ADJUSTING STROMBERG CARBURETORS.

TO OBTAIN efficiency and economy the motorist should have at least a practical knowledge of the carburetor fitted to his machine. Admitting that the carburetor is adjusted properly when the car leaves the factory, it does not follow that the setting will not be altered by the employees of the agent in an endeavor to add to the motor's power or to increase the speed of the machine. And if the automobile was delivered late in the winter or early in the spring the mixture is likely to be rich on the low speed, a setting making for easy starting in cold weather.

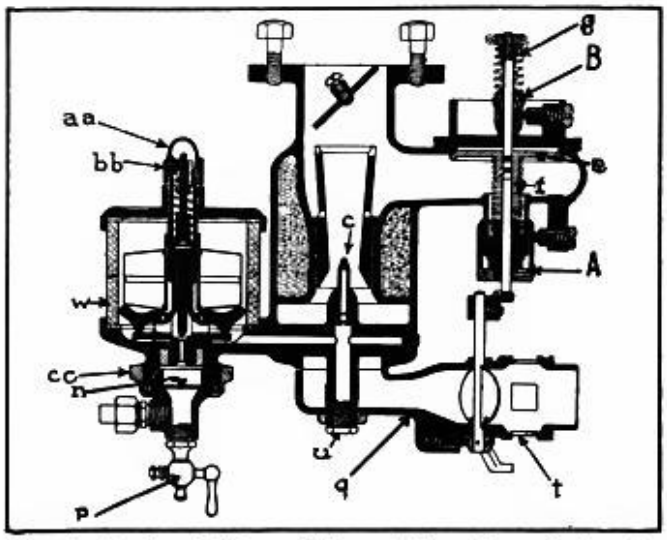


Fig. 1—Sectional View of Type A Stromberg Carburetor Showing Low Speed Adjusting Nut A and High Speed Adjusting Nut B—Type B Is Similar, Being Adjusted in the Same Manner.

An efficient mixture is one having the correct proportions of air and fuel at all motor speeds. Too much gasoline impairs the operation of the motor in that soot is deposited in the cylinders and muffler, and undesirable temperatures are created. In other words, all of the fuel is not being converted into useful energy. And with the present high price of motor fuel the cost of maintenance is increased considerably by an improperly adjusted carburetor.

The writer does not advocate tampering with the carburetor, provided it is performing its function satisfactorily and is delivering its maximum mileage to a gallon of fuel. On the other hand, one is warranted in checking up its performance and in altering the adjustments if the mileage is below normal or erratic operation of the power plant can be traced to defective carburetion. Climatic changes affect carburetion, such as high altitudes, cold and warm weather, necessitating slight augmentation or decrease in the amount of fuel or air. The effect of high altitudes is well known to the experienced motorist when touring in the mountains.

The modern carburetor rarely gives trouble after being properly set, but a number of conditions may arise on the road, such as a choked spraying nozzle, etc., and if one be familiar with the components and operation of the vaporizer, the fault may be corrected without impairing its efficiency. It is the intention of the writer to present the different types of carburetors, describing their practical side, and showing the components utilized in making adjustments. As it is not always convenient to call upon the expert to make a slight alteration, the suggestions contained herein should enable one to correct minor troubles.

Stromberg, Types A, B, C, D, G.

The Stromberg carburetors, manufactured by the Stromberg Motor Devices Company, Chicago, are made in five types, A, B, C, D, and G, respectively, and are easily distinguished from other designs by the glass float chamber. Each model is plainly marked and as the proper nozzle is fitted at the factory, instructions as to the selection of the required size will not be necessary. Types A and B are single jet carburetors, while C, D and G have double jets. By this is meant that the first named vaporizers have a single orifice through which the fuel is drawn while the others have an auxiliary jet, the function of which is to supply the necessary volume of gasoline for high motor speeds and for heavy duty work. All models have a fixed and auxiliary air inlet and are also provided with a high and low speed adjustment. In the accompanying illustrations the low speed adjusting nut is indicated by the letter A and the high by the letter B. The other components are also lettered.

Types A and B.

