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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-120156- -00001-0000

Fecha: 2007-07-19 09:48:54 Dep: 2020 NUECREACION
Tra. 3 MODELO Eve: 1 RLGDEPOSITO
Act. 538 PETICION Folios: 2



Señores

DIVISION DE NUEVAS CREACIONES
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
E. S. D.

**REF, PAGO EXAMEN DE PATENTABILIDAD SISTEMA DE ACOPLE DE
PIEZAS PARA JUGUETES VEHICULARES.**

EXPEDIENTE: 06-120156
SOLICITANTE: GLORIA ESTELLA RESTREPO LOTERO

MARTHA AMPARO FONSECA FIERRO, como apoderada de la señora GLORIA ESTELLA RESTREPO, por medio del presente escrito procedo a dar cumplimiento a lo establecido en el Art. 4445 de la decisión 486 de la Comunidad Andina allegando el recibo de pago por valor de \$ 269.000,= pesos correspondiente al EXAMEN DE PATENTABILIDAD de la solicitud citada en la referencia.

Solicito a la división darle a la solicitud de patente el trámite correspondiente.

Atentamente,

MARTHA AMPARO FONSECA FIERRO
CC. 51.794.299 de Bogotá, D.C.
T.P. No. 48.377 del C.S.J.

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COMERCIO
No. 06-120156-00001-0000
FECHA: 2007-07-19 09:41:11 Dep. 2020 NUECREACIONE
PAIS: COLOMBIA Dep. 1 REGDEPOSITO
Act. 538 PETICION FOLIOS 2

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 07 - 58,646
FECHA : JULIO 19 DE 2007

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
FONSECA ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	54976772	18/07/2007	269,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	86 EXAMEN DE PATENTABILIDAD DE MODEL
			TOTAL : \$ 269,000.00

SON: DOSCIENTOS SESENTA Y NUEVE MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

.....

.....

.....

DIVISION DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No 06-120156

EXTRACTO DE LA PRESENTE SOLICITUD DE **MODELO DE UTILIDAD**

NUMERO FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No

576 DE FECHA **31 DE MAYO DE 2007** EL TERMINO HABIL SEÑALADO POR

LA LEY EXPIRA EL **17 DE JULIO DE 2007**.

NOTA: Dentro del plazo de los tres (3) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 y en concordancia con el artículo 85 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____

NO X

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.

Abogada
Marta Amparo Fonseca F.
(Apoderada)

ASUNTO	Radicación	06 – 120 156
	Trámite	003
	Evento	001
	Actuación	430
	Oficio	133
	Folios	035

Patente de Invención ☐ Patente de Modelo de Utilidad ☒

Como resultado del examen de fondo, realizado con fundamento en el artículo 85 en concordancia con el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica:

1. De los documentos estudiados

Descripción: Folio 4 como se radicó inicialmente

Reivindicaciones: Folio 5 como se radicó inicialmente

Dibujos: Folios 7 y 8 como se radicó inicialmente

2. Del objeto de la solicitud

Título de la solicitud: *Sistema de acople de piezas para juguetes vehiculares.*
folio 1

El objeto de la presente solicitud de patente de modelo de utilidad consiste en suministrar un sistema de piezas planas de acople por medio de ranuras rectas que tienen una anchura igual al espesor de las piezas.

El problema planteado en esta solicitud es obtener cuerpos tridimensionales a partir de piezas planas.

Para solucionar este problema técnico la solicitud en estudio proporciona un conjunto de piezas planas que tienen ranuras distribuidas apropiadamente en donde casan otras piezas similares.

Clasificación Internacional de Patentes (IPC): A63H 33/04, 3/08

3. De la solicitud de Patente de Modelo de Utilidad

Antes de entrar en detalles específicos, se le dan al solicitante ciertas indicaciones generales, algunas de las cuales son aplicables a este caso y todas deberán ser tenidas en cuenta en las eventuales modificaciones:

El título o nombre de la invención debe concordar con lo que se reclama en el capítulo reivindicatorio. Esto es, si en las reivindicaciones se reclama un producto, tal producto debe ser mencionado en el título, y si en las reivindicaciones se reclama un procedimiento o un sistema o un método, también debe ser mencionado allí. Normalmente, el título debe contener máximo diez palabras aunque eventualmente pueden ser más. El título no debe contener palabras cuyo significado no esté reconocido dentro del sector de la técnica de que se trate. Preferiblemente, deben ser palabras cuyo significado se encuentre en el Diccionario de la Real Academia Española (DRAE).

En Colombia, la máxima autoridad en cuestiones del lenguaje es la Academia Colombiana de la Lengua. En caso de duda sobre el significado de las palabras, se debe acoger la definición que trae el Diccionario de la Real Academia Española (DRAE).

En Colombia, es de uso obligatorio el Sistema Internacional de unidades. Esto implica, también, que la coma decimal es de uso obligatorio. Cuando aparezca algún valor con unidades diferentes a las exigidas, deberá incluirse su correspondiente conversión al Sistema Internacional.

La parte técnica de la solicitud se divide en tres secciones, debidamente separadas, preferiblemente en este orden: El capítulo descriptivo, el capítulo reivindicatorio y el juego de dibujos o figuras. Ninguna de estas secciones podrá llevar membretes (encabezamientos o pies de página) ajenos al contenido técnico de la solicitud.

Por lo menos el capítulo descriptivo debe estar debidamente paginado y estar escrito a doble espacio con el fin de facilitar la referencia a los apartados del texto.

La terminología empleada en la descripción y en las reivindicaciones debe ser igual para designar las diferentes partes, piezas, elementos, detalles o aspectos de lo que se mencione en ellas; los cuales, a su vez, deben estar designados con números o signos de referencia.

Dentro del texto de la descripción y las reivindicaciones se aconseja encerrar entre paréntesis el número o signo de referencia cada vez que se mencione el detalle correspondiente, con el fin de distinguirlo de otros tipos de números o signos que eventualmente aparezcan allí. Estos números o signos de referencia deben aparecer dentro del juego de dibujos (preferiblemente, sin paréntesis, aunque pueden estar encerrados dentro de un círculo) siempre acompañados de líneas o flechas que señalen o indiquen a qué parte, pieza, elemento o aspecto se encuentran asociados.

Las reivindicaciones deben estar numeradas individual y consecutivamente (1, 2, ... 5, 6, etc.) El capítulo reivindicatorio no debe tener subtítulos.

Normalmente se pueden encontrar dos categorías de reivindicaciones: una, la de producto y la otra, de procedimiento.

En las reivindicaciones se deben definir los alcances de la protección que desea el solicitante. En consecuencia, las reivindicaciones forman un cuerpo aparte de la descripción y como tal debe ser redactado: la primera vez que se mencione un nombre dentro de las reivindicaciones debería estar acompañado de un artículo indeterminado, y la inclusión -entre

paréntesis- de un número de referencia no sustituye la definición del elemento o aspecto al que se refiere, simplemente sirve de información complementaria. Se debe entender que la descripción sirve para interpretar las reivindicaciones y, en consecuencia, si en una reivindicación se reclama un aparato, por ejemplo, no se deberían mencionar aspectos del funcionamiento del aparato dentro de la reivindicación, limitándose a definir únicamente los elementos que constituyen el aparato.

Cada una de las figuras debe estar debidamente identificada preferiblemente con un número consecutivo: Figura 1, figura 2, ... Las figuras deben ser realizadas siguiendo las reglas del dibujo técnico. Se prefiere que dentro de las figuras no se incluya ningún texto. Cada uno de los detalles ilustrados en las figuras deberá estar señalado con un número o signo de referencia, el cual será el mismo en todas las figuras en donde se encuentre el detalle en cuestión. Si en alguna figura no se encuentran números de referencia, se entiende que no se va a decir nada sobre ella dentro del texto de la descripción y, entonces, es preferible que se omita tal figura. Análogamente, si en una figura no se encuentra señalado algún detalle con el respectivo número de referencia, es preferible que se omita tal detalle.

La patente de **modelo de utilidad** no puede incluir los procedimientos, por definición. Si alguna de las reivindicaciones de una solicitud de patente de modelo de utilidad reclama un procedimiento, debe ser suprimida.

De la descripción (artículo 28 D. 486)

Durante el análisis del texto de la descripción y de las ilustraciones anexadas, se observaron los siguientes defectos:

- (1) El título o nombre del modelo de utilidad no concuerda con lo que se reivindica.
- (2) En el capítulo descriptivo no se menciona el nombre o título.
- (3) En las figuras 1 y 2, folios 7 y 8 se encuentran numerosas ilustraciones que no han sido debida e individualmente identificadas.
- (4) En la primera página, folio 4, aparece la expresión *Estas piezas constan de unas ranuras* en donde está mal empleado el verbo *constar*.
- (5) Dentro de las figuras, aparecen numerosos detalles que no han sido debidamente señalados con sus correspondientes números o signos de referencia. Esto implica que los detalles en mención no han sido definidos dentro de la descripción. Todos los detalles ilustrados en las figuras deben ser definidos dentro del texto de la descripción, ayudándose de los números de referencia. Si algún detalle no va a ser mencionado dentro de la descripción, es preferible que no se ilustre. Lo mismo es aplicable a cada ilustración: si, dentro de la descripción, no se va a decir nada de ella, es preferible omitirla.

La descripción no cumple con los requisitos de claridad y de completitud que exige el Art. 28 de la Decisión 486.

De las Reivindicaciones (artículo 30 D 486)

Durante el análisis del texto de las reivindicaciones se observaron los siguientes defectos:

- 1) Lo que se reclama en la reivindicación única, folio 5, [unas piezas] no concuerda con lo que se anuncia en el título [un sistema].
- 2) En la reivindicación única se califica las piezas reclamadas como de *auto ajuste*. Sin embargo, de acuerdo con lo que se divulga en la descripción y los dibujos, este calificativo no está justificado porque las piezas no se auto ajustan, simplemente son ensambladas por el usuario.

3) Lo reclamado en la reivindicación única [unas *piezas*] no está bien definido. después de leer lo que dice la reivindicación no es posible establecer, sin dudas razonables, cómo son las piezas reclamadas allí.

Las reivindicaciones que dependen de una reivindicación objetada también se objetan por las mismas causas.

Las reivindicaciones no cumplen con los requisitos de claridad, de concisión y de sustento por la descripción que exige el Art. 30 de la Decisión 486.

Se deben presentar, entonces, nuevos capítulos descriptivo y reivindicatorio, ambos completos, junto con un nuevo juego de dibujos, donde se hayan corregido todas las objeciones que se han hecho arriba. Esto con el fin de evitar -cuando solo se presentan algunas páginas sueltas corregidas- que el lector tenga que desplazarse desde un sitio a otro de la solicitud y luego regresar a donde estaba antes sin perder la ilación de la lectura, porque esto produce confusión y afecta negativamente la claridad de dichos capítulos.

Se le advierte al solicitante que las modificaciones sugeridas arriba pueden resultar inconducentes si se mantienen las objeciones a la patentabilidad que se insinúan adelante.

4. De la determinación del estado de la técnica

La fecha que se ha tenido en cuenta para determinar el Estado de la Técnica es la

Fecha de presentación de la solicitud nacional 2006-11-26

Durante la búsqueda de anterioridades se encontraron los siguientes documentos que forman parte estado de la técnica más cercano al objeto de la solicitud:

n.º	Documento	Título	Fecha de publicación
D1	Patente US 2 347 561, cuyos inventores son Donald K. Howard, George W. Benckenstein, Jr. y Harry L. Porter, quien le cedió sus derechos a la Burton-Rodgers, Inc.	«Silhouette model»(Un modelo de silueta)	1944-04-26
D2	Patente US 3 547 491, cuyo inventor es Bernard X. Bovasso	«Quick assembled furniture»(Un mueble de ensamblaje rápido)	1970-12 15
D3	Patente US 3 788 700, cuyo inventor es Richard M. Wartes	«Multifunctional pegged furniture»(Un mueble fijado con clavijas)	1974-01 29
D4	Patente US 4 082 356, cuya inventora es Karin Ruth Johnson	«Educational puzzle chair»(Una silla como rompecabezas educativo)	1978 04-04
D5	Patente US 6 439 945 B1, cuyo inventor es Kuo-Ching Liu	«Octopus-shaped built up toy»(Un juguete de construcción en forma de pulpo)	2002-08-27
D6	Patente US 6 478 650 B1, cuyo inventor es Chia Hsiang Tsai, quien le cedió sus derechos a la 3E Enterprise Ltd.	«Toy construction kit having movable members»(Un kit de juguete de construcción que tiene miembros móviles)	2002-11 12

Se anexan copias de las páginas pertinentes

NOTAS: No se realizó una evaluación de los demás requisitos de patentabilidad, porque se objetó la claridad y definición de las reivindicaciones. Una vez hayan sido superadas las objeciones establecidas en este Concepto Técnico, se podrán hacer los exámenes correspondientes.

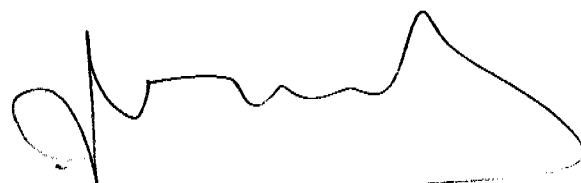
No obstante lo anterior, con base en los documentos encontrados hasta el momento, se prevén objeciones respecto a la novedad del objeto solicitado, porque todos y cada uno de los documentos citados arriba enseñan piezas planas con ranuras que recorren parcialmente la superficie de la pieza, que tienen un ancho sustancialmente igual al espesor de las piezas; y, que se pueden acoplar entre sí para formar artículos tridimensionales, algunos de ellos ilustran el resultado en forma de vehículos.

5. De las conclusiones:

Los requisitos de patentabilidad de la presente solicitud se encontrarían afectados negativamente por la falta de claridad de la descripción y las reivindicaciones y por la falta de definición de estas últimas.

En cumplimiento del artículo 85 en concordancia con el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica al solicitante que debe dar respuesta dentro del término de treinta días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el artículo 8 de la resolución reglamentaria n.º 00210 del 15 de enero de 2001, advirtiéndole que contra él no procede recurso alguno en la vía gubernativa.



JESÚS FERNEL GARCÍA GARCÍA
Director de Nuevas Creaciones (E)

El anterior requerimiento fue notificado por fijación en lista, de fecha
11/7/2010

CONCEPTO TÉCNICO n.º 4431

EXAMINADOR TÉCNICO
Código n.º 202009

April 25, 1944.

