PATENT SPECIFICATION

Application Date: Feb. 13, 1931. No. 4504/31. **369,337**

Complete Left : June 10, 1931.

Complete Accepted : March 24, 1932.

PROVISIONAL SPECIFICATION.

Improvements in and relating to Constructional Toys.

I, FRANK HORNBY, of Meccano Limited, of 236, Binns Road, Old Swan, Liverpool, British, do hereby declare the nature of this invention to be as follows :—

This invention relates to improvements in constructional toys of the type in which a number of different models are adapted to be made up from a minimum number of interchangeable parts, such interchangeable parts being usually marketed in various graded outfits, the model building capacity of each outfit being dependent upon the number of interchangeable parts therein. Hitherto in the cheaper outfits of such constructional toy parts the number of models that may be made is very limited owing to the few parts contained in the smaller outfits, and the object of the present invention is to provide an accessory with such cheaper grades of outfit which will enable a greater number of models to be built from the smaller outfits without correspondingly increasing cost. Such constructional toy outfits at present comprise a number of interchangeable metallic parts such as strips, plates and the like, perforated with equidistantly pitched holes the parts being connected together to form models by means of bolts and nuts or otherwise, the holes forming suitable bearings for carrying rods, wheel axles or other elements.

According to this invention it is proposed to incorporate in the cheaper grades of such constructional toy outfits of metal parts a cardboard or other element or elements preferably in the form of a sheet or sheets, such cardboard or the like sheet or sheets being partially cut or weakened along the outlines of certain designs printed or embossed on the card or the like sheet so that such parts may be readily removed from the sheet and then are in the form of elements suitable for being incorporated in the building up of models with the aid of the usual metallic elements in the outfit. Such parts of the cardboard or other sheet may be equidistantly perforated, the perforations being of a pitch to conform with the standard pitch of the other perforated metallic parts thus enabling the cardboard or like elements to be readily built in to the models in the same way as the metallic elements Where certain of the cardboard or other elements to be removed from the sheet or sheets are to rotate about pivotal connections the holes for forming such rotary or pivotal bearings may be reinforced by metal eyelets.

As an example the cardboard or other sheet may embody printed or embossed representations of vehicle wheels, which are partially severed round their peripheries so that the cardboard or like wheel discs may be readily removed from the sheet and the axial perforation of the wheels may be reinforced with metal eyelets, while other holes may be formed say on one of the spokes of the wheel so that two such wheel discs could be connected by a link to simulate the coupled wheels of a toy locomotive. Similarly the sheet may also embody representations of an aeroplane propeller blade, railway signal arms and the sails of a wind mill, the outline of each of which is partially cut from the sheet so that they may be readily removed to build into the models, all the pivotal holes of such elements being if desired reinforced with eyelets. In the same way the sheet may also embody a part printed to represent the bonnet of a motor car or the sides of a railway wagon truck, a loco boiler, or other members, the outline of which is partly severed to permit easy removal from the sheet and the parts being printed to represent the various members which they simulate and perforated with equidistantly pitched holes so that with the aid of other metallic parts they may be built into the models to increase the capacity of the outfit as to the number of possible models which may be built therefrom, the portions of the sheet after removal being bent into the requisite form to represent the desired parts of the model.

Such sheet or sheets to be included in the outfit may have the various removable parts printed in colours and bear considerable detail representative of well known parts of locomotives, aeroplanes, rolling

stock, ships, vehicles and other devices.

While the accessory sheet to be included with the cheaper constructional toy outfits has been described and is preferably made of cardboard it might be made of celluloid, papier mache, or even of very thin gauge metal.

Dated this 12th day of February, 1931.

A. J. DAVIES,
Patent Agent,
24, Moorfields Liverpool.

COMPLETE SPECIFICATION.

Improvements in and relating to Constructional Toys.

