times they begin to lose life and the full power is not derived after recuperation.

Batteries are a source of considerable trouble to the operator of the internal combustion engine, pen to interfere with the current. For instance, a broken wire is a very perplexing problem for the novice to locate. If a broken wire is suspected between one battery and another, it can be easily located by connecting a piece of wire to the zinc binding post at the end of the set and rubbing the other end of the wire on the carbon plate of the battery at the other end of the set, but not on the binding post. If the connections between each battery are all right, a small arc or flame will occur between the wire and the carbon each time they come in contact, but if an open circuit prevails or the batteries have become exhausted no spark will appear.

as a great many things may hap-

Before placing the wire on the zinc binding post remove the permanent wire therefrom and open the switch, so that there can be no ground at any point in the outside wires and through the battery box in any unforeseen manner.

By going over each binding post very often a loose connection with the wires and binding post will be found as the cause. If the binding posts are making a good connection with the piece of wire still fastened with the zinc binding post, making a perfect metallic connection, touch the carbon of the battery next nearest the end where the zinc wires are connected, and continue thus with each battery toward the zinc con-Continued on page 64