D. K. HOWARD ET AL

2,347,561

SILHOUETTE MODEL

Filed July 2, 1942

2 Sheets-Sheet 1

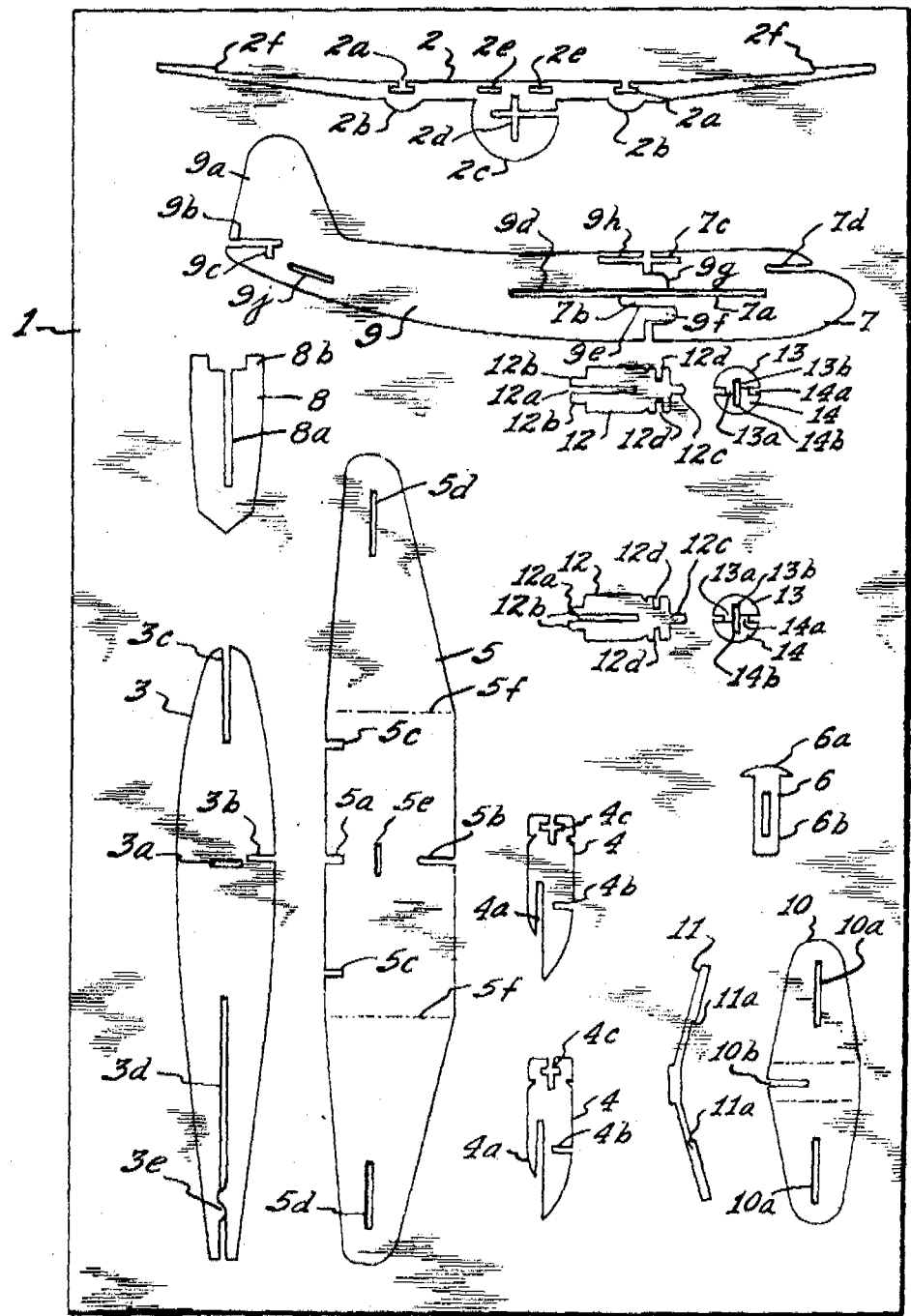


FIG. 1.

INVENTOR.
DONALD K. HOWARD,
GEORGE W. BENCKENSTEIN, JR.
AND HARRY L. PORTER.

AT ORNEYS.

April 25, 1944.

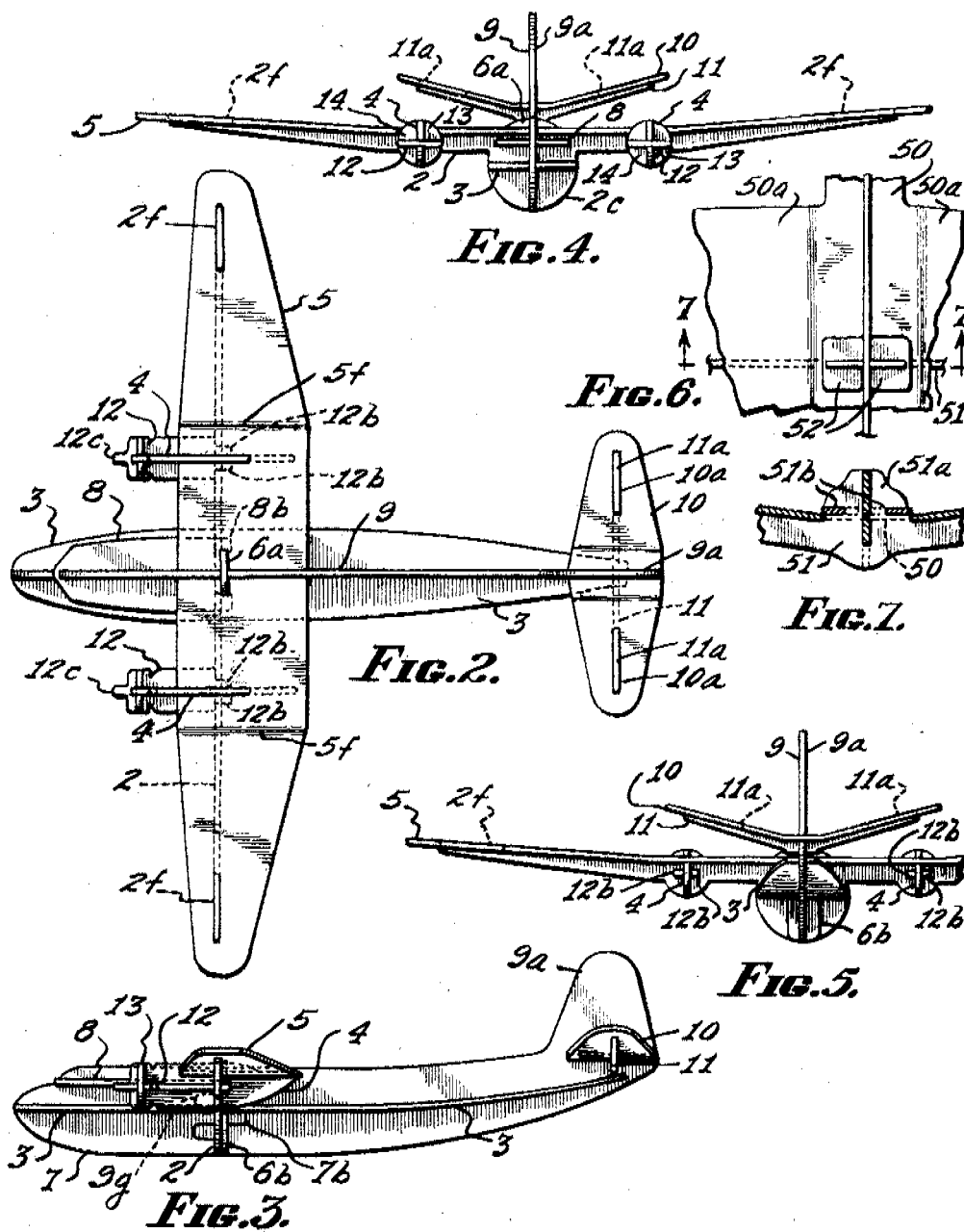
D. K. HOWARD ET AL

2,347,561

SILHOUETTE MODEL

Filed July 2, 1942

2 Sheets-Sheet 2



INVENTOR.
DONALD K. HOWARD,
GEORGE W. BENCKENSTEIN, JR.
AND HARRY L. PORTER.
BY
Attorneys.

Patented Apr. 25, 1944

2,347,561

UNITED STATES PATENT OFFICE

2,347,561

SILHOUETTE MODEL

Donald K. Howard, Cincinnati, George W. Benckenstein, Jr., Deer Park, and Harry L. Porter, Cincinnati, Ohio, assignors to Burton-Rodgers, Inc., a corporation of Ohio

Application July 2 1942, Serial No. 449,442

15 Claims. (Cl. 35--1)

It is the object of our invention to produce a cut-out pattern in a flat sheet and an aeroplane model to be constructed therefrom which gives a correct silhouette of the plane from front, side, rear elevation and plan view. Such models can be furnished at a relatively low cost and when put together according to instructions will serve as study models whereby various styles and makes of aeroplanes can be recognized. The eye quickly fills in the solid outlines from such silhouettes from a knowledge of aeroplane design in general.

Among other objects is the production of cut-out designs from which the correct silhouette models can be made without any pasting or gluing from die cut paper board blanks, and treating the paper board thereafter. The die cutting is thus done through relatively soft board and the treatment may be such as both to harden the board and also give it a waxy surface that facilitates the tight assembly of the parts. The color that is best for use as a silhouette may be applied before the treatment or as a part thereof. Also it is an object to so design the pieces that when cut out from a flat pattern, they will serve when thrust together to lock into each other sufficiently to make the models when completed sturdy enough to be handled, and dropped, without coming to pieces.

The style in general of forming up the pattern parts will necessarily vary with each model, for one reason because it is necessary in order to give a correct silhouette to place a flat piece at every point where the silhouette outlines indicate that the maximum projection of that part should come. Otherwise, while the silhouette might be correct from one point of view, it would not be correct from another.

In the specification that follows and in the drawings, we have shown but one cut-out pattern and model, and in the claims that follow we have pointed out and claimed the novel features incident to the making of such models without particular reference to the one that is shown, because it is illustrative of the invention and not to be taken as an inflexible guide in the production of models which vary, there being certain general features which if followed, will serve to guide those skilled in the art to produce various styles when following the general features of the model illustrated.

In the drawings:

Figure 1 is a plan view of the cut-out piece of paper board.

Fig. 2 is a top plan view of the assembled model.

Fig. 3 is a side elevation of the assembled model.

Fig. 4 is a front elevation of the assembled model.

Fig. 5 is a rear elevation of the assembled model.

Fig. 6 is a detail plan view showing a modified arrangement employed for interlocking wing panel and wing support at the lengthwise axis of the plane model.

Fig. 7 is a section on line 7--7 of Fig. 6.

The cut-out pattern sheet is noted at 1. With- in it are a series of shaped pieces which are sufficiently severed by means of die cuts into the sheet of board that they can readily be pushed out of the sheet, ready for assembly. Preferably the cutting die passes entirely through the paper board sheet and the panels stay in place frictionally.

The board used is relatively soft to facilitate die cutting and thereafter the sheet is treated with some suitable composition of waxy material such as paraffin to give it a slight malleability, together with a resin which will harden the board and increase its strength. This treatment may also blacken the board without imparting a shine to it, or the board may be made black in the first place, to facilitate the use thereof as a silhouette. For some purposes the board may be colored or printed.

The wing support member is indicated at 2, on the cut-out pattern. It has two T shaped notches therein, indicated at 2a, and also two slightly rounded projections 2b, 2b and a median large projection 2c. The projections 2b are to indicate the shape in front elevation and rear elevation of the back of the engine nacelles. The central projection 2c constitutes the outline in front and rear elevation of the largest diameter of the fuselage. This indication of fuselage elevation in other models might not be in line with the wing support element and a separate piece is often necessary for indicating the largest fuselage dimension in its proper place lengthwise of the completed model.

In the case wing support 2 is used for interlocking purposes, the projection 2c has slots therein in the form of a cross, as at 2d, and two short slots 2e. Each end of the wing support has a long projection 2f, which projections are to be used as tongues for holding the wings.

The horizontal fuselage piece 3 in this case is in one piece. In other models it may be in sev-

eral pieces. It has a slot 3a crosswise thereof at the point of its largest dimension, another slot 3b opens at one side of the piece. The piece 3 also has a front lengthwise slot 3c, and a rear slot 3d, with staggered tongues 3e near its rear terminus.

The vertical motor nacelle pieces are shown at 4, 4, and are alike. They have long slots 4a therein for sliding over the wing member, and vertical slots 4b therein for sliding down over the wing support member, and they have also front end slots in the form of a cross, as indicated at 4c.

As so far described the first step in construction is to slide the wing support 2 sidewise into the piece 3, (the horizontal fuselage member) using the side slot 3b therein. Next the nacelle members 4 are inserted over the wing supports so that slots 4b are thrust down as far as they will go in the vertical portion of slots 2a. This brings the nacelles to the correct position for the silhouette.

The next piece to be considered is the wing member 5, which is in one piece, with short front and back slots 5a and 5b along the center line, front edge slots 5c where the engine nacelles are located, and lengthwise slots near the tips of each wing element as at 5d. The next assembly operation is to bend the wing member at the score lines 5f slightly so that it will fit onto the wing support, and thrust the same where slots 5c are located, into the slots 4a of the motor nacelle pieces 4, and then force the tongues 2f at the ends of the wing supports into the slots 5d. This operation ties down the wings by the nacelle parts, and ties the nacelle parts to the wing supports, thus locking up the structure. The wing member has a lengthwise short slot 5e at the center thereof approximately in line with the end slots.

Since the rounded portion 2c of the wing support represents only part of the full circle of the rounded fuselage, it is required to provide a round topped piece 6, having a T head 6a, and a slotted body 6b, which is thrust down through the central wing slot 5e. The slotted body 6b lines up with the vertical portion of the cross in the wing support projection 2c.

The vertical elements of the fuselage are next put into place. In this case they are in two parts. The front part consists of a piece 7 shaped to the vertical dimensions of the fuselage at the front. It has a long slot 7a, which is lined up with the short front slot 3c of the horizontal fuselage piece 3. Projecting from the slot 7a is a tongue 7b which when the piece 7 is thrust over the piece 3, by intermeshing the slotted portions 7a and 3c and pushing inwardly, will enter the vertical portion of the slot 2d. The piece 7 has also a short slot 7c which is meshed with the slot 5a in the wing member thereby interlocking the wing member by means of the piece 7 with the horizontal member. The tongue 7b also engages in the enclosed slot of the piece 6, thus locking it down.

To complete the front of the fuselage silhouette in the particular model, it is required to provide a set back cabin top which is in the form of a piece 8, having a slot 8a therein which is meshed with the upper short lengthwise slot 7d in the fuselage piece 7, and has tongues 8b to enter slots 2e in the wing support, thus providing three-dimensional engagement.

The rear portion of the vertical portion of the fuselage is a piece 9. This piece has a tail portion 9a, beneath which is an end opening slot 9b, with a short vertical branch slot 9c where the rear rudder support piece will be placed. The piece 9

also has a slot 9d which meshes with the long slot 3d, and whereby the piece 9 is thrust lengthwise over the horizontal piece 3. The front end of this piece 9 has a notch 9e producing a tongue 9f, which clears the tongue 7b when the piece 9 is thrust home, and beneath this piece 9b passes through the same slots as the piece 7b. Above the notch 9e is a tongue 9g which passes through the same slots but above the tongue 7b. This arrangement locks up the front end of the vertical structure. Piece 9 also has a slot 9h which meshes with the slot 5b in the wing producing a side elevation of a projection above the wing level back of the rounded top of member 6.

When the vertical piece 9 is thrust forward into place the tongues 3e, near the rear end of the long slot 3d, engage or are thrust into the slanting slot 8f.

The tail plane consists of a piece 10, and a plane support 11. The plane support 11 is thrust endwise into the slot 9c, the tail plane piece 10 is then bent, slipped into the slot 9b, and the long stub tongues 11a of the support thrust into the lengthwise slots 10a in the piece 10, in the same way as the main wing tips were thrust over the stub tongues of the main wing supports. The tail plane has a slot 10b meshing with slot 9b in piece 9.

This leaves the finishing of the engine nacelles. They are formed primarily of pieces 12 for the horizontal nacelle pieces, which have long slots 12a therein for meshing with the lengthwise portions of the slots 4c. The tongues 12b on the pieces 12, when same are thrust over the pieces 4 will engage in the slots 2a, thus interlocking the rear ends of the pieces 12. The front ends of the pieces 12 have projecting tongues 12c for silhouette purposes. They also have two opposing short slots 12d for the engine silhouette pieces 13 and 14. The slots 12d come into the same plane as vertical portions of the cross slots 4c. The two pieces 13 and 14 are half round and each has a tongue 13a and 14a in opposed relationship, and median slots 13b and 14b. When the slots 13b and 14b are meshed with the slots 12d, and the pieces 13 and 14 thrust home, the tongues 13a and 14a will engage in the vertical portions of the cross slots 4c, thus locking up the front ends of the engine silhouettes.

It may be noted that to locate each piece where it is to intersect another piece that there are intermeshing slots, and that where parts intersect each other, slots and tongues are normally provided for interlocking, so that to the greatest extent possible each of the pieces is used to lock the other pieces serving as keys in this respect.

