

THE PEDRAIL—A NEW TYPE OF ROAD LOCOMOTIVE.
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The ideal conditions for a rolling wheel are a hard, smooth wheel rolling on a hard, smooth track, and inventors have employed their ingenuity in devising vehicles which would lay down rails as they went along, thus providing a movable track. No system of putting down temporary rails by the machine itself and picking them up again has ever been a practical success; but quite recently there has been invented a machine which does the reverse of this. In the "Pedrail" system—the invention of Mr. Bramah Joseph Diplock—wheels are placed upon the ground and fixed rails, attached to the carriage, glide over them.

This new type of wheel has been applied to a traction engine with excellent results.

The accompanying diagram reveals the principle of the "pedrail." A disk is keyed to the driving axle, on which disk sixteen sliding spokes are mounted. The extremity of each spoke carries a foot pivoted by a ball-and-socket joint in order that it may have a

from the top of the disk, strikes the guide and gradually forces the sliding spoke outward, thereby enabling the foot to turn on its ankle joint by its own weight as it comes down and to drop with its full surface on the road. The roller then passes under the rail in the manner illustrated.

In an ordinary railway a rail is laid down, and wheels are run over it. In the Pedrail, wheels or rollers (mounted on feet shod with rubber) are laid down, and the rail is run over them. The principle is the same, only the railway is inverted. It is, in brief, a combination of an *inverted* endless railway with a walking or trotting machine.

After witnessing trials of the Pedrail, Prof. Hele-Shaw said that Mr. Diplock had secured a means which makes it possible to draw a load not merely over roads, but over agricultural land, fields, and plains, and even to climb mountains; "in a word, not only has he, in my belief, a tractive agency which makes his vehicle able to traverse the worst possible roads without the slightest difficulty, or to pass over ordinary roads in any weather without doing the

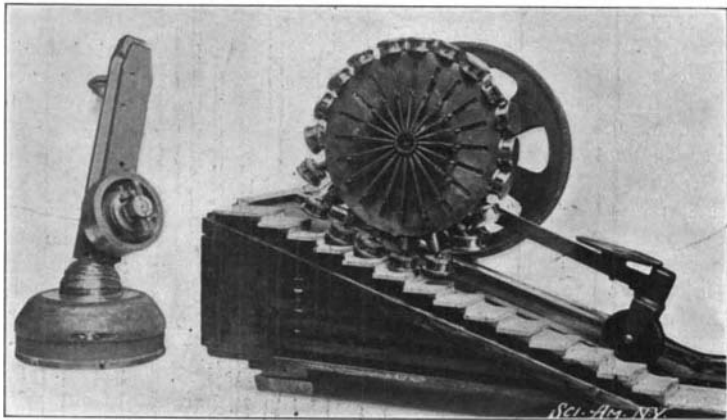
9-inch planks, and passed over large stones without crushing them and thus distorting the road surface.

The life of an ordinary traction engine is commercially about four or five years, whereas some English railway locomotives have been in use for thirty or forty years. Mr. Diplock believes that with such an arrangement of springs as he has devised, the life of a road engine would assimilate itself more nearly to that of the railway locomotive. This, of course, would be a very important gain as regards working expenses.

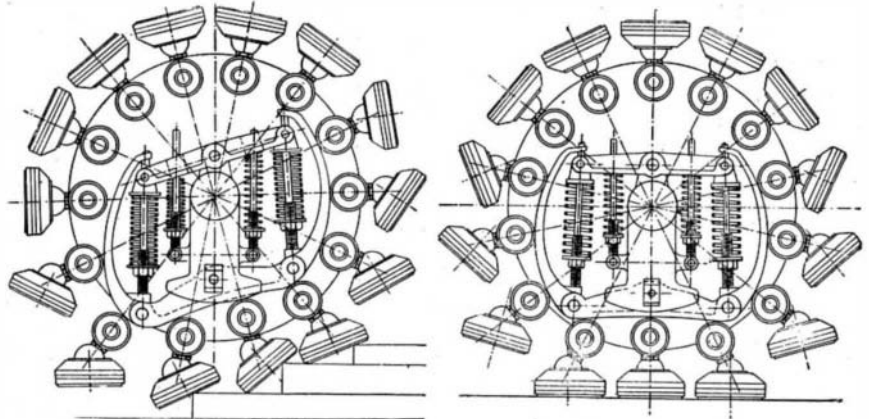
The whole of the working parts of the Pedrail, with the exception of the projecting square steel spokes and the rollers, are dust and dirt proof, and are lubricated automatically from one central supply chamber, which holds a surplus supply of oil. The square spokes work in and out upon reciprocating ball bearings, and have a special provision in renewable dust-proof plates round them.

