Twin Disappearing Guns

An advanced Meccano Model designed and described by Joseph Manduca, A & C. E.

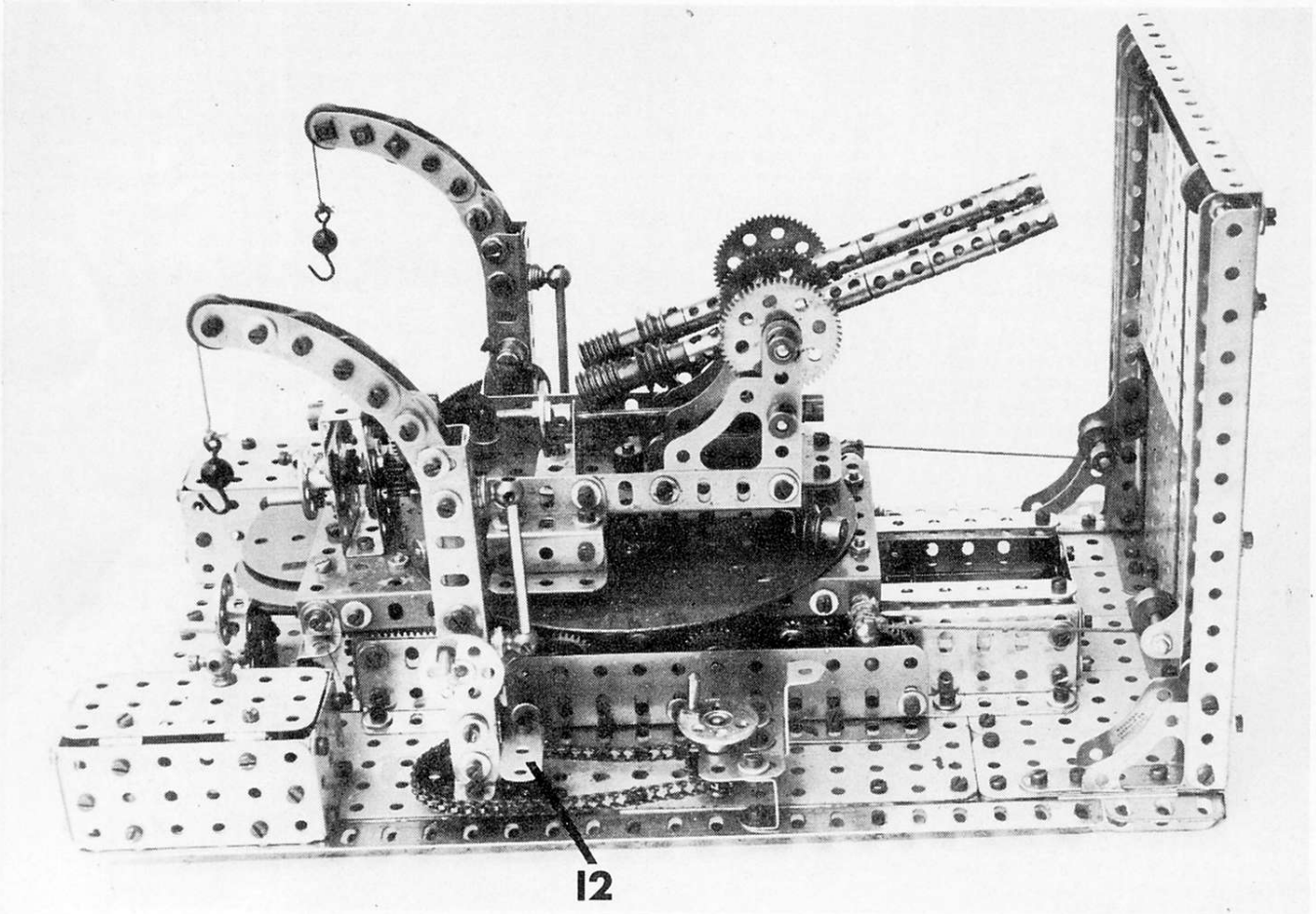


Fig. 1.

This Meccano model is based on camouflaged guns located in strong natural defences such as a cave. When the guns are loaded they move forward and the screen lowers itself to permit the barrels to protrude. After 'firing', the guns recede and the defensive screen rises.