I, FRANK HORNBY, of Meccano Limited, of 236, Binns Road, Old Swan, Liverpool, British, 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 an improvement in constructional toys of the type in which a number of different models are adapted to be made up from a number of interchangeable parts, such interchangeable parts being usually marketed in various graded outfits, the model building capacity of each outfit being dependent upon the number of interchangeable parts therein. Hitherto in the cheaper outfits of such constructional toy parts the number of models that may be built is very limited owing to the few parts contained in such smaller outfits, and the object of the present invention is to provide an accessory with such cheaper outfits which will enable a greater number of models to be built therefrom without correspondingly increasing the cost of the outfit. Such constructional toy outfits at present comprise a number of interchangeable metallic parts such as strips, plates and the like, perforated with equidistantly pitched holes, the parts being connected together to form models by means of bolts and nuts or otherwise, the holes also forming suitable bearings for carrying rods, wheel axles or other elements.

According to this invention it is proposed to incorporate in the cheaper grades of such constructional toy outfits of metal parts a sheet or sheets of cardboard or other material, such cardboard or other sheet or sheets being partially cut or weakened along the outlines of certain designs printed or embossed on the card or other sheet so that such parts may be readily removed from the sheet and then form supplementary elements suitable for being incorporated in the building of models with the aid of the other metallic elements supplied in the outfit. Such detachable elements of the cardboard or other sheet are perforated and in some the holes are of equidistant pitch conforming to the standard pitch and diameter, of the perforations in the other metallic parts, the cardboard or other elements being thus readily built into the models in the same way as the metallic elements. Others of the elements to be removed from the cardboard sheet are adapted to rotate about pivotal connections by the provision of single pivotal holes for forming such rotary or pivotal bearings and these holes may be reinforced by metal eyelets.

The invention will be described with reference to the accompanying drawings, in which Fig. 1 is a diagram of a cardboard or other sheet containing a number of detachable supplementary elements, Fig. 2 is a view of a model cart made up with detached cardboard parts supplementing the usual metal parts, Fig. 3 is a view of a model aeroplane, Fig. 4 a model railway signal, Fig. 5 a model windmill and Fig. 6 a model motor car, all made up with metal parts supplemented with cardboard or other elements detached from the sheet shown in Fig. 1. For the purpose of the invention a sheet 1 of cardboard or other material is incorporated with the cheaper sets of constructional toy outfits of metal parts. Several such sheets may be incorporated in the outfit, the sheet or sheets being partially cut or weakened, as indicated by the dotted lines 2, along the outlines of certain elements printed or embossed on the sheet. In this way the elements may be readily removed from the sheet 1 without any necessity for accurate cutting. For instance as shown in Fig. 1 the sheet may embody printed or embossed representations of vehicle wheels *a* which are partially severed round their peripheries along the dotted lines 2 so that the cardboard or like wheel discs may be readily removed from the sheet, and the axle holes of the wheels may be reinforced with metal eyelets 3 to give more durable rotary wearing surfaces, while other holes 4 may be formed, say, on one of the spokes of the wheel so that two such wheel discs could be connected by a link to simulate

the coupled wheels of a toy locomotive. Similarly the sheet may also embody representations of an aeroplane propeller *b*, railway signal arms *c* and the sails *d* of a windmill, the outline of each of which is partially cut or weakened in the sheet along the dotted line 2 so that they may be readily removed to build into the models, all the pivotal holes of such elements being, if desired, reinforced with eyelets 3. The sheet may also embody a part printed to represent the bonnet *e* of a motor car or the sides *f* and ends *g* of a railway wagon, a loco boiler, or other members, the outlines of which are partly severed to permit easy removal from the sheet and the parts being printed with more or less detail to represent the various elements which they simulate and in some cases perforated with equidistantly pitched holes 5 so that with the aid of other metallic parts they may be built into the models and so increase the capacity of the outfit as to the number of possible models which may be built therefrom. The portions of the sheet after removal may be bent into the proper form of the actual parts they represent.

For instance as shown in Fig. 2 the model cart is built up from the simpler metallic parts 6 usual in a cheaper constructional toy outfit, the sides *f*, end *g* and wheels *a* being supplied by the corresponding elements detached from the cardboard sheet 1. As certain of the holes 5 in these cardboard elements *f*, *g*, are of the same standard equidistant pitch to correspond with the standard pitch of the holes in the metallic parts 6 the cardboard elements may be readily combined with the metallic parts and connected by the usual bolts 7. Similarly the model aeroplane, Fig. 3, is made up from the simpler metallic parts 6 supplemented by the elements *f* separated from the sheet 1 to form wings and the propeller *b* by the corresponding element from the sheet 1. Fig. 5 shows a model windmill, the metallic parts 6 being supplemented by the cardboard or other elements *f*, *e*, detached from the sheet 1, the sails of the windmill being supplied by the element *d* of the sheet. In the signal, Fig. 4, the standard and base are made up from the metal parts 6 while the semaphore arms are formed by the elements *c* detached from the sheet 1; and in the case of the model motor car, Fig. 6, the metal parts 6 forming the chassis and wheels are supplemented by the bonnet portion *e* and piece *g* from the sheet 1, the bonnet *e* being bent as indicated.

