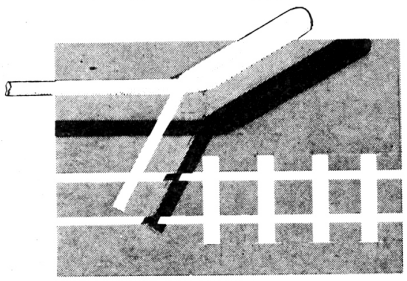
The Alex Jackson Coupling



by John Langan & Norman Whitnall

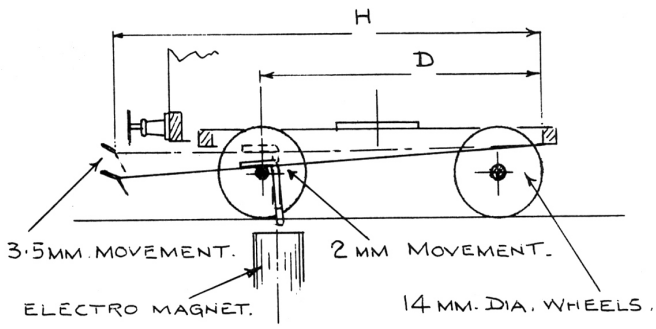


FIG 15. RATIO OF MOVEMENT. 4W BOGIE.

Continued:—

Ratio of movement—Wagons

Fig. 11 shows that in relation to a 12mm diameter wheel there will be a permissible downwards movement of 3mm. The axle acting as a stop when the coupling is in the lower position there should be 0.5mm (min) clearance between the tip of the dropper leg and the magnet face.

From Fig. 14 it will be seen that the distance 'D' of the dropper from the point of anchorage in relation to the distance 'H' to the hook, is in the approximate ratio of 2:3. So that for a movement of 3mm at the dropper the vertical movement at the hook will be 4.5mm, which is ample for disengagement of the coupling hooks.

Four wheeled bogies

In this application using 14mm diameter wheels the movement is reduced to 2mm. With the ratio of movement between the dropper and the hook being approximately 4:7 the movement at the hook would be 3.5mm which is satisfactory. These dimensions may vary to suit a given application but it is desirable to have 3.5mm down movement at the hook to obtain satisfactory operation.

Locomotives

It is our general practice to have the coupling at each end of a locomotive non-operative as shown in Fig. 16. No dropper is therefore required and uncoupling is performed from the coupling of the adjacent vehicle.

Coach Sets

Coaches permanently coupled in sets could be arranged to have the operating coupling at each end of the set.

Minimum Running Radius

Simple pulling of a coupled train is permissible on quite small track radii. It will be seen however that two wagons being pulled around 30ins radius as in Fig. 17 causes the coupling wires to be offset from the centre. This results in an undesirable side force which increases as the radius gets smaller. For reliable running we keep our minimum radius at 30ins.

Pushing loose vehicles around a small radius is of course possible. Note that the coupling cannot in any way act as a centre buffer, the vehicle buffers must fulfil their proper function on curves.

Minimum radius for Coupling & Uncoupling

Coupling will not occur reliably if the vehicles are brought together on a track radius of less than 4ft due to the relative angles of vehicles. Fig. 18 illustrates that as two vehicles come together on a small radius of track the buffers will meet 'A' before the coupling tails have passed each other to engage 'B'. If possible therefore always leave vehicles for re-coupling on straight track.

Uncoupling should be arranged on a length of straight track, and it is not desirable to have the electro-magnet positioned on a radius of less than 4ft for this purpose.

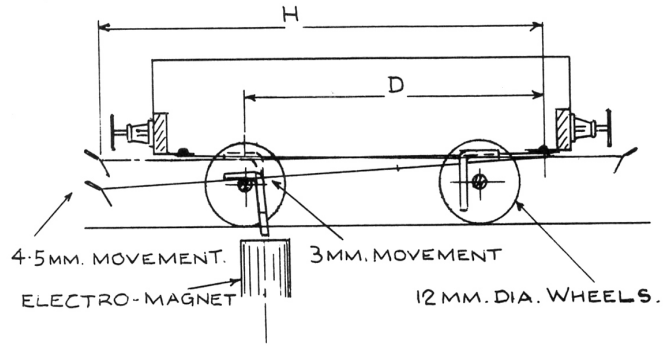


FIG 14. RATIO OF MOVEMENT. - WAGONS.

Buffer stops

Rail built or other types of stop blocks should be made so that the cross beam is high enough to allow the nose of the coupling to pass under.

This completes the description of the Alex Jackson Coupling as used at the present time on models of 4mm to 1ft scale. Many modellers working in other scales have enquired about the application of the coupling to their models and we therefore conclude with some notes which we hope will be helpful.