THE BASE (FIG 2)

The base consists of six 5½" x 2½" and five 3" x 1½" Flat Plates fixed together by widthways-running doubled 7½" Angle Girders, (in 'T' formation). At each short side single 7½" Angle Girders are used and along each long side, 3½" and 2½" Angle Girders fitted between the widthways-running 'T' Girders, hold a 12½" and a 1½" Angle Girder butt-joined.

LOWER GUN PLATFORM (FIG 2)

Two 9½" Angle Girders 1 and two 2½" Angle Girders 2 are fixed to form a rectangle in the centre of the base six holes from the rear. These four Girders are extended upwards by Flat Girders of corresponding lengths and the two 9½" Flat Girders are surmounted by two more 9½" Angle Girders, elongated hole flanges facing in. These flanges support 9½" Strips 3, separated by two Washers on each fixing bolt shank.

TRAVELLING MOVEMENT (FIG 2)

A small Bush Wheel is fixed on a 3" Rod 4 which also carries a Collar and a 19t ½" Pinion. This Pinion drives a similar gear fixed to a 6½" Rod 5 which carries three Worm gears which engage the teeth of three ¾" Pinions mounted

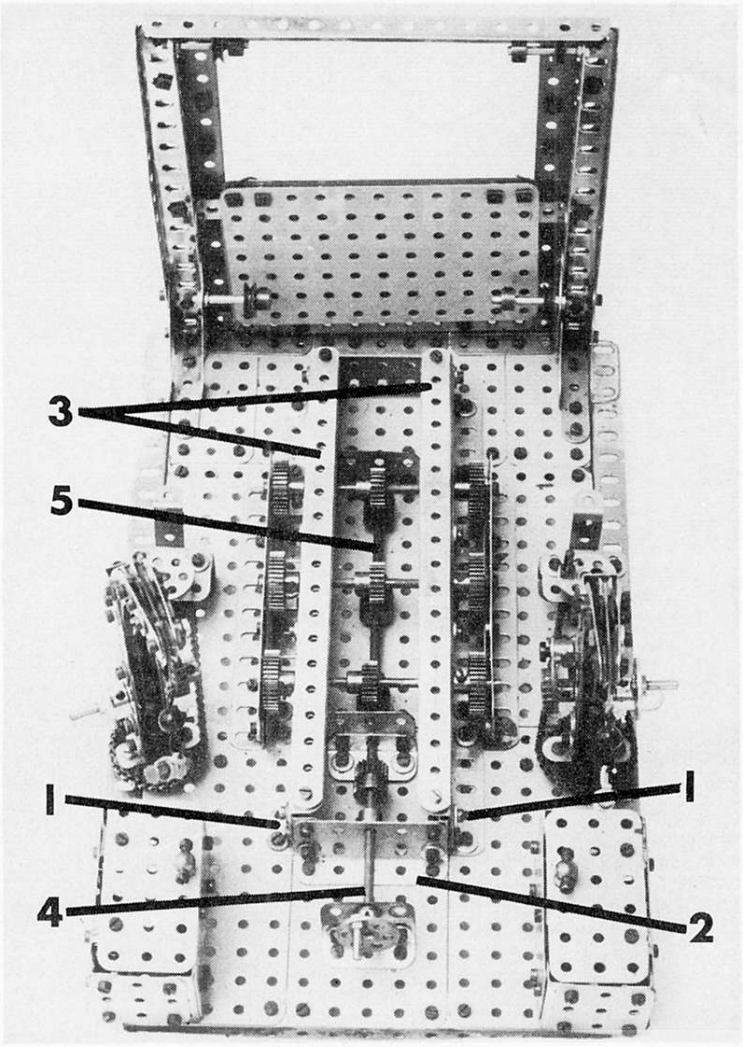


Fig. 2.

above them on transversely mounted 4" Rods. Each end of these three 4" Rods carries a 1" Gear wheel and is further journalled in the round hole sides of two 5½" Flat Girders held by two 5½" Angle Girders fixed to the base.

THE SLIDING BASE (FIGS. 3, 4 & 5)

This is made simply of three 3½" x 2½" Flanged Plates held together by a 6" Circular Plate and two 6½" Rack Strips along the flanges. A Bush Wheel is fixed to the centre to serve as a pivot for the gun slewing and an extension consisting of three overlapped Semi-Circular Plates is provided at the rear. Six Slide Pieces are attached to the Flanged Plates via Threaded Pins, these Pieces engage the 9½" Strips spaced by Washers mounted atop the 9½" Angle Girders of the lower gun platform mentioned earlier. The 6½" Rack Strips should then be found to engage the teeth of the six 1" Gear wheels.