Types A and B differ only in that the latter is of the concentric, non-water jacketed type. As the adjustment of both is similar they will be treated as a single unit. The level of the fuel in the float chamber, Fig. 1, is important and with type A it should be about one inch from

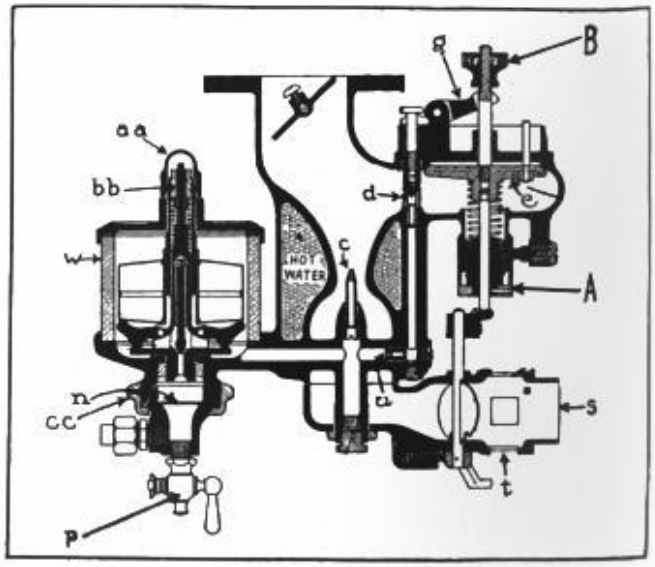


Fig. 2—Type C Stromberg Carburetor Having Auxiliary Jet for High Speeds—The Low and High Speed Adjustment Is by Nuts A and B Respectively.

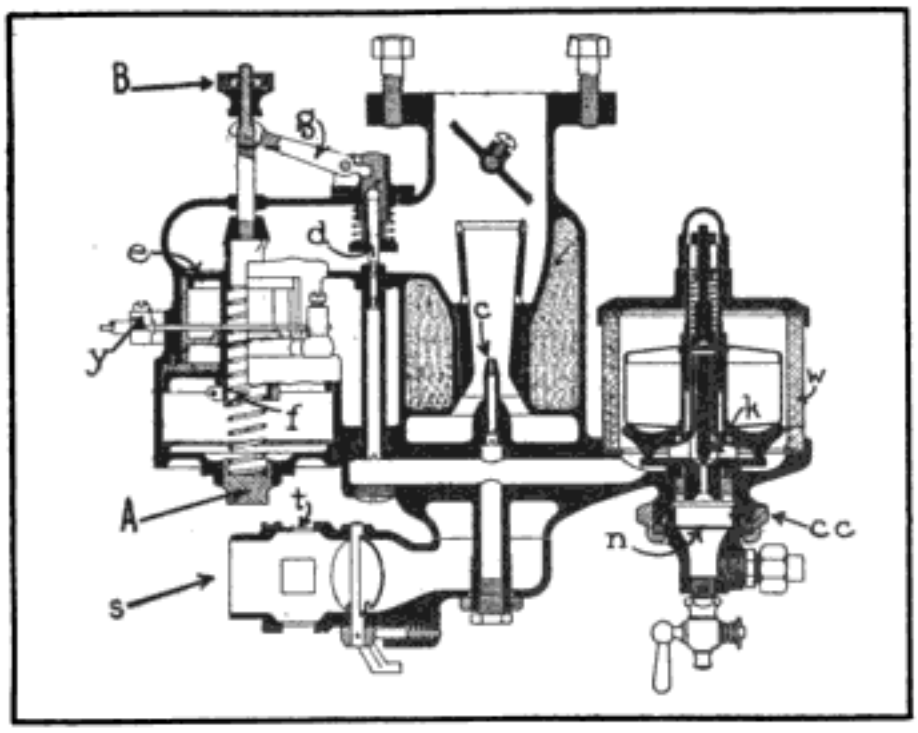


Fig. 3—Type D, Utilized with Six-Cylinder Motors and Having High Speed Adjustment Controlled by Dash or Steering Post Device.

the lower edge of the glass. The proper level with type B is .9375 inch. This level is adjusted at the factory, but if the fuel be too high, remove the dust cap a a and screw down the adjusting screw b b. If too low, screw it up.

The low speed is adjusted by the nut A, which controls the low speed spring f seating the valve e. This valve should seat lightly and care should be taken to have about .06125-inch play in the high speed spring g. By turning the nut A up or down the desired even, idle running of motor is secured. Stops are provided on the throttle valve lever, and by moving the screws in or out the desired motor speed may be obtained. The position of these screws should be taken into consideration when making low speed adjustments.

The high speed adjustment B is operated by turning the nut up to enrich the mixture and in the opposite direction to weaken it. The high speed spring g should always have at least .03125 inch play when the motor is running idle. Both the low and high speed adjusting members should be turned a notch at a time only in making adjustments. The type A carburetor is fitted with a season adjustment t, which should be open in summer and closed in cold weather. Type B is not equipped with this device.

Adjusting Type C.