In making up the silhouette, there must be two pieces in relative arrangement to give the proper front and side elevational dimensions, two pieces at right angles, one fitting into another by means of slots in the two pieces. Wherever the silhouette of a part intersects a third piece, then the inserted slotted member is arranged so that it has tongues which enter this third member. This gives a locking together in three planes, (a) the slotted pieces are locked in lengthwise relation, (b) the inserted piece is locked by the solid portion thereof in a parallel plane at right angles to the slot in the starting piece, and (c) the two pieces are locked in a plane at right angles to the other two planes by engagement of the inserted piece in a cross piece which intersects the silhouette.

In making the wings, thickness is given by pieces located edgewise which pieces have ver-

23 24

Dec. 15, 1970

B. X. BOVASSO
QUICK ASSEMBLED FURNITURE.

3,547,491

Filed May 6, 1968

3 Sheets-Sheet 1 D2

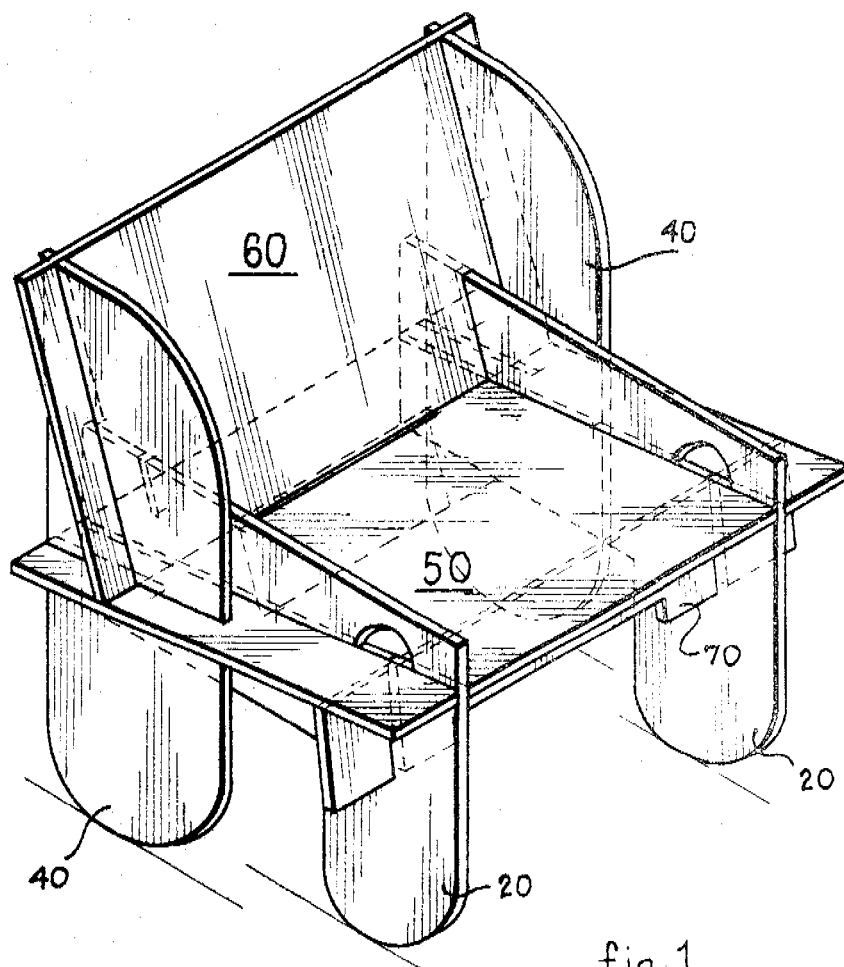


fig. 1

BY

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INVENTOR

[Signature]
A-223

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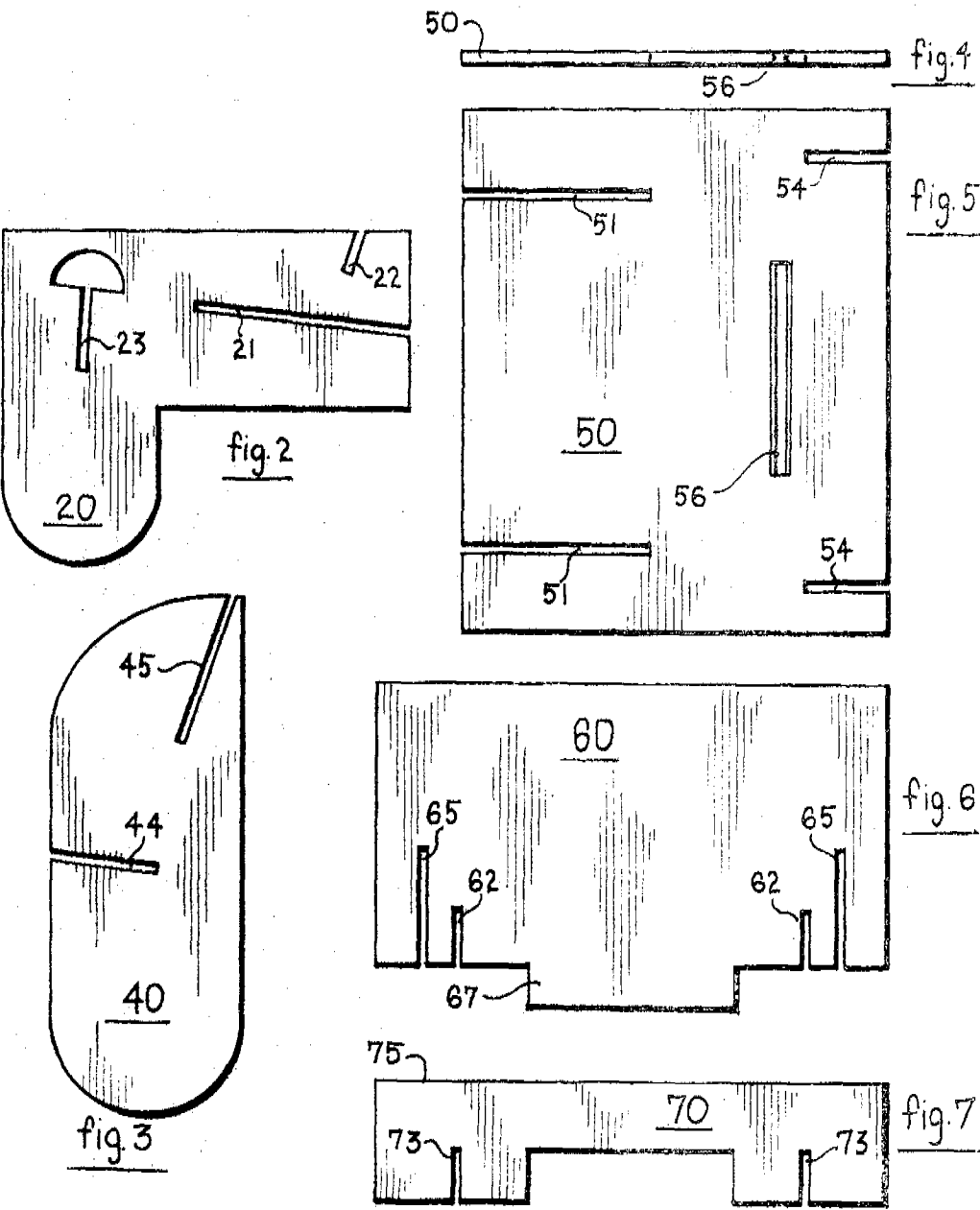
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B. X. BOVASSO
QUICK ASSEMBLED FURNITURE

3,547,491

Filed May 6, 1968

3 Sheets-Sheet 2



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Dec. 15, 1970

B. X. BOVASSO
QUICK ASSEMBLED FURNITURE

3,547,491

Filed May 6, 1968

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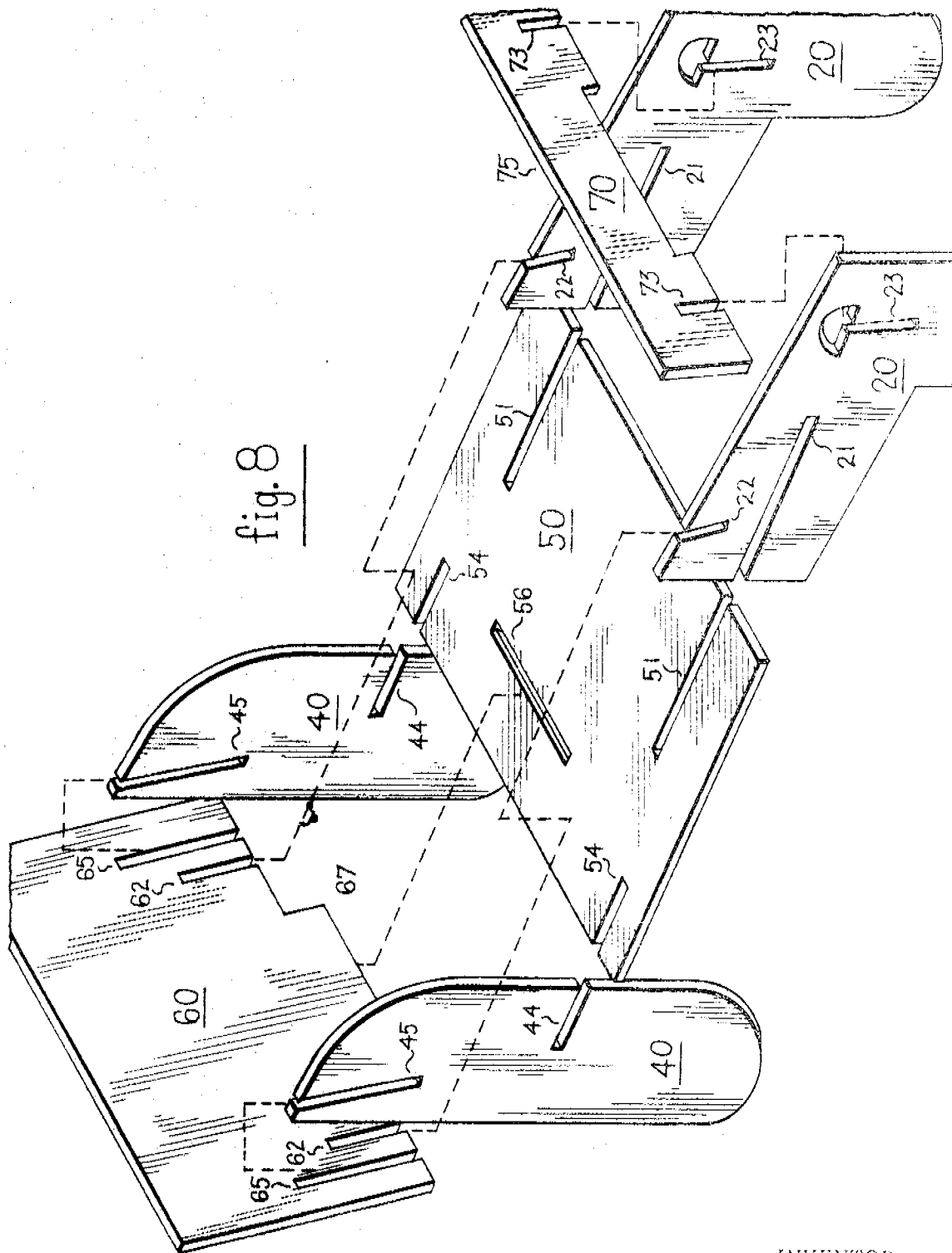


fig. 8

INVENTOR.

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United States Patent Office

3,547,491

Patented Dec. 15, 1970

1

3,547,491

QUICK ASSEMBLED FURNITURE

Bernard X. Bovasso, 23 E. 17th St.,

New York, N.Y. 10003

Filed May 6, 1968, Ser. No. 727,100

Int. Cl. A47c 4/02

U.S. Cl. 297-442

6 Claims

ABSTRACT OF THE DISCLOSURE

The unit of furniture is made from six flat pieces; four legs, a seat and a back. Each piece is grooved and interlocks with the other pieces during assembly. All pieces are reversible and no tools or fasteners are used in assembly or disassembly.

This invention relates to furniture and more particularly to furniture that can be quickly assembled and disassembled.

An object of this invention is to provide furniture that is assembled solely from interlocking components.

Another object is to provide furniture that is assembled from flat components.

Another object is to provide furniture made of components that interlock during assembly.

Another object is to provide furniture that has reversible interlocking components; thus allowing a quick rearrangement to expose different surfaces.

Another object is to provide furniture that is assembled without tools or fasteners.

Another object is to provide furniture that can be quickly hand assembled and disassembled.

FIG. 1 is an isometric view of an assembled article of furniture, specifically a chair.

FIG. 2 is an elevation view of a front leg.

FIG. 3 is an elevation view of a rear leg.

FIG. 4 is an edge view of the seat from the side.

FIG. 5 is a plan view of the seat.

FIG. 6 is an elevation of the back.

FIG. 7 is an elevation of the front cross-piece.

FIG. 8 is an exploded view of the chair components in position to be assembled.

Much furniture has in the past been designed to be quickly assembled and disassembled; these designs have had the shortcomings of requiring either:

- precisely manufactured components,
- special tools,
- extra fasteners,
- extensive storage space.

Even if these shortcomings were overcome, furniture of the past has not had reversible components and more importantly after assembly the units were unstable. The furniture would rack back and forth or rack left and right and a seated person would feel uneasy seated on such an unstable structure. The present invention provides a simple solution to these problems and provides a furniture unit that interlocks when assembled to provide a stable and comfortable seat.

The invention is described in the embodiment of a chair; it being understood that many pieces of furniture are similar, and thus the following description is not intended to be limiting.

FIG. 1 shows an assembled chair. The chair is constructed of two identical front legs 20 and two identical rear legs 40. There is a seat 50, a back 60, and an optional cross-piece 70.

All components of the chair are constructed from rigid flat material such as $\frac{1}{2}$ " or $\frac{3}{4}$ " thick plywood panels. Each component is grooved with straight $\frac{1}{2}$ " or $\frac{3}{4}$ " wide

2

grooves 21 and 44 determines the slope of the chair; in the interlocking components of the chair.

The front leg 20, FIGS. 1 and 2, contacts the floor with a rounded foot and contains a slanted groove 21 for receiving a groove 51 of the seat 50. The front leg 20 includes a groove 22 which during assembly receives a groove 62 of the back 60. Leg 20 includes a mushroom-shaped opening and groove 23, which receives groove 73 of the cross-piece 70.

The rear leg 40, FIG. 2, contacts the floor with a rounded foot and is made with a slanted groove 44 that receives a groove 54 of the seat 50. The slope of the grooves 21 and 44 determines the slope of the seat; in the design shown the seat 50 slopes downward and to the rear of the chair at an angle of about 15 degrees. The rear leg 40 also includes a groove 45 which receives groove 65 of the back 60. Grooves 45 and 22 are parallel and decline toward the rear of the chair at an angle of about 25 degrees. Grooves 45 and 22 receive the back 60 and thus determine the slope of the back in the assembled chair.

The seat includes a long notch 56 that is designed to receive a rectangular projection 67 on the lower surface of the back 60. If the projection 67 enters the notch 56 along a line perpendicular to the surface of seat 50 the notch 56 can be a rectangular slot, this construction allows the seat to be reversed. However, if the angle defined by the seat and the back is obtuse (100 degrees in the present case) the notch 56 must be cut at this angle (100 degrees) from both sides of the seat and the notch 56 in edge view would appear as shown in FIG. 4. This notch construction allows the seat to be reversed when the seat and back meet at an obtuse angle.

The assembly procedure for the chair is to engage the front leg grooves 21 with the seat grooves 51; by sliding them together; and then engage the rear leg grooves 44 with the seat grooves 54. With these five components assembled the chair will stand and the back panel 60 is slid downward into grooves 22 and 45 and at the same time inserting projection 67 into notch 56.

It will be observed that the back interlocks with each of the other five components, the seat also interlocks with each of the other five components of the chair.

As a means of bracing the front edge of the seat against vertical flexing, the cross-piece 70 can be connected between the two front legs by engaging grooves 23 with grooves 73 in the cross-piece. The upper edge 75 of the cross piece is designed to just underlie the lower surface of the seat 50 and thus prevents a heavy weight on the seat from appreciably flexing the seat. If the cross-piece is used it is connected between the two front legs as the first step of the assembly.