The gearbox on this sliding base, (figs. 4 & 5), consists of two Channel Bearings joined by 1½" Flat Girders on the inside edges. A small Bush Wheel on a 1½" Rod also carrying a 19t ½" Pinion, drives a 50t 1¼" Gear wheel 6 on another 1½" Rod which has a 7/16ths" Pinion fixed to it. This engages the teeth of a 3½" Rack Strip that has previously been formed to a curve mounted at the rear of the gun carriage, construction of which will shortly be described. The sliding base is completed by the addition of built-up steps at the rear and the fixing of Threaded Bosses to each front corner; these support lock-nutted Handrail Supports, (fig 1).

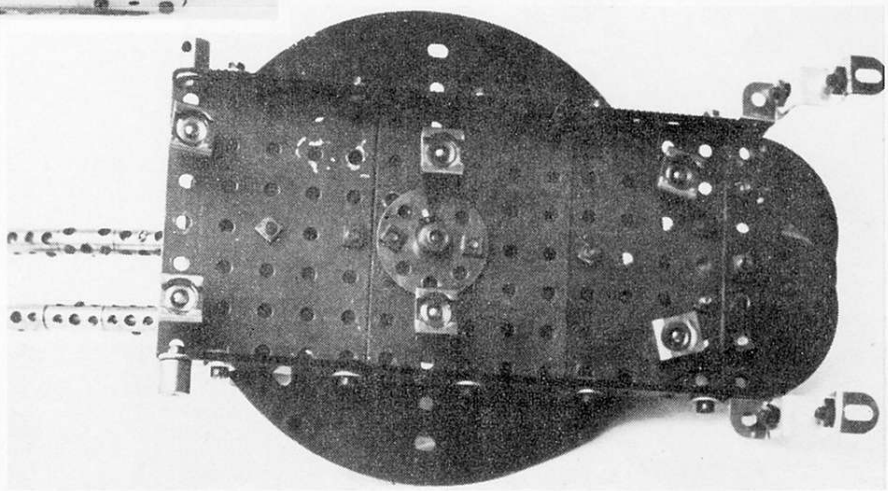
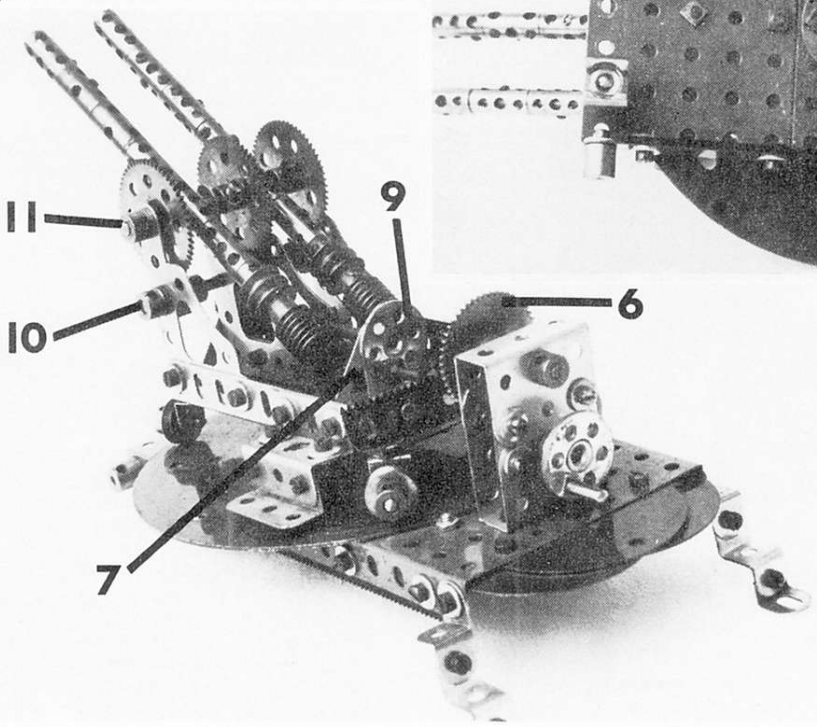


Fig. 3

Fig. 4



THE GUNS (FIGS 4, 5, 7, 8 & 9)

