

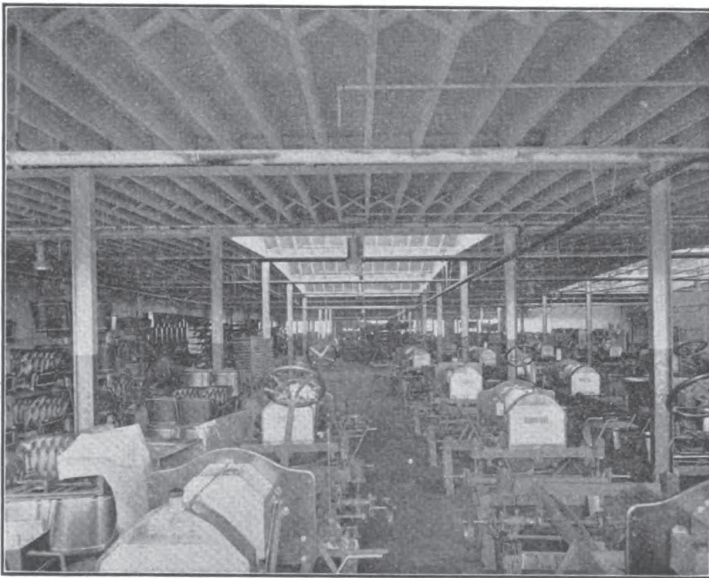
## The Brush Runabout's Many Tests

How the King of Single Cylinder Cars Maintains its Proud Position

In the largest cities and throughout the rural districts of the country the tourist often meets with small cars of quaint design, built by the first automobile manufacturers. Almost without exception, these cars are of the single cylinder type. If you question their owners they will tell you that the cars have given eight or nine years' service and that they expect still more before the body of the car robs away from the motor.

The single cylinder motor has stood the test of years. Where are the first four-cylinder cars turned out? If you ask the manufacturers who made them they will own up that, like out-of-date coinage, the old cars of this type have been called in.

While the old style single cylinder cars are still ambling



INTERIOR OF BRUSH PLANT.

about their primary defects have been done away with in the latest models. The two main defects of the first single cylinder motor were, first, its vibration and lunging motion; and second, its inaccessibility and filthiness, due to its usual location under the body, where it not only collected all of the dirt, but was almost impossible to get at without practically tearing the car to pieces.

Combining all the modern improvements in the one-cylinder car, the Brush runabout, models of which are on exhibition at the Detroit show this week, is the standard car of this type in the United States today. The balanced motor of the Brush has done away with all the vibration of the old single cylinder car. Located under the hood, the motor of this car is the most easily accessible of any on the market and necessitates no crawling under the machine to regulate the various parts. Men familiar with the first one-cylinder car have declared the Brush to be as totally different from the pioneer car of this style as the present day four-cylinder is from its predecessor.

Perhaps the most remarkable mechanical feature of the Brush is its auxiliary counterbalance device. The vibration from a single cylinder motor is due to causes; the stopping and starting of the piston weight, and the side thrust against the cylinder wall.

The ordinary balancing of a single cylinder motor consists

in adding a counterbalance on the crank shaft, which overcomes one-half of the up and down vibration, but in so doing puts in an equal amount of lateral vibration; in other words, does not take any out but merely splits it up.

In the Brush an additional rotary balance is provided, which is geared to the crank shaft and takes out the remaining half of the up and down vibration. This extra balance rotates in an opposite direction from the crank-shaft balance. As a consequence the two balance weights move up and down together, but as their side-wise motion is opposite, they neutralize each other as to side vibration. In combination they thus take out all of the vibration due to the starting and stopping of the piston weight.

The parts of the Brush motor are strong. The crank shaft is extra heavy, and the bearings are unusually large; larger, in fact, than in most four-cylinder cars of 50 per cent more weight and power.

Public and private performance has given the Brush car a high standing among people with whom technical explanations count for naught. The year just closed has been a notable one in Brush achievements.

In the chief reliability tour of the east in 1910, the Munsey Historic tour, D. A. McCoy drove a Brush runabout for the 1,550 miles of the schedule without mishap, winning the trophy for the runabout class. Smallest in size and, incidentally, in price, the work of the Brush proved the talk of the hour.

The tour of Louie and Temple Abernathy, nine and six years of age respectively, who drove a Brush car from New York City to Oklahoma City, a distance of 2,546 miles, is too well known to need repetition. Exactly three lessons were given to Louie Abernathy before the youngster grasped the running of the car and drove it through the crowded thoroughfares of New York City at the start of the long tour. The two sons of Marshal Abernathy were in New York during the recent show demonstrating the Brush car, and have occupied a prominent place among the many salesmen at the show.

For the second time since the establishment of the Algonquin Hill climb as an annual feature promoted by the Chicago Motor Club, a Brush runabout triumphed in its class in the 1910 contest.

The Brush delivery car, which is driven by the same motor as the pleasure car, has shown well in the most important vehicle contests of 1910. Of fifty-four motor vehicles



A WELL-LIGHTED SHOP.

taking part in the Chicago-Milwaukee endurance run in October only two finished with perfect scores. One of the cars with a clean record was the Brush entrant, lowest priced machine in the contest and also smallest in size, coming under the 600-pound caption. This reliability run proved to be easily the most strenuous of the year.

Through the most congested districts of New York City and over the steepest hills of Westchester county, another Brush delivery car triumphed in the New York motor vehicle contest in October. The Brush was entered in the distributing class and made between 50 and 100 stops, such as would be made in a regular business day.

## Varnish-Making a Flint Industry

The Flint Varnish Works was instituted primarily to supply the local carriage trade, but it has developed a very large business in agricultural, furniture, tin-ware decorating, building, and especially railroad lines. Some dozen of the largest paint and varnish jobbing houses of the country are giving especial attention to the distribution of the products of this plant and the "Diamond Flint" is a feature on thousands of shelves in hardware, paper and paint and drug stores from the Atlantic to the Rock Mountains.

The factory is modelled upon the concentrated experience of years in various high grade and extensive varnish and paint plants and is of compact and convenient arrangement. Its paint manufacturing equipment is a remarkable display of mechanical genius in the manipulation of the raw materials, and the movement by pipes and machinery from point to point in the factory in the process of manufacture.

This organization is capitalized at \$500,000, has a large force of traveling men, and about twenty skilled mechanics in the factory. One of the great features of its year's business is the annual convention of all its salesmen and jobbers at the factory for one solid week each summer.

The officers are: President, J. D. Dort; Vice-President and General Manager, W. W. Mountain; Secretary and Treasurer, F. A. Aldrich.

The Flint Axle Works supplies the vehicle and automobile industry of Flint with their requirements and has a considerable surplus to dispose of to outside builders. While originally organized to manufacture vehicle axles only, it had natural facilities for special work in connection with the automobile industry, and has acquired a large and growing trade in that direction. The plant is a modern brick structure in the Oak Park industrial part of the city on the banks of the river. Its equipment for power, heating and the welding incident to its business, is of the most modern type. Its capacity is upwards of one hundred thousand sets of axles a year. The company employs over one hundred men, all skilled mechanics, and disburses in wages about \$35,000 annually, while the volume of business is above \$150,000. The plant is conducted by Mr. Fred Weiss, recognized as one of the leading axle makers of the country.

When an automobile is seen in the streets attached by a rope to another car which goes on ahead, it doesn't always follow that the second car has broken down and is being towed in. Sometimes it is a brand new machine that is being hauled to a show room and is being taken under power other than its own.

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