

## PATENT SPECIFICATION



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## COMPLETE SPECIFICATION

## Improvements in or connected with Toy Electromotors

We, **TRIX LIMITED**, a British Company, of 4, Golden Lane, London, E.C.1, Assignees of **VEREINIGTE SPIELWARENFABRIKEN ANDREAS FÖRTNER & J. HÄFFNER'S NACHFOLGER GESELLSCHAFT MIT BESCHRAENKTER HAFTUNG**, of 15, Kobergerstrasse, Nuremberg, Germany, a Company registered under the Laws of Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a toy electro-motor for use in connection with metal construction sets.

It is known to employ a **U-shaped** plate having its side flanges provided with holes, in connection with motor driven toys, the parts of which are detachably secured together in such a manner as to be readily assembled and disassembled, the motor being built up between side plates, and the side plates detachably secured to the side flanges of the **U-shaped** plate by bolts or screws.

It is also known in a toy hoisting machine to employ a **U-shaped** plate perforated in its body and side flanges where- by the plate could be detachably secured to other members to form various toy models, and to provide an electro-motor built up between side plates, the side plates being bolted to strips, such strips being bolted to the **U-shaped** plate.

The object of this invention is to construct the base plate of the electro-motor as a member of a construction set and to secure or support the motor magnet and armature shaft directly on to the base plate without the use of bolts, screws or other temporary fastening means.

According to this present invention, the base plate of the motor is designed as a **U-shaped** member of a construction set, with its longitudinal flanges provided with one or more rows of holes, and such motor base plate is formed with integral holding means for engaging and securing the motor magnet to the base plate, and integral brackets for rotatably supporting the armature shaft of the motor.

The toy electromotor according to this

invention forms a very advantageous supplementary member for metal construction sets, and especially those according to the English Patent 363,547, for the purpose of constructing electrically driven toy models.

The invention will be clearly understood from the following description aided by the accompanying drawings in which a typical embodiment of the toy electro-motor is illustrated, and in which Figure 1 is a side elevation of the motor, Figure 2 a plan of the motor, Figure 3 a rear elevation and Figure 4 the spring brushes for the commutator in front and side elevation.

The motor itself is substantially known. It consists of a permanent horseshoe magnet 1, between the arms of which rotates the armature 3 mounted on the armature shaft 2. The shaft 2 carries the commutator 4 against which bear the spring brushes 5.

According to the invention, the motor is mounted on a baseplate 6, 7 of **U-shape** or channel cross section which serves as a member of a construction set. The baseplate may be of sheet metal or of a pressed artificial composition. The side flanges 7 are provided with one or more rows of holes 7a, 7b, which enable the baseplate and motor to be attached to the structural members of the usual metal construction sets on the market. The two bearing brackets 8, 9 for mounting the armature shaft 2 are stamped out of the web 6 and bent vertically upwards. The lower arm of the magnet 1 passes through a slot 10 in the bearing bracket 9, and is prevented from lateral displacement by two lateral lugs 11, also bent out from the web. The magnet is secured in the longitudinal direction by a tongue or lug 12, which is bent up from the rear end of the web and rests against the rounded portion of the magnet (Figure 3), and also by two small nipples 13 pressed out of the web and forming a stop for the end surface of the lower arm of the magnet.

At the front end of the armature shaft 2 are arranged transmission members consisting of a crank 14, a cord pulley 15, a toothed wheel 16 serving for various

transmission purposes, and a small pinion 17, adapted to gear with pinions of construction sets. The current is admitted through the two spring terminals 18, which are in electrical connection with the spring brushes 5, but insulated from the baseplate. According to the invention, said brushes 5 are centrally slit longitudinally, so that two springy tongues are formed which are bent at different heights 19 and 20 in order to bridge over the air gap of the commutator and thus obtain certain and reliable contact.

On the two spring terminals 18 being connected by means of wire, with a pocket-lamp battery or the like, a great variety of transmission members can be driven from the rotating armature shaft according to circumstances.

The special construction of the baseplate as a member of a construction set with the motor mounted thereon in the manner described enables a very cheap toy electromotor to be provided which takes up little room, is thoroughly reliable and can be easily connected to other constructional members of metal construction sets.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. In a toy electromotor, constructing the baseplate of the motor as a U-shaped member with its longitudinal flanges provided with one or more rows of holes, forming holding means integral with the base plate for engaging and securing the

motor magnet to the base plate, and also forming brackets integral with the base plate for rotatably supporting the armature shaft of the motor, whereby the base plate of the motor can form a member of a construction set, and the motor magnet and armature shaft are mounted on the base plate without the use of bolts, screws or other detachable fastening means.

2. Toy electromotor according to claim 1, characterised in that two bearing brackets for mounting the armature shaft, two lateral lugs and one rear lug for holding the lower arm of the motor magnet, and two nipples forming a stop for the front end surface of the lower arm of the magnet, are bent out of the baseplate serving as structural member.

3. Toy electromotor according to claim 1 characterised in that spring brushes of the motor are provided with central longitudinal slits and are provided at different heights with two bends for bridging over the air gap of the commutator and thereby providing certain and reliable contact.

4. Toy electromotor according to claim 1 characterised in that a crank, a cord pulley, a toothed wheel and a pinion are mounted on the motor shaft in order to enable several types of drive to be transmitted from said shaft.

5. A toy electromotor constructed substantially as described with reference to the accompanying drawings.

Dated this 1st day of January, 1934.

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Agents for the said Applicants.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

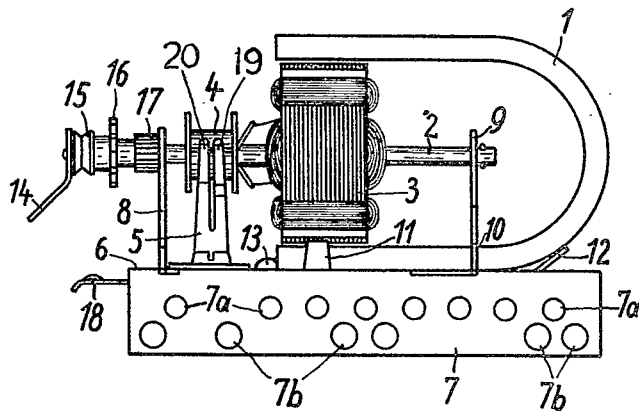


Fig. 3

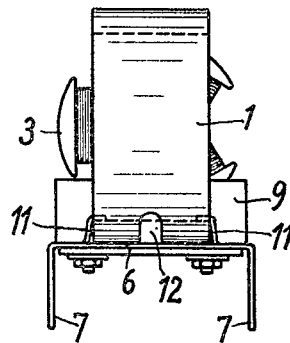


Fig. 2

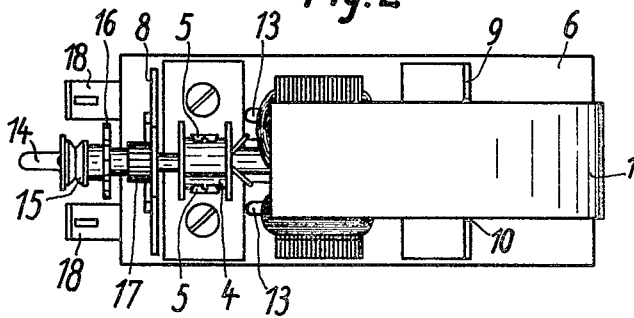


Fig. 4

