# United States Patent

[11] **3,576,087**


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**Division of Ser. No. 626,601, Mar. 28, 1967, Pat. No. 3,421,258.**
[45] Patented **Apr. 27, 1971**


[54] **WALKING DOLL INCLUDING DEVICE FOR ATTACHING A LIMB TO A LIMB MOUNTING MEMBER**
**3 Claims, 5 Drawing Figs.**


[52] **U.S. Cl.** ..... **46/161,** 46/150
[51] **Int. Cl.** ..... **A63h 3/20**
[50] **Field of Search** ..... 46/173, 161, 149, 150



[56] **References Cited**

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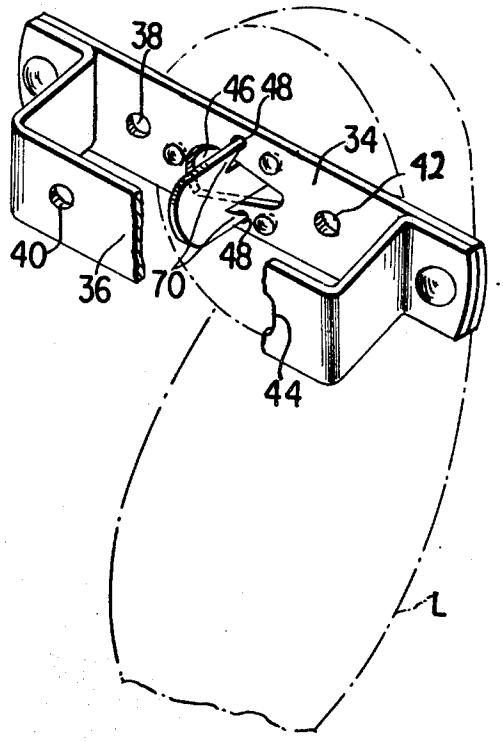
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**ABSTRACT:** Means for attaching a limb of a toy figure such as a doll to a limb-mounting member connected to the torso, designed for installation in the limb in a preset condition ready for association with the mounting member and adjustment to a locking condition, the attached limb being movable between a plurality of positions in each of which it is releasably retained.