A Marconi Plant for International Use.

A Marconi station is to be located at the pier of



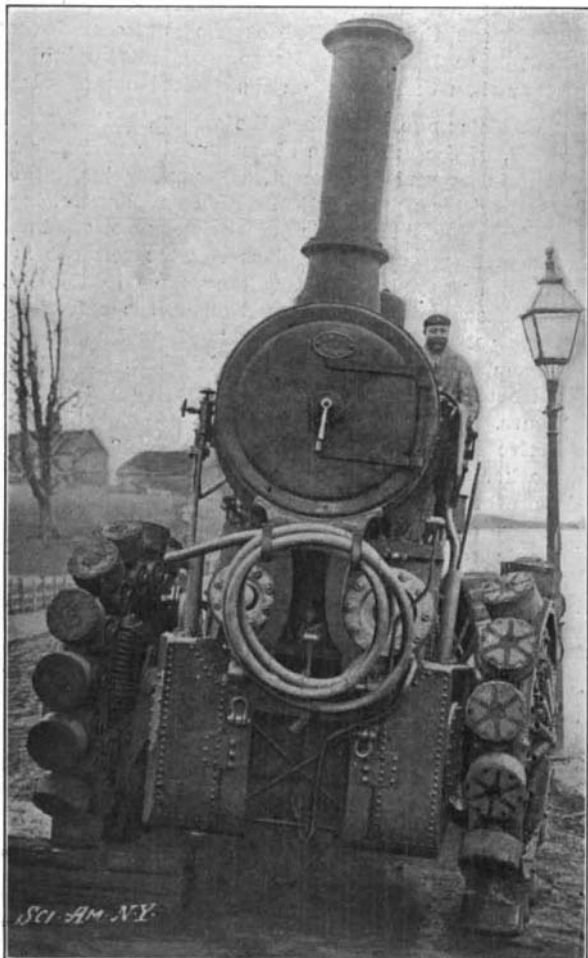
MODEL SHOWING THE PEDRAIL ASCENDING A STAIRWAY.



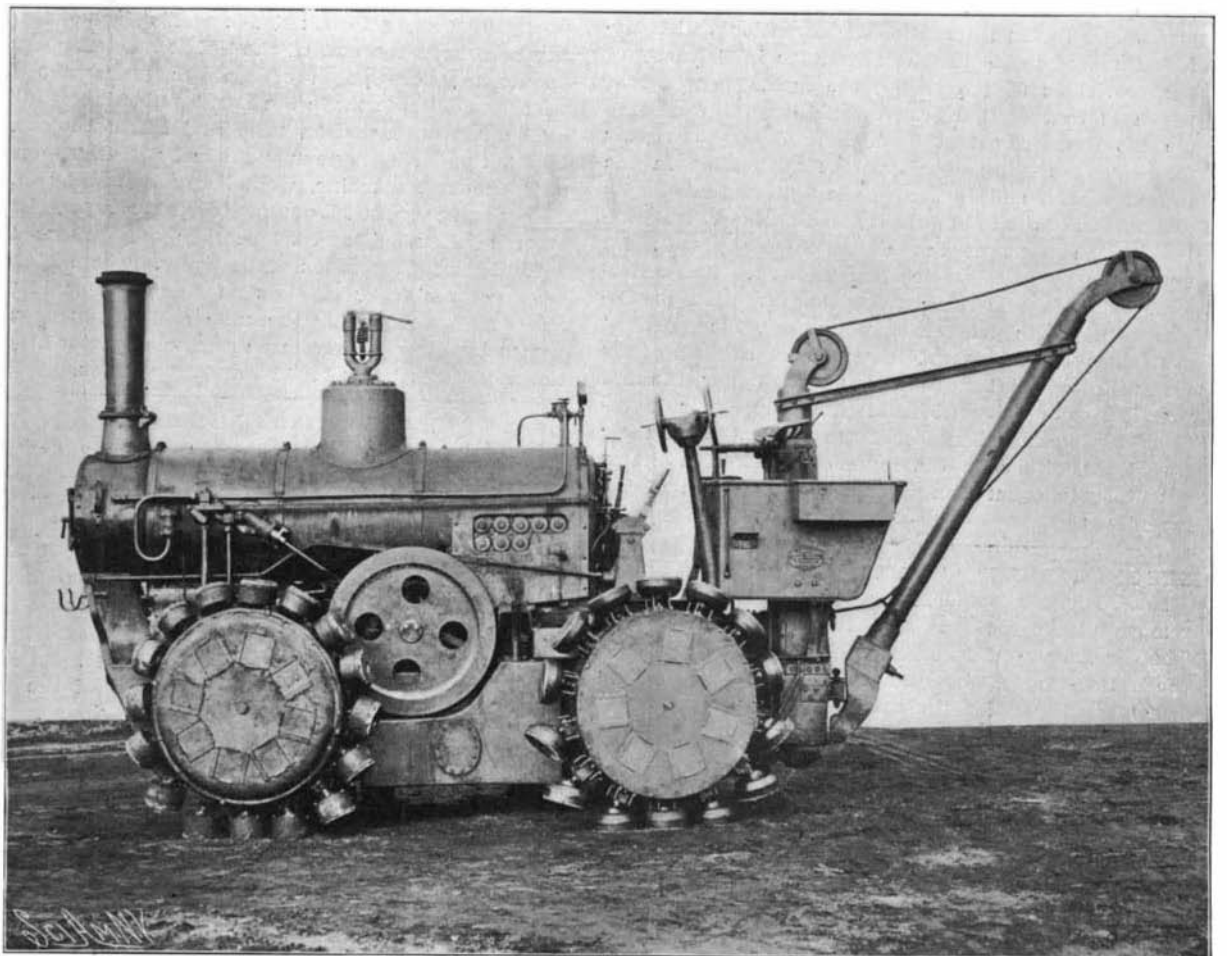
Position of the parts in overcoming obstacles.

