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A PETROLEUM MOTOR TRICYCLE.

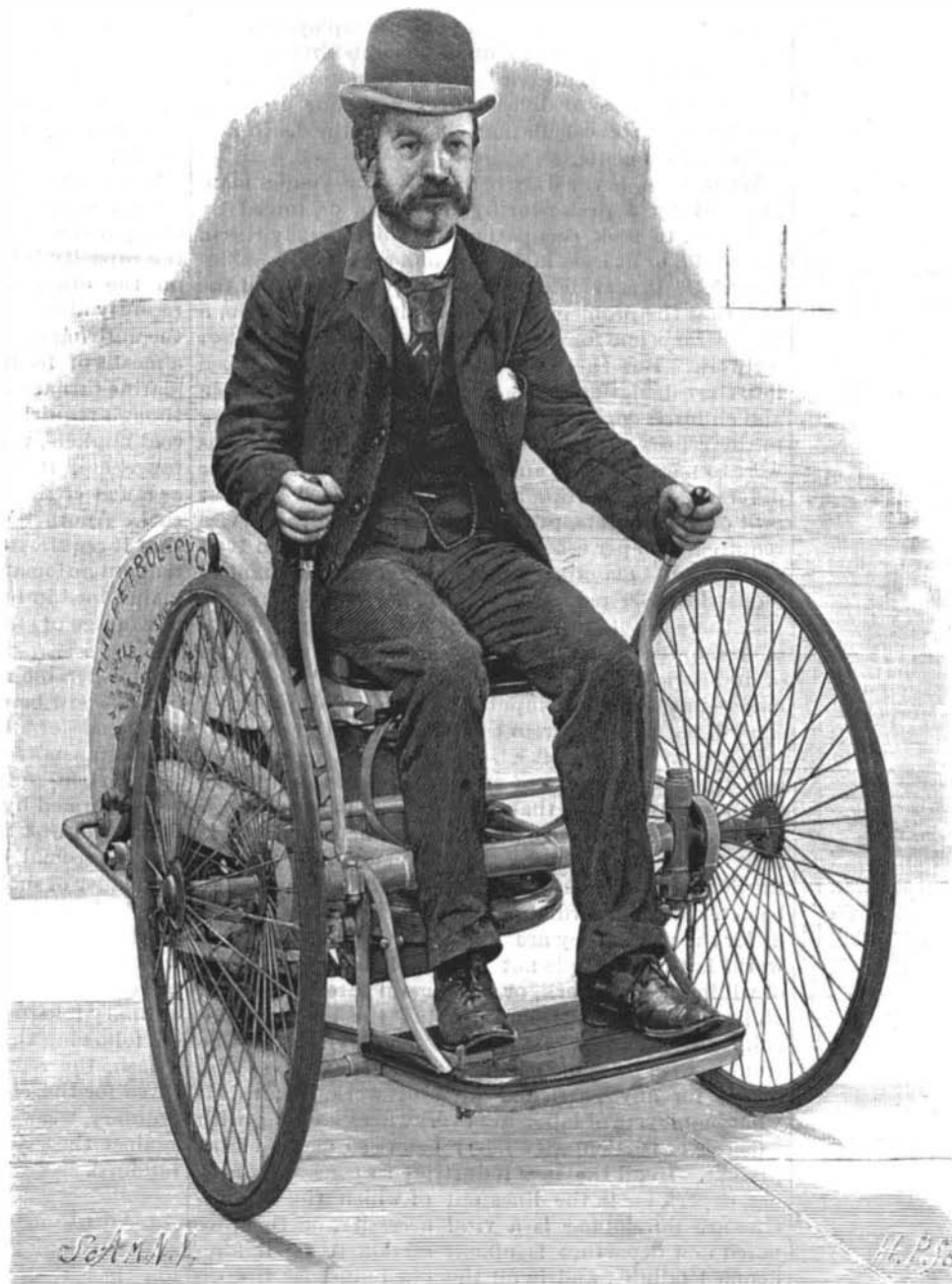
A motor suitable for propelling a light road vehicle, to carry a single passenger or two or more passengers, and which shall be light in weight, inexpensive to construct and operate, and not liable to get out of order in the hands of unskilled persons, has long been sought for. The inventors of this country, as well as those of France, Germany, England, and other nations, have brought forward many plans and combinations of devices designed to satisfy the above requirements, but in no case has a sufficient measure of success been attained to lead to any general adoption of such means of locomotion. With the more extended use of bicycles and tricycles, which have become so popular within the last twenty years, efforts have been specially directed to the adaptation of a motor to the propulsion of a vehicle of this description, the illustrations herewith representing the latest work of one English inventor in this direction, Mr. Edward Butler, of Greenwich, England.

