

## MODEL OF THE MONTH:

# Blackpool Tower

OUR model this month represents an engineering structure every model-builder will recognise quite easily. Blackpool Tower has become almost a trade mark of the famous northern holiday resort, and at least one trip to the top of the Tower is an essential part of the programme for every thrill-seeking visitor. Its height of 518 ft. to the top of the flag pole makes it the tallest tower in Britain. With the lifts and other fittings the tower weighs more than 2,500 tons.

The Tower rises from the centre of a group of buildings that cover an area of more than 6,000 square yards. These buildings form almost a complete township on their own. They include shops, cafes, a theatre, a ballroom, and of course the famous Tower Circus and Menagerie. From the central hall, hydraulically-operated lifts carry sightseers speedily to the lower balcony, from which stairs lead to platforms at 400 and 420 ft. As can be imagined, the views from these vantage points are outstanding. On suitable days a long stretch of the coast, the peaks of the Lake District, the Isle of Man and the Pennines can be seen.

Blackpool's illuminated decorations in Autumn have long been famous. The Tower plays an important part in this colourful

scene, for each year it is outlined by hundreds of electric lights that can be seen by approaching visitors from many miles away. A unique distinction of the Tower is that its illuminations were not entirely eliminated even during the war years, for a warning light was kept burning at the top to safeguard aircraft.

The Meccano model is an impressive structure that rises from a base shaped to represent the façade of the actual Tower building. Good use is made of Strips and Angle Girders to build a sturdy and well-proportioned tower, and lifts are arranged to travel between the base and the lower balcony. The movement of these lifts is controlled by a No. 1 Clockwork Motor bolted to the base. Through suitable gearing this drives a shaft mounted in the base, and a length of Cord passed round a Pulley on the shaft is attached at each end to one of the lifts. As one lift rises the other descends automatically, and reversal of the direction of travel is accomplished by making use of the Motor reversing mechanism.

Full constructional details of the model Blackpool Tower, and a list of parts required to build it, can