Such sheet or sheets to be included in the constructional toy outfit may have the various detachable parts printed in colours and bear considerable detail representative of well known parts of locomotives, aeroplanes, rolling stock, ships, vehicles and other devices, and their use imparts an appearance of reality and detail to the models unobtainable otherwise than with a much more expensive outfit.

While the accessory sheet to be included with the cheaper constructional toy outfits has been described and is preferably made of cardboard it may be made of celluloid, papier mache, or even of very thin gauge metal.

No claim is made to the broad idea of forming printed sheets of cardboard or the like with detachable sections of various configurations perforated to facilitate use as a constructional toy.

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

1. An accessory sheet for constructional model building outfits of parts, printed, embossed or formed to represent a number of supplementary elements, some of such elements being perforated with holes equidistantly pitched and corresponding in pitch and diameter to holes in the parts of the said outfits, and others of such elements being adapted for rotatable assembly on a model by the provision of a single pivot hole, and the sheet partially cut or weakened along the outlines of each element in such manner that the supplementary elements may be readily detached from the sheet and combined with the other parts of the outfit to build an increased range of models.

2. A sheet as claimed in Claim 1 in which the perforations in the detachable elements are reinforced with metal or other eyelets.

3. A sheet as claimed in Claim 1 in which the detachable elements are printed, embossed or otherwise formed to represent wheels, propellers, railway signal arms, windmill sails, the sides of railway wagons or parts of a motor car.

4. A sheet of cardboard, celluloid, papier mache, thin gauge metal or other material having readily detachable parts capable of being used with a constructional toy outfit of metal parts, substantially as described and shown in the accompanying drawings.

Dated this 7th day of May, 1931.

