

AN INTERESTING AUTOMOBILE RELIC.

The automobile curiosity which is shown in the accompanying photograph was built in 1890 by its present owner, several years prior to the general introduction of horseless carriages in this country. It is owned by Achille Phillion, of Akron, Ohio, who keeps it in his barn, treasuring it as a relic. The machine complete weighs about 550 pounds, and is of 1-horse power. At first the machine was steered from the rear seat, but later was so arranged that it could be steered from either front or back seat. It was patented in 1892, and was named "Phillion's steam road-carriage."

This automobile was built after the ideas of Mr. Phillion. However, as he was neither a machinist nor a carriage builder, the work was done by others. The upright engine and the boiler were made by a manufacturer of fire engines. At the time that the automobile was being built, Mr. Phillion was traveling from place to place. He took the uncompleted machine with him. During his stay in various cities he hunted up a new machinist, and kept the work progressing under his personal direction. When completed, he used the machine in his travels in the West Indies, Canada, and the United States. It is in good working order to-day, but Mr. Phillion has a modern machine which he prefers to use.

THE IVEL AGRICULTURAL MOTOR.

For two years there has been at work in England a new portable petrol agricultural motor, the invention of Mr. Dan Albone, of the Ivel Motor Works, Biggleswade, Bedfordshire.

This new motor has been designed and made chiefly for the use of farmers. It is constructed to draw motors, reapers, plows, scuffles, wagons, etc., by attaching these machines to the back of the motor. The connection is formed by taking out the long pole of the mower, and substituting a shorter one, the latter being joined to the motor by a spring coupling. Almost any agricultural machine can be attached to the motor in a few minutes, and apart from working in the field it can be utilized on the farm for cutting chaff, pulping roots, grinding corn, and other operations.

The petrol motor is an 8 horse power double-cylinder with water circulation. It has electric ignition, one speed forward and reverse, and it is claimed that any ordinarily intelligent farm hand could drive it after a few lessons. The engine is free, and when put in motion a friction clutch is employed to transmit the power through an intermediate shaft to the balance gear shaft of road wheels, by means of patent silent-running chains. The wheels have extra wide rims with grips on to prevent them from skidding round. The machine complete weighs 17 hundredweight, 7 pounds, and for traveling on the high-road detachable rubber pads are attached to the rims of the wheels by means of thumb screws. These rubber pads lessen the vibration and enable the motor to run more silently than it would do otherwise.

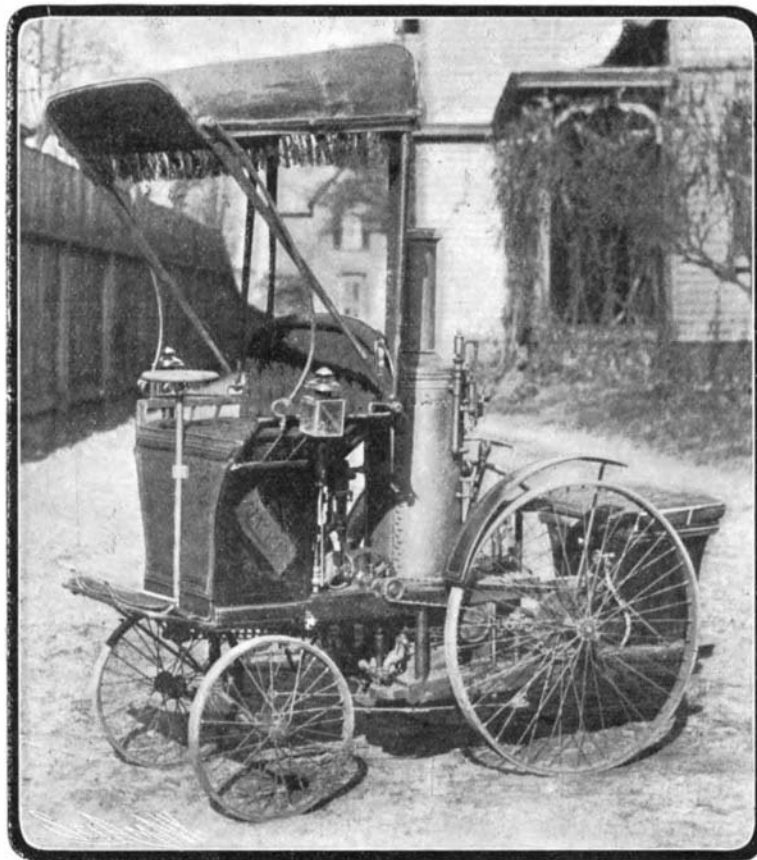
They are easily fitted or taken off in a very short time. The cost of fuel and necessities in running the new agricultural motor is very small and Mr. Dan Albone claims that it works out considerably less than the cost of horse labor.