The gun base is a 4½" x 2½" Flat Plate which is extended at the front by a 1½" Flat Girder on which is fixed a Trunnion. Two 4½" Angle Girders along the sides each carry Corner Gussets (long edge facing up and to the front), and steps comprising three 1½" Angle Girders. A Trunnion 7, and two further Corner Gussets 8 held at the base by two 2" Angle

Girders are attached, and the Rack Strip mentioned earlier is curved to a radius of 2-¾" and mounted via Obtuse Angle Brackets to the rear of the 4½" Angle Girders. A small Bush Wheel 9 is fixed on a 3½" Rod which powers via a Worm gear, a transversely mounted 3" Rod 10 journalled in the Corner Gussets and carrying three 19t ½" diameter Pinions and two Collars.

Each Pinion meshes with a 57t 1½" diameter Gear wheel mounted on another 3" Rod 11 journalled in the top holes of the Corner Gussets. Each of the two gun barrels consists of six Couplings, a ½" Pulley with boss, a ½" loose Pulley, (preferably brass) and a Worm gear. The Rod 11 supporting the barrels passes through the centre transverse smooth bore of the fifth Coupling from the front end. The gun base pivots around a central 2" Rod and is supported by four loose ½" Pulleys held by Collars on Threaded Pins affixed to Angle Brackets mounted at each corner.

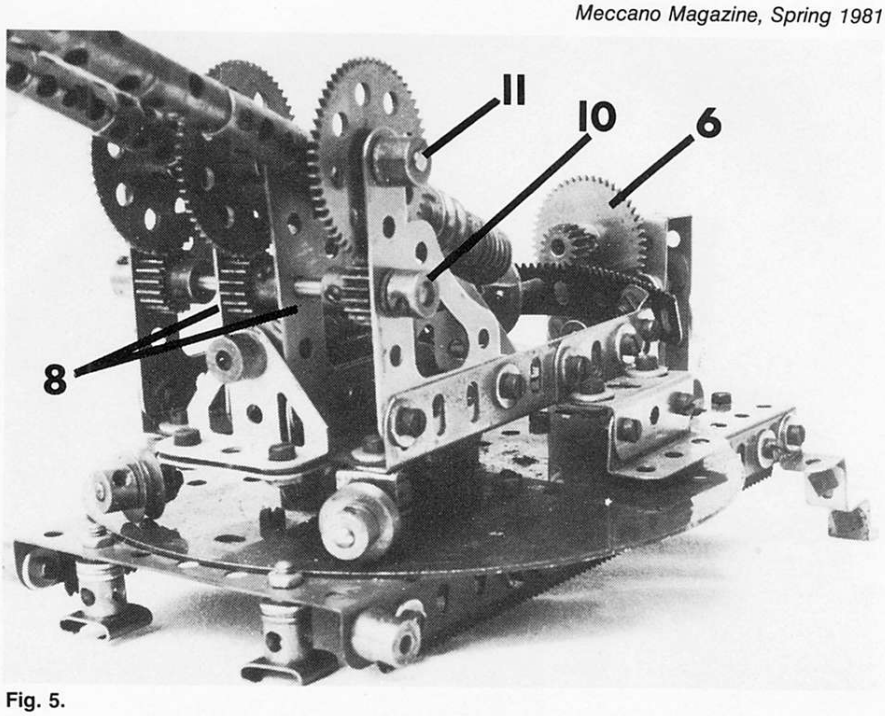


Fig. 5.

