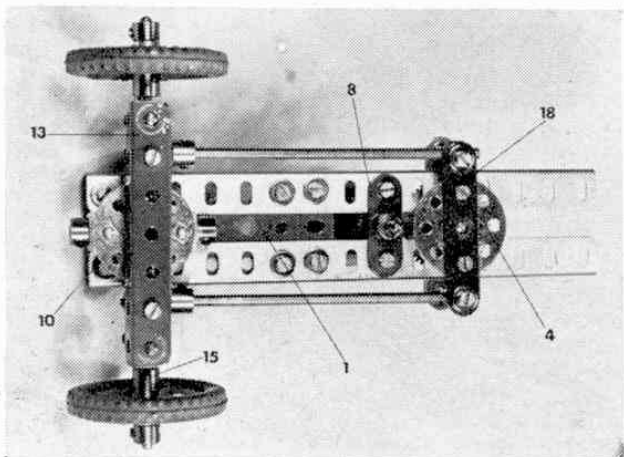


AMONG THE MODEL BUILDERS

with Spanner

ON PAGE 598 of this issue you will find full building instructions for an agricultural tractor fitted with an attachment for boring post-holes. Incorporated in the tractor is a working steering system—perfectly adequate for the model in question, but not what could be described as accurate from a realism point of view, as I will readily admit. Modern tractors often employ a drag-link steering system quite unlike the system fitted to the model and so I am giving first place in this article to a reasonably accurate drag-link method which is ideal for tractor models reproduced in Meccano. Strangely enough, it was designed by a member of Meccano's model-building staff, Pat Lewis of Formby, Lancashire, who built it up in his spare time at home for his son. (Meccano is also Pat's hobby, as you may have read in September's "Workbench" !)



This Drag Link Steering System, designed and built by Pat Lewis of Formby, Lancashire, is intended for use in an agricultural tractor.

The following details apply to the mechanism as illustrated, although its design would vary depending on the model to which it was fitted. A $3 \times 1\frac{1}{2}$ in. Flat Plate 1, a $2\frac{1}{2} \times 1\frac{1}{2}$ in. Flanged Plate 2 and a $2\frac{1}{2}$ in. Strip 3 are fixed between two $7\frac{1}{2}$ in. Angle Girders, the Strip being attached by Reversed Angle Brackets to the vertical flanges of the Girders. Bolted to the horizontal flanges of the Girders, in line with Strip 3, is a $1\frac{1}{2}$ in. Strip which, along with the other Strip, provides bearings for a $1\frac{1}{2}$ in. Rod on which an 8-hole Bush Wheel 4 and a 50-teeth Gear Wheel 5 are mounted. In mesh with Gear Wheel 5 is a $\frac{3}{4}$ in. Pinion 6 on a $3\frac{1}{2}$ in. Rod held by Collars in a Trunnion 7, bolted to Flanged Plate 2, and in two $1\frac{1}{2}$ in. Strips 8 fixed between Girders 1. A 1 in. Pulley with Motor Tyre is secured on the upper end of the Rod to serve as a steering wheel.

It is interesting to note, by the way, that this mechanism, like that fitted to a full-size tractor, is fitted with a "floating" front axle which is to say that the axle is centrally pivoted to move in the vertical plane. Bolted to the underside of Flat Plate 2 is a $1\frac{1}{2} \times \frac{1}{2}$ in. Double Angle Strip 9 to which another similar Double Angle Strip is pivotally attached by a 2 in. Rod held in place by Collars. Bolted to this second Strip is an 8-hole Wheel Disc 10 and to this, in turn, a $3\frac{1}{2}$ in. Angle Girder 11 is bolted. Two Threaded Bosses are attached to this Girder, but are spaced from it by a Collar on the shank of each securing $\frac{3}{8}$ in. Bolt 12. Fixed by ordinary Bolts to the lower ends of the Threaded Bosses is a second $3\frac{1}{2}$ in. Angle Girder 13, the two Girders thus resulting in a "box" shape.

Journalled in the holes in each end of the Girders is a 1 in. Rod held in place by a Handrail Coupling 14 and a Collar positioned respectively above and below the upper Girder. A Rod Socket 15, carrying a 1 in. Rod, is screwed into one tapped bore of the Collar, then a $1\frac{1}{2}$ in. Pulley with Motor Tyre is mounted loose on the Rod to be secured by a Collar. The Pulley must turn freely.

A further 1 in. Rod is now fixed in the head of Handrail Coupling 14. Mounted on this Rod is the "spider" of a Swivel Bearing 16 fixed on one end of a $4\frac{1}{2}$ in. Rod 17, on the other end of which a Collar is mounted. This collar is pivotally connected to a $2\frac{1}{2}$ in. Strip 18 bolted across the centre of Bush Wheel 4. Rod 17 at each side, of course, acts as the drag link.

The following Parts List applies to the unit as illustrated.

PARTS REQUIRED

2—5	2—21	1—51
3—6a	1—22	12—59
2—8b	1—24	2—64
2—9b	1—24a	1—73
2—12	1—25	2—111c
2—15a	1—27	1—126
1—16	22—37a	2—136a
1—17	26—37b	1—142c
1—18a	14—38	2—142d
6—18b	2—48	2—165
		2—179

An underside view of the Drag Link Steering mechanism showing construction of the chassis and drag link connections.