



(11) Publication number : **0 538 169 A1**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number : **92500118.2**

(51) Int. Cl.⁵ : **A63H 3/44, A45D 2/00**

(22) Date of filing : **18.09.92**

(30) Priority : **19.09.91 ES 912074**

(43) Date of publication of application :
21.04.93 Bulletin 93/16

(84) Designated Contracting States :
AT BE CH DE DK FR GB GR IE IT LI LU MC NL PT SE

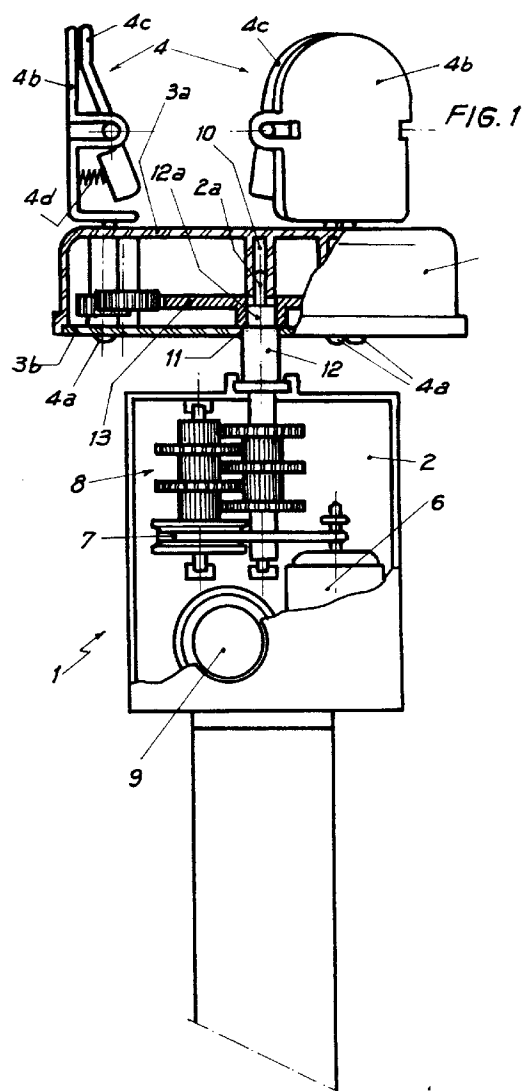
(71) Applicant : **MIJER, S.A.**
Barrera, 10
E-03410 Biar, Alicante (ES)

(72) Inventor : **Juan Perez, Jesus**
Navarro, 1
03410 Biar (Alicante) (ES)

(74) Representative : **De Arpe Fernandez, Luis**
ARPE Patentes y Marcas Guzman El Bueno,
133
E-28003 Madrid (ES)

(54) **A toy device for plaiting hair.**

(57) The device consists of a motor section (2) with a rotating gear shaft (2a) and a cylindrical platform (3) which can be coupled and fixed to said gear shaft (2a) and a number of clips (4) to hold the strands of hair, which are arranged equidistant around the circumference of said rotating platform (3). These clips (4) are moved by rotation on their own axes, that is, on their spindles (5), by a system of transmission (13-14-15) which is powered by the gear shaft (2a) of the motor section (2). In this way, the strands of hair held by the clips (4), with the rotation of the gear shaft (2a) are twisted in two directions, first around the platform (3) and secondly around the axis of the spindles (5) of the clips (4).



The present invention relates to an electromechanical device for plaiting wigs for example, for dolls and the like.

The efforts of the toy industry to develop all kinds of article to reproduce, simulate or imitate the wide range of events in everyday life, are well known. This is for two purposes, which are the properties of any toy, to attract and hold the child's attention, and to make help with learning.

It is therefore the object of the present invention has been the development a device to be used for plaiting the hair of a doll or similar toy or even of another girl, in such a way that the user may perform this hairdressing task, even with the limited manual dexterity of a child. The toy is also designed to be easy to manufacture and to work safely and for a long time.

As far as the applicant is aware, there are no precedents for a device of the type described above.

In accordance with the invention, the task is accomplished using the device, which consists substantially, of a handle section which has a power spring, for example an electric micro-motor and a reducing gear, with a rotating mechanical shaft and a plaiting section in the form of a platform which rotates around the axis of the said shaft which protrudes from the handle, to which a number, preferably three, of different parts in the shape of clips are attached and supported by, to hold the strands of hair to be plaited, and which in turn rotate around their own axis on the said shaft, in such a way that the strands of hair which are held by the clips can be twisted in two directions. That is one turn around the platform and another around the clips, so achieving the desired plaiting.