The furniture of this invention requires no tools or fasteners for assembly or disassembly, the components can be quickly slid together to complete the assembly and if the back, for example, is red on one side and blue on the other, it can be quickly turned around to expose the other surface and thus change the appearance of the piece of furniture. The assembled unit has a stability and firmness that is to be expected only from furniture that is screwed and glued together. Because the seat and back panels of this invention interlock with each of the other components the furniture of this invention provides an equivalent stability without fasteners.

The invention claimed is:

1. An article of furniture assembled without fasteners from interlocking components, comprising: a seat containing grooves for engaging each of four legs and a back, two front legs each grooved to engage the seat and back, two rear legs each grooved to engage the seat and back, and a back that concurrently engages and interlocks with each leg and the seat.

United States Patent [19]

Wartes

[11] 3,788,700

[45] Jan. 29, 1974

[54] MULTIFUNCTIONAL PEGGED FURNITURE

[76] Inventor: **Richard M. Wartes**, 14400 Addison St., Sherman Oaks, Calif. 91403

[22] Filed: **Aug. 29, 1972**

[21] Appl. No.: **284,678**

[52] U.S. Cl. **297/442, 5/93 R, 108/112, 297/445**

[51] Int. Cl. **A47c 27/08, A47c 4/02**

[58] Field of Search.. **5/94, 114; 297/440, 442, 445; 46/15, 30, 31; 108/111, 112**

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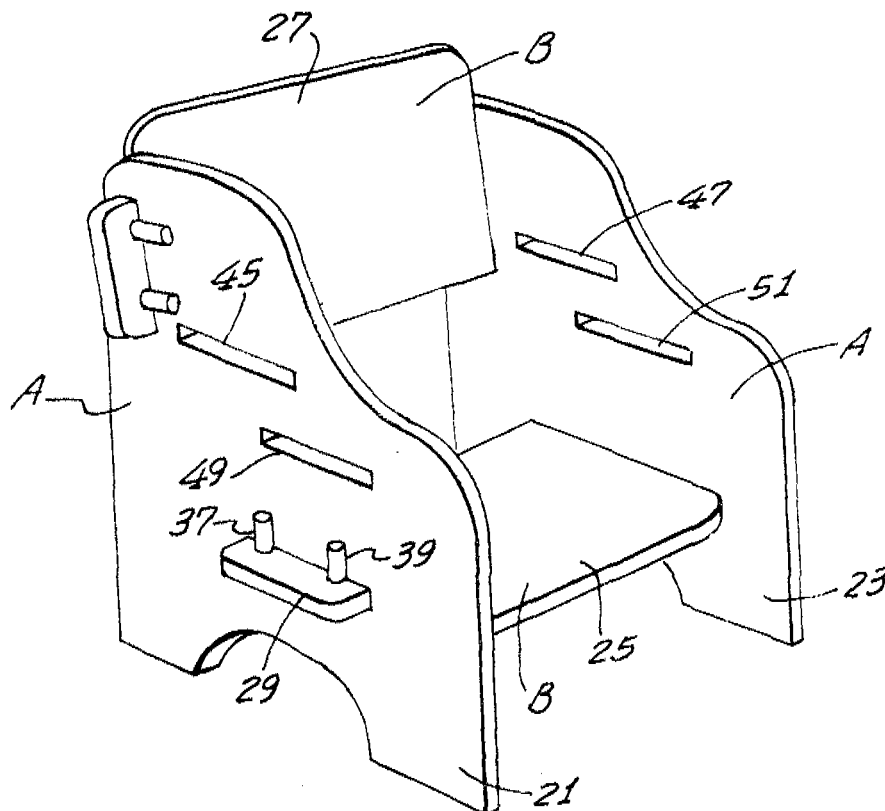
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Primary Examiner—Casmir A. Nunberg
Attorney, Agent, or Firm—Alan C. Rose

[57] ABSTRACT

Pegged furniture is made out of flat frame members having slotted holes and flat bridging members having reduced ends to fit through the holes. The frame members may have extra slots so that you can make functionally different kinds of furniture. Special tapered pegs, which are made of slotted dowel stock having a tapered flat on one side, are pegged through angled holes in the bridging members to removably hold the furniture together to perform the desired function. Some particular items of furniture include (1) an alternate chair and step stool; (2) another step stool which doubles as a hamper; (3) a two-level table; (4) a chair and table; (5) a bench and chest; (6) a cradle which can also be converted into three other uses including benches and a table, a rocking bench, and a toy box.

17 Claims, 21 Drawing Figures



United States Patent [19]
Johnson

[11] 4,082,356
[45] Apr. 4, 1978

[54] EDUCATIONAL PUZZLE CHAIR

[76] Inventor: Karin Ruth Johnson, 123 Glen Dr.,
Sausalito, Calif. 94965

[21] Appl. No.: 772,123

[22] Filed: Feb. 25, 1977

[51] Int. Cl.² A47C 7/00

[52] U.S. Cl. 297/442; 46/15;
46/17

[58] Field of Search 46/15, 17; 297/442,
297/423

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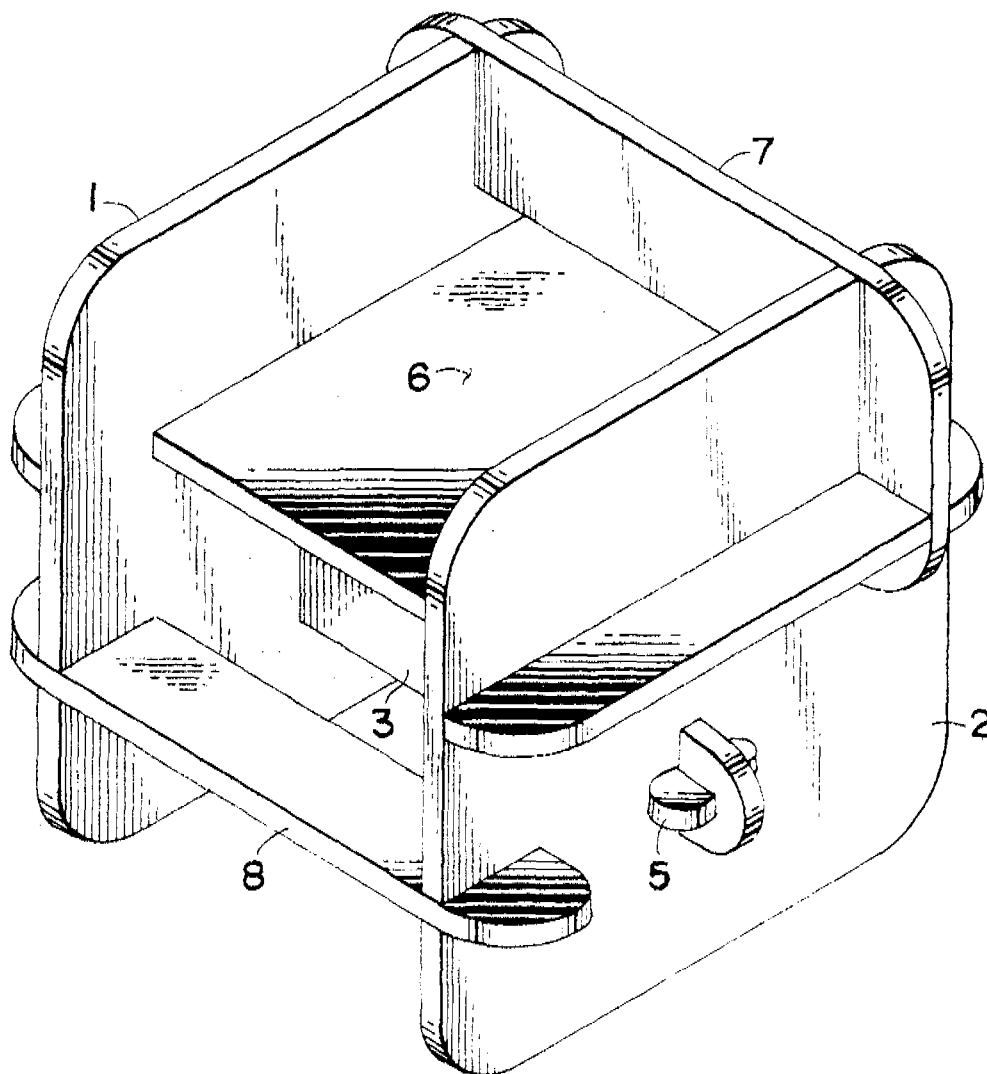
3,788,700 1/1974 Wartes 297/442

Primary Examiner—James C. Mitchell
Attorney, Agent, or Firm—George W. T. Loo

[57] ABSTRACT

An educational puzzle chair for children between the ages of 18 months and 5 years of age. The chair includes two identical sides, a brace, two identical wedges, a back and a step. The chair is assembled by interlocking its parts in a predetermined manner and order without the use of any fastening elements or tools. All pieces except the sides are reversible. The components of the chair can be stored in a minimum amount of space and can be placed in a small container for easy carrying. The chair is durable and economical to produce.

6 Claims, 3 Drawing Figures



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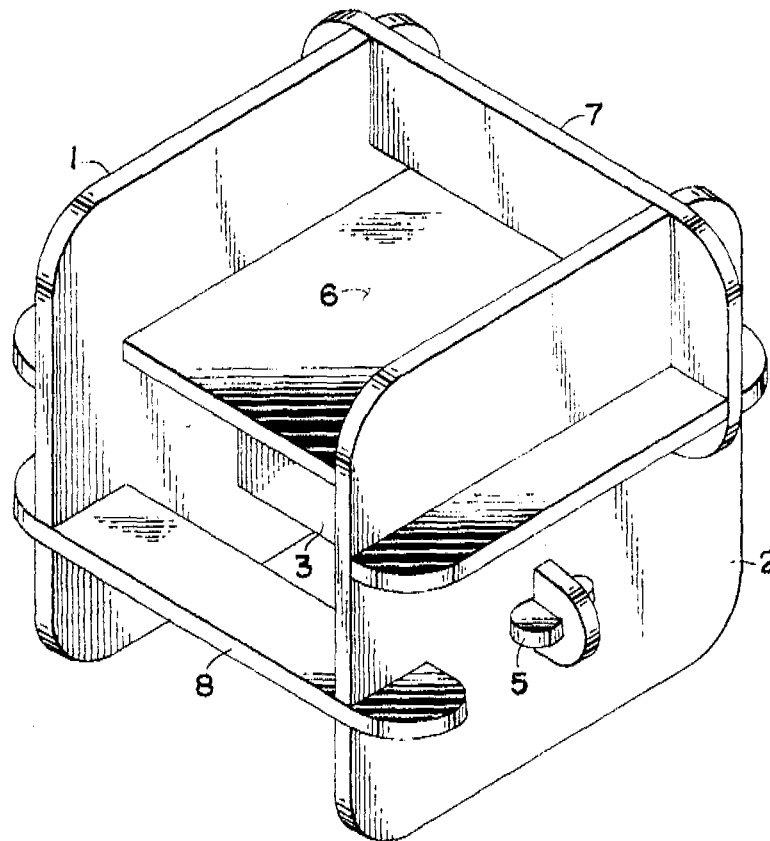


FIG. 1.

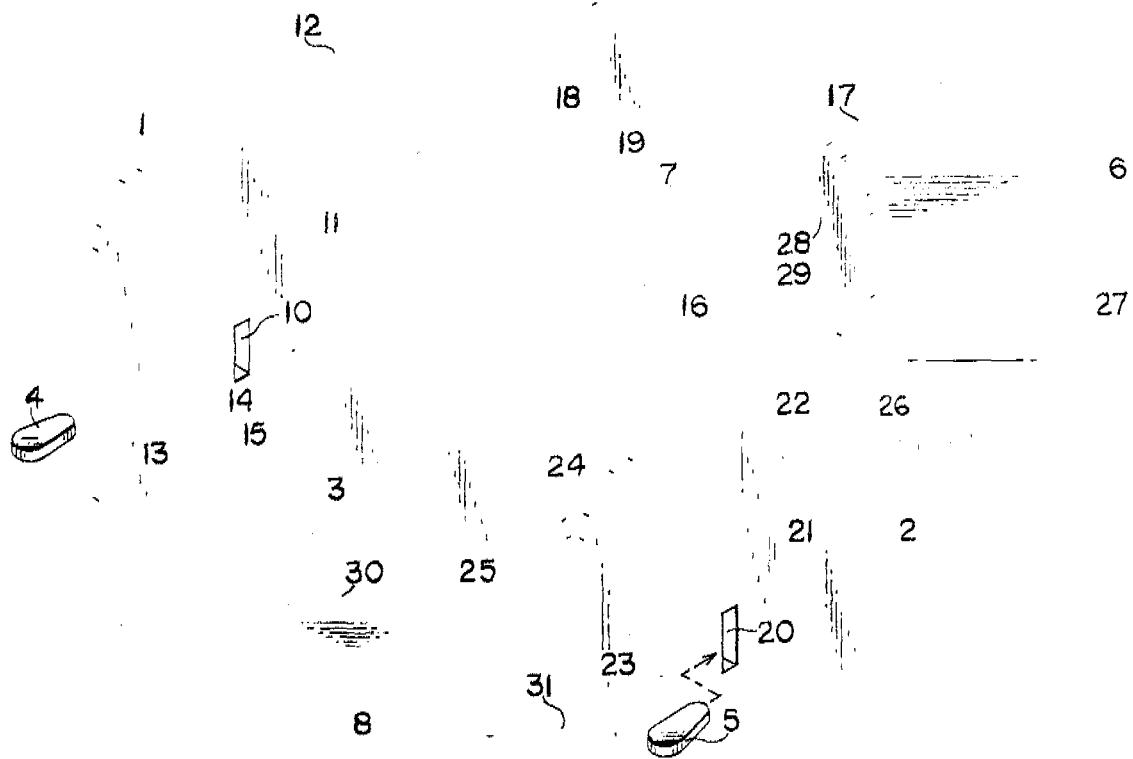


FIG. 2.

30

30

D6

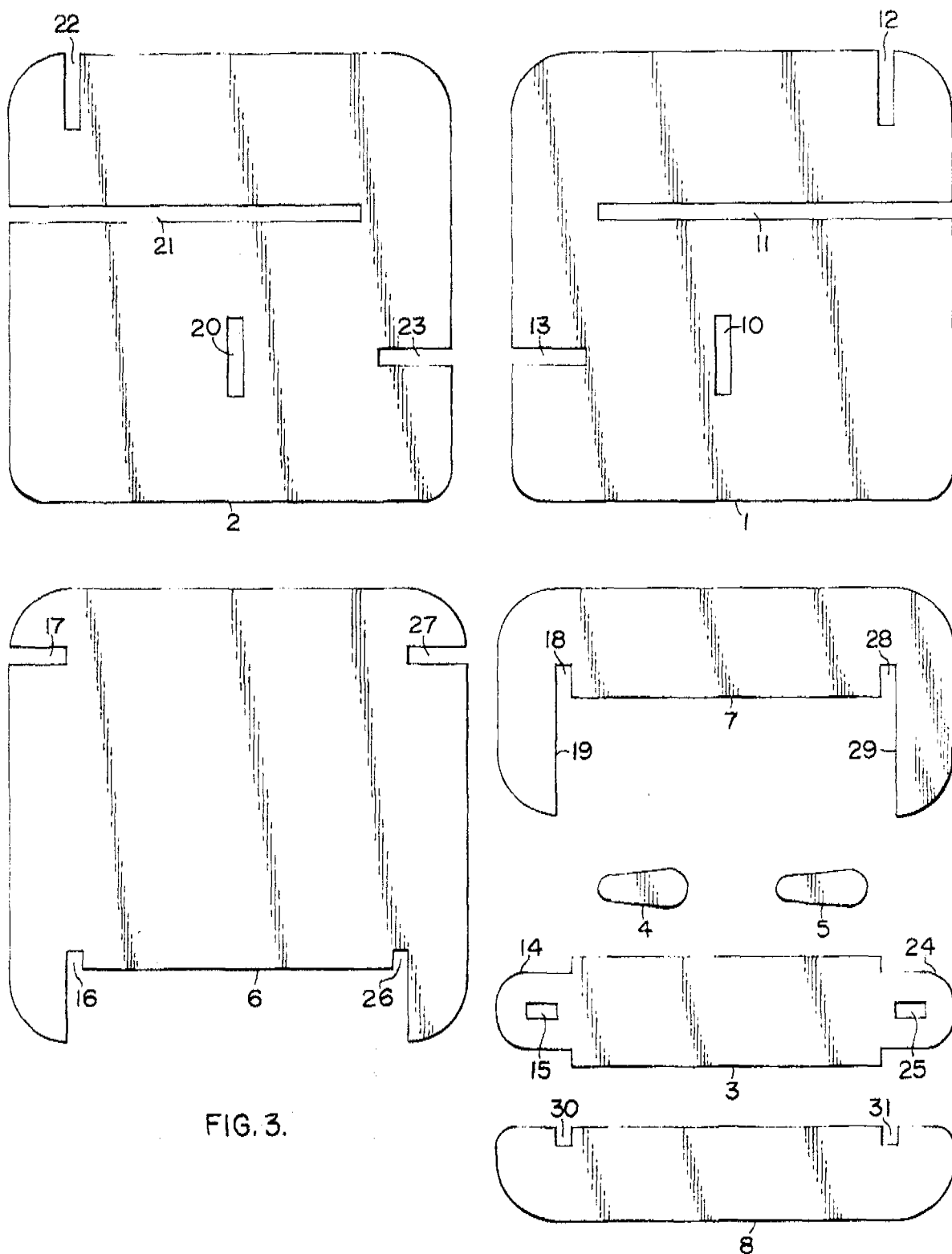


FIG. 3.

