

be used to construct a model which may not appear very much like the original mechanism, but in fact reproduces all its essential, mathematical features. This model has two very big advantages for the kinematician. Firstly, it demonstrates the movement in a very clear way, without all the complex shapes and 'bits and pieces' on the real machine. Secondly, the link lengths can be changed very quickly in the Meccano model by just choosing a different hole in the strip, or by

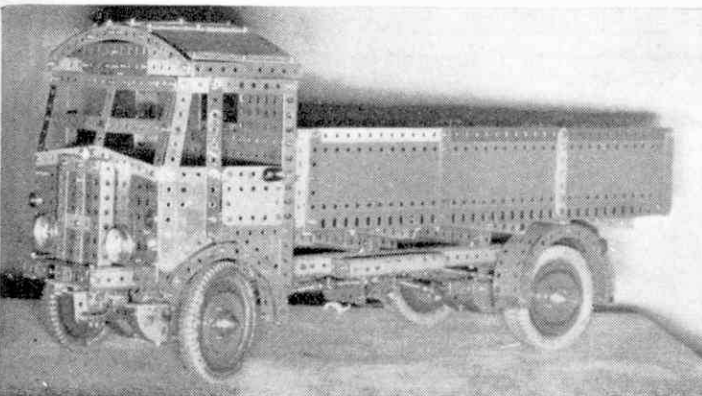
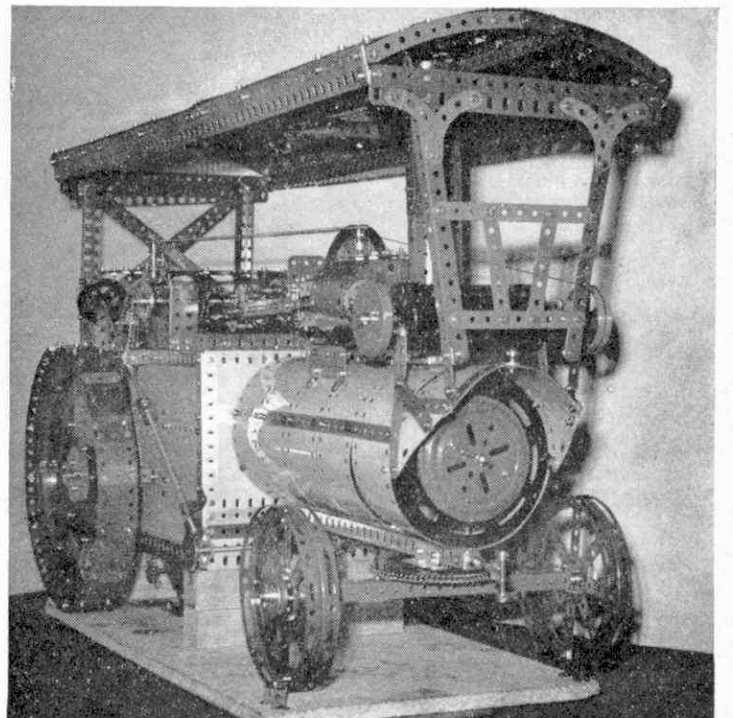
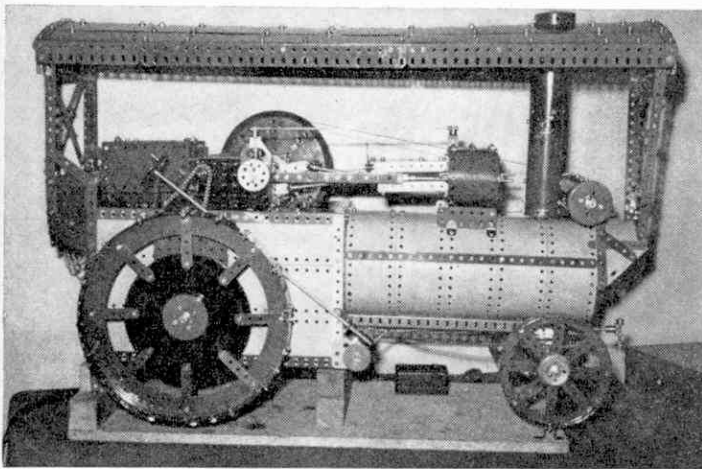
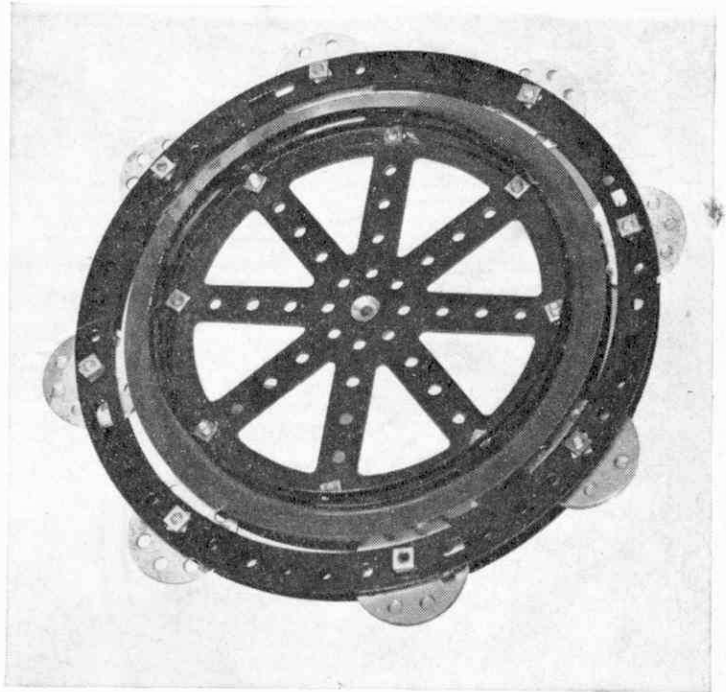
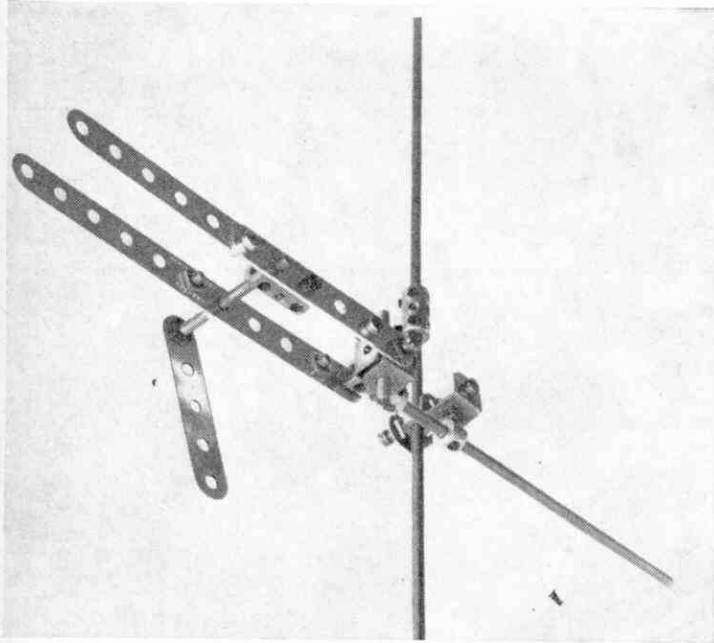
using a different rod length. This enables the best possible shape of a mechanism to be decided very easily.

Because they can be readily built up and changed, kinematic models are being used more and more in class. Students learn to analyse velocities, accelerations and so on for real machines and a model which actually reproduces the motion they are analysing, gives good appreciation of 'feel' for the problem.

Even more interesting is the appli-

cation of Meccano in research. Here 'new' mechanisms have to be analysed to find out if their movement, often very complex, can be used to solve a particular problem. All the link lengths, angles, gear ratios, etc., have to be changed and the effect of the changes noted. One way this was done was by programming a digital computer to analyse the motion and then plotting graphs for each particular size of link, gear, etc. However, it was found to be quicker to make up a Meccano model and note

the effects of changing the lengths, etc., of its members. Any particularly interesting result can then be analysed accurately on the computer. Using the models, therefore, saves time-consuming hand plotting of graphs as well as giving a physical realisation of how the mechanism moves. The computer will not replace Meccano for this job until it can either show a moving picture of the mechanism, or make its own model, and both of these are still quite a long way off.



Opposite page: examples of two kinematic models and general view of Mr. Adams' adjustable clamp stand. Above: close-up detail of the clamp stand, A. G. Gamble's new type of bearing for a dragline, and two Meccano favourites—a showman's tractor and heavy lorry