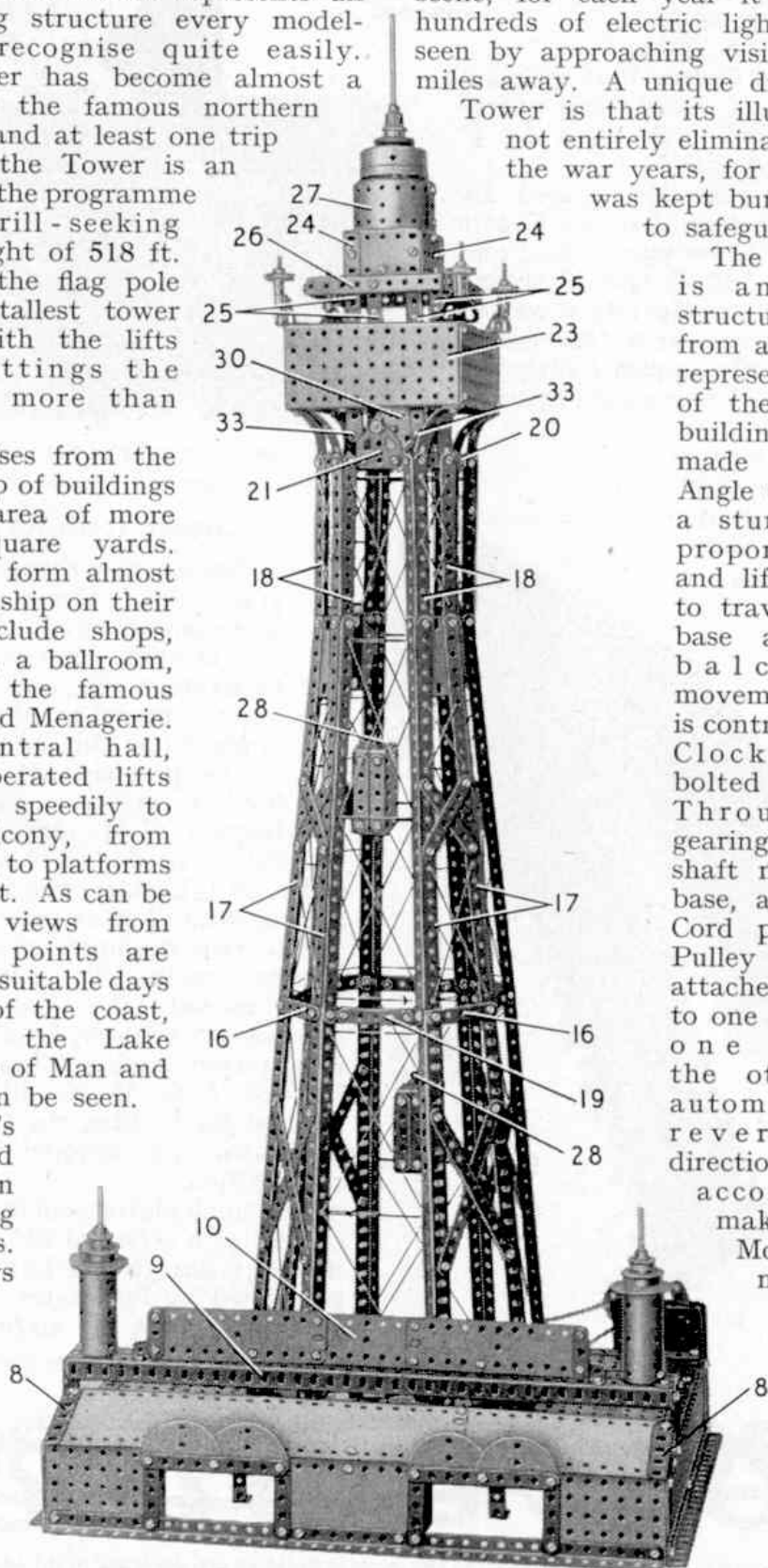
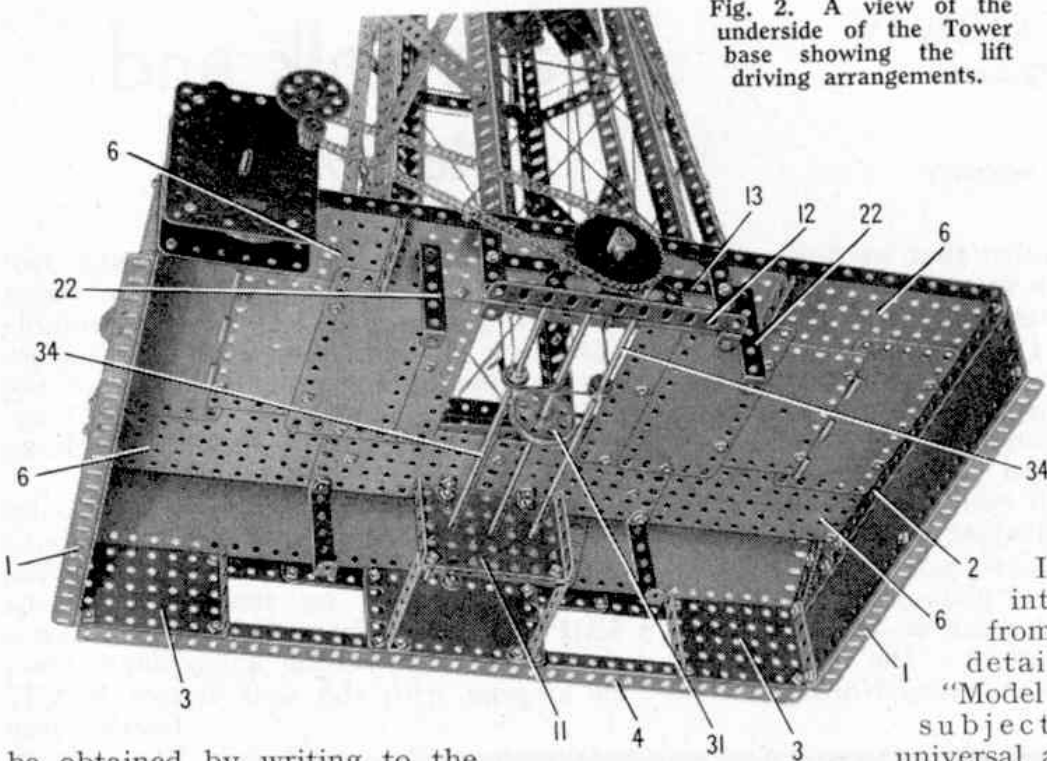