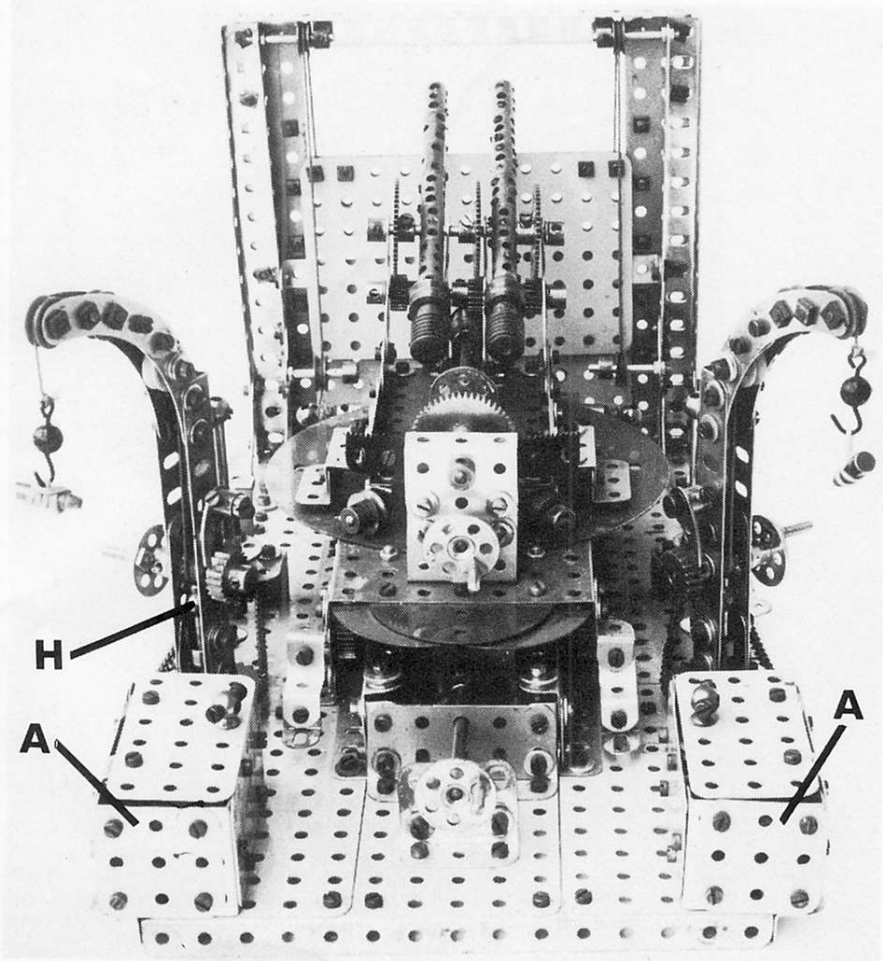
AMMUNITION BOXES (FIGS. 1, 6, 7 & 8) (Marked 'A' in the illustrations)

These consist of 3" x 1½" and 1½" x 1½" Flat Plates connected by 1½" Angle Girders at the corners and secured to the base by 2" Angle Girders. The lid in each case consists of a 3" x 1½" Flat Plate held by Hinges and a handle to each lid is formed by a Handrail Support holding two Bolts in its tapped bore. The lower threaded portion carries a lock-nutted Fishplate which engages the lug of an internally-mounted ½" x ½" Angle Bracket.

THE CRANES (FIGS. 1, 6, 7 & 8)

The sides of each crane are composed of two 4½" Angle Girders and four 2½" Curved (not stepped) Strips. The 4½" Angle Girders are located round hole flanges together and held by the threaded shanks of two Handrail Supports, these parts also holding between them a 2" Rod. The 4½" Angle Girders are fixed by 1" x ½" Angle Brackets to a 1½" Sprocket Wheel minus set screw. This pivots around a 2½" Rod held in a Crank below the base. The Rod passes through a Handrail Support (marked 'H' in the illustration fig. 6), and a Collar, the threaded shanks and bores of which are utilised for fixing purposes. A platform is represented by a 1½" Strip 12 (fig. 7) fixed by an Angle Bracket to the rear of each crane. 1½" Strips are attached to the inside edges of the 4½" Angle Girders to provide round hole journals for a 1½" Rod carrying a small Bush Wheel and a Ratchet forming the winding drum to which the cord is attached. The cord is fed over three ½" Plastic Pulleys which rotate about the shanks of long Bolts, arranged so as to impart a taper to the jib. Pawls and Loaded Hooks complete the cranes, which can be swivelled via Chain around their 1½" Sprocket Wheel bases fed from a ¾" Sprocket fixed in a 'seat' (figs. 7 & 8) with a small Bush Wheel acting as handle.