Position of the parts on a level road.

THE PRINCIPLE OF THE PEDRAIL'S OPERATION.



A PEDRAIL TRACTION ENGINE SURMOUNTING AN OBSTACLE.



DIPLOCK TRACTION ENGINE FITTED WITH PEDRAILS. ALL FOUR WHEELS ARE DRIVERS.

limited free movement to suit the surface of the road. On one side of each spoke, and projecting beyond the disk, is a small wheel or roller. Each spoke is provided with a spring on the other side of the disk, by which spring the spoke can be drawn inward. The springs radiate from the center and are not shown in the diagram. On the axle box a rail is mounted, which is pivoted to a flat plate or guide, forming part of the axle box. The pivot of the rail has free vertical movement in a slot formed in the plate. The engine is supported by the rail through the medium of two springs abutting against the top lever pivoted to the top of the axle box. Two inner guides are provided to lead the wheel or roller under the rail. All the levers and springs on the axle box lie flat against the disk, from which it follows that the rollers projecting from the disk are arranged around the guide and the rail. The disk and the pieces attached to it (spokes, rollers, and plate) revolve. The axle box with its attached parts (dependent lever, guides, rail, and springs) does not revolve. Hence a roller, starting

slightest injury to them, but he has solved the problem of a self-propelled vehicle and traction engine which is absolutely independent of roads at all."

Chief among the merits of the Pedrail is the reduction of the wear and tear of the road surface. Heavy vehicles with ordinary wheels do endless damage to the highway, but the Pedrail, in that it tends to beat down the projections without increasing the depressions in the road surface, actually tends to improve the road. The fitting of rubber tires on heavy vehicles is a costly process. The rubber soles for the Pedrail are not made of pure rubber, the buffer action necessitating an admixture of other material to harden it. The cost of soling an entire Pedrail would not exceed \$25.

Furthermore, the Pedrail gives the maximum of road adhesion and the minimum of road resistance.

A vehicle fitted with pedrails can travel over the worst roads, can be used where no roads exist, can climb stiff viaducts, and can surmount with ease obstacles in its path. In trials the Pedrail walked over

the American Line at the foot of Fulton Street, North River, New York city, so that vessels held outside of the harbor during fog may communicate with the city at once. The use of the new station will not be restricted to the vessels of the International Marine Company. Any steamer equipped with the Marconi apparatus will have equal privileges. The station will be for the use of the general public.

The mammoth Brady union stockyard at Atlanta, Ga., which is said to be as large as anything of its kind in the country and the only one in the South, has just been finished at a cost of \$500,000. It covers thirty acres and has accommodations for five thousand head of cattle and two hundred men. The auction mart is said to be the largest in the world, being 60 by 400 feet. A pretentious hotel has been erected on the grounds, which is encircled by a half mile track. It is hence possible for prospective buyers to South the porch and watch the movements of animals in which they may be interested.