Fig. 1. Blackpool Tower. This fine model is designed for Outfit No. 9.

Fig. 2. A view of the underside of the Tower base showing the lift driving arrangements.



be obtained by writing to the Editor. No charge is made for the instructions, but model-builders should send a 2d. stamp with their requests to cover return postage. Write for your copy of the instructions as soon as you can. We will do our best to meet all requests, but we cannot promise to supply readers in this country with copies after the end of this month.

The number of requests for Model of the Month instructions has increased steadily since this feature was introduced last March, and with the approach of the winter-model-building season the demand is likely to rise still further. We have taken steps to increase the number of copies of the instructions to meet the expected increased demand, but if you want to be sure of obtaining your copy of the details of any model in which you are

interested, you should write as soon as the issue of the *M.M.* announcing it reaches you.

Arrangements have been made to reserve copies of the instructions for Overseas readers.

It has been very interesting to note from the demand for details of previous "Model of the Month" subjects the almost universal appeal of certain types of models. The Motor Chassis published in the August

1956 issue has proved a particularly attractive model, the ease with which the clutch and gear box can be operated as a demonstration of the mechanism being no doubt specially inviting.

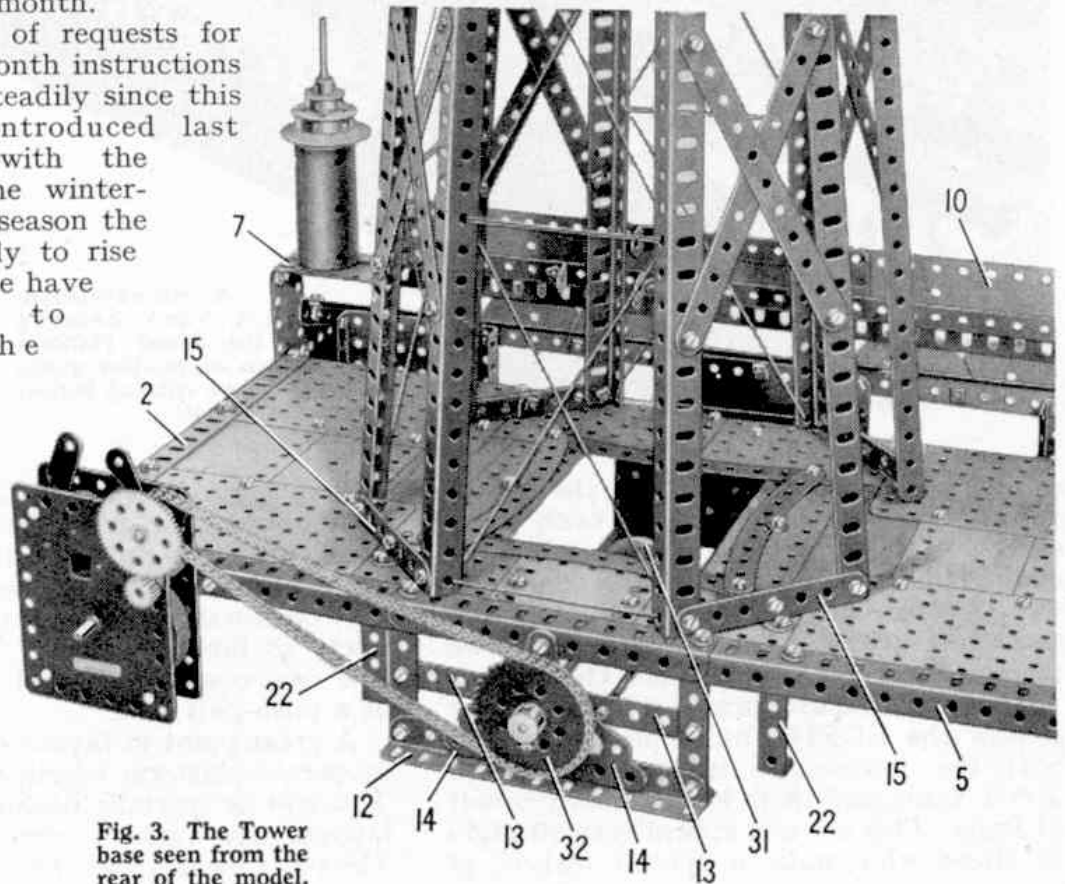


Fig. 3. The Tower base seen from the rear of the model.

## MODEL OF THE MONTH

### BLACKPOOL TOWER

Illustrated in the October 1956 issue of the "Meccano Magazine"

#### Construction of the Base

Each side of the base consists of a  $12\frac{1}{2}$ " x  $2\frac{1}{2}$ " Strip Plate edged by a  $12\frac{1}{2}$ " Angle Girder 1, a  $9\frac{1}{2}$ " Angle Girder 2, and a  $2\frac{1}{2}$ " Strip at each end. A  $3\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate 3 is bolted to each side and the two are connected by an  $18\frac{1}{2}$ " Angle Girder 4. The upper rear corners of the sides are joined by a built-up  $18\frac{1}{2}$ " girder 5 made from a  $5\frac{1}{2}$ " and two  $7\frac{1}{2}$ " Angle Girders.