In a preferred embodiment of the invention, the cylindrical platform is constructed separate from the power handle, and so the two parts are made to plug into one another.

The description which follows, together with the accompanying drawings, which are an example of embodiment of the invention, and are not intended to be limiting, shows more clearly other features of the invention and its advantages.

FIGURE 1 is a side view, partly in cross-section, of a plaiting device, in accordance with the invention.

FIGURE 2 is a detail, partially in cross-section, of the holders for the hair strands on the device shown in FIGURE 1.

FIGURE 3 is a view from above, of the inside of the rotating platform of the device shown in FIGURE 1.

In reference to FIGURE 1, it can be seen that the plaiting device, generally indicated at 1, consists substantially of a power section 2 in the shape of a handle with a rotating shaft protruding in the shape of a axle or gear shaft 2a and a plaiting section 3 shaped as a cylindrical platform mounted coaxially and rotating on a transmission spindle 2a of the said motor portion 2 which has a number of parts which serve as clips 4,

to hold the strands of hair being plaited and which, as well as rotating with the movement of the platform 3 rotate on their own axes, that is, around their spindle 5. This is explained in detail below. In this way, the strands of hair, held by the clips 4 are subjected to a double twisting action, first around the platform 3 and also around the spindles 5 of these clips 4.

Continuing in reference to FIGURE 1, it will be appreciated that the motor section 2 basically consists of a power spring unit with an electric micro-motor 6, a drive belt 7 and a reducing gear assembly 8 and power output by a shaft or axle 2a. There is also an on-off switch 9, such as a push-button, to apply power from a battery (not shown) to the power spring to cause the gears or shaft 2a to turn.

The rotary platform 3 is a cylindrical arrangement and consists of an upper housing 3a and a cover plate 3b on the underside. Inside the upper housing 3a there is an axially arranged support or seat 10 into which the axle 2a from the power spring (described above) fits. This causes the housing, and consequently all of the platform 3 to rotate with the movement of the micro-motor 6. Also, on the top of the housing 3a the clips 4 are mounted around the circumference, at an angle of 270° apart. This is explained below. Also, the lower cover plate 3b has an orifice in the centre 11 to allow a cylindrical bushing 12 to be pushed in, to connect the rotating gear shaft 2a from the motor section.

As seen in greater detail in FIGURES 2 and 3, the inside of the platform 3 is fitted with a pinion 13 which is mounted coaxially in a seat 10 in the housing 3a and which has a rectangular orifice 13a for a rectangular prismatic termination 12a of the said bushing 12. In this way, when the gear shaft 2a rotates, the cylindrical platform 3 and the pinion 13 rotate simultaneously.

In continuing reference to FIGURES 2 and 3, it will be seen that the pinion 13 is coupled to three gear wheels 14 arranged around the circumference at an angle of 270° apart, on supports 14a fitted on the inside of the housing 3a. Each of these gear wheels 14 is also coupled to a gear wheel 15 which have hollow spindles 15a for plug-in coupling to connecting rods 4a which have the clips 4 on their ends. The hollow spindles 15a, are mounted in orifices 16 and 17, placed, respectively, on the housing 3a and on the plate 3b of the rotary platform 3.

The clips 4 consist of opposable parts 4b and 4c which are held in closed position by a re-positioning spring 4d.

In accordance with the description above, the plaiting device operates as in the following description.

Firstly, the motor section 2 is fitted to the rotary platform 3 by coupling the gear shaft 2a into the seat 10 inside the housing 3a, so that the bushing 12 is also coupled in the orifice 11 of the cover plate 3b and

in the rectangular orifice 13a of pinion 13 by means of the rectangular termination 12a of said bushing 12.

Pushing the button 9 causes the micro-motor 6 to start, and the gear shaft 2a turns, and with it, the platform 3 and the pinion 13 in such a way that the clips 4 rotate with the platform. The pinion 13 also rotates, causing the gear wheels 14 to turn, and these turn the pinions 15, in other words they cause the clips 4 to rotate on their spindles 5.

Thus, if strands of hair are held by the clips 4, the strands are twisted in two ways, the first by the rotation of the platform 3 and the second by the rotation of the clips 4 on their own axes, which causes the strands of hair to be plaited.

Having described the invention in detail, it remains to state that any constructions resulting from any change of shape or form, dimensions, materials or similar modifications to the design, as well as that deriving from an routine application of that described above, must be considered included in the scope of the invention, in accordance with the following claims.