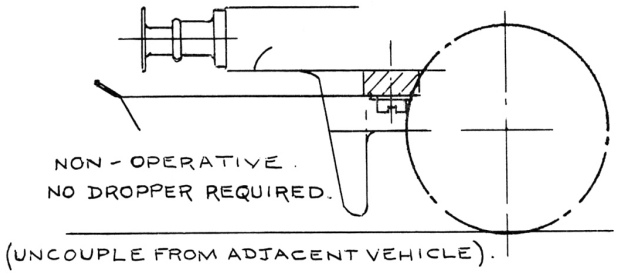
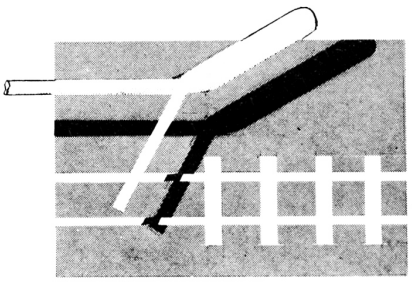


FIG. 16. LOCOMOTIVE COUPLING.



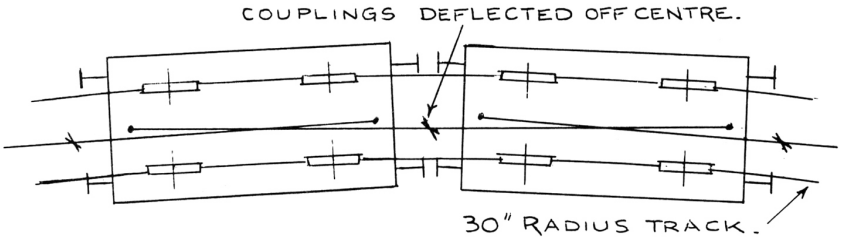


FIG. 17. MINIMUM TRACK RADIUS.

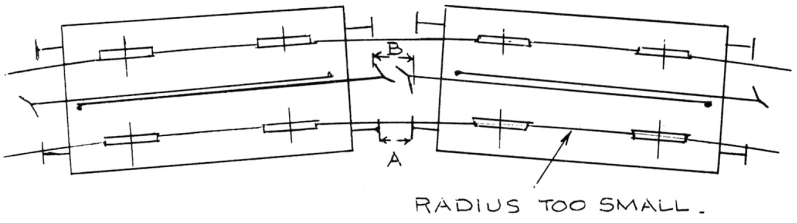


FIG. 18. FAILING TO COUPLE.

Scale 3/16ins to 1ft (S Gauge)

We know that some experiments have been in 'S' gauge but so far no firm results are to hand. In the light of our experience of the coupling we put forward the sizes shown in Fig. 19 as a workable proposition. The spring wire could be 29 gauge (.0136in.) or 28 gauge (.0148in.).

Fig. 19 shows the dimensions as applied to wagons with 3ft diameter wheels. On passenger stock using 3ft 6ins wheels the movement of the wire to the axle would be reduced to .100in. at the dropper position. This would be increased by the ratio of movement to approximately .150in. at the coupling, which would disengage the hook. In this instance the clearance of the tip of the dropper leg from the magnet face would be .068in.

Scale 2mm to 1ft

When our team took 'Presson' EM layout to the MRC exhibition in 1962 we were delighted when Mr H. Groves showed us his 2mm scale layout on which the rolling stock had been successfully fitted with the Alex Jackson type of coupling. Mr Groves used .006in. diameter wire and halved the sizes we had given for 4mm scale, a principle which could well be used for similar scale comparisons below 4mm scale.

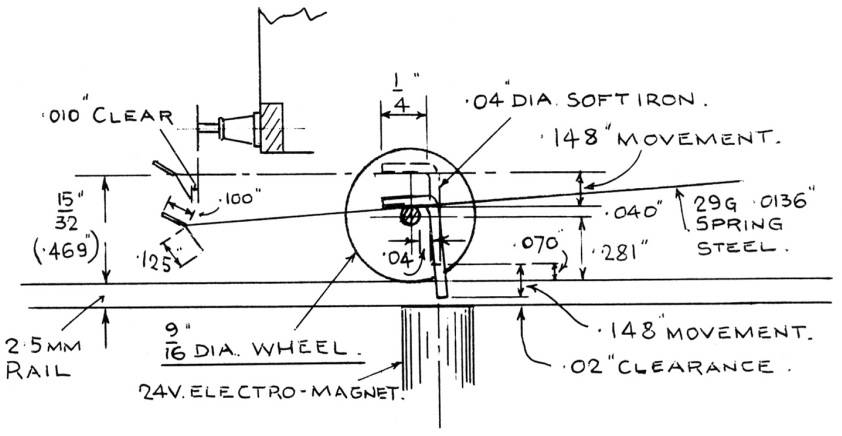
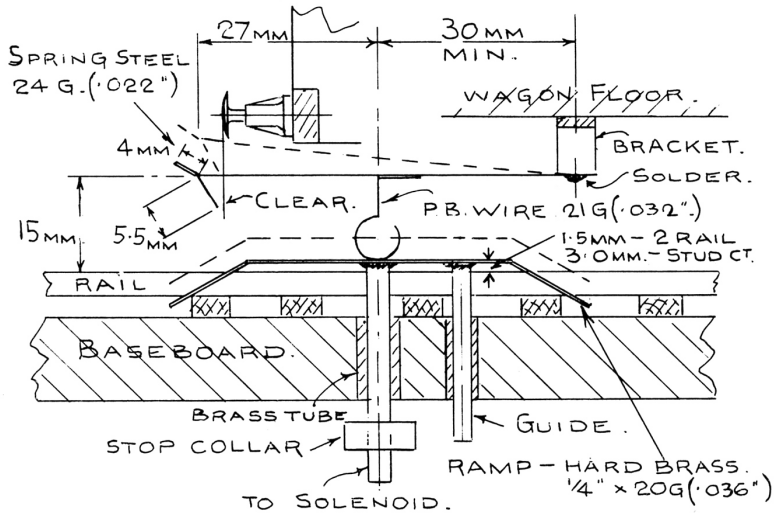