The Ivel agricultural motor has been employed in harvesting operations in Bedfordshire, Lincolnshire, and other English counties. The motor attached to a Hornsby 6-foot reaper and binder cut heavy crops of wheat and it was found that the cost of fuel worked out at about 8d. an acre and that less time was taken than formerly when horse labor had been employed. Besides this, two horses and a man were dispensed with, for the

motor requires only one man to manipulate it.

The Ivel motor also cut a field of barley, and after cutting the crop it drew the loaded wagon from the field. In order also to prove its capabilities Mr. Dan Albone attached a two-furrowed Hornsby plow to the

case was equally well done. The motor plow can easily cut two furrows in one operation, about 20 inches wide and 5 inches deep. There is no doubt that in agricultural operations there is a great future before the mechanically-propelled vehicle. Hitherto in Great Britain the stationary engine has been almost exclusively employed, though in some places traction engines are used to haul plows, mowers, reapers, binders, etc., across the fields. The motor in the field itself running up and down the land is a new departure in England, and there is no doubt that such a motor as the Ivel will prove of very great value to the farmer. There is much agricultural depression in Britain, yet it was estimated that last autumn there were more than six and a half million acres of wheat, barley, and oats to be reaped, to say nothing of nearly eight million acres of hay to be cut in England alone.



A STEAM CARRIAGE OF THE YEAR 1890.

motor and a piece of oat stubble land was plowed. The work was declared by farmers, who witnessed the trials, to be exceedingly well done, the furrows being even and of good depth. Martin's cultivators were also tried attached to the motor and the work in this

engine is placed longitudinally in the center of the boat, and drives, by a belt, a transverse countershaft, this driving, by bevel gear, the two side screws. The blades of these screws are pivoted, and can be turned by a hand wheel so as to act in the reverse direction

for going astern. When it is desired to work the central screw, the belt is shifted on to another pulley. Another barge, the "Haldy I.," having only the central hinged screw, driven in the same way, is fitted with a similar sized engine using producer gas. The construction of the gas generator is similar to that in use for stationary purposes and has already been described in the Motorwagen, No. 14, 1902. With this generator, the time from first lighting up to starting the engine is only 30 minutes, a full charge of the generator lasting 5 to 6 hours. All danger of explosion is excluded by the partial vacuum in the gas supply pipe. Two other types of boats, fitted with more powerful engines, are described. A detailed description of the regulating arrangements is then given, for which reference must be made to the original paper. The writer is hopeful for the future of this method of propulsion, owing (1) to the small space required, the cargo space being diminished by only 6 to 8 per cent, as against 15 to 20 per cent for a steam engine and boiler; (2) the high thermal efficiency, 24 to 26 per cent compared with 8 to 9 per cent for steam engines; (3) the little attention required, and low working costs which, in the case of the "Haldy I.," work out at 15 to 20 pfennig per barge kilometer, or 0.075 pfennig per (metric) ton kilometer.



THE IVEL MOTOR DRIVING A THRESHING MACHINE.



THE IVEL MOTOR HAULING A SCUFFLE.

The relative consumption of benzine and alcohol at different compressions in a 2-horsepower motor was investigated by W. A. T. Mueller (Zeit. d. Ver. deutsch. Ing.), but the calorific value of the fuels was not tested, and a commercial rather than a scientific result was aimed at. Compressions from 3 to 7½ atmospheres in excess were investigated, the motor being kept