Claims

1. A toy device for plaiting hair, comprising:

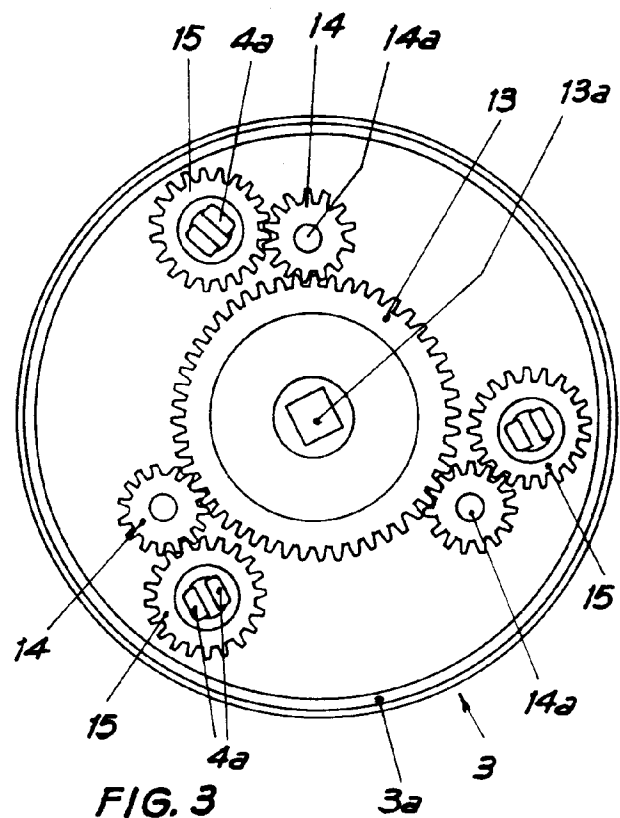
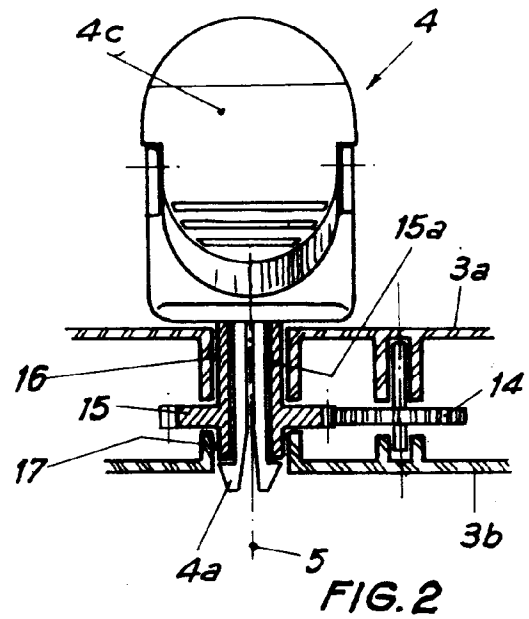
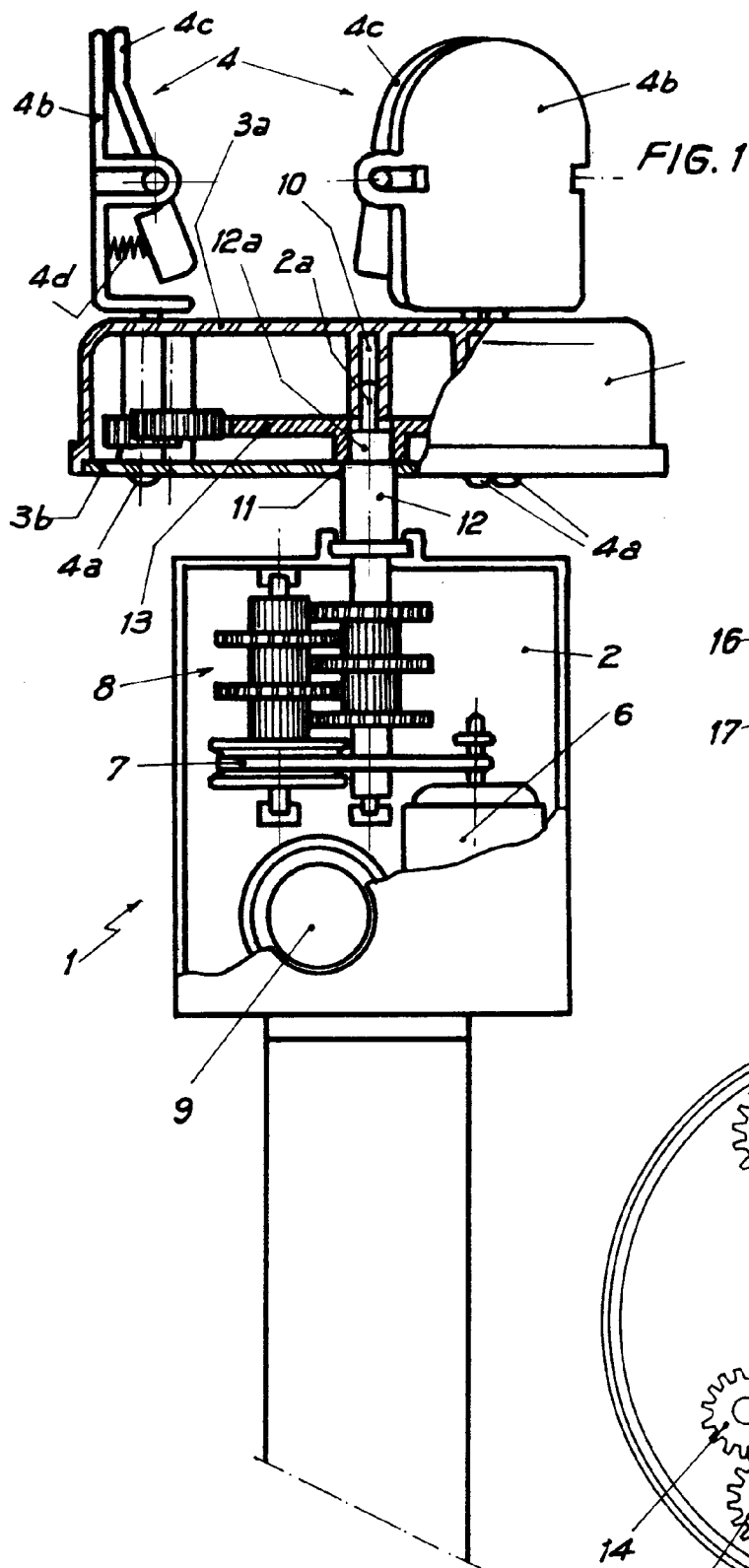
A motor section (2) with a rotating gear shaft (2a) powered by an electric motor (6), a transmission belt (7) and a reducing gear assembly (8) with a power on-off switch (9), preferably of push-button type for starting stopping the said gear shaft (2a); A plaiting section (3) in the form of a cylindrical platform, with a housing (3a) and a cover plate on the underside (3b) with a seat (10) for insertion of said gear assembly shaft (2a) of motor section (2), in such a way that when said gear shaft (2a) turns it causes the platform (3) to turn.