FIG 19. PROPOSED DIMENSIONS. 'S' GAUGE.



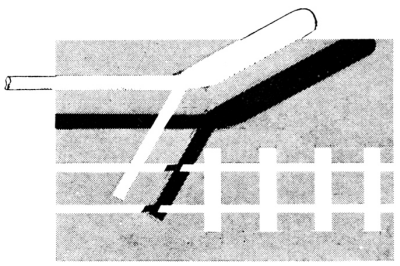


FIG. 20. ELECTRO-MECHANICAL COUPLING. 'O' GAUGE.

Scale 7mm to 1ft (O Gauge)

In the larger sizes of models difficulties with the magnetic operation occur because the air gap between the magnet and the dropper leg is so much greater. This makes it that the magnet will not attract the dropper with sufficient power to operate the hook reliably. In such circumstances it is necessary to revert back to the original system of electro-mechanical operation in which the coupling is lifted up by a solenoid operated ramp. Some years ago one of our MMRS members, Mr Jim Meredith, successfully developed the sizes for an electro-mechanical version of the coupling for O gauge, details of which are given in Fig. 20. The hook, made from 24 gauge (.022in.) spring steel, is bent in the manner described for 4mm size. The coupling wire being set at 15mm from rail level makes it possible to lift the hook clear for uncoupling before the wire hits the buffer beam. The greater weight of O gauge rolling stock eliminates the problem of vehicles lifting when the coupling is raised mechanically. This problem of lifting was very real on 4mm scale, and was one reason for the development of the magnetic version of the coupling.

Over the years, demonstrating the Alex Jackson coupling to the general public and to fellow modellers has brought us many friendly contacts; we hope that this revised description will help many more to enjoy the fascination of this mechanism which helps to make the appearance of running a model railway so railway-like.

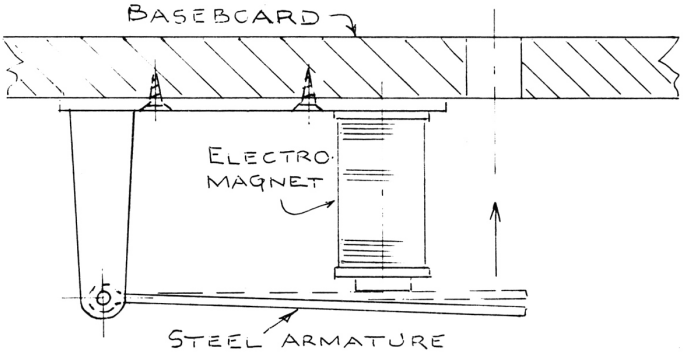


FIG. 21. HOMEMADE SOLENOID TO OPERATE RAMP.

Fig 11 reproduced from part 1 and mentioned in paragraph one of this final part.

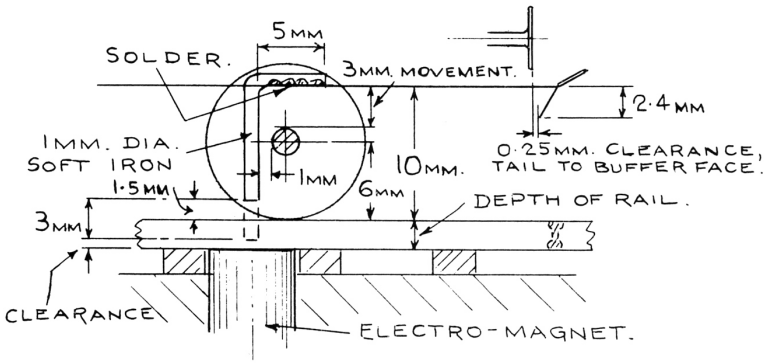


FIG 11. WAGONS. (12MM. DIA. WHEEL.)