

## **UNDER THE BONNET** BY TIN-TIN

"The greatest invention since the wheel" is a phrase commonly used and the implication is that once invented, well that was that. In fact down the ages we have constantly had to re-invent the wheel. Its earliest form was probably a tree trunk forming a roller, although a rounder boulder may well have played a part. Early wheels of solid wood must have been prone to splitting along the grain and must have had a short life. They were, in later form, reinforced with a criss-cross of bronze strips and probably tyres as well. Wood was the material of choice for centuries, but the slow improvement in roads and the need for speed (limited only by the horse) and comfort led to the development of springs to improve ride and comfort. The need to reduce the weight of the wheel now gained impetus, indeed the reduction of unsprung weight was essential for the life of early springs.

The grace and delicacy of the horse-drawn 18th century carriage became an art form and the development of the spoked wooden wheel with iron tyres and hub bands attained a high degree of reliability. This was echoed in the industrial revolution but wooden wheels on steam locomotives quickly gave way to wheels of iron and then steel, although again, the need to keep down unsprung weight, dictated the need for spokes or sometimes large circular holes. The bicycle only became a practical proposition when a large diameter light weight wheel became available, not that the spoked wheel arrived overnight, it too needed development. When combined with a pneumatic tyre the early motorcycle and its logical development the motorcar could be developed with some success.

The wire wheel like all its predecessors, was developed to meet a perceived need. It is light in weight and thus gives a more comfortable ride, but many early cars and even commercial lorries stayed with the wooden spoked wheel right up to the introduction of the cast spoked "gun-carriage wheel". The reasons are not hard to perceive, the light weight of the wire wheel was attained only at the expense of its inherent strength. It is unable to carry heavy loads reliably (the wire wheeled lorry is definitely a thing of the past) and it is quickly prone to failure when subjected to high lateral stress, (run one obliquely into a curb at some speed and it will fail).

The wire wheel is more expensive to make than its successor the pressed steel wheel, which became popular in the 1930's. The new wheel was easier to keep clean, stonger and required less maintenance. With its almost obligatory chrome hub cap it was to survive for many years. The emergence of the cast alloy wheel, initially in competition, has spread to the high street. Although the higher cost can hardly be justified in engineering terms, these wheels have now entered the realm of fashion. The pressed steel wheel has countered this competition with a plastic disc, almost always the same colour as an alloy wheel!.