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New "Wonder Axle" Invented in Switzerland

As everyone knows, when the first railway lines were being laid, the engineers were free to choose whatever gauge they wanted. While most companies chose a width of 1435 mm, which thus became the standard gauge, Spain and Russia opted for wider gauges (1668 and 1524 mm respectively). Once the various national networks expanded and met, it obviously proved impossible for waggons from these two countries to run on other European lines and vice-versa. Towards the end of the last century, the long and irksome transfer at the frontiers, not only of passengers but also of goods, came to be a great handicap, and patents dating back to 1891 prove that attempts were made to solve this problem right from the start. Various solutions having been proposed and tried out—without any giving entire satisfaction—the International Railways Union (I.R.U.), at the request of RENFE (Red Nacional de Ferrocarriles Espanoles), decided in 1966 to organise an international contest for the invention of a variable gauge bogie running equally well on the Spanish and other European railroads, under conditions of load, speed, safety, reliability and life comparable of bogies with standard axles; in addition, the change of gauge had to be entirely automatic. In 1968, the international jury responsible for examining the many solutions sent in awarded first prize to the Ateliers de Constructions Mecaniques de Vevey SA (Vaud, Switzerland).

This Swiss firm was then commissioned to study and perfect a vari-

able gauge axle based on its invention, and to make and supply 30 of them. After five years of research, production started in the spring of 1972 and very shortly the new axles will be fitted on 10 carriages and waggons belonging to RENFE, which will put them through searching tests regarding load, speed and braking over a distance of at least 187,500 miles. France too is to submit two of these axles to exhaustive tests in the laboratories of the French National Railways (S.N.C.F.). But it is not sufficient to be able to alter the width between the wheels on an axle to fit the railroads of different countries, the wheels being securely locked in each of the corresponding positions. It is also necessary to have an automatic device for carrying out this alteration of width. The Ateliers de Constructions Mecaniques de Vevey have invented a gauge-changing device which, after being subjected to various trials in Switzerland, will be transported to the Irun frontier railway station.

This entirely automatic device moves the wheels in and out on their axle as well as carrying out all bolting operations, and at the same time checks that the latter have been carried out properly, the waggon remaining on its wheels the whole time. In this way a whole train of waggons or carriages can pass from standard to Spanish gauge or vice-versa, simply by driving through the gauge-changing device at reduced speed. Naturally the system is easily applied to other differences in gauge, in particular that existing between the standard track and the Soviet network.—(SODT).