A. J. DAVIES,
Patent Agent,
24, Moorfields, Liverpool.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1932.

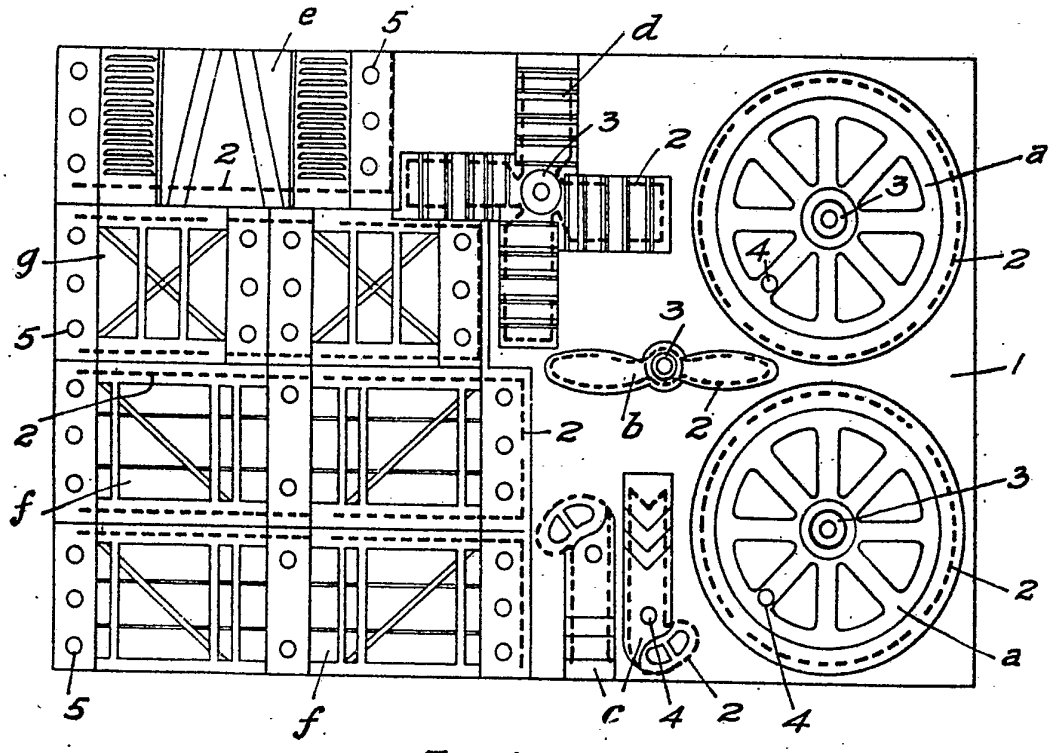


FIG. 1.

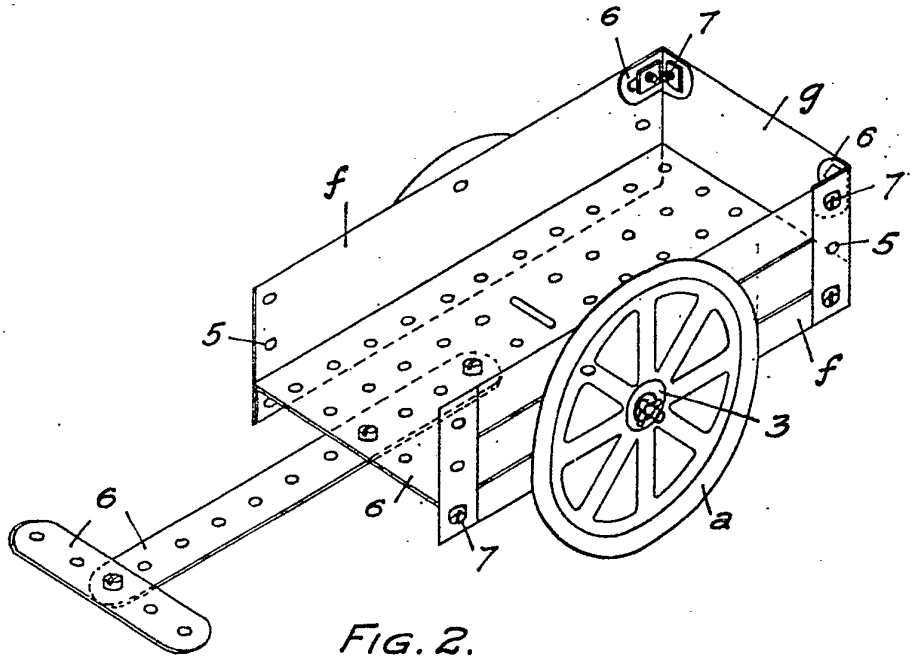
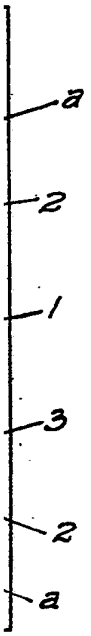


FIG. 2.



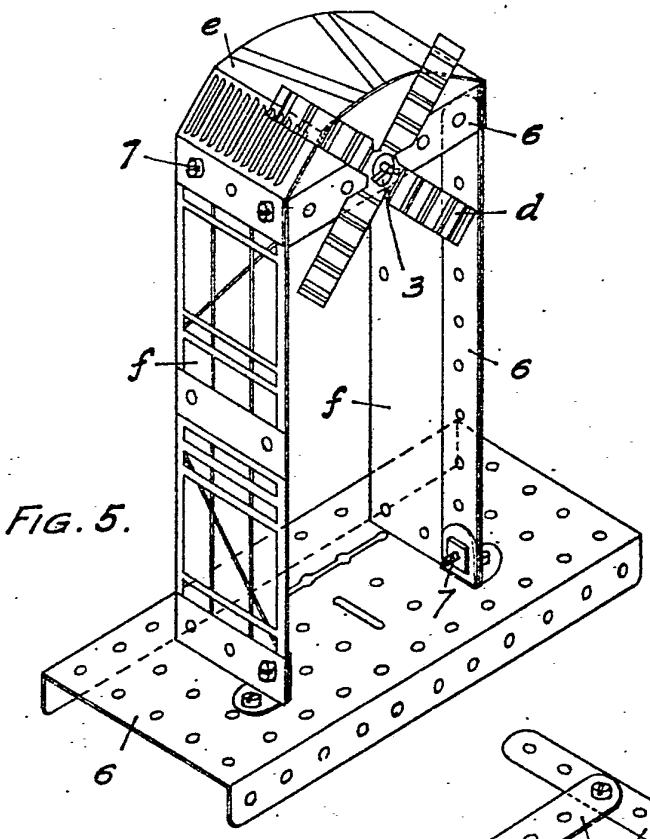


FIG. 5.