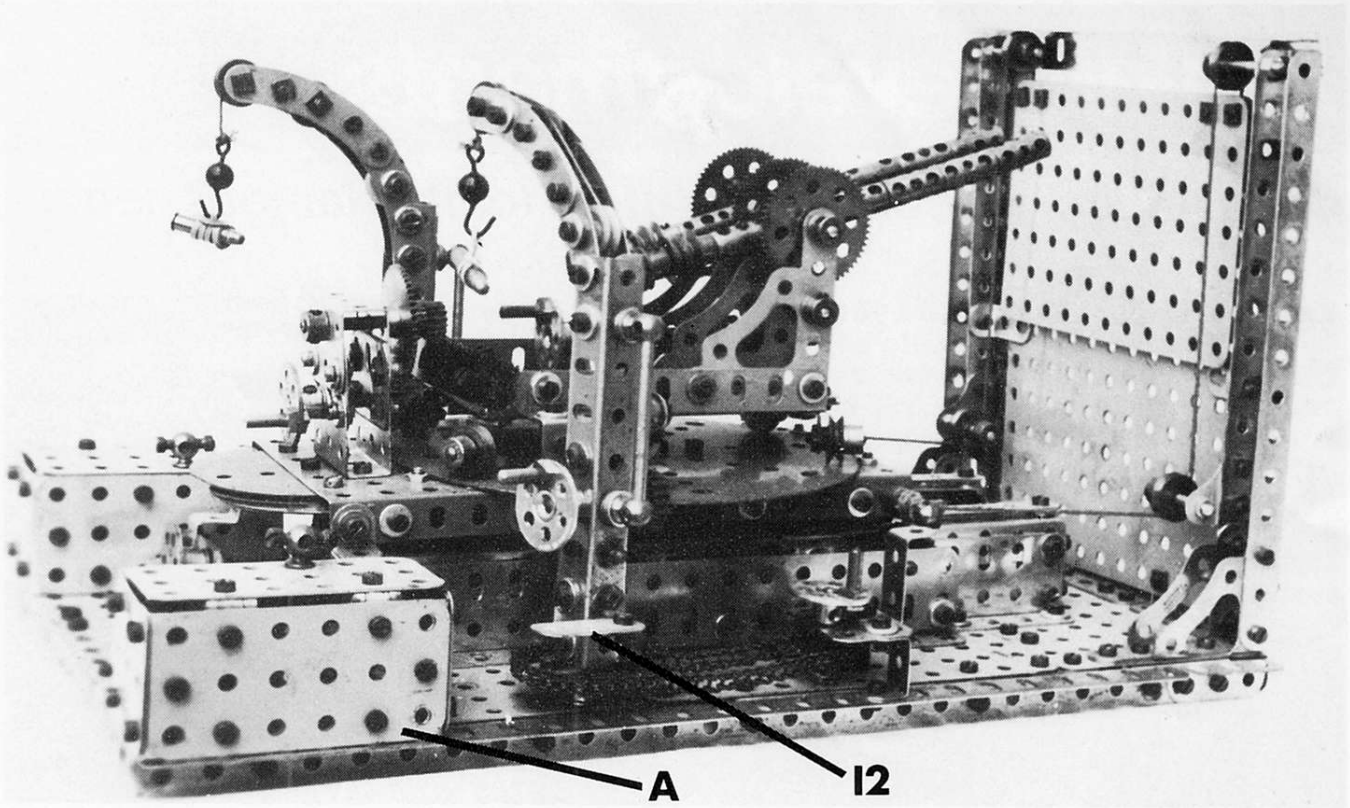
Fig. 6.

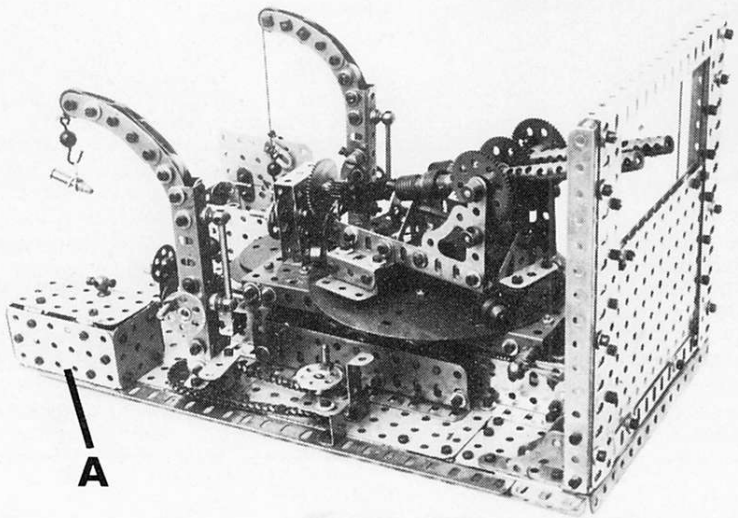


THE SLIDING DEFENCE SCREEN (FIGS. 2, 6 & 8)

Right hand and left hand Flanged Brackets are overlapped and placed at each side of the front of the base, and two 2" and one 2½" Angle Girders are joined end to end between them. A 5½" x 3½" Flat Plate is secured to these short Angle Girders and the Flanged Brackets are extended upwards by four 7½" Angle Girders, two each side. These are connected at their top ends by a 7½" Angle Girder. The sliding screen is composed of two 5½" x 3½" Flat Plates bolted together but separated by Washers to enable it to slide down over the bottom Plate. ½" loose Pulleys on the plain portions of Long Threaded Pins guide the cord from the top of the sliding screen to the Handrail Supports held in the Threaded Bosses at the corners of the sliding base (fig. 1).