The type C, Fig. 2, is designed especially for six-cylinder motors, and in addition to the usual spray nozzle c in the venturi tube, has a second jet d, which is automatically opened by the auxiliary air valve e. The second jet comes into action when the speed of the motor demands fuel in excess of the capacity of the primary nozzle. As the air valve e moves downward the auxiliary needle d is raised by a lever g, augmenting the supply of fuel proportionately to the speed of the engine. The low speed adjustment is made in the same manner as with types A and B, but it should be borne in mind that the auxiliary air valve should not operate when the motor is idling as all air should be supplied through s. The capacity of the primary or low speed nozzle is held by the maker to be ample for speeds up to 25 miles an hour. The high speed is regulated by the nut B, which should be about .09375 inch above the lever g for normal adjustment, although it may be altered to meet the requirements of the motor. Lowering the nut B brings the auxiliary or second jet into service quicker, while raising it weakens the mixture. Adjustments should be made with the spark advanced for high speeds.

Setting Type D.

The type D shown at Fig. 3 differs from those previously described in that the auxiliary air is regulated by a shutter operated by a dash or steering post control, providing adjusting means from the seat. Two nozzles are utilized, a primary c and auxiliary d. In adjusting this type the lever on the control member is moved to close the shutter around the air valve. After starting the motor, open the shutter about three-quarters way. For low speed or idle running the high speed nut B should clear the lever g about .03125 inch. The auxiliary air valve e should be on its seat. If not, loosen lock nut on A and turn up the latter until valve seats, and relock. This rarely requires attention, being set at the factory.

High motor speeds are taken care of by the auxiliary gasoline needle member d, and should the motor back fire with the shutter three-quarters open, and spark advanced and throttle open, it indicates that sufficient fuel is not being supplied by the nozzle d. This condition is not likely to exist as the proper needle is fitted at the factory. This type of carburetor presents advantages in that the control of the high speed is by means of the air valve shutter from the seat.

Adjustment of Type G.

Type G, Fig. 4, has a double jet, although it is made with a single member. It has a low speed adjustment A and high B, and these members are set as with types A and B. The dash or post control permits of weakening or enriching the mixture as may be required, and when moved to "rich" closes the fixed and auxiliary air inlets, making for easy starting in cold weather. With the lever one-third or one-half way toward "lean" a portion of the fixed air port is opened and the auxiliary partially. This enables economical operation. The control members are shown at Fig. 4 and are as follows: Fixed air inlet, s; control lever, v; rod leading to dash, e e; air shut-off for starting, r; season adjustment, t. The last named should be open in warm weather as with the other types.

It is an excellent practise occasionally to open the cock p and drain off about half a cup of fuel. Failure to strain the gasoline may result in the strainer n becoming clogged. It is accessible by loosening the coupling nut c c. In the event of accident requiring the replacement of nozzles with new members, those of types A and B are reached by removing the plug u and displacing the nozzle with a screw driver. The primary nozzles of types C, D and G are accessible in a similar manner, but the auxiliary of C is reached by removing the slotted plug in the gasoline channel opposite u. The high speed nozzle of type D is displayed at d, while the secondary nozzle j of type G is accessible by removing the slotted plug x x.

Aside from faulty ignition, which is often confounded with carburetor troubles, failure to start may be due to water in the fuel, clogged supply pipe or spraying nozzle, float too low, too much air, etc. Flooding is due to a leaky float, needle valve failing to seat, or float and its mechanism becoming stuck. Too much air is usually denoted by the motor being hard to start and by its speeding up upon closing the air valve, by the engine being slow to respond when opening the throttle, and by back firing. A lack of fuel presents similar symptoms.

Too much gasoline and not enough air is known by the motor speeding up when the air valve is opened slightly, by missing when the car is operating slowly on the level and by failing to pick up when the clutch is disengaged. The last named condition is indicative of a