EDUCATIONAL PUZZLE CHAIR

BACKGROUND OF THE INVENTION

1. Field of Invention

My invention relates to a knockdown chair which serves as an educational puzzle for pre-school children between the ages of 18 months and 5 years.

2. Description of the Prior Art

Prior art knockdown furniture, such as Basile (U.S. Pat. No. 2,628,668, dated Feb. 17, 1953), Rumble (U.S. Pat. No. 3,300,245, dated Jan. 24, 1967) and Ferman (U.S. Pat. No. 3,603,656, dated Sept. 7, 1971) are not designed for assembly by a child. My invention is designed for assembly by a very young child as a part of his learning process.

SUMMARY OF THE INVENTION

The invention relates to a knockdown chair which serves as an educational puzzle for pre-school children between the ages of 18 months and 5 years. It is designed for assembly by a very young child as a part of his learning process.

An object of this invention is to provide a knockdown chair which will serve as an educational puzzle for pre-school children.

Another object of this invention is to provide a knockdown chair having interlocking parts which can be put together by a child.

Still another object of this invention is to provide a knockdown chair which can be assembled and disassembled without the use of any fastening elements or tools.

A still another object of this invention is to provide a knockdown chair which is durable and economical to produce.

A further object of this invention is to provide a knockdown chair which can be stored in a minimum amount of space and can be placed in a small container for sale or easy carrying.

Another object of this invention is to provide a knockdown chair which helps to promote the refinement of a child's motor skills and aid the child's comprehensive and conceptual development.

Still another object of this invention is to provide a safe and sturdy knockdown chair.

A still another object of this invention is to provide a knockdown chair that has reversible interlocking parts.

A further object of this invention is to provide a knockdown chair that interlocks when assembled to provide a stable and comfortable chair.

Another object of this invention is to provide a knockdown chair which is simple in construction, inexpensive to manufacture, easy to assemble and disassemble, easy to handle, compact, decorative and very durable.

Other objects, features and advantages of the present invention will be readily apparent from the following detailed description taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the chair.

FIG. 2 is an exploded perspective of the chair components in position to be assembled.

FIG. 3 is a layout of all the parts of the chair combination.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Before explaining the present invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Referring now to the drawings wherein like reference numerals refer to like and corresponding parts throughout the several views, the preferred embodiment of the invention disclosed in FIGS. 1 to 3 inclusive, includes a pair of sides 1 and 2, brace 3, a pair of wedges 4 and 5, seat 6, back 7 and step 8. Sides 1 and 2 are identical to each other; wedges 4 and 5 are identical to each other.

Sides 1 and 2 are two identical squares with rounded corners and four slots. Side 1 has a vertical slot 10, a long horizontal slot 11, a top vertical slot 12 and a short horizontal slot 13. Side 2 has similar slots numbered 20, 21, 22 and 23, respectively. Slot 10 is adapted to interlock with tongue 14 on brace 3. Slot 11 is adapted to interlock with slot 16 on seat 6. Slot 12 is adapted to interlock with slot 18 on back 7. Slot 13 is adapted to interlock with slot 30 on step 8. Slots 20, 21, 22 and 23 of side 2 are adapted to interlock, respectively, with tongue 24, slot 26, slot 28 and slot 31. See FIGS. 1 and 2.

Brace 3 is a rectangle with rounded tongues 14 and 24. Slots 15 and 25 are located within tongues 14 and 24, respectively.

Wedges 4 and 5 are tapered. They may have a straight side and a slanted side in lieu of tapered sides, if it is deemed to be desirable. Wedge 4 is adapted to fit within slot 15 of tongue 14. Wedge 5 is adapted to fit within slot 25 of tongue 24. See FIGS. 1 and 2.

Seat 6 is a rectangle with two forward bifurcated arms on its front edge. Seat 6 has vertical slots 16 and 26 and horizontal slots 17 and 27. Slots 16 and 26 are adapted to, respectively, interlock with slots 11 and 21 of sides 1 and 2. See FIG. 2.

Back 7 is a rectangle with two fingers 19 and 29. Back 7 has vertical slots 18 and 28. Slots 18 and 28 are adapted to, respectively, interlock with slots 12 and 22 of sides 1 and 2. See Fig. 2.

Step 8 is a rectangle with rounded edges along its front edge and vertical slots 30 and 31 on its back edge. Slots 30 and 31 are adapted to, respectively, interlock with slots 13 and 23 of sides 1 and 2. See FIG. 2.

The width of the slots equal the thickness of the material used to make the chair for a snug fit.

To assemble my invention: (1) Insert tongue 14 of brace 3 through slot 10 of side 1. (2) Secure brace 3 to side 1 by placing wedge 4 into slot 15. (3) Insert tongue 24 through slot 20 of side 2. (4) Secure brace 3 to side 2 by placing wedge 5 into slot 25. (5) Insert seat 6 into slots 11 and 21 of sides 1 and 2 so that slot 16 is received by side 1 and slot 26 is received by side 2. (6) Insert back 7 as that slot 18 is received by slot 12 of side 1 and slot 28 is received by slot 22 of side 2 and so that finger 19 is received by slot 17 and finger 29 is received by slot 27. (7) Insert step 8 so that slot 30 is received by slot 13 and slot 31 is received by slot 23.

When assembled, the seating area of my knockdown chair is: Width 11 inches, Depth 10 inches and Height 10 inches. These dimensions, incidentally, conform with standards of *Architectural Graphic Standards* for children in the 18 months to 5 years age group.

The various parts of the chair are so fabricated that they provide their own fastening elements. All of the parts fit firmly together as the various slots in the several parts are only of sufficient width to snugly accommodate their counterpart members adapted to be inserted therein. By using such an interlocking arrangement for joining the several members together, each member serves to reinforce the adjacent or interlocked member and thus a strong and sturdy chair is provided without the use of external fastening elements such as nails, screws, clamps, etc.

The interlocking joint design makes assembly and disassembly of the chair without tools so simple that a child can do it. Also, because of the interlocking arrangements for joining the several members together and the resulting strength and rigidity of the chair, it is practical to use plywood having a thickness of $\frac{3}{8}$ inch or greater. In my preferred embodiment, I have used plywood of $\frac{1}{2}$ inch thickness.

My invention is inexpensive to manufacture. It is capable of being produced by mass production methods. Similar parts of the chair are interchangeable as no custom fitting is required. The components of the chair may be constructed from rigid flat material such as $\frac{1}{2}$ inch thick plywood panels. If desired, it can be made of $\frac{3}{8}$ inch thick plywood because the interlocking parts give the chair strength and rigidity. Nine chairs can be made from two 4feet by 8feet sheets of plywood. It may also be made of injection molded high density polyethylene by use of a die. In addition, it may be made of plexiglas or with a combination of plexiglas and wood. Any strong, durable and relatively light material may be used to make my invention.

My invention is decorative. It has a pleasing appearance. Since the two sides are interchangeable and all other pieces are reversible, it is possible to alter the appearance of the assembled chair by using pieces with a different color on each side and by assembling the pieces in a different manner.

My invention is compact. The parts are flat and narrow. In its disassembled condition it can be stored in a minimum amount of space, 16 inches by 15 inches by 2 inches, and can be placed or packed within a small container for sale or for easy carrying. Transportation costs are less because less space in transporting it is needed and because it is light in weight.

My invention is very durable. It is designed to withstand the rough usage of children. The parts were purposely made sturdy and easy to maintain.

My invention is safe for children. The corners of the parts of my chair have been rounded to minimize the possibility of injury. Legs have been eliminated to create a more structurally sound and stable chair. The sides of the chair cover more floor area than would conventional four legged designs. My chair will not tip over when an adult stands on its step. It will remain intact and stable when an adult stands on its seat. It will not fall apart or lose its stability with the removal of the step or wedges. It cannot be accidentally disassembled. The parts of the chair are not large enough to cause injury to a child.

During the first five years of the life of a child, fundamental motor patterns emerge as he manipulates various

objects encountered in his environment. It is a time when the development of motor skill goes from gross to specific refinement, coupled with a progressive broadening of the child's comprehension and conceptualization of the world around him. My invention helps to promote the refinement of motor skills and aids in the child's comprehensive and conceptual development.

My invention has been successfully tested with preschool children between 18 months and 5 years of age. The optimum use of my invention depends on a child's age, state of development, physical strength and comprehension. A normal child of 5 years of age can assemble and disassemble my invention. My 5 year old child has assembled and disassembled my invention by herself in 6 minutes. A normal 4 year old child can, with initial adult instruction, learn to assemble and disassemble my invention within a relatively short period of time. Younger children below 4 years of age may not be able to successfully manipulate the three large pieces, 2 sides and 1 seat, by themselves. An 18 month old child may use my invention as a climbing and sitting area and may not comprehend its use as an educational puzzle. However, the fact that younger children, 18 months to 4 years of age, may not be able to fully use my invention does not negate from its educational value.

A child will benefit from its use in proportion to the amount of use he is capable of giving it. For example, an 18 month old child will use my invention as a climbing and sitting area. He is able to remove and replace the step and the wedges, after much experimentation. He learns to use the step as a means of climbing onto the seat and, once seated, to use the step as a resting place for his feet. His continual attempt to replace the step aids his eye/hand coordination as the step has two slots which must be matched up with the horizontal slots on the lower frontal edge of each side. He learns through trial and error the correct way to insert the wedges. The insertion of the wedges in the slots aids his fine muscle control as the wedges and the point of placement are relatively small.

A 1½ to 2½ year old child can easily remove and replace the step and wedges, but he will find the replacement of the back too difficult. A child of 2½ to 3½ years of age may have difficulty replacing the back, but should be able with practice to do so. A child of 3½ to 5 years of age can assemble the back with relative ease. Manipulation of the three larger pieces, the seat and the two sides, can be successfully manipulated by children between 4 and 5 years of age as the pieces are a good deal larger than the step and wedges. The brace, while smaller, must be manipulated in conjunction with the sides. The 8 component parts of my invention must be assembled in a particular sequence.

Imagination and creative thought are at play in regards to each child's personal use of his chair. My invention is a wholesome and self-enhancing product as a child is positively reinforced when he successfully assembles the pieces he is capable of assembling.

Aside from its educational value, my invention may be used as a chair. It is more stable than a chair with four legs. It has pleasing appearance. It allows more freedom of movement of the torso and upper limbs as the height of the back is equal to that of its sides and comes somewhere between the lower thoracic vertebrae and the lumbar vertebrae, whereas conventional chairs may have backs as high as the cervical vertebrae which restricts movement to the front and sides of the



US006439945B1

(12) **United States Patent**
Liu

(10) **Patent No.:** **US 6,439,945 B1**
(45) **Date of Patent:** **Aug. 27, 2002**

(54) **OCTOPUS-SHAPED BUILT-UP TOY**

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5,911,328 A * 6/1999 Shampo 211 40

(76) **Inventor:** **Kuo-Ching Liu**, SFL., No. 11 Alley 1,
Lane 1, Sec. 1, Yunhan S. Road, Lujou
City, Taipei (TW)

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www.home and office, see attached.*

(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

* cited by examiner

Primary Examiner—Dennis H. Banks

Assistant Examiner—Jamila Williams

(74) *Attorney, Agent, or Firm*—Troxell Law Office PLLC

(21) **Appl. No.:** **09/951,974**

(57) **ABSTRACT**

(22) **Filed:** **Sep. 14, 2001**

(51) **Int. Cl.** **A63M 33/00**

(52) **U.S. Cl.** **446/71; 273/160; 273/156;
446/97**

(58) **Field of Search** **446/71, 105-109,
446/119, 122, 124; 434/247, 259, 208,
271, 278, 279, 281, 211; 273/156, 157 R,
153 R**

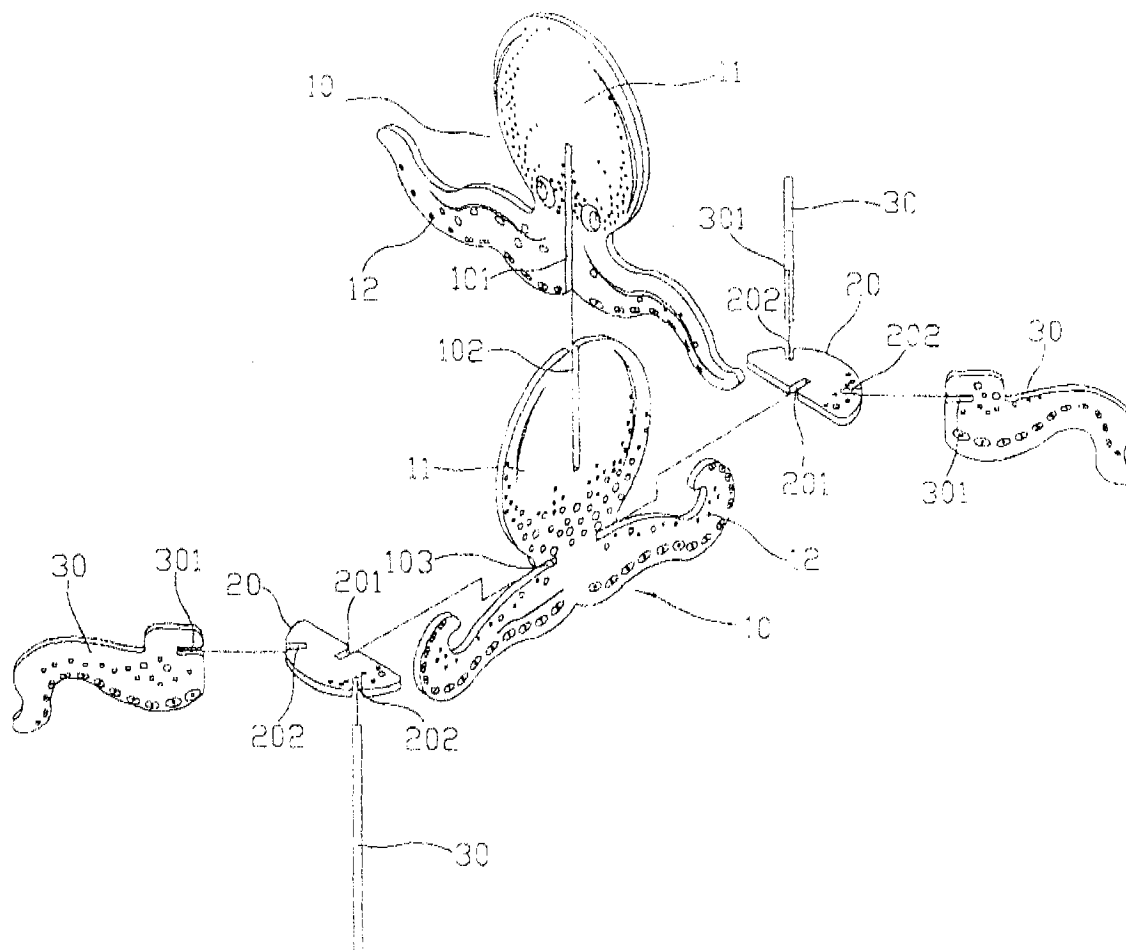
An octopus-shaped toy is built up from a plurality of
modeled parts including two main body parts, two intercon-
necting parts, and a plurality of tentacle parts. All these
modeled parts are connected to one another through engage-
ment of slits provided thereon and thereby form a three-
dimensional toy octopus. These parts are also provided with
patterns showing specific features that are usually found on
a real octopus, so that the assembled toy octopus is vivid to
attract more players and helps players to know more things
about the octopus.

