

The Commercial Truck vs. the Horse.

By Benjamin Rogers.

The use of automobiles for delivery purposes in place of horse-drawn vehicles appeals to the business man as offering advantages in speed, radius of action, independence of weather conditions, and the greater traffic that can be accommodated in a given space, while to the other users of the streets their cleanliness, silence, and the safety that comes from more complete control make desirable their general adoption.

The number of automobiles engaged in commercial service cannot fail to impress the man who has goods

The prospective purchaser cannot estimate from the experiences of others the advantages of this kind that he will obtain from the use of automobiles, but he may be guided to some extent by comparing the expense of an automobile delivery service with the cost of his present system. The manufacturers of automobile trucks are in a position to know the costs of operating them, for they are in constant touch with the concerns using their trucks, and usually have access to their records. A study of the accounts, however,

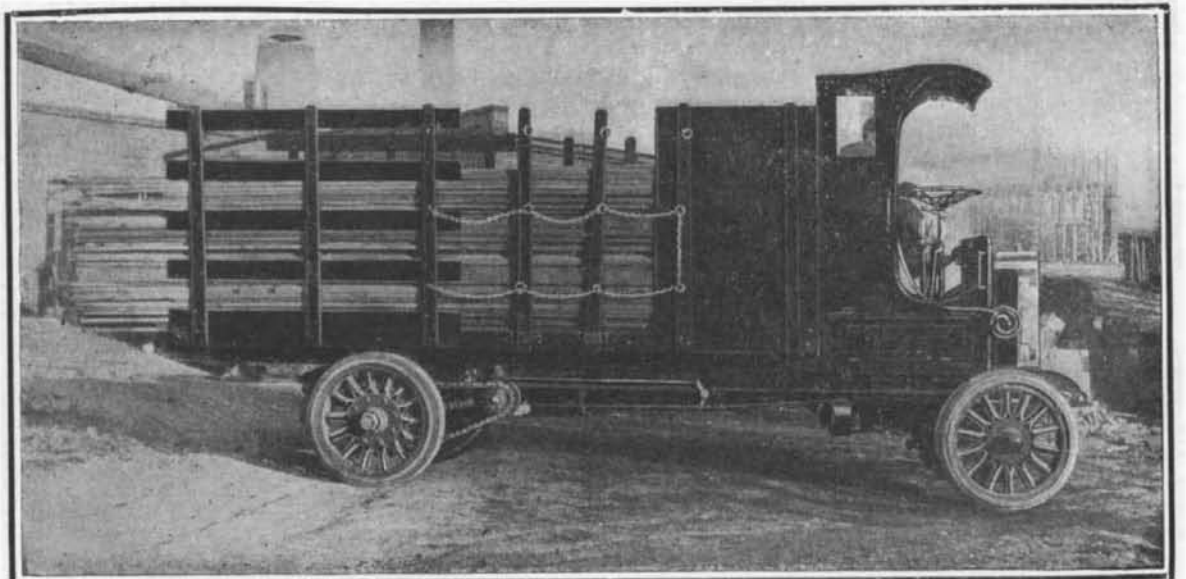
Annual expense per truck of operating 2-ton and 5-ton electric trucks in lots of 10:

	2-ton.	5-ton.
Fixed charges	\$656.00	\$820.00
Operating expense	1,278.40	1,324.00
Repairs, supplies	825.30	1,437.20
	<u>\$2,759.70</u>	<u>\$3,581.20</u>

The limit of profitable horse haulage per day with



SAUREL TRUCK RUNNING BETWEEN NEW YORK AND WHITE PLAINS.



A 5-TON "RAPID" TRUCK AND LOAD OF 6 3/4 TONS OF HARDWOOD LUMBER AND DRIVER ON SEAT.