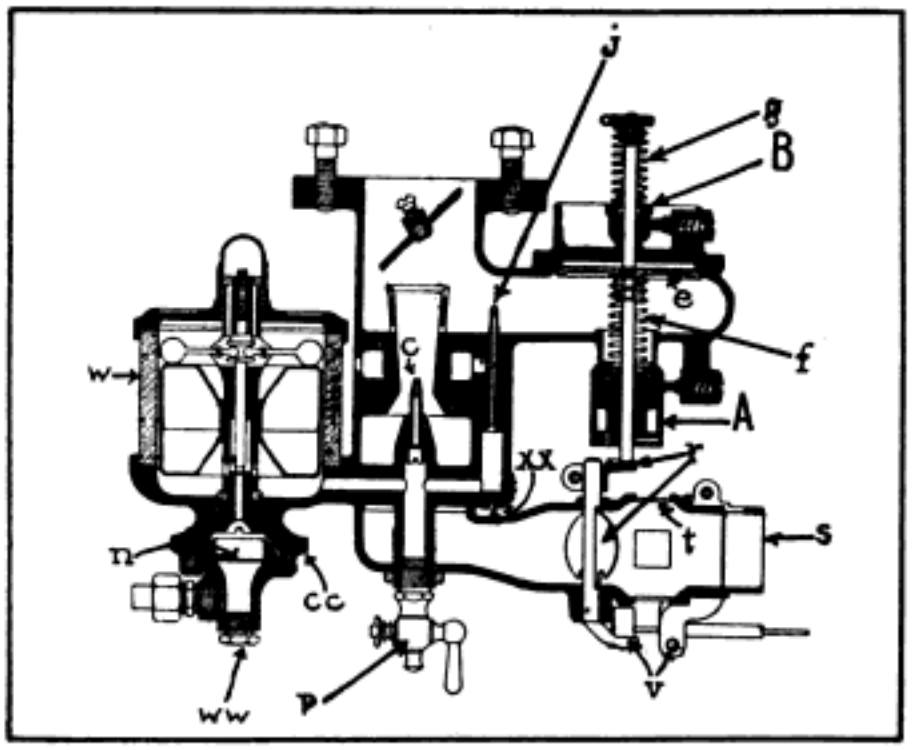


Fig. 4—Adjustment of Type G Is by Nuts A and B for Low and High Speeds and a Dash Control Is Necessary When Fitted with a Hot Air Horn.

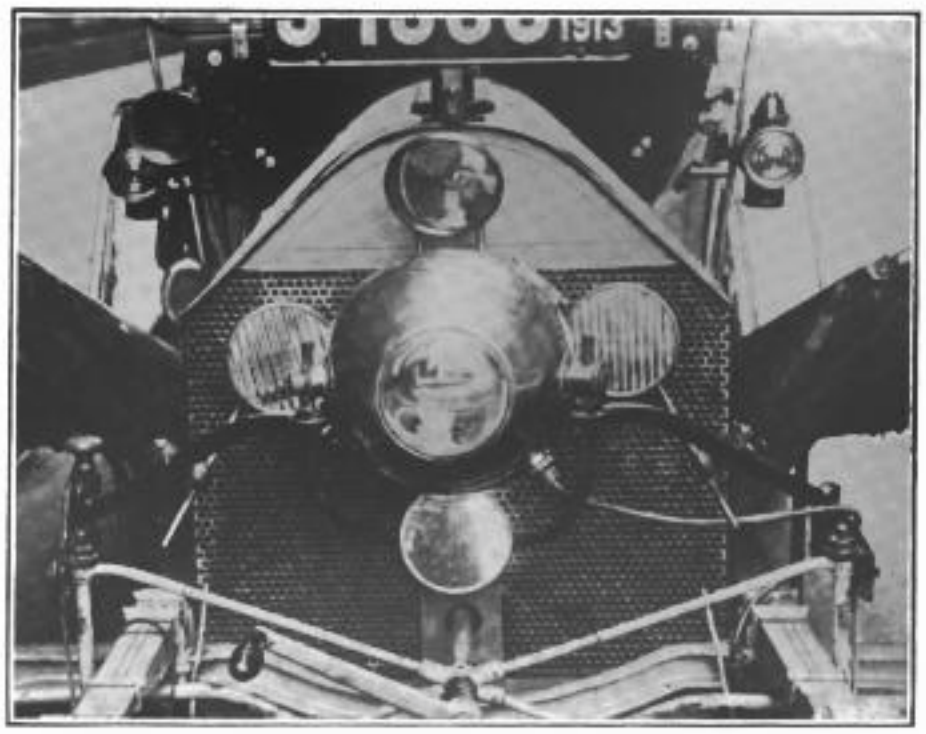
very rich mixture. If, after climbing a long grade, the motor does not respond quickly when the clutch is thrown out, or does not back fire with a rapid opening of the throttle, it may be assumed that there is too much gas or too little air. It should be remembered that warm weather has the effect of not enough air, while cold acts directly opposite.

There are two methods of noting if the mixture be correct, by the odor of the exhaust gases and by their color. If the gases are pungent or acrid, the mixture is too rich, and the fuel supply should be either cut down or the amount of air augmented. Those familiar with the adjusting of carburetors call the exhaust "sweet" when the mixture is correct. Too rich a mixture is denoted by a black smoke, which soots everything with which it comes in contact. The condition of the spark plugs will reveal to a certain extent the proportions of the air and fuel in carburetion. If covered by a black soot it may be taken for granted the mixture is rich, that gasoline is being wasted.