A number of elements in the form of clips (4) for holding strands of hair which are mounted equidistant around circumference of upper part of the platform (3) and which can also rotate on their own spindles (5) and which are powered by means of transmission by the rotation of the gear shaft (2a) of the motor section(2).

2. A device, in accordance with the first claim, wherein means of transmission of movement of the gear shaft assembly (2a) to the clips (4), consists of sets of gear wheels with a pinion (13) coupled coaxially to said gear shaft (2a), a number of gear wheels (14) and a number of pinions (15) on whose hollow spindles (15a) are mounted the connecting rods (4a) of said clips (4).

3. A device according to claims 1 and 2, wherein the motor section (2) and around its gear shaft (2a) there is a cylindrical bushing (12) which is fixed

and which has a prismatic termination (12a), and a circular orifice (11) is made on the underside cover plate (3b) for coupling the cylindrical part of the bushing (12), and wherein a polygonal orifice (13a) is made in the centre of the pinion inside (13) for coupling the prismatic termination (12a) of said bushing (12) to form a plug-in coupling between the motor section and the rotating platform (3).





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 50 0118

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y A	US-A-4 583 561 (LARSSON) * column 3, line 41 - line 58; figures 1,2,4,5 *	1,2 3	A63H3/44 A45D2/00
Y	FR-A-2 640 287 (ROQUES ET AL.) * page 2, line 30 - line 35; figures 1,3 *	1,2	
A	US-A-4 038 996 (ERONINI ET AL.) * claim 1; figures 1-3 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A63H A45D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21 JANUARY 1993	Examiner papa
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.92 (P0401)