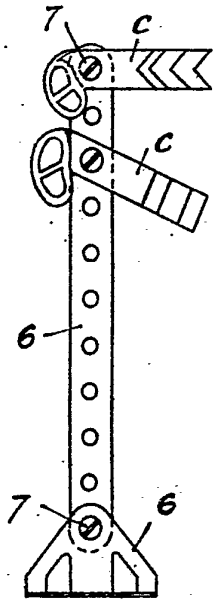


FIG. 4.

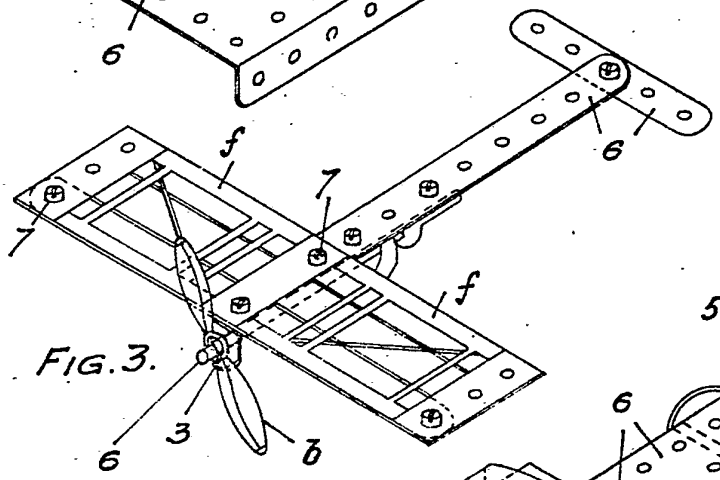


FIG. 3.

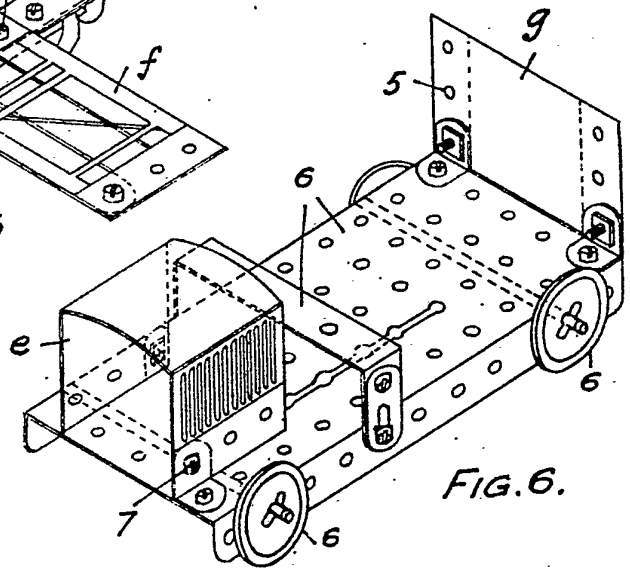


FIG. 6.

Charles & Read Ltd. Photo Litho

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

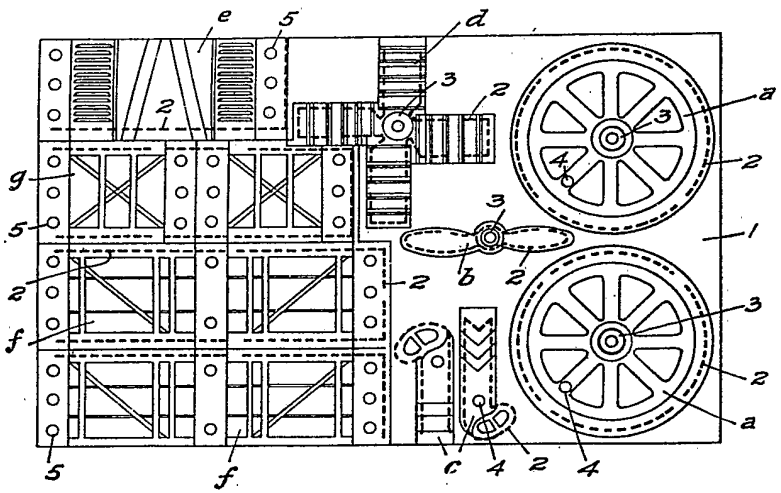


FIG. 1.