to deliver; but in considering their adoption, his first inclination is to compare the cost of operation with that of the horse-drawn system that he employs. As a general thing, he does not consider the increase in the volume of his business that will come with the extension of the district through which he can make deliveries, and also the quicker service that the automobile makes possible. It is these factors, nevertheless, that make the adoption of automobiles an economic necessity. As an example may be cited the case of a cracker manufacturer in one of the larger cities, whose automobile truck has enabled him to increase his sales by three tons of crackers weekly. With horse-drawn trucks he could make deliveries only to the city limits, while with the automobile he can deliver his goods to distant suburban points, and is in close touch with customers that were formerly beyond his reach. Another case is that of a concern dealing in roofing materials, in the delivery of which promptness is essential. The 5-ton gasoline truck that is in use averages 36 miles daily, and deliveries are made to points that would be inaccessible with horse trucks unless a relay system was employed. Again, a New York department store, under a horse-drawn system, delivered goods for Westchester County to a distributing station on 125th Street, from which they were relayed. The use of automobiles has moved the distributing station to 155th Street, and the limit of delivery has been increased by eight miles. This concern gives credit for a considerable increase in its business to the improved and extended delivery service.

will give only an approximate idea of the expense involved, for the load and route conditions will result in a wide variance in certain items, and no estimate can be made of the inevitable overcharges due to inexperience during the first months of operation. A considerable number of manufacturers have submitted estimates of the costs of operating their vehicles, and the following figures have been selected for presentation, because an inquiry among the users of automobile trucks has shown them to be extremely conservative. Proper management should make it possible to operate any well-designed and carefully-selected truck at a materially reduced expense.

Annual expense of operating a 2-ton and a 5-ton gasoline truck:

	2-ton.	5-ton.
Fixed charges	\$965.00	\$1,315.00
Operating expense	1,215.00	1,440.00
Repairs, supplies	700.00	1,050.00
	<u>\$2,880.00</u>	<u>\$3,805.00</u>

The expense of operating horse-drawn trucks of similar capacities in New York city is as follows:

	2-ton.	5-ton.
Fixed charges	\$223.00	\$254.00
Operating expense	2,263.00	2,471.55
Repairs, supplies	125.00	126.00
	<u>\$2,611.00</u>	<u>\$2,851.55</u>

a 2-ton truck is 11 miles, and with a 5-ton truck 9 miles. A 2-ton gasoline truck should have no difficulty in maintaining a daily average of 50 miles, while a 5-ton should cover 40 miles. The 2-ton electric truck should average 30 miles a day, and the 5-ton 25 miles. While the daily cost of the horse-drawn trucks is less than that of the automobiles, the cost per ton-mile, which is the measure of the work done, is much higher.

As an example of what may be expected from automobiles under proper conditions and with intelligent management, the following figures merit careful examination. They are extracted from a report made by the manager of the traffic department to the board of an express company, and embody a comparison between the number, cost, and operating expense of the horse-drawn vehicles required to perform a certain work and the number, cost, and operating expense of automobiles accomplishing the same work. The figures are compiled from actual stable and garage accounts, and are authoritative.

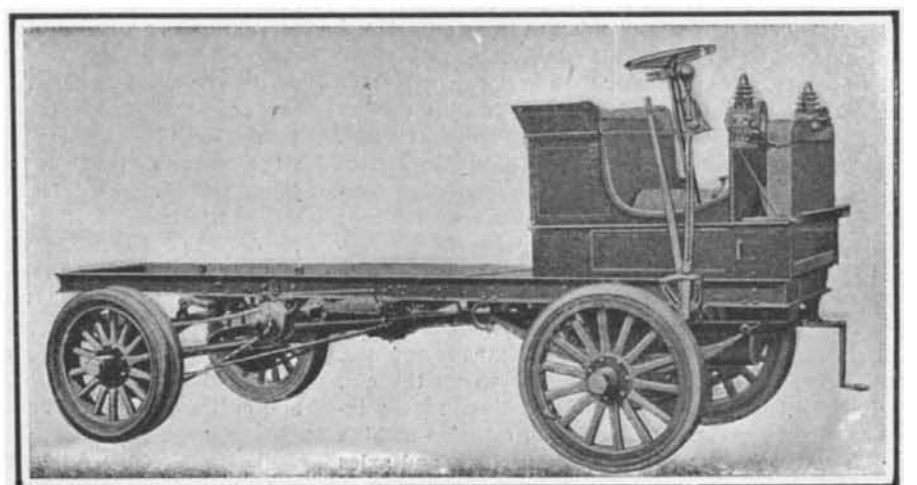
Cost of fifty-three double wagons.