The top of the base between the Girders 2 is filled in by a  $5\frac{1}{2}$ " x  $3\frac{1}{2}$ " Flat Plate 6 at each corner. The Plates 6 at the front are connected by two  $4\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flat Plates. A  $3\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate is bolted to each of the Plates 6 at the rear corners, and the Flanged Plates are connected by a  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plate. The centre section of the top of the base is filled in by four  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plates, two  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plates and the separated halves of a Hinged Flat Plate. The opening for the lift mechanism at the centre is edged by four  $5\frac{1}{2}$ " Curved Strips as shown.

A  $4\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plate is bolted to the centre of the Girder 4, and is connected to each of the Flanged Plates 3 by a  $4\frac{1}{2}$ " Strip and two Semi-Circular Plates. The Strips and the Semi-Circular Plates are spaced from the front of the base by a Spring Clip on each of the  $\frac{3}{8}$ " Bolts that hold them in place.

A  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plate, braced by a  $2\frac{1}{2}$ " Strip and a  $1\frac{1}{2}$ " Angle Girder 7, and a  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Triangular Flexible Plate edged by a  $2\frac{1}{2}$ " Angle Girder 8, are bolted to each side of the base. Two  $12\frac{1}{2}$ " x  $2\frac{1}{2}$ " Strip Plates overlapped 13 holes are fixed to the Angle Girders 8 as shown. An  $18\frac{1}{2}$ " Angle Girder 9 is bolted between the Girders 7 and a  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plate is fastened to each end of the Girder 9. At each end of this Girder a Cylinder, with a  $1\frac{1}{8}$ " Flanged Wheel pressed into its upper end, is bolted to a  $\frac{1}{2}$ " Reversed Angle Bracket. A Rod fixed in the boss of the Flanged Wheel is fitted with a Conical Disc, a  $1\frac{1}{8}$ " Flanged Wheel and a  $\frac{3}{4}$ " Flanged Wheel. A plate 10 made from three  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plates is strengthened at the back by two  $2\frac{1}{2}$ " Strips and four  $3\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips, and is connected to the Girder 9 by a Corner Angle Bracket at each end.