In this machine one gallon of petroleum or benzolene is designed to furnish sufficient power to accomplish a run of forty miles, at a speed of from three to ten miles per hour. At each side is a motor cylinder whose pistons operate in the four-stroke cycle, that is, one stroke draws in the air and oil vapor, another stroke compresses the charge, which is exploded at the third stroke, and exhausted on the fourth. The pistons operate a crank shaft carried by the rear or driving wheel bearings, the hub of this wheel at one side inclosing a specially devised epicyclic gear by which the motion of the shaft is communicated to the driving wheel axle in the ratio of six to one. The shaft also carries a fly wheel, mounted to be as close as possible to the spokes of the driving wheel. The motor cylinders are each controlled by a balanced rotating valve, and both cylinders are supplied with explosive mixture by drawing air through an inspirator situated over an oil reservoir containing a supply of benzolene, or a similar petroleum product. A valve regulates the oil feed, and the mixture of air and oil spray formed in the atomizer is volatilized before distribution to the cylinders. The compressed charges are alternately ignited by an induced current of electricity passing across terminals fixed in the cylinder covers, the current being generated by a small single-fluid battery under the seat. Stopping and starting is effected by raising and lowering the driving wheel from the ground by a foot lever, the weight of this portion of the machine being then thrown upon small caster wheels. In one of the views the driving wheel is shown raised ready for starting, when the crank shaft is set in motion by a handle before the driver mounts to his

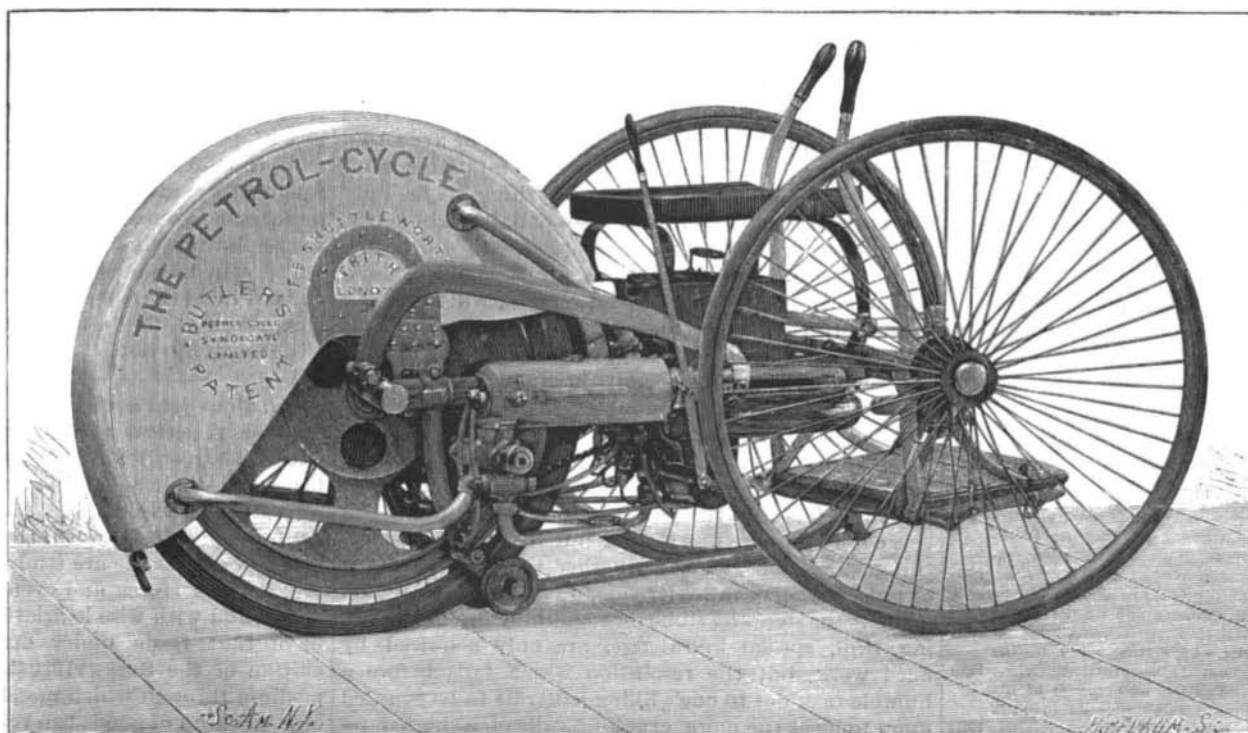
seat. The speed of the motor is regulated by a throttle valve lever, shown at one side, and over-heating is prevented by water circulating through a radiating tank over the driving wheel. The tank is of $3\frac{1}{2}$ gallons capacity, but with a very large proportionate surface. Steering is effected by a pair of rocking