39 3-ton wagons at \$373.....	\$14,547.00
5 2-ton wagons at \$329.43.....	1,647.15
9 1-ton wagons at \$379.10.....	3,411.90
212 horses at \$220	46,640.00
53 sets double harness at \$45	2,385.00
	<u>\$68,631.05</u>



A WHITE STEAM AMBULANCE IN SERVICE.

The steam engine is so smooth running that it is particularly well adapted for hospital service.



GRAMM-LOGAN ALL-STEEL 3-TON TRUCK.

A clutch is used that can be thrown in at high speed.

Annual operating expenses.	
Interest on \$68,631.65 at 5 per cent.....	\$3,431.55
Depreciation:	
Wagons, \$19,606.05, at 10 per cent.....	1,960.60
Horses, \$46,640.00 at 13 per cent.....	6,063.20
Harness, \$2,385.00, at 14 per cent.....	333.90
Feed and labor:	
212 horses at \$26.70 per month.....	67,924.80
53 drivers, at \$65.00 per month.....	41,340.00
53 helpers, at \$45.00 per month.....	28,620.00
	<hr/>
	\$149,674.05
Cost of forty electric trucks.	
10 3-ton trucks at \$3,600.....	\$36,000.00
Extra battery	442.20
30 2-ton trucks, at \$3,400	102,000.00
3 extra batteries, at \$376.20.....	1,128.60
Fittings for 10 trucks, at \$100.....	1,000.00
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	\$140,570.80

Annual operating expenses.	
Interest on \$140,570.80 at 5 per cent.....	\$7,028.54
Depreciation:	
Trucks, less tires and batteries: ..	
\$110,742 at 10 per cent.....	11,074.20
Battery trays, jars, and fittings:	
\$2,978.80 at 10 per cent.....	297.88
Battery plates, \$14,300 at 75 per cent....	10,725.00
Tires, \$11,550 at 125 per cent.....	14,437.50
Current and labor:	
Complete charge, 313 days:	
3-ton trucks, 26 kilowatts, at 5 cents... ..	4,069.00
2-ton trucks, 20 kilowatts, at 5 cents... ..	9,390.00
Garage help, 5 men.....	4,080.00
40 drivers at \$65 per month.....	31,200.00
40 helpers at \$45 per month.....	21,600.00
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	\$113,902.12
Saving in favor of electric trucks....	\$35,771.93

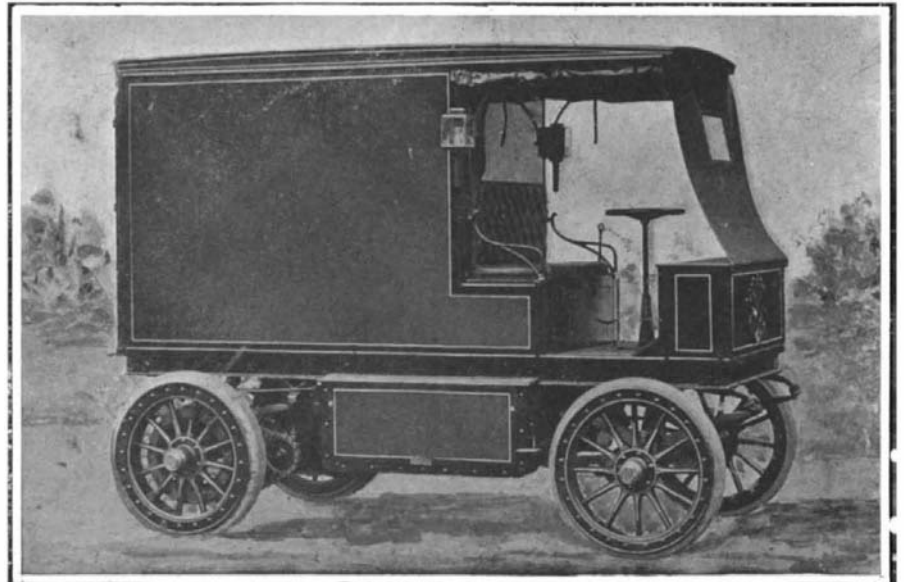
This saving is 23 per cent.