A  $3\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plate 11 is attached to the top of the base by two Angle Brackets and is connected to the Girder 4 by two  $3\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips. At the back of the base two  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips are bolted to a  $5\frac{1}{2}$ " Angle Girder 12, and to each of these Double Angle Strips a  $3\frac{1}{2}$ " Strip 13 is fixed. Two Corner Gussets 14 are bolted to the Girder 12 and the upper ends of the Corner Gussets are fixed to the centre of the girder 5.

#### Assembly of the Tower

The tower consists of four main girders, the lower section of each of which is formed by two  $12\frac{1}{2}$ " Angle Girders. These are connected by a  $3\frac{1}{2}$ " Strip 15 and a  $2\frac{1}{2}$ " Strip 16, and they are braced by crossed  $5\frac{1}{2}$ " Strips as shown. Each  $12\frac{1}{2}$ " Angle Girder is extended upward by a built-up girder 17, made from two  $12\frac{1}{2}$ " Strips. The upper ends of the Strips are connected by an Angle Bracket, and each pair of girders 17 is joined by a

$2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plate and two crossed 3" Strips. The girders 17 are lengthened by built-up  $5\frac{1}{2}$ " girders 18. Six of these girders are made from  $5\frac{1}{2}$ " Strips connected by Angle Brackets, and the other two are each made from one  $5\frac{1}{2}$ " Strip and a  $4\frac{1}{2}$ " Strip extended by a 2" Strip. The upper ends of two of the pairs of girders 18 are joined together by  $1\frac{1}{2}$ " Strips, and the ends of the other two pairs are connected by  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips.

The four main tower girders are joined together by four  $2\frac{1}{2}$ " Strips 19 attached to Obtuse Angle Brackets. At the top of the tower the girders are connected by two  $1\frac{1}{2}$ " Strips 20 and two Flat Trunnions 21, which are attached to Angle Brackets that are opened out slightly. The tower is connected to the base by an Angle Bracket bolted to each of the Strips 15. The bolts fixing two of the Angle Brackets to the base secure also  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips 22.

### The Balcony and Pinnacle

Two Formed Slotted Strips are bolted to the top of each main tower girder, and these support  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flanged Plates 23. The Flanged Plates are connected by two  $5\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flat Plates.

Two  $5\frac{1}{2}$ " Angle Girders are bolted between the Flanged Plates 23, and these support four  $5\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips indicated at 25. The Double Angle Strips are connected by two  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flanged Plates 24 and two  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plates. Two  $4\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips 26 are bolted to two  $4\frac{1}{2}$ " Strips, and this assembly is supported by two 1" Reversed Angle Brackets and two built-up 1" reversed angle brackets bolted to the Flanged and Flexible Plates mentioned above. The built-up brackets are each made from a 1" x 1" and a 1" x  $\frac{1}{2}$ " Angle Bracket.

Two  $5\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flexible Plates 27 are curved and bolted together, and are attached to the  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " Flanged Plates 24 by Fishplates. A Face Plate is connected to the Flexible Plates 27 by Angle Brackets, and a Rod is fixed in its boss. A Wheel Flange, a Boiler End, a 1" Pulley with Rubber Ring, a  $\frac{3}{4}$ " Flanged Wheel, and a Chimney Adaptor are held on this Rod by a Collar.

A Trunnion is fixed to each corner of the balcony and a Coupling is screwed on to a bolt passed through the Trunnion. Collars and 1" loose Pulleys are placed on short Rods held in the Couplings.

### The Lifts

Each of the lifts consists of two  $2\frac{1}{2}$ " Strips on each side connected at the top by two  $2\frac{1}{2}$ " x 1" Double Angle Strips and at the bottom by two  $2\frac{1}{2}$ " x  $\frac{1}{2}$ " Double Angle Strips. The pairs of Double Angle Strips are joined by Fishplates, and the back, a  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " Flexible Plate, is attached to Angle Brackets. A Girder Bracket partly fills in the front of the lift. A  $\frac{1}{2}$ " Reversed Angle Bracket 28 is bolted to the top of each lift and an Angle Bracket is fixed underneath the lift.