The test by color is by noting the flame from the exhaust through the cut-out. A blue flame denotes too much gasoline; a yellow, too much air; a red, poor quality of fuel or too much oil in the combustion chamber. A purple flame is considered indicative of the best proportions of gasoline and air.

DIVA HEADLIGHT ELIMINATES DAZZLING.

THE efficient headlight is the one that utilizes every ray of its illuminant, and concentrates all its light exactly where it is needed.



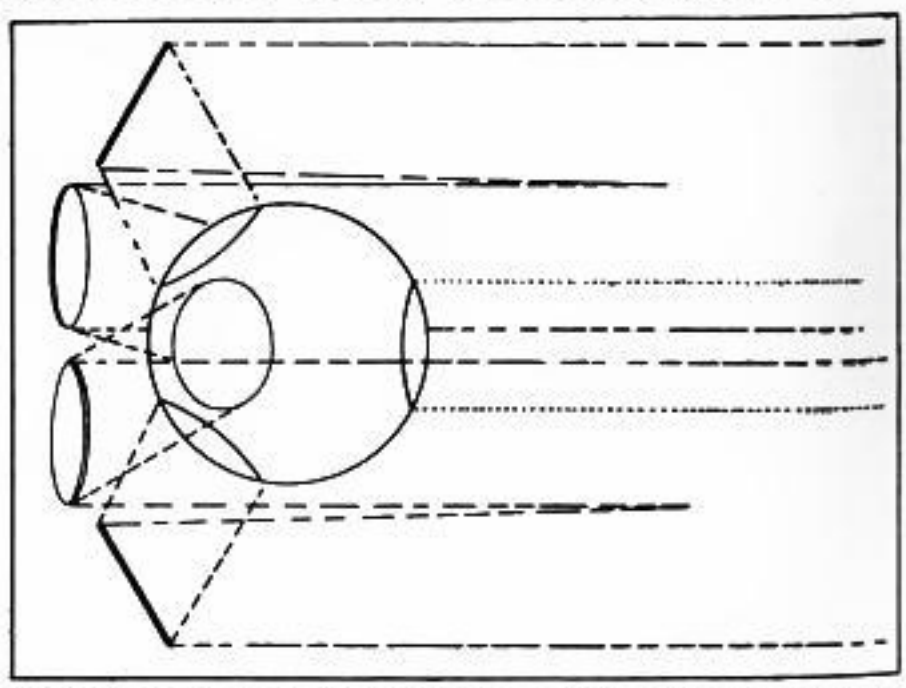
Diva Headlight, an Electrical Unit Eliminating Dazzling Effects and Projecting Powerful Parallel Beams Through Novel Use of Reflecting Mirrors.

There should be a certain width of illumination in order to cover the entire surface of the road, and to enable the driver to negotiate corners, as well as proper length and power of beam. But the most important factor to be considered is the dazzling effect and the elimination of this undesirable feature has been given serious attention abroad in headlight designs. Dazzling is caused when the light is projected from a lamp in the form of a cone, the apex of which is the lamp. These upward rays are most noticeable on foggy and misty nights, blinding the operator and making it difficult to drive except at a very slow rate of speed.

George Sumner of George Sumner, Inc., 1926 Broadway, New York City, on his recent trip abroad, made a special study of anti-dazzling lamps and secured the rights in this country for the Diva headlight, an English product, which not only presents interesting constructional features, but eliminates all glaring effects even in a fog. As will be noted by an accompanying illustration it is in the form of a sphere divided in half vertically. The front portion has one double convex lens placed in the centre of its circumference, and the back has four similar lenses, one each at the top and bottom and one at either side.

The interior of the sphere is electroplated, and in the exact centre is an electric bulb, held in position by a column which rises from a base. When the filament is heated the interior of the sphere becomes practically a ball of light, with beams streaming out from it in five different directions through the five lenses. One beam is projected directly forward from the single front lens and the other four at diverging angles from the four lenses in the rear half of the sphere. These beams, because of the dimensions and foci of the lenses, are composed of parallel rays, not those of a diverging or diffusing nature.

Every ray of light which strikes the interior reflecting surface of the sphere is reflected back to the focal centre, travels through it, and passes out of the lens opposite to that particular reflecting surface, at exactly the same angle of diver-



Showing the Searchlight Beams and How Light Is Diffused Sideways by Utilization of Fluted Mirrors.

gence as those rays which proceed direct from the illuminant to the lens. In other words, the reflected rays unite with the direct, doubling the