In deciding on the type of vehicle best adapted to the work to be done, the purchaser must take into consideration the character of the load, the length of the haul, and the nature of the road surfaces. For hauls of less than a mile there is no economy in adopting automobiles over horses, nor is it advisable when there are long waits for loading and unloading. The electric gives its best service over smooth and level roads, and for round trips of not more than 35 miles. It is silent, the operation is simple, it is easily handled in traffic, and insurance rates are low. Its smoothness of operation reduces the wear on the tires, and the absence of reciprocating parts eliminates one cause of deterioration. On the other hand, gasoline cars can travel for unlimited distances, are unaffected by gradients and adverse road conditions, and are the only ones that can be used for long hauls.

In the European countries steam is being applied
(Continued on page 63.)



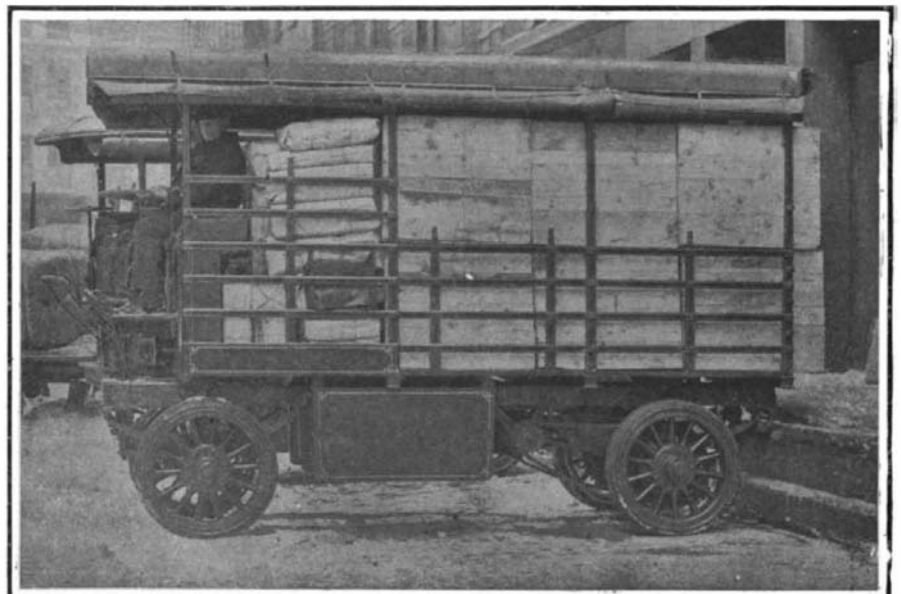
A HEAVY-SERVICE RELIANCE TRUCK. TWO-CYCLE ENGINES ARE USED.



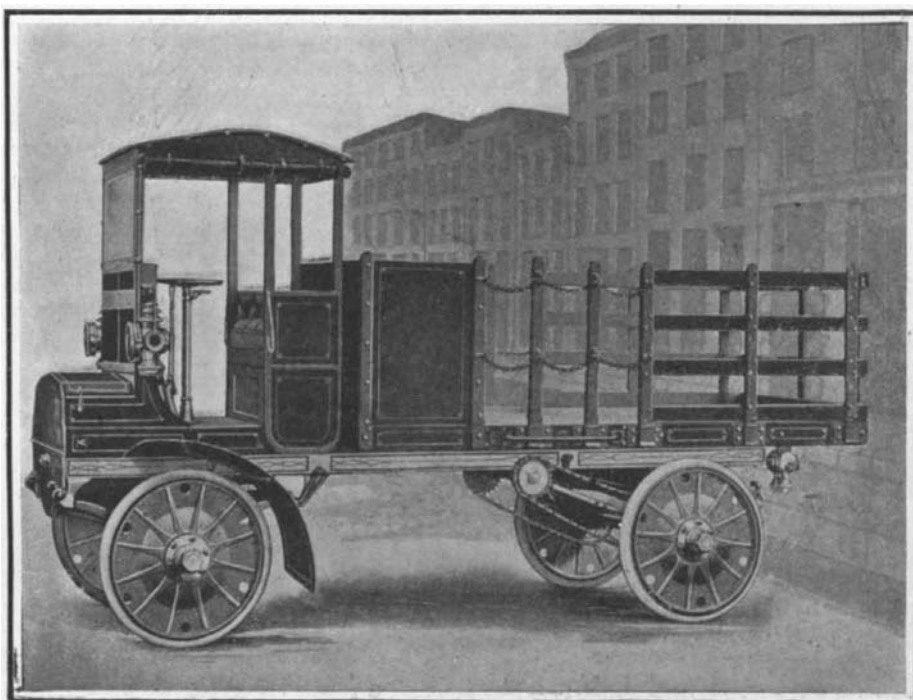
ONE OF 53 WAVERLEY ELECTRIC WAGONS USED BY A ST. LOUIS BREWING COMPANY.