handles actuating the front wheels, which move on separate pivots, and the brake is applied to both of these wheels by a foot lever.

The diameter of the wheels is 32 inches, and the whole of the framing and the engine rods are made of oval steel tubing. The weight of the machine is 280 pounds. The arrangement of the parts is such that the motor is very compact, and it is said to be readily and easily started, the electric ignition not introducing any difficulty.



THE PETROLEUM MOTOR TRICYCLE IN OPERATION.



A PETROLEUM MOTOR TRICYCLE TO RUN FORTY MILES WITH ONE GALLON OF OIL.

The Great Siberian Railway.

The great Siberian railway, which will more closely connect Europe with the teeming millions of China, Japan, and Eastern Asia, will be commenced this spring. The total length of the line will be 4,810 miles, and the cost about thirty-two millions sterling. In case permanent bridges are built over the immense rivers Obi, Yenesei, Lena, etc., the outlay will be still greater. The commercial and political importance of this undertaking is greater than most people suppose. It will not only help to open out the immense resources of Southern Siberia, but will enable Russia to compete more successfully for the Japanese and Chinese carrying and import trade. Goods that are now sent by sea to Europe will ten years hence be carried overland into Europe, and a good deal of the Chinese carrying trade will go into the hands of Russia. A large portion of the railway will run through millions of acres of the finest virgin soil, over immense rivers, in primeval forests which have never been cut, and through countries abounding in mineral and vegetable wealth. When the line is ready it will be possible to work the rich gold, silver, iron, copper, and plumbago mines of Eastern Siberia, which have hardly yet been touched in consequence of the scarcity of labor and the absence of machinery. The rich and fertile regions of the Amoor and Usuri, which boast of a climate as fine as that of France, will then be open to colonists, and also millions of acres of land which are at the present moment almost unpopulated. By means of this railway

Russia will be able to convert Vladivostock into a great naval and military station like Sevastopol, and, if necessary, pour several hundred thousand troops on the Chinese frontier in less than three weeks' time. And last, and not least, among the benefits which will accrue to mankind through this undertaking, will be the possibility of visiting China or Japan in about a fortnight from Central Europe, with all that comfort that is attached to railway traveling in Russia.—From a Correspondent in Public Opinion.

IMPURE or second-grade paper pulp mixed with fuller's earth makes an excellent lagging for steam pipes.