Note; spacing Washers are employed for the non-standard meshing of ¾" Pinions with Worms and the 7/16ths" Pinion with the Rack Strip at the rear of the gun base.





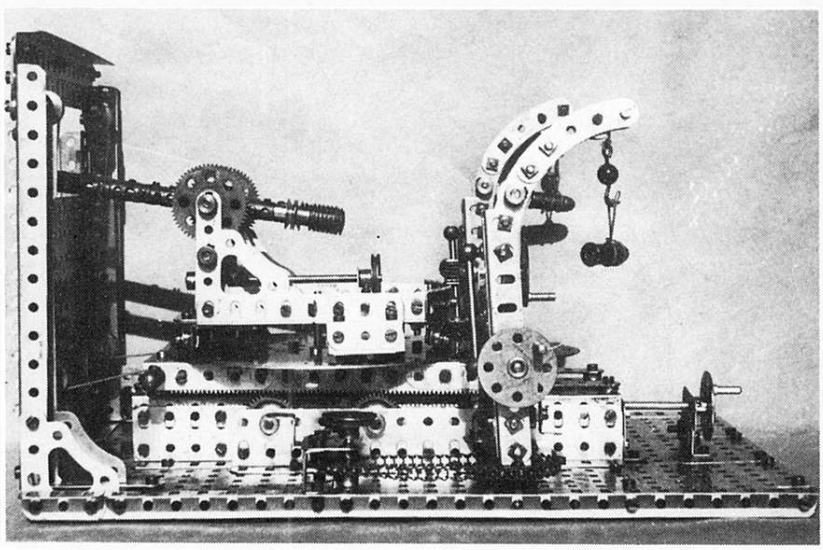


Fig. 7, above

Fig 8, left

Fig 9, below, left

PARTS REQUIRED

2	of part no.	1a	2	of part no.	57b
5	of part no.	6a	21	of part no.	59
2	of part no.	8	2	of part no.	62
4	of part no.	8a	12	of part no.	63
11	of part no.	8b	2	of part no.	64
2	of part no.	9	8	of part no.	69
6	of part no.	9a	6	of part no.	70
4	of part no.	9b	11	of part no.	73
2	of part no.	9d	4	of part no.	74
8	of part no.	9e	8	of part no.	90
22	of part no.	9f	19"	of part no.	94
2	of part no.	10	2	of part no.	95a
4	of part no.	11	2	of part no.	96a
18	of part no.	12	2	of part no.	103
6	of part no.	12b	2	of part no.	103a
2	of part no.	12c	2	of part no.	103f
1	of part no.	14	8	of part no.	103h
3	of part no.	15b	2	of part no.	103k
1	of part no.	16	4	of part no.	108
2	of part no.	16a	1	of part no.	110
3	of part no.	16b	2	of part no.	110a
4	of part no.	17	2	of part no.	111
7	of part no.	18a	4	of part no.	111a
6	of part no.	23	7	of part no.	111c
2	of part no.	23a	4	of part no.	114
10	of part no.	23b	17	of part no.	115
1	of part no.	24	4	of part no.	115a
3	of part no.	25	2	of part of	124
6	of part no.	26	2	of part no.	125
1	of part no.	26c	2	of part no.	126
1	of part no.	27	2	of part no.	133a
3	of part no.	27a	10	of part no.	136
6	of part no.	31	2	of part no.	139
6	of part no.	32	2	of part no.	139a
349	of part no.	37a	1	of part no.	146
331	of part no.	37b	2	of part no.	147
207	of part no.	38	2	of part no.	148
2	Yards of part no.	40	1	of part no.	154a
6	of part no.	50	1	of part no.	154b
3	of part no.	52a	2	of part no.	160
3	of part no.	53	3	of part no.	214
1	of part no.	53a	7	of part no.	518