A LAMBERT 3-TON TRUCK USED FOR DELIVERING LARGE QUANTITIES OF PAPERS BY A CHICAGO NEWSPAPER.



GENERAL VEHICLE COMPANY'S 3 1/2-TON TRUCK IN USE BY A NEW YORK DRY GOODS FIRM.



THE GRABOWSKY 1 1/2-TON DELIVERY WAGON.

The wagon has a quick-detachable power plant which can be taken out entirely and replaced in fifteen minutes.



BRUSH DELIVERY WAGONS NOW IN USE BY THE WASHINGTON, D. C., POST OFFICE.

A good example of the possibilities of the automobile in light service.

tor is exposed, an egg-cup full of gasoline or kerosene will keep the oil from becoming too thick and from causing trouble by clogging the small ball checks in the oil pumps.

Before putting on a new clutch lever it is advisable to soak it for 24 hours in water. When fastened to the clutch it should be given a liberal coating of castor oil, or better still, neatsfoot oil. It will take quite a time for the oil to soak into the leather properly, as the water must first evaporate, which takes quite some time.

To prevent the multiple disk clutches (metal to metal) from dragging after disengaging the clutch by the foot pedal, use only a very thin oil (spindle oil) mixed with kerosene. Good results have been obtained by taking 1/4 cylinder oil (light) and 3/4 kerosene.

Lubricating oils should always be strained before using, as grit and ground-up materials will obstruct oil-holes, pipes, etc.

Blue smoke issuing from the muffler denotes excessive cylinder lubrication or worn cylinders and has nothing to do with the mixture of gas.

THE COMMERCIAL TRUCK VS. THE HORSE.
(Concluded from page 43.)

to heavy vehicles, and it must be admitted that it possesses advantages in the smoothness with which the power may be applied and in the reserve power that may be called upon in emergencies. In the United States, however, this field is practically untouched.

The initial expense of an automobile equipment seems high to the man who is familiar with horses, and to reduce it many concerns are purchasing second-hand pleasure cars and fitting them with delivery bodies. There is no risk in making the purchase if the purchaser will have the chassis examined and properly overhauled, but he must realize that the car is suitable only for the delivery of light packages, and that it must have careful attention and handling. With the addition of suitable braces and trusses a fair load may be carried, but there can be no comparison, of course, with the cars that are designed and built for trucking purposes.

To get the fullest benefits from an automobile delivery service, it must be realized at the outset that everything about it is new, and that a stable foreman is rarely competent to give it the intelligent management that it requires. There must be regular and systematic inspection of the mechanism, correct adjustments maintained, and supervision exercised over every detail of handling, repair, and care. The ultimate cost of neglect and mishandling is out of all proportion, and it should therefore be possible to place full responsibility for a failure to lubricate or to attend to any other essential of the upkeep. Two weeks at the factory is not sufficient to change a stable hand into a competent driver, and a lack of smoothness in the handling of the car will be paid for in tires, bearings, and strains in the entire mechanism.

It is usual to see automobile trucks carrying loads far in excess of their rated capacity, and this is the most prolific cause of high repair bills. It is the custom of some manufacturers to protect their vehicles by underrating their capacity, and this also operates to protect the purchaser. Knowing that the car is likely to be overloaded, a truck that is capable of carrying a load of five tons will be rated at three tons; another method of protection that is practised is to limit the size of the body.