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3 Claims, 3 Drawing Sheets







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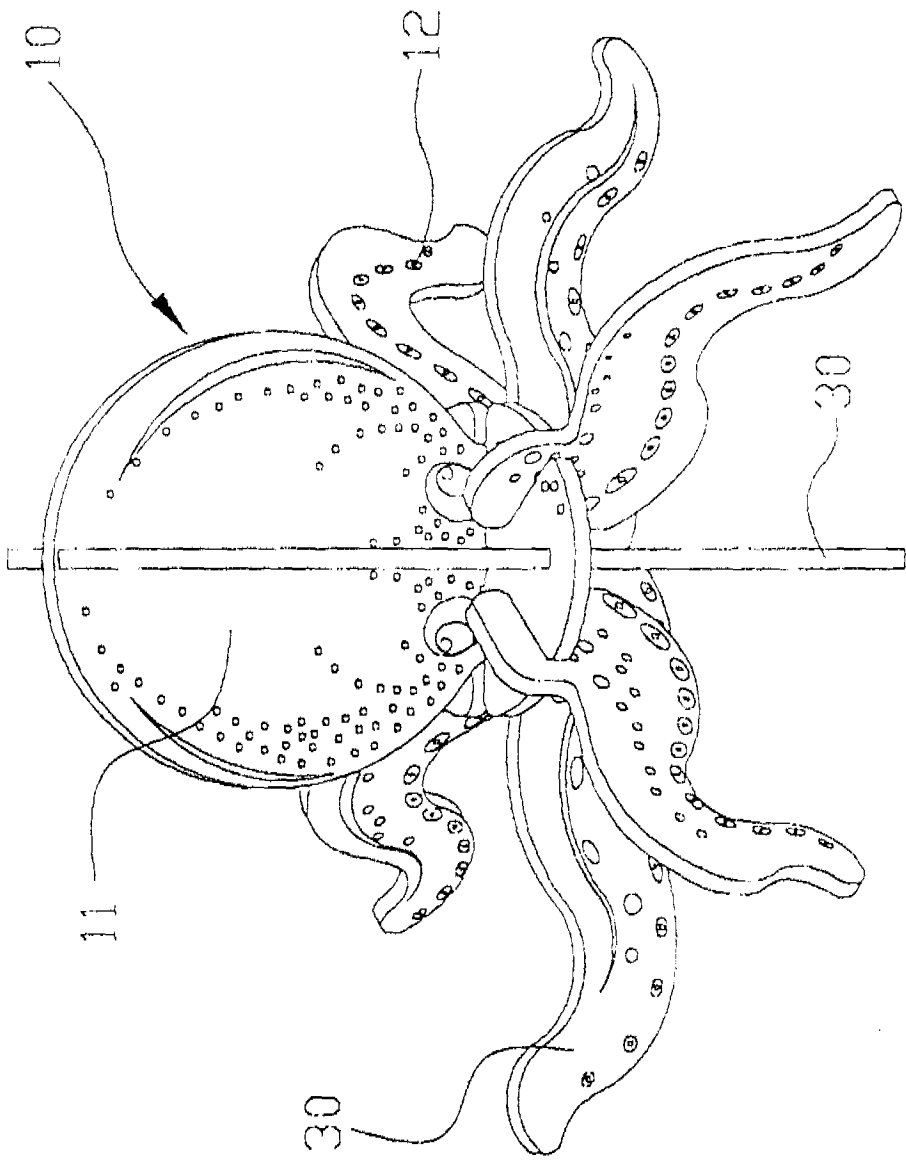


FIG. 3

OCTOPUS-SHAPED BUILT-UP TOY

FIELD OF THE INVENTION

The present invention relates to an octopus-shaped toy, and more particularly to an octopus-shaped toy built up from a plurality of modeled parts, so that a player learns more things about the octopus from assembling the modeled parts.

BACKGROUND OF THE INVENTION

The built-up toy is presently one of the most welcomed toys among children. It enables a player to enjoy the pleasure of assembling different parts into an embodied toy through thinking and imagination.

The currently available built-up toys are generally divided into two types, namely, modularized built-up toys and imitative built-up toys. A modularized built-up toy usually includes a plurality of modules that have a uniform shape, such as round, polygonal modules and the like. An imitative built-up toy usually has an appearance imitating or converted from a real thing in our life, such as some kind of animal or mechanical structure, and includes a plurality of modeled parts that representing different and distinct areas featuring the real thing being imitated.

The modules included in a modularized built-up toy could be freely assembled to one another completely through a player's creative ideas. The player may freely build up various kinds of predefined or imaginary figures from the uniform modules. However, from the standpoint of helping a player, particularly a child, to understand the structure of a real thing from assembling of the built-up toy, the imitative built-up toys would be a preferred choice.

In the production of conventional imitative built-up toys, the imitated items are usually roughly divided into only a few major parts. Therefore, the imitative toys built up from these parts do not present overall appearances and particulars as close as possible to the real things being imitated. That is, there is a considerable difference between the toys built up from the roughly divided parts and the real things being imitated. Thus, the assembled toys do not enable the players to have an idea about the exact three-dimensional configurations of the real things being imitated.

Moreover, the conventional built-up toys are usually made to a rather small scale to the real things. This condition and still many other factors prevent the imitative built-up toys from showing more detailed features of the real things to attract and educate players.

SUMMARY OF THE INVENTION

It is therefore a primary object of the present invention to provide an improved built-up toy that eliminates the drawbacks existing in the conventional imitative built-up toys so as to present a three-dimensional body and more distinct features of a real thing being imitated.

In an embodiment of the present invention, an octopus-shaped built-up toy is provided. The toy includes a plurality of modeled parts separately representing distinct areas of a real octopus and having patterns painted thereon to show features of the octopus. These modeled parts are connectable to one another through tight fitting slits provided thereon, so that an attractive three dimensional toy octopus is formed.

BRIEF DESCRIPTION OF THE DRAWINGS

The structure and the technical means adopted by the present invention to achieve the above and other objects can

be best understood by referring to the following detailed description of the preferred embodiment and the accompanying drawings, wherein

FIG. 1 is an exploded perspective view of an octopus-shaped built-up toy according to an embodiment of the present invention;

FIG. 2 is a partially assembled perspective view of the octopus shaped built-up toy of FIG. 1; and

FIG. 3 is a fully assembled perspective view of the octopus shaped built-up toy of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to FIG. 1 that is an exploded perspective view of an octopus-shaped built-up toy according to an embodiment of the present invention. As shown in FIG. 1, the octopus-shaped toy is built up from a plurality of modeled parts that generally represent some specific and featuring areas of an octopus. These modeled parts mainly include first and second main body parts 10, two interconnecting parts 20, and a plurality of tentacle parts 30.

Both the first and the second main body parts 10 include a head portion 11 and a plurality of tentacle portions 12 below the head portion 11. The first main body part 10 is provided at a lower end with a first slit 101, and the second main body part 10 is provided at an upper end with a second slit 102 and at two sides of a joint of the head portion 11 and the tentacle portions 12 with two opposite third slits 103.

Each of the two interconnecting parts 20 is provided at an inner edge facing toward the main body parts 10 with a fourth slit 201 for engaging with the third slit 103 on the second main body part 10, and at an outer edge facing away from the main body parts 10 with a plurality of equally spaced fifth slits 202.

Each of the tentacle parts 30 is provided at a predetermined position with a sixth slit 301 for engaging with one of the plurality of fifth slits 202 on the interconnecting part 20.

With the above arrangements, it is possible to connect the main body parts 10, the interconnecting parts 20, and the tentacle parts 30 with one another through engagement of the first slit 101 with the second slit 102, the third slits 103 with the fourth slits 201, and the fifth slits 202 with the sixth slits 301, as shown in FIG. 2.

A player may connect the parts 10, 20 and 30 to one another step by step in accordance with the following instructions:

1. Align the first slit 101 on the first main body part 10 with the second slit 102 on the second main body part 10, such that the first and the second main body parts 10 perpendicularly intersect with each other at the two slits 101, 102 to form a three-dimensional head and a plurality of tentacles outward extended from the head.
2. Connect the two interconnecting parts 20 to the two associated main body parts 10 by engaging the fourth slits 301 at the inner edge of the interconnecting parts 20 with the two third slits 103 on the second main body part 10, so that the interconnecting parts 20 are horizontally located at two opposite sides of the second main body part 10.
3. Connect the tentacle parts 30 to the interconnecting parts 20 one by one through engagement of each sixth slit 301 with any one of the fifth slits 202 on the interconnecting parts 20, so that each tentacle part 30 extends from the outer edge of the interconnecting part 20 in a plane perpendicular to the latter, and together with the tentacle

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Tsai

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(54) **TOY CONSTRUCTION KIT HAVING MOVABLE MEMBERS**

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(58) **Field of Search** 446/102, 88, 84, 446/34, 93, 60-62, 66, 105-109, 112, 124, 125, 36; 2/3 156, 15 / R; 434/211; D21/301, 430, 447, 449, 450, 479, 582, 583; 156/256

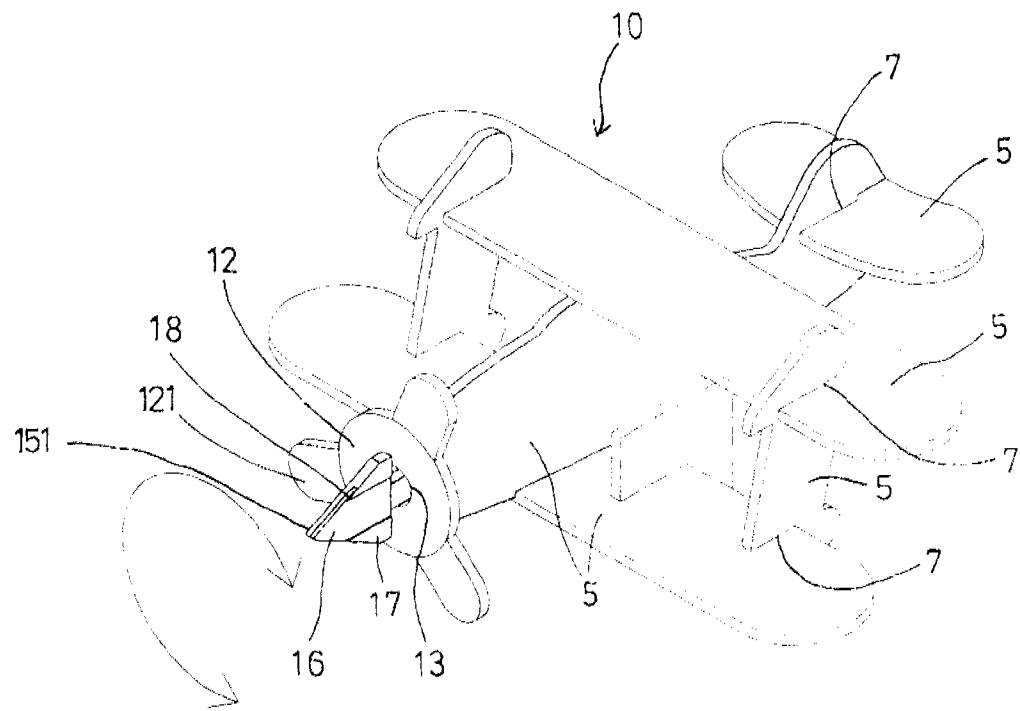
Primary Examiner—Derris H. Banks
Assistant Examiner—Jamila Williams

(57) **ABSTRACT**

A toy construction kit includes a number of members assembled together with an edge-and-slot engagement. A support member includes a neck and a panel, and a rotary member includes an orifice for receiving the neck of the support member and for rotatably securing the rotary member onto the support member. The panel includes two portions foldable relative to each other for engaging into the orifice of the rotary member, and a latch for locking the portions together after the portions are engaged through the orifice of the rotary member.

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6 Claims, 8 Drawing Sheets



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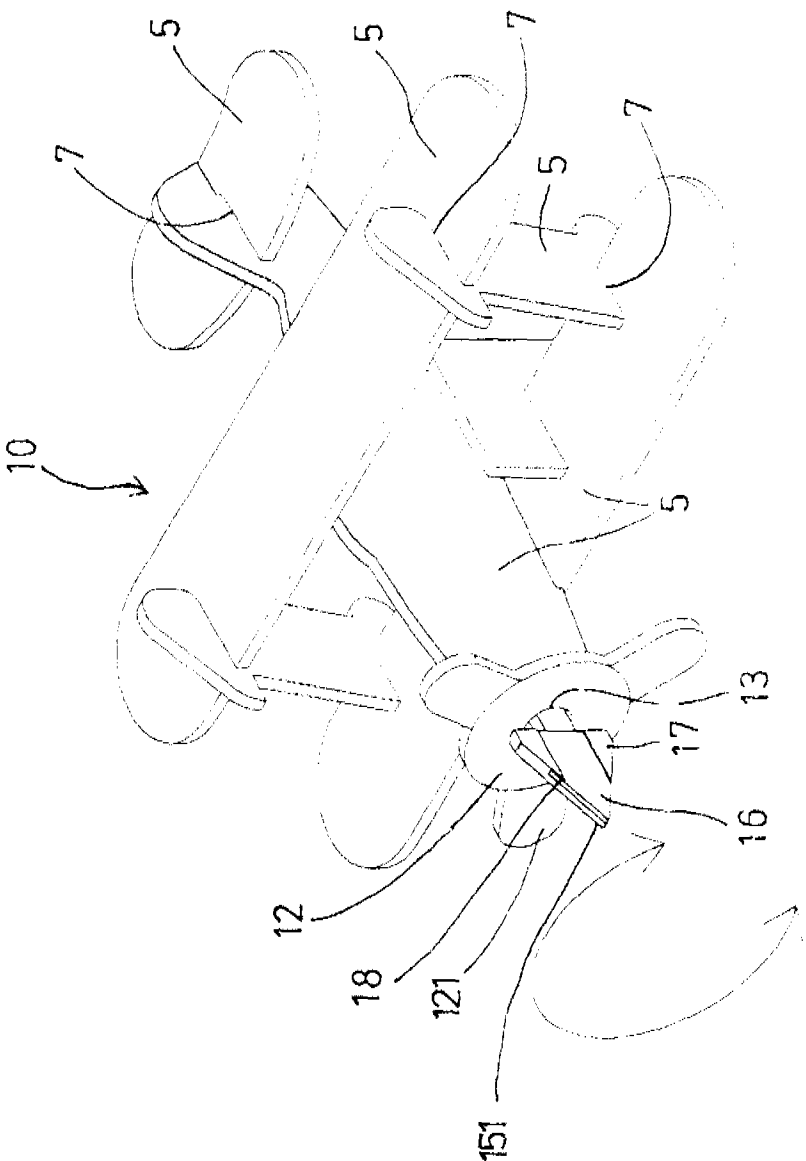


