SPRUNG HORN GUIDES.
An assessment of a number of methods.

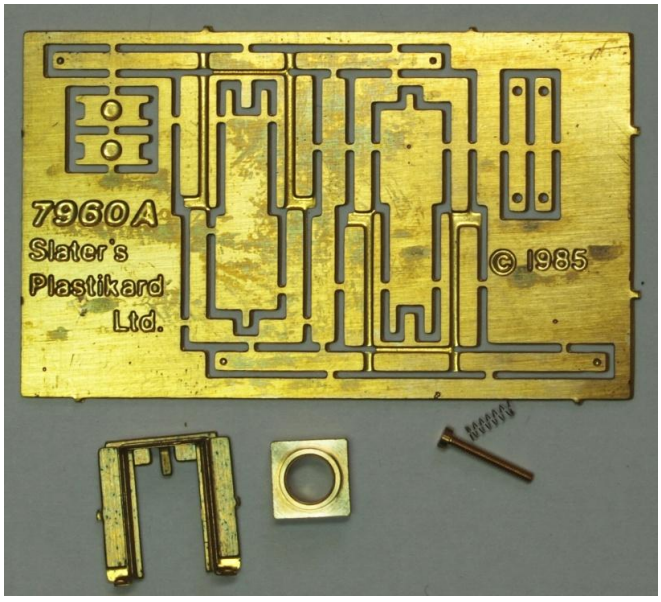
For those of us who prefer to build locomotives with either full springing or compensation (or, a combination), there are several options open to us.

The simplest would appear to be simply to cut the guides in the frames to fit the normal top-hat bearings so that they have vertical movement only and either, solder spring wire to the top of the bearing and the frame, or, fit an appropriate compensation beam. It can look a little crude perhaps but it is effective. However, there are two major problems with this approach. It can be difficult, and or time consuming to set the ride height and the process requires that the slots in the frames be cut with great accuracy. This requires great care and accuracy with the saw and files unless one has access to a milling machine. Achieving a free running chassis is not necessarily easy, but can be done.

Horn guides make the job far simpler since we do not have to cut guide slots in the frames to great accuracy and, with the use of a jig, ensure that the guides and bearings are fixed in the frames square and at the same relative height.

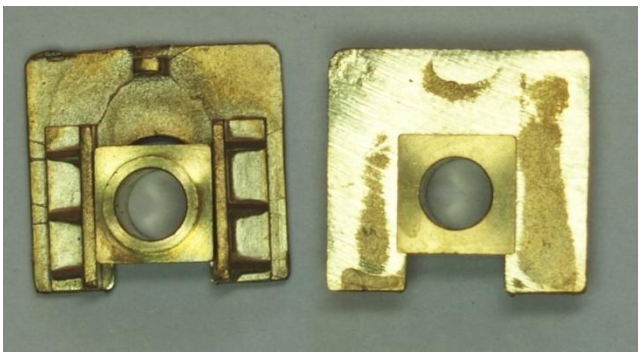
There are a number of commercial horn guides available and I want to examine their relative merits, entirely in the light of my own experiences and prejudices.

The first I shall deal with is the etched type as manufactured by Slater's (among others) where the horn guide is folded up from etched components to take a slotted bearing that can slide up and down. (Figure 1.)



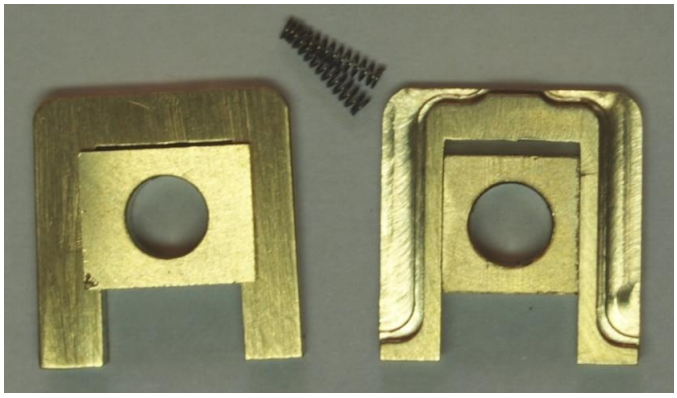
This is both simple and relatively inexpensive (a few pounds an axle) but requires some skill on the part of the modeller and, often, much fettling to achieve a good sliding fit. Even when a good fit has been achieved though, there is likely to be further fettling required once the unit has been soldered in to the frames. Nevertheless, with care and attention, they can produce good results.

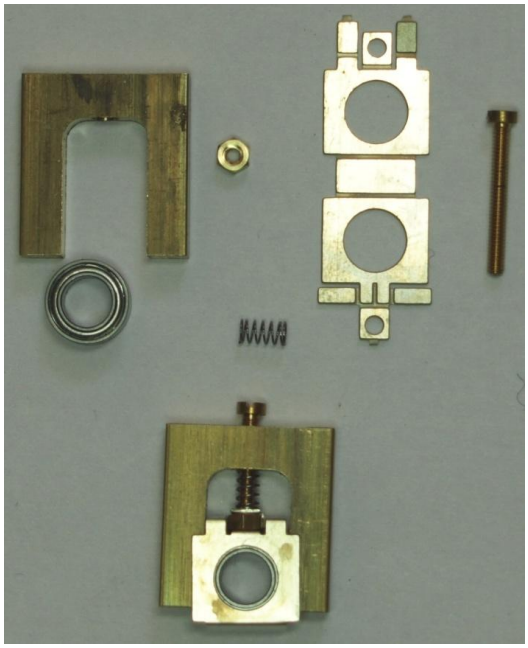
Horn guides based on a lost-wax casting, as produced by Fourtrack, offer an improvement in that they have the advantage of being rigid. However, it is still necessary to fettle the horn guide and bearing to achieve a good, sliding fit but is unlikely to require further work once the unit has been soldered into frames. (Figure 2).



It is however, necessary to drill and tap the hole for the bolt that holds the spring in place and adjusts the ride height. On balance, it is a better solution, for a somewhat higher cost, than the etched method but still requires a good deal of work and skill to achieve satisfactory results.

CNC milling, a lá Laurie Griffin, is to me a, relatively, new method for producing horn guides and offers great accuracy but one is still required to drill and tap a hole to hold the bolt to adjust the ride height and hold the spring. (Figure 3). This method is relatively expensive at £20 an axle but provides a high level of engineering excellence.





The last method examined uses CNC milling and an etched component plus roller bearings and is manufactured by Hobby Holidays. (Figure 4). The horn guide is milled to take the roller bearing. The etched component is merely a carrier for the bearing, spring and adjusting bolt, which is shortened to suite any particular set of frames. It takes minutes to put together and is then ready for fitting to the frames. It also provides a high level of engineering excellence and better running characteristics for a reasonable £16 per axle. Given the saving in time, the accuracy and reduced rolling resistance of the finished chassis, I think it represents the good value and I intend to use it for all future locomotive construction, sprung or compensated.