A business man will not purchase an electric lighting plant without engaging an engineer to tell him what he wants, to select the apparatus, and to supervise its installation. Yet he believes himself competent to purchase an expensive truck, and to evolve a system for its operation and maintenance. The exigencies of the situation are producing experts who are competent to examine into

**5 TO 25 PER CENT.
MORE POWER WITH
THE REMY MAGNETO**

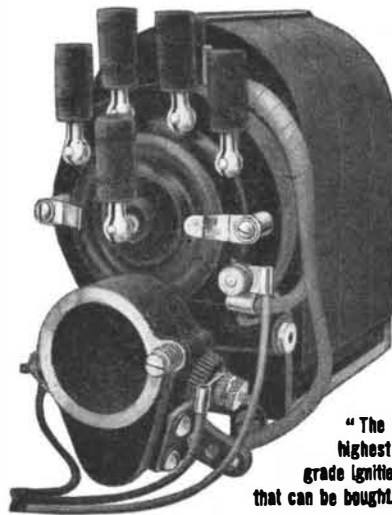
THE 1900 Remy high tension Magneto is built to withstand more neglect or abuse from oil, dirt or water than any other ignition system in the world.

It gives equally satisfactory results whether used by the most unskilled automobile driver or an experienced mechanic.

This is the Magneto without brushes.

The Remy has a stationary winding. Its rotary inductor, taking the place of the ordinarily wound armature, is a solid steel shaft with two forgings riveted to it.

It cannot give trouble. Thousands of Remy Magnetos are in use giving perfect results. Never has there been so universal a demand for one ignition system as for this.



"The Highest grade Ignition that can be bought."

We Have Sold on Minimum Specified Deliveries Over 17,000 Magnetos for 1909 Cars. More Remy's are Already Sold than All Other Makes Combined

With automobile manufacturers continually striving to build better cars than their competitors, there is a reason for their adopting the Remy Magneto.

They know it is designed specially for American automobiles. The Remy is "fool-proof."

It differs particularly in these respects from the sensitively adjusted apparatus of our competitors.

It is designed by engineers who have been connected with automobile work since its beginning, and embodies ideas suggested or approved by the largest automobile manufacturers.

Our factory was built specially for Magneto manufacturing, and is the largest of its kind in the world.

Great Victories Won with Help of The Remy High Tension Magneto

The Remy has thoroughly proved its superiority by performance. Here are some of the 1908 victories in which the Remy played an important part:

- Montreal, Sept.**—The Model 5 Buick equipped with Remy Magneto captured eight out of nine events, beating Christy and Barney Oldfield's machines and tying for the fastest half mile. Mr. McLaughlin, of the McLaughlin Buick Co., Montreal, has written us regarding our Magnetos: "Your Magnetos have behaved magnificently. We had no idea when we started to use them this year that it was possible to make a Magneto which would cause as little trouble as yours have so far."
- Long Island, Nassau Sweepstakes.**—The first and second cars winning this race use Remy Magnetos as standard equipment.
- Indianapolis Auto Races, Sept. 18-19.**—At the two-day meeting the Buick cleaned up on the first day's program and made an excellent showing the second day, defeating cars costing as high as \$4,000. The Buick-Losey Company who handle the machine, declared most of their success was due to the fact that their cars are equipped with the Remy Magneto system of ignition.
- Labor Day Races, Lowell, Mass.**—The Buick Motor Car Co. says: "Remy Magnetos used on our cars gave entire satisfaction. Our cars ran faultlessly throughout the whole race, and we can speak in words of highest praise of your Magneto."
- Savannah, Nov. 25.**—Buick equipped

- with Remy Magneto won first place among all American light cars.
- Dead Horse Hill Climb, Worcester, Mass., June 6.**—Record broken for cars up to 20 H. P. by Cameron Three-Passenger Roadster equipped with Remy Magneto.
- Economy Contest, Baltimore, Md., August 3.**—Won by Cameron Runabout equipped with Remy Magneto.
- Hill Climbing Contest, Baltimore, Md., August 3.**—Won by Cameron Runabout equipped with Remy Magneto.
- Knox Model L, 30 H. P.,** equipped with Remy Magneto, defeated all cars of equal and several of higher power.
- Norristown, Pa., Hill Climb, June 27.**—First place in \$3,000 class, first in \$4,000 class, and second in free-for-all gasoline cars won by Knox Model L, 30 H. P., equipped with Remy Magneto. Second place in free-for-all motive powers, and third place in free-for-all gasoline cars won by Knox Model M, 60 H. P., equipped with Remy Magneto.
- Arrowhead Hill Climb, West Haven, Conn., May 27.**—First place for 30 to 35 H. P. and second place in free-for-all won by Knox Model, 30 H. P., equipped with Remy Magneto.
- Rockville, Conn., Hill Climb, June 30.**—First place in \$3,000 class, first in \$4,000 class, second in free-for-all stock cars won by Knox cars equipped with Remy Magneto.