The lifts are suspended by Cord passed round a  $1\frac{1}{2}$ " Pulley 30 at the top of the tower and a similar Pulley 31 in the base. The Pulley 30 is fixed on a  $4\frac{1}{2}$ " Rod held by Collars in the Flat Trunnions 21. Pulley 31 is held on an  $11\frac{1}{2}$ " Rod supported in the Flanged Plate 11 and in the Strips 13. The Rod carries a 2" Sprocket 32.

A length of Cord is tied to the Angle Bracket underneath one of the lifts, is passed round the Pulley 31 and is fastened to the Angle Bracket underneath the other lift. A second length of Cord is tied to the Reversed Angle Bracket 28 of one lift, is taken round the Pulley 30

and is attached to a Spring that is bolted to the Reversed Angle Bracket of the other lift. The Spring is stretched slightly to tension the Cord.

The lift guides are provided by Cord tied to  $3\frac{1}{2}$ " Rods 33 at the top of the tower, and passed round  $\frac{1}{2}$ " Pulleys on Rods 34 in the base. Each of the Rods 33 is held by Spring Clips in two 1" x 1" Angle Brackets bolted underneath one of the  $5\frac{1}{2}$ " Angle Girders fixed to the Flanged Plates 23. One of the Rods 34 is an  $11\frac{1}{2}$ " Rod, and the other consists of an 8" and a  $2\frac{1}{2}$ " Rod joined by a Rod Connector. They are mounted as shown in the Flanged Plate 11 and the Strips 13. A length of Cord is tied to each of the Rods 33, is passed through one of the lifts, and is taken over the  $\frac{1}{2}$ " Pulley on one of the Rods 34. The ends of the two lengths of Cord are then tied to a Driving Band which is stretched slightly to keep the Cords taut.

The Driving Mechanism

A No. 1 Clockwork Motor is bolted to the girder 5, and is connected to one side of the base by an Angle Bracket. A  $\frac{1}{2}$ " Pinion on the Motor shaft drives a 57-tooth Gear on a  $1\frac{1}{2}$ " Rod supported in the Motor side-plates. A  $\frac{3}{4}$ " Sprocket on this Rod is connected by Chain to the 2" Sprocket 32.

Parts Required

14 of No. 1	1 of No. 14	2 of No. 48	2 of No. 126a
2 " " 1b	1 " " 15a	10 " " 48a	1 " " 133a
24 " " 2	4 " " 16	6 " " 48b	1 " " 137
6 " " 2a	1 " " 16a	2 " " 48c	1 " " 154a
6 " " 3	3 " " 18a	4 " " 48d	1 " " 154b
7 " " 4	2 " " 18b	2 " " 51	1 " " 155
30 " " 5	4 " " 20	2 " " 52	2 " " 161
2 " " 6	3 " " 20b	4 " " 52a	1 " " 162
6 " " 6a	2 " " 21	5 " " 53	1 " " 164
2 " " 7a	1 " " 22	2 " " 53a	3 " " 187a
10 " " 8	4 " " 22a	9 " " 59	10 " " 188
2 " " 8a	1 " " 23	4 " " 63	7 " " 189
2 " " 8b	1 " " 23a	2 " " 70	3 " " 190
4 " " 9	1 " " 24	4 " " 89	1 " " 191
2 " " 9d	1 " " 26	1 " " 94	4 " " 192
2 " " 9f	1 " " 27a	1 " " 95	4 " " 197
6 " " 10	12 " " 35	1 " " 96a	1 " " 198
36 " " 12	300 " " 37a	2 " " 108	1 " " 213
6 " " 12a	296 " " 37b	1 " " 109	4 " " 214
2 " " 12b	26 " " 38	9 " " 111c	8 " " 215
8 " " 12c	2 " " 40	2 " " 124	2 " " 216
2 " " 13	1 " " 43	4 " " 125	2 " " 221
1 " " 13a	4 " " 46	4 " " 126	1 No. 1 Clockwork Motor.