FIG. 1

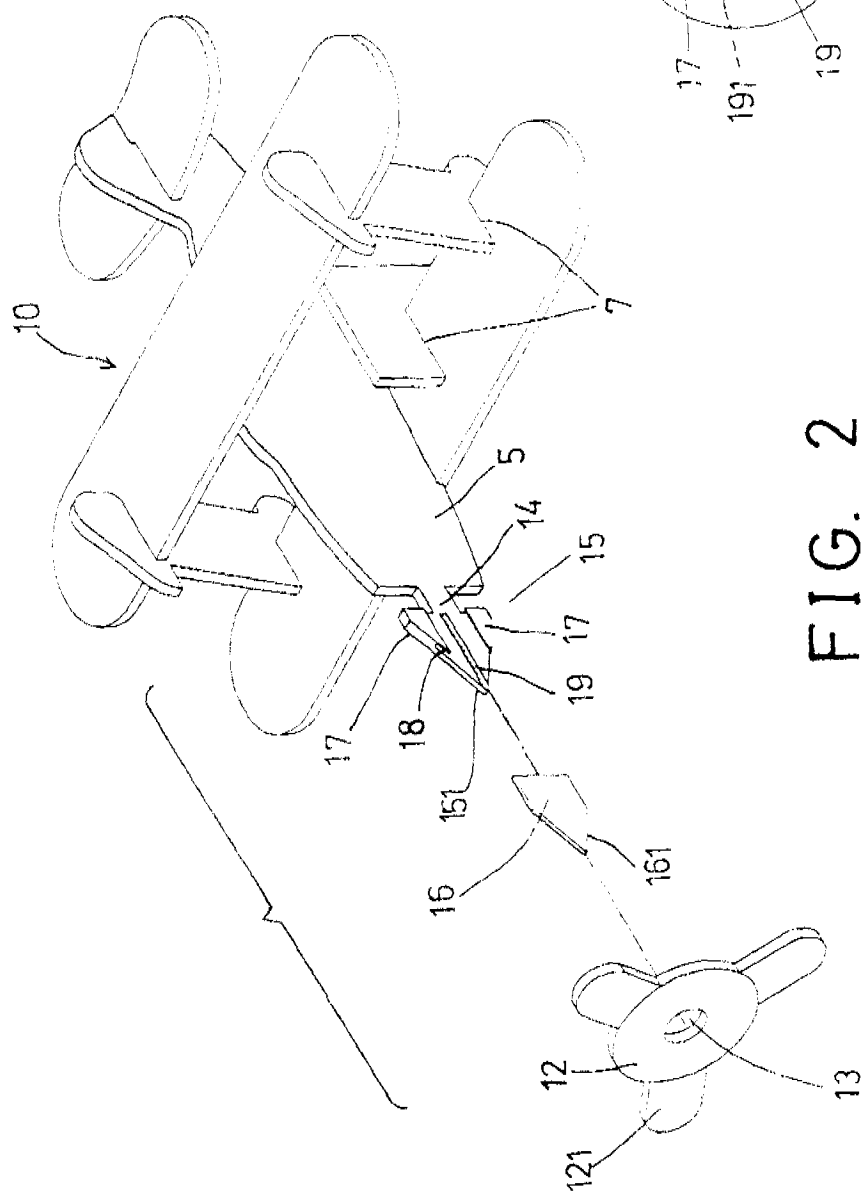


FIG. 2

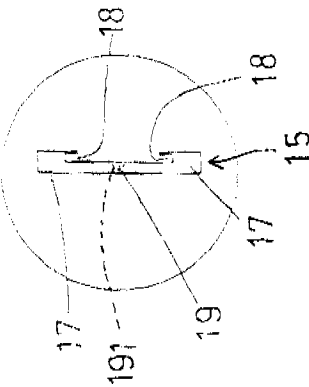


FIG. 3

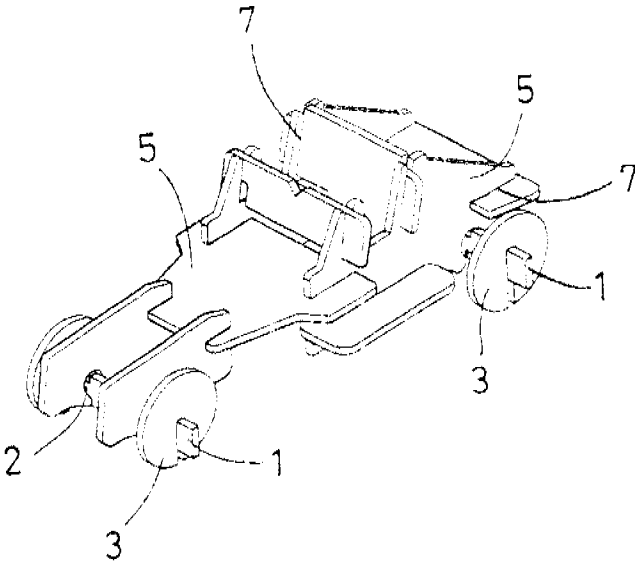


FIG. 4

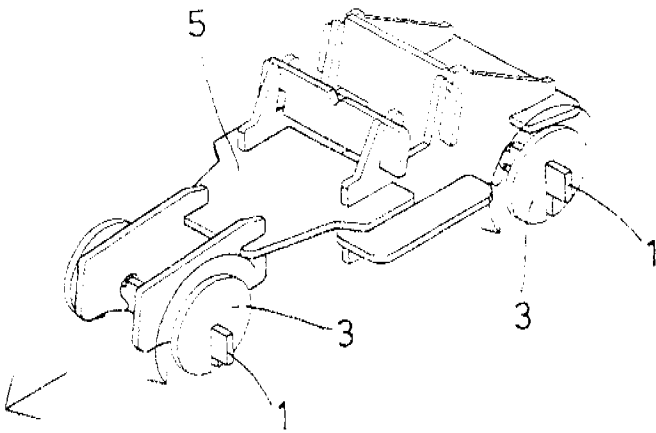


FIG. 5

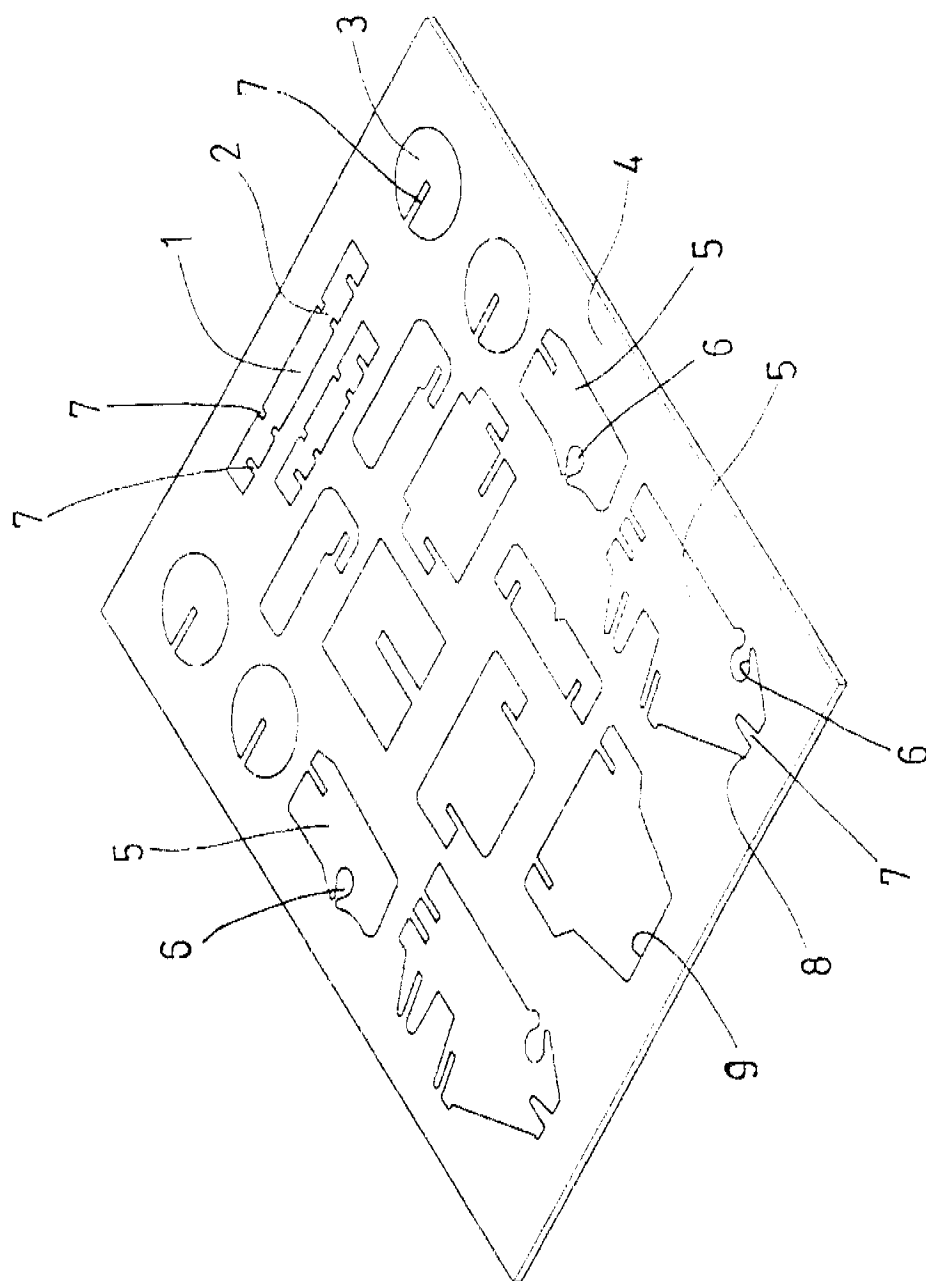


FIG. 6

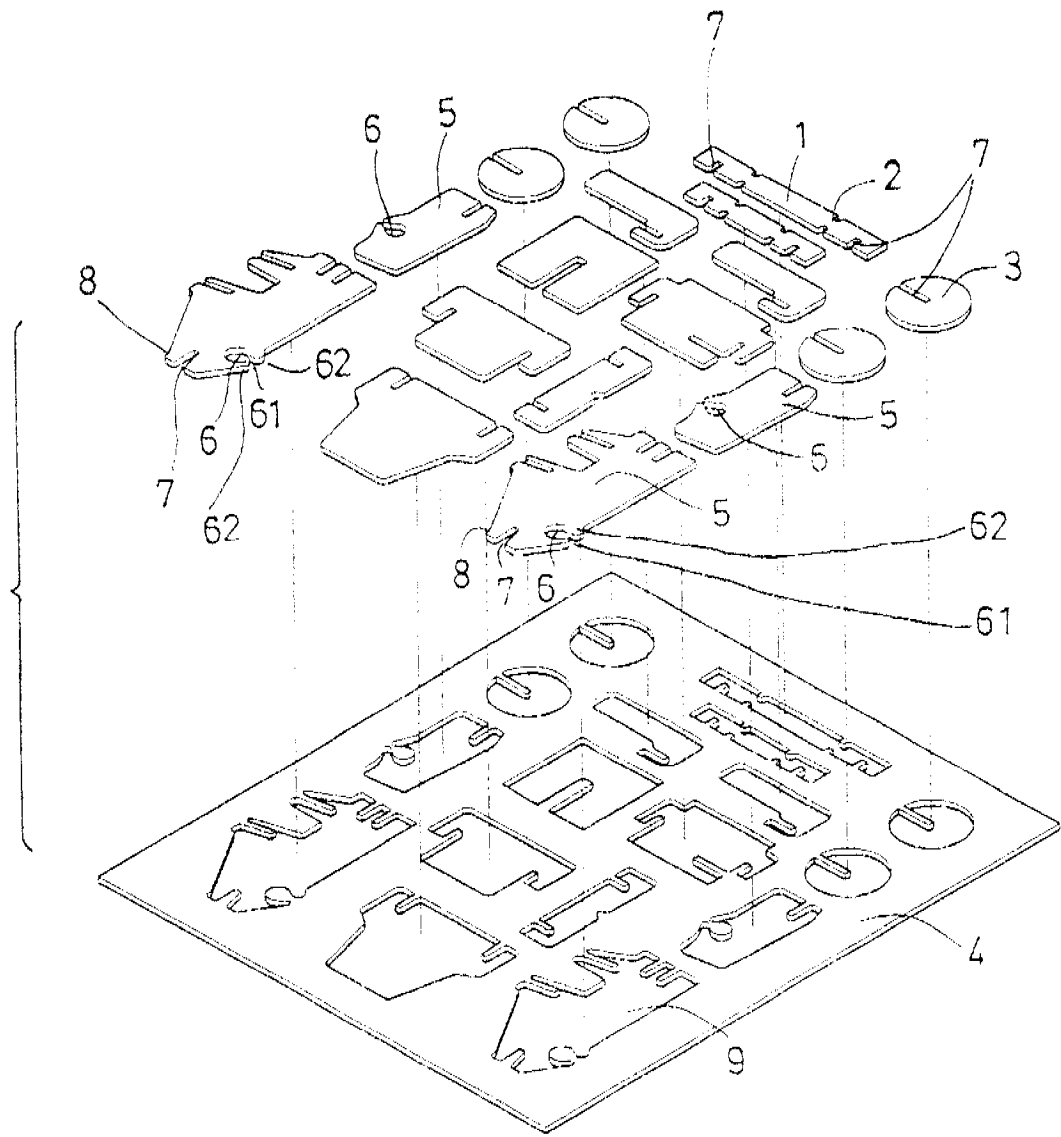


FIG. 7

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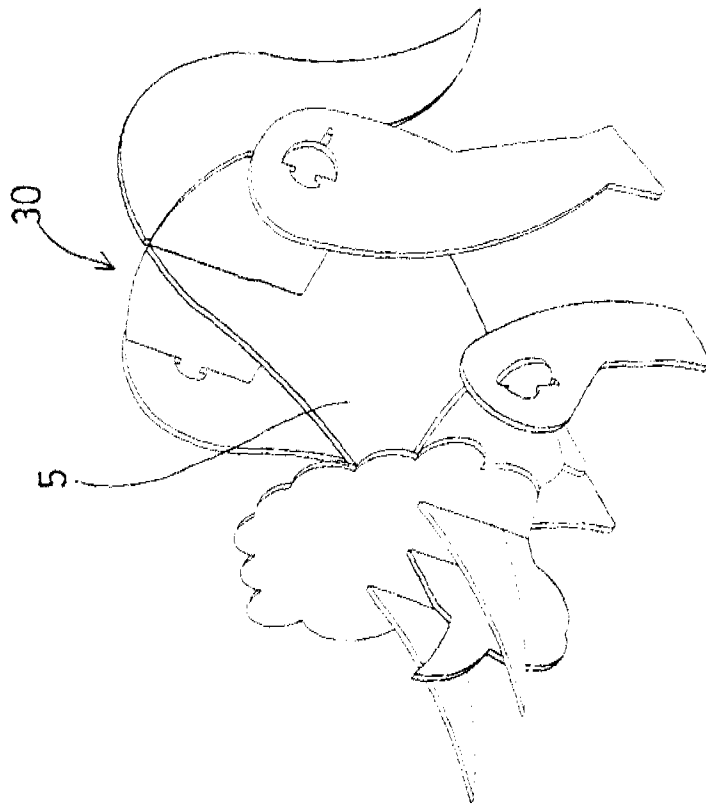
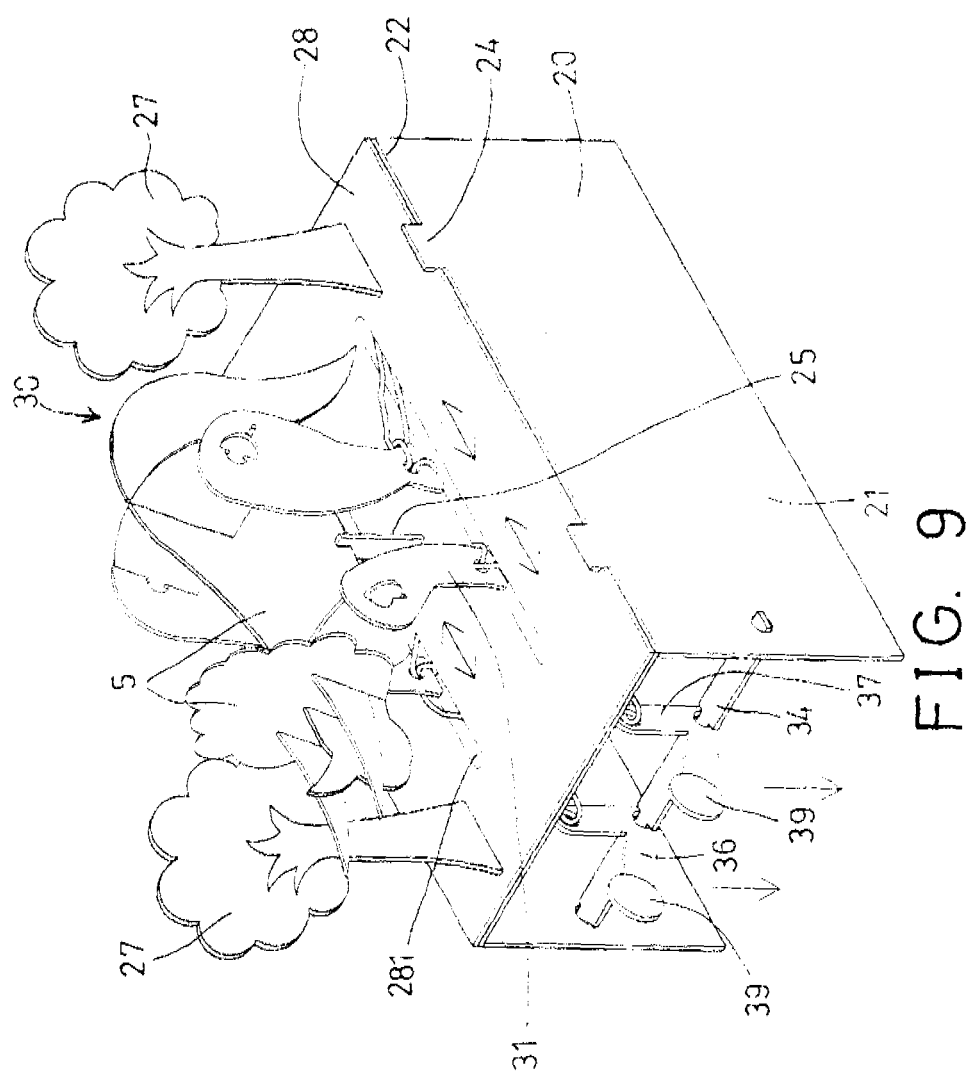
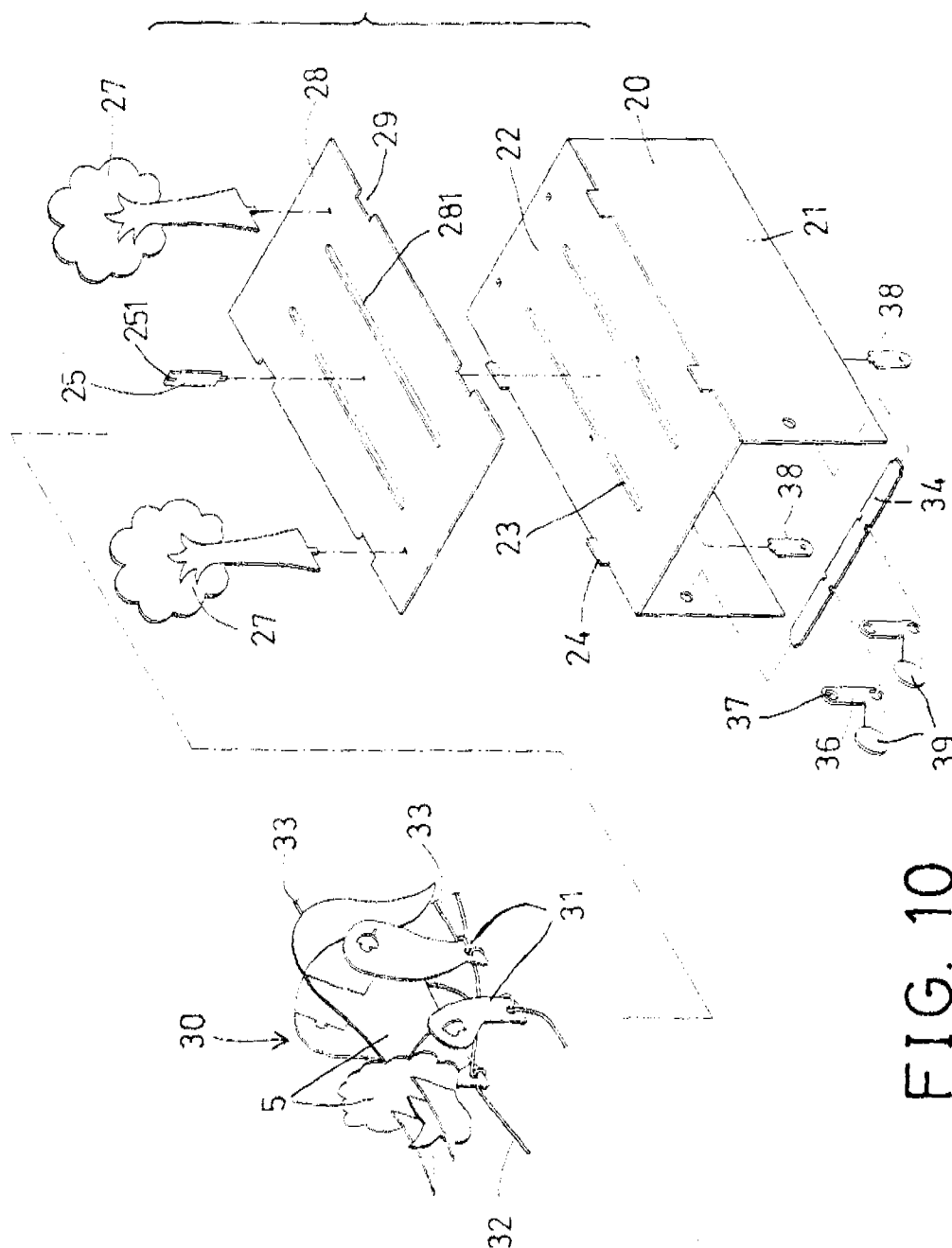


FIG. 8





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TOY CONSTRUCTION KIT HAVING MOVABLE MEMBERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a toy construction kit, and more particularly to a toy construction kit having one or more movable members.

2. Description of the Prior Art

Typical toy construction kits comprise a number of members or elements that may be formed or punched or cut from a planer plate or the like. The members or the elements, after being disengaged from the plate, may be assembled together by the users themselves, particularly the children, for education purposes, for example. However, the members or the elements of the toy construction kits are solidly secured together and may not be moved or rotated relative to each other, such that the typical toy construction kits are normally discarded by the users right after they have been assembled, or even before they are assembled together.

The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional toy construction kits.

SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a toy construction kit including one or more movable members that may be movably or rotatably attached on a toy construction kit body, for further increasing the education purposes and the recreation purposes.

In accordance with one aspect of the invention, there is provided a toy construction kit comprising a plurality of members each including at least one edge and each including at least one slot formed therein, the edges of the members being selectively engaged in the slot of the members for allowing the members to be assembled together, a first of the members including a neck and a panel extended therefrom, and a rotary member including an orifice formed therein for receiving the neck of the first member and for rotatably securing the rotary member onto the first member.

The panel includes two portions foldable relative to each other for allowing the portions of the panel to be engaged into the orifice of the rotary member.

The panel includes a longitudinal groove formed therein and formed between the two portions thereof for forming a hinge portion between the two portions of the panel and for allowing the two portions of the panel to be folded relative to each other.

A device is further provided for locking the two portions of the panel with each other and includes a latch engaged with the two portions of the panel for locking the two portions of the panel with each other.

The two portions of the panel each includes a channel formed therein for receiving the latch, and each includes a pair of inclined surfaces formed thereon, the latch includes a pair of inclined surfaces formed thereon and aligned with and flushed with the inclined surfaces of the panel.

Further objectives and advantages of the present invention will become apparent from a careful reading of a detailed description provided hereinbelow, with appropriate reference to accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a toy construction kit in accordance with the present invention;

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FIG. 2 is a partial exploded view of the toy construction kit;

FIG. 3 is an enlarged partial front view of a portion of the toy construction kit;

FIG. 4 is a perspective view illustrating the other embodiment of the toy construction kit;

FIG. 5 is a perspective view similar to FIG. 4, illustrating the operation of the toy construction kit as shown in FIG. 4;

FIG. 6 is an upper perspective view illustrating a plate for forming the toy construction kit;

FIG. 7 is an exploded view of the plate as shown in FIG. 6;

FIG. 8 is a perspective view illustrating a further embodiment of the toy construction kit;

FIG. 9 is a perspective view illustrating a still further embodiment of the toy construction kit; and

FIG. 10 is a partial exploded view of the toy construction kit as shown in FIG. 9.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, and initially to FIGS. 1-3, a toy construction kit 10 in accordance with the present invention comprises a number of elements or members 5 each including one or more slots 7 formed therein for receiving the edges of the other members 5 and for allowing the members 5 to be assembled together with such as a force-fitted engagement. One of the members 5, such as the member located in the middle and front portion of the toy construction kit 10, includes a panel 15 extended forward or provided in front of a neck 14. The panel 15 includes an upper and a lower portions 17 each having a channel 18 formed therein. A longitudinal groove 19 is formed through the panel 15 for forming or defining a hinge portion 191 between the upper and the lower portions 17 of the panel 15, and for allowing the upper and the lower portions 17 of the panel 15 to be folded toward each other.

A movable or rotatable member 12 includes an orifice 13 formed therein for receiving the panel 15 when the upper and the lower portions 17 of the panel 15 are folded toward and to engage with each other. The upper and the lower portions 17 of the panel 15 each further includes an inclined front surface 151 formed therein for further facilitating the engagement of the folded panel 15 through the orifice 13 of the member 12. The member 12 may include one or more elements 121 attached thereto or extended therefrom for decorative purposes, for example, the member 12 may include one or more extensions or blades 121 extended radially outward therefrom for forming a fan device, a propeller device, or the like.

A latch 16 may be engaged into the channels 18 of the panel 15 when the upper and the lower portions 17 of the panel 15 are opened or disengaged from each other, for securing or maintaining the upper and the lower portions 17 of the panel 15 at the open position as shown in FIG. 1, and for preventing the upper and the lower portions 17 of the panel 15 from being folded toward and to engage with each other. The latch 16 preferably includes a pair of inclined surfaces 161 formed in the front portion thereof corresponding to the inclined surfaces 151 of the panel 15, for allowing the inclined surfaces 151, 161 of the panel 15 and the latch 16 to be flush with each other.