These manufacturers are regular users of the Remy and more Remy's are being specified every day for the cars of other makers:

- | | | |
|-------------------------------|-------------------------|----------------------|
| Buick Motor Co. | Overland Automobile Co. | Regal Motor Car Co. |
| Maxwell-Briscoe Motor Co. | Cameron Car Co. | Kissel Motor Car Co. |
| Apperson Bros. Automobile Co. | Midland Motor Co. | Model Automobile Co. |
| Olds Motor Works | Crawford Automobile Co. | Buckeye Mfg. Co. |

Write us for illustration and full description of our new high-tension Magneto. We also furnish fittings for attaching our 1909 high-tension Magneto to many of the leading cars. We build Magnetos in such large quantities that we can make you very attractive prices. We solicit your correspondence. Address Dept. 21.

**Remy Electric Company
Anderson, Indiana**

We have opened a Branch Office at Thoroughfare Bldg., Broadway and 57th St., New York City. We will exhibit at the A. L. A. M. Show, Madison Square Garden, Jan. 16-23; Chicago, Feb. 6-13.

the conditions under which deliveries are made, who can report on the make and type of car best adapted to perform the work, and who can establish rules for its care. It is to a man of this class that a prospective purchaser should turn for assistance. There are many houses operating automobiles successfully, but the price that they have paid for experience is far in excess of the fee that would have been charged had an expert been employed at the outset.

The construction of pleasure vehicles is approaching a condition of standardization, and the designs undergo only slight changes from one year to another. That the automobile truck is likewise emerging from a formative condition is shown by the reduced importance of the alterations required for the elimination of the weak points that develop in service. The 1909 types are far superior to the earlier models in every respect; and if their purchasers exercise common sense and business judgment in their management, there should be no difficulty in obtaining from them the swift, efficient, and economical service that is so greatly to be desired.

HIGH-TENSION IGNITION BY MAGNETO.
(Concluded from page 45.)

as such, but this is an error; for while it produces a high-tension current, the magneto itself delivers a current of even lower voltage than the magneto used for the make-and-break system.

While the Remy and Eisemann systems are similar in that they use separate coils, the magneto construction is different. In the Remy the winding is separate from the armature core and is stationary, the core revolving within it. The core and winding are shown in Fig. 7. When the core is revolved within the pole pieces of the field magnets, the cylindrical portion within the winding becomes magnetized and demagnetized, currents being developed in the winding to correspond with the degree and rapidity of the changes.

The Bosch high-tension magneto differs from the Remy or Eisemann in producing a current of high voltage in the armature winding, and without the use of a separate coil, this construction being also common to the U. & H., the new Eisemann, the Witherbee, and Comet. Instead of but one winding, the armature carries two, the inner or primary consisting of a few layers of coarse wire, and the outer or secondary of a great number of layers of fine wire. The disposition of these windings may be seen in Fig. 1, and the complete armature with the field magnets in Fig. 8. One end of the primary winding is grounded on the armature core, and the other passes to the insulated part of the interrupter, Fig. 9. While in the Remy and Eisemann magnetos the interrupter is stationary and operated by a revolving cam, in the Bosch the two fiber wheels, serving as cams, are stationary, and the interrupter revolves with the armature. This arrangement makes it possible to conduct the current from the primary winding direct to the interrupter without the use of a commutator or of sliding brushes, the action of which might be interfered with by dirt or oil.

In the Remy magneto and in another type of Bosch the primary current is conducted direct to the interrupter without the use of a commutator or sliding brushes, on account of the use of the stationary winding, which is used in its construction.

During the revolution the grounded lever makes and breaks contact with the insulated part, offering the primary current a short circuit while the contact is closed. As may be seen from the diagram, the secondary winding is grounded on the live end of the primary, its live end being connected with the revolving part of a secondary distributor.

In order that a current may flow it must have a closed circuit, and this will be the condition of the primary winding while the interrupter lever is in contact