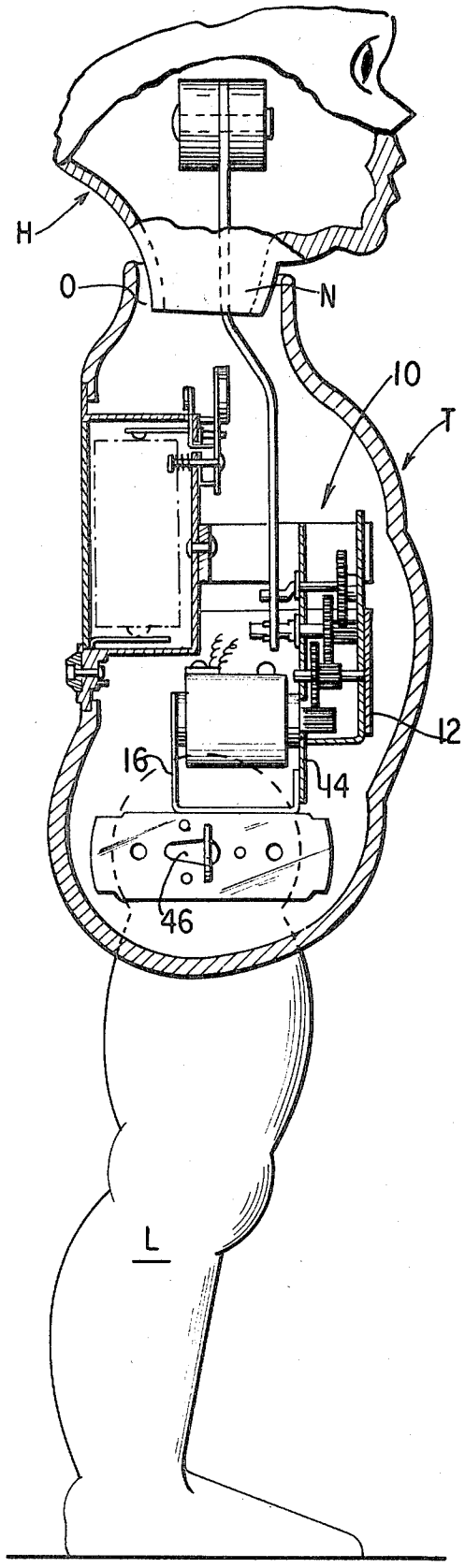



FIG. 1

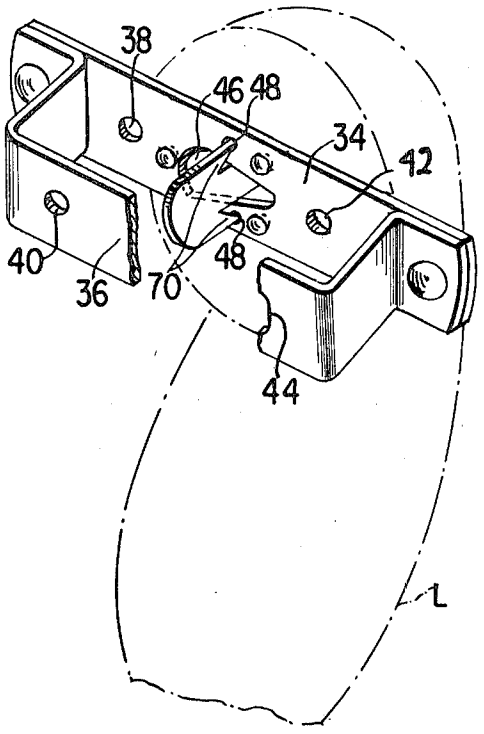



FIG. 5

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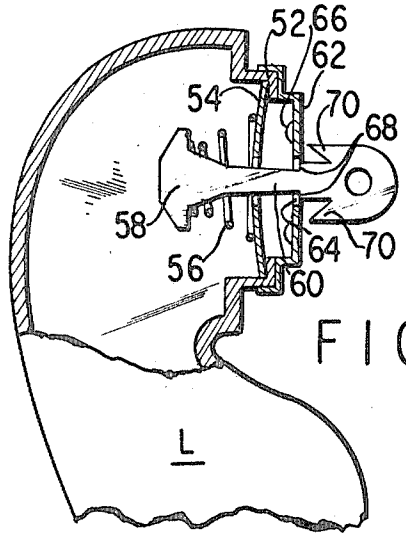



FIG. 3




FIG. 2

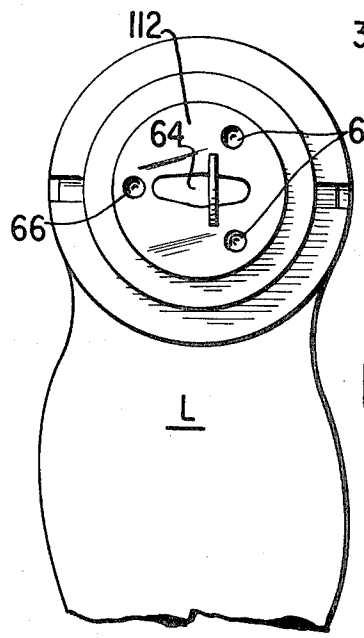



FIG. 4

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# WALKING DOLL INCLUDING DEVICE FOR ATTACHING A LIMB TO A LIMB MOUNTING MEMBER

This application is a division of application Ser. No. 626,601, filed Mar. 28, 1967, now U.S. Pat. No. 3,421,258.

The attachment means is shown in connection with the walking doll mechanism of the cited application, a practical embodiment of the invention being shown in the accompanying drawings, in which:

FIG. 1 represents a vertical fore-and-aft section of a doll body containing the mechanism;

FIG. 2 represents an exploded view of the mechanism alone, with the addition of the upper part of one leg;

FIG. 3 represents a detail vertical section through the upper part of a leg and the attaching means therefor;

FIG. 4 represents an elevation of the parts shown in FIG. 3;

FIG. 5 represents a perspective view, on an enlarged scale, of the connection between the leg and the leg-mounting means.

Referring to the drawings, the doll in which the mechanism is illustratively installed includes a torso T, a head H and legs L. The neck portion N of the head is intended to be mounted in or attached to the neck opening O of the torso in any suitable or customary manner, constituting no part of the invention.

The mechanism for imparting a walking motion to the figure is fully described and claimed in application Ser. No. 626,601 and is designated here generally by the numeral **10**. It is fixed within the torso T by means of a bracket **12** which is connected through a plate **14** and motor bracket **16** to a downwardly extending leg bracket **18**, in the form of an inverted channel having depending parallel flanges **20** each of which is perforated near its front end to receive a transverse axle **22**, and each flange being provided, near its rear end, with a short vertical slot **24** adapted to receive a rocker bar **26**, said bar being arranged to pass loosely through a hole **28** in an intermediate flange **30** located midway between the flanges **20**.