In operation, as shown in FIG. 1, the member 12 may thus be rotatably attached onto or retained on the neck 14 of the member 5, after the upper and the lower portions 17 of the

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panel 15 have been opened or disengaged from each other, and after the upper and the lower portions 17 of the panel 15 have been secured or maintained at the open position by the latch 16. The member 12 may thus be rotated relative to the member 5.

Referring next to FIGS. 4-7, the toy construction kit may also include a number of elements or members 5 each including one or more slots 7 formed therein for receiving the edges of the other members 5 and for allowing the members 5 to be assembled together with such as a force-fitted engagement. The members 5 each preferably includes two rounded side edges or flanges 8 formed beside the slots 7 respectively for allowing the members 5 to be easily engaged into the slots 7 of the members 5. One or more pairs of the members 5, such as the pair of members located in the side and front portion and the pair of members located in the rear side portion of the toy construction kit each includes a hole 6 formed therein and facing downward, and each includes a slit 61 formed therein and communicating with the respective hole 6, and each includes a pair of opposite extensions 62 for forming or defining the slit 61 of the member 5.

The toy construction kit further includes one or more, such as two shafts 1, and one or more, such as two pairs of wheels 3 each having one or more slots 7 formed therein for receiving the edges of the other members 5, 1, 3, and for allowing the members 1, 3, 5 to be assembled together with such as the force-fitted engagement. Particularly, the shafts 1 each includes two ends 2 having the wheels 3 secured thereon and rotated in concert therewith. The shafts 1 have the end portions 2 thereof rotatably engaged into the holes 6 of the members 5 via the slits 61 of the members 5. The shafts 1 may be rotatably maintained within the holes 6 of the members 5 by the weight of the toy construction kit applied onto the shafts 1, when the toy construction kit is disposed on a supporting ground or a table or the like.

As best shown in FIGS. 6 and 7, the toy construction kit may include a plate 4 having a number of openings 9 formed therein for receiving the members 1, 3, 5 which may be cut from the plate 4 and which may be retained in the openings 9 of the plate 4 with such as a force-fitted engagement.

Referring next to FIGS. 8-10, the toy construction kit 30 may be formed as an animal or the like, and includes two pairs of legs 31, and includes two cables 32 coupled to the front legs 31 and the resilient cables or springs 33 coupled to the rear legs 31 thereof. A housing 20 includes two side walls 21 and a top wall 22 disposed or provided on top of the side walls 21. The housing 20 includes one or more, such as two channels 23 formed therein, such as formed in the top wall 22 thereof, and includes one or more extensions, such as two pairs of extensions 24 extended upward from the side portions thereof.

A board 28 is further provided and includes two pairs of notches 29 formed in the side portions thereof for receiving the extensions 24 of the housing 20 and for securing the board 28 on top of the housing 20. The board 28 includes two passages 281 formed therein and aligned with the channels 23 of the housing 20 for slidably receiving the legs 31 of the toy construction kit 30. A stay 25 may be secured or disposed on top of the board 28 for supporting the toy construction kit 30 above the housing 20 and the board 28. One or more decorative members 27 may further be provided and secured or disposed on top of the board 28 for decorative purposes, for example. The springs 33 may be coupled between the toy construction kit 30 and the housing

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20 for pulling or biasing the toy construction kit 30 rearward of the housing 20.

A shaft 34 is rotatably secured in the housing 20, such as rotatably received in the front portion of the housing 20. One or more arms 36 have a middle portion rotatably engaged on the shaft 34 and rotatable relative to the shaft 34 or relative to the housing 20. The arms 36 each includes one end 37 directly coupled to the cables 32 respectively, or indirectly coupled to the cables 32 with two bars 38, and each includes a handle 39 provided on the other end for rotating the arms 36 and thus for moving the front legs 31 of the toy construction kit 30 relative to the housing 20, against the springs 33, for example.

Accordingly, the toy construction kit in accordance with the present invention includes one or more movable members that may be movably or rotatably attached on a toy construction kit body, for further increasing the education purposes and the recreation purposes.

Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

I claim:

1. A toy construction kit comprising:

a plurality of members each including at least one edge and each including at least one slot formed therein, said at least one edge of said members being selectively engaged in said at least one slot of said members for allowing said members to be assembled together, a first of said members including a neck and a panel extended therefrom, and

a rotary member including an orifice formed therein for receiving said neck of said first member and for rotatably securing said rotary member onto said first member,

said panel including two portions foldable relative to each other for allowing said portions of said panel to be engaged into said orifice of said, rotary member.

2. The toy construction kit according to claim 1, wherein said panel includes a longitudinal groove formed therein and formed between said two portions thereof for forming a hinge portion between said two portions of said panel and for allowing said two portions of said panel to be folded relative to each other.

3. The toy construction kit according to claim 1 further comprising means for locking said two portions of said panel with each other.

4. The toy construction kit according to claim 3, wherein said locking means includes a latch engaged with said two portions of said panel for locking said two portions of said panel with each other.

5. The toy construction kit according to claim 4, wherein said two portions of said panel each includes a channel formed therein for receiving said latch.

6. The toy construction kit according to claim 4, wherein said two portions of said panel each includes a pair of inclined surfaces formed thereon, said latch includes a pair of inclined surfaces formed thereon and aligned with and flushed with said inclined surfaces of said panel.

* * * * *