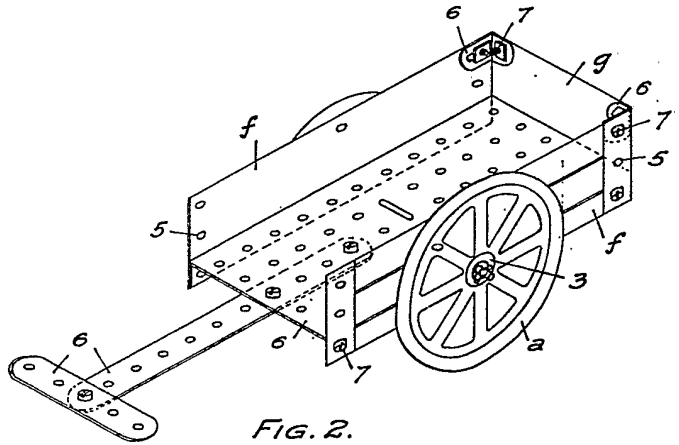


FIG. 2.

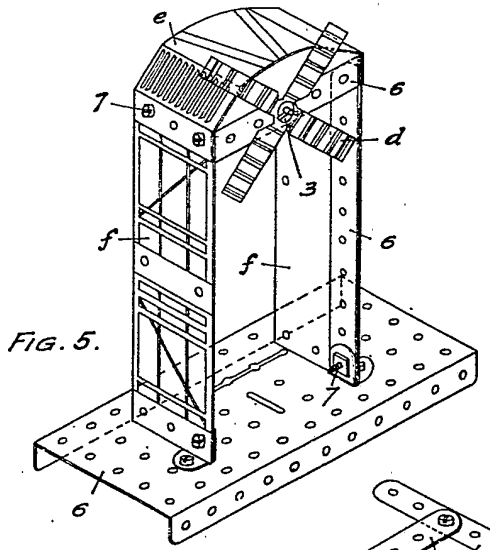


FIG. 5.

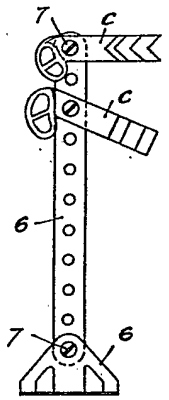


FIG. 4.

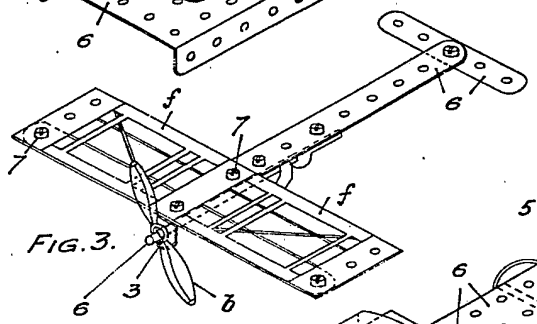


FIG. 3.

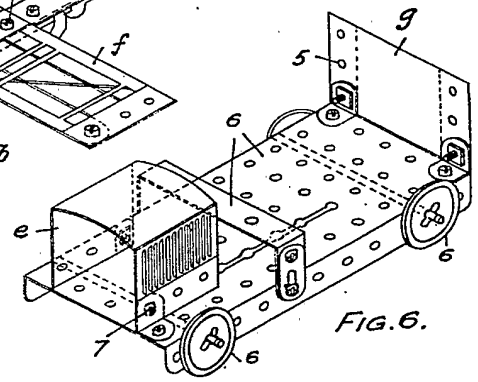


FIG. 6.

Charles & Read Ltd. Photo Litho