Each leg-mounting means includes a boxlike element **32** comprising outer and inner parallel strips **34**, **36**, respectively, provided near the front with properly aligned holes **38**, **40** to journal the element **32** on an end of the axle **22**, and provided near the rear end with a hole **42** in the outer strip **34** and a vertical slot **44** in the inner strip **36** to receive an end of the rocker bar **26**. Each strip **34** also has, near its center, a tapered slot **46**, a pair of oppositely disposed indentations **48** in its inner surface and three small lugs **50** on its outer surface. The bar **26** fits loosely enough in the hole **42** to permit rocking movement within the limits determined by the height of slots **24** and/or **44**.

The attachment of each leg to its mounting means is shown in detail in FIGS. **3**, **4**, and **5**. The upper end of the leg is turned inward and provided with an opening, lying in a vertical plane and bounded by an annular flange **52**. A dished washer **54** is inserted in the opening with its periphery resting against the inner surface of the flange, and a strong spring **56** exerts its expansion force between the washer **54** and the enlarged head **58** on the inner end of the locking piece **60**. A cap **62**, provided with a somewhat diamond-shaped central slot **64** and three indentations **66**, fits over the leg opening with its periphery overlying the outside of the flange **52**, and the enlarged outer end of the locking piece **60**, having shoulders **68** on its stem, is passed through the slot **64** and turned so that the shoulders will catch on the sides of the slot (FIG. **4**). With the leg in this condition, the end of the piece **60** is passed through the slot **46** in the mounting means, is turned 90° to bring the barbs **70** into register with the indentations **48** and is then



moved to disengage the shoulders **68** from their engagement with the sides of the slot **64**; the spring **56** then forces the barbs **70** into the indentations (FIG. **5**) and the leg is securely locked on its support **32**. The lugs **50** and indentations **66** are disposed at suitable points around the axis of the locking piece **60** so that they will be in engagement when the leg is in standing and walking position but can be disengaged, as desired, when the leg is forcibly turned to sitting position or the like.

The invention is described with particular reference to dolls but the mechanism can readily be installed, with or without special adaptation, in other figures, such as those of animals, which are otherwise capable of taking steps.

We claim:

**1.** In combination with a figure toy having a torso, a limb-mounting member connected to the torso and a limb, said limb-mounting member having a tapered slot provided therein, said limb having an opening bounded by an annular flange providing an inner surface inside said limb and an outer surface outside said limb, means for attaching said limb to said limb mounting member, comprising:

a dished washer mounted inside said limb, said dished washer being provided with an aperture and having a peripheral portion resting against said inner surface of said annular flange, said dished washer having a convex surface facing inwardly toward the inside of said limb and away from said opening;

a cap fitted over said limb opening and having a peripheral portion overlying said outer surface of said annular flange, said cap being provided with a substantially diamond-shaped central slot;

a substantially flat locking piece having a first enlarged head mounted inside said limb and an elongated stem extending through the aperture in said dished washer and the slot in said cap, said stem having a pair of shoulders adapted to engage said cap outside said limb in a first position of said stem and to pass through said diamond-shaped slot in a second position of said stem, said locking piece including a second enlarged head adjacent said shoulders, said second head having at least one barb extending inwardly toward said cap, said barb lying in the same plane as said shoulders and terminating just short of said cap when said shoulders are in engagement therewith, said second enlarged head being adapted to pass through said tapered slot in said limb-mounting member when said second enlarged head is in a first orientation and to bring said barb into alignment with said limb-mounting member at the edge of said tapered slot when said second head is rotated 90° to a second orientation, said limb-mounting member being provided with at least one indentation on said inner surface at said edge of said tapered slot; and

a spring encompassing said locking piece inside said leg and including a first end bearing against said first enlarged head and a second end bearing against said convex surface of said dished washer for exerting an expansion force between said dished washer and said first enlarged head to bring the free end of said barb into engagement with said indentation on said limb-mounting member at said edge of said tapered slot.

**2.** A combination as stated in claim **1** including detents on said cap and said limb-mounting member for retaining said limb in a predetermined position.

**3.** A combination as stated in claim **1** including a second barb on said second enlarged head and a second indentation on said mounting member engageable by said second barb for locking said locking piece against unwanted rotation.