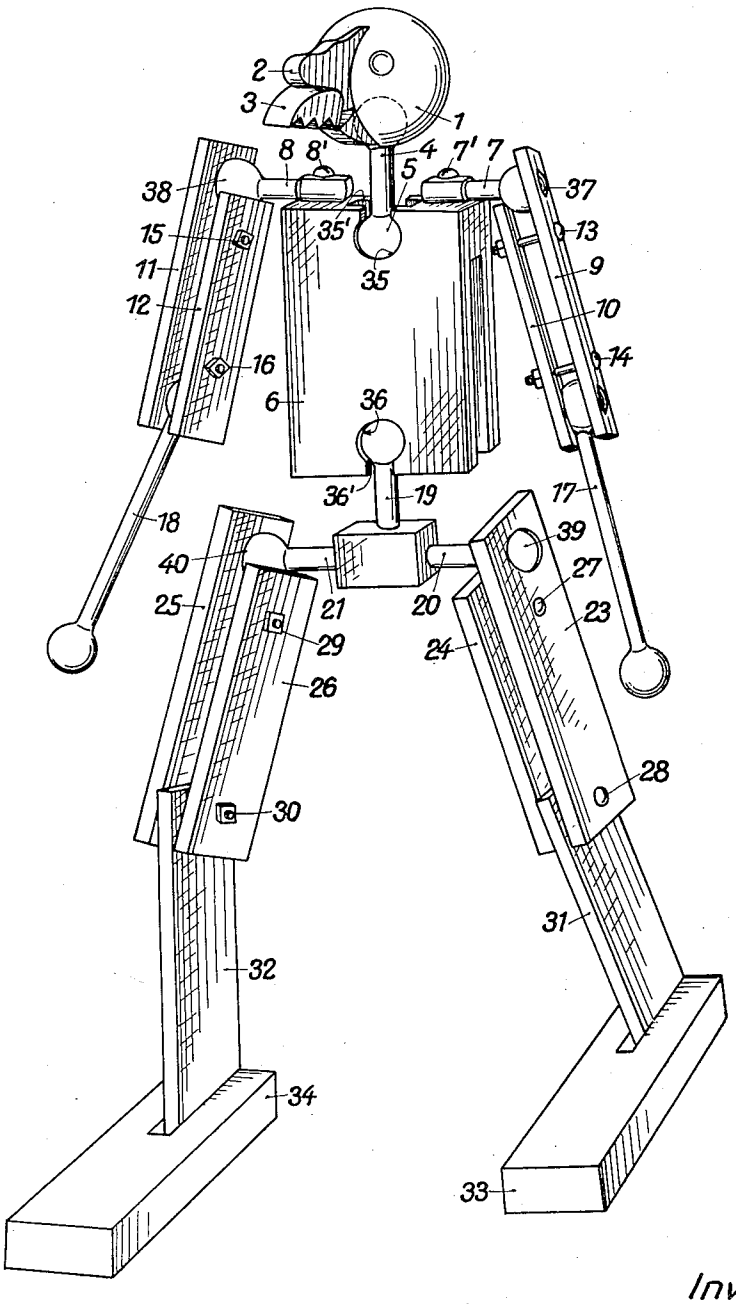
July 19, 1932. A. O. W. DEICHMANN 1,868,049

JOINTED FIGURE WITH ADJUSTABLE LIMBS

Filed Dec. 17, 1930 2 Sheets-Sheet 1

Fig. 1



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Filed Dec. 17, 1930 2 Sheets-Sheet 2

Fig. 2

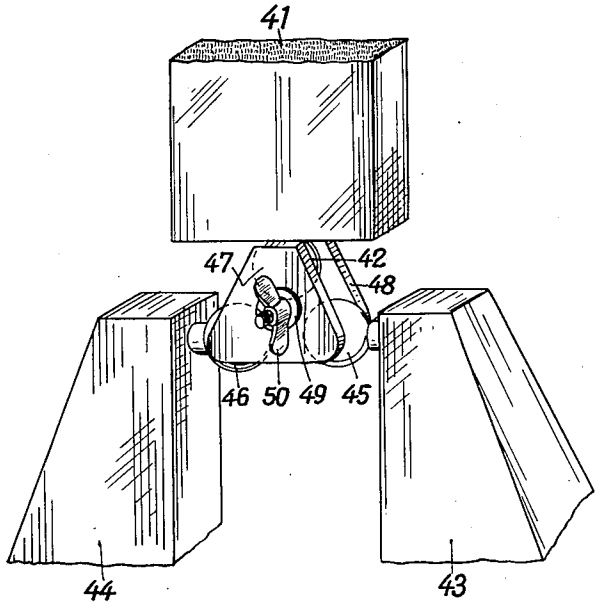
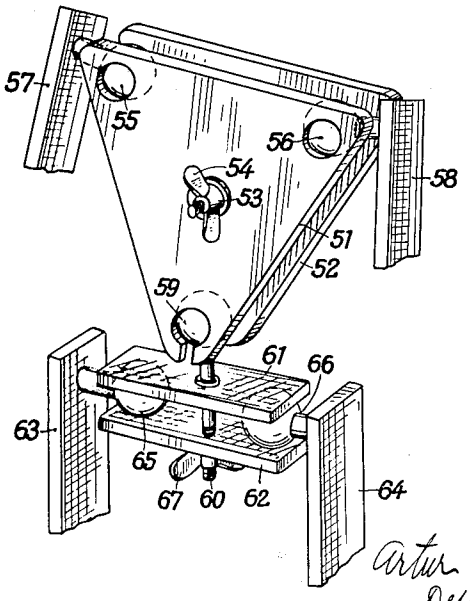


Fig. 3



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Patented July 19, 1932 1,868,049

UNITED STATES PATENT OFFICE

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JOINTED FIGURE WITH ADJUSTABLE LIMBS

Application filed December 17, 1930, Serial No. 503,027, and in Germany October 9, 1930.

The present invention relates to jointed figures, for instance human or animal figures for playing or advertising purposes, at which different parts, such as head, body and limbs are adjustably connected to each other in such a manner that movements or postures may be imitated in a life-like manner.

It is a rather difficult technical problem to arrange a puppet or jointed figure in such a manner that the different limbs or body parts of the same may be adjusted and fixed in any desired position relatively to each other, and that a life-like or natural appearance may be obtained. Figures of this kind are already known, but on account of the complicated mechanisms used in the same such figures are very expensive.

Now the main purpose of the invention is to provide jointed figures or dolls at which the connections between the different body parts are formed by simple and inexpensive means, which makes it possible to adjust and fix the said parts in any desired position relatively to each other. According to the present invention the connections between the limbs and the body of the figure respectively between the individual members of each limb consist of damped ball joints which are formed by the limbs or body parts themselves, in that a limb, for instance an arm, a leg or the head, is equipped with a pin having a ball-shaped head, whereas the cooperating part, particularly the main body, comprises plate-shaped members, which are equipped with seats for the said ball-shaped head of the other part and which may be pressed together by means of screws or the like.

In accordance with the invention also parts of the head or the face of the figure, for instance the nose and the chin, may be made adjustable and (or) replaceable, so that the countenance may be changed and brought to conform with the position of the main body.

Some constructional forms of the invention are shown by way of examples in the accompanying drawings in which

Fig. 1 is a perspective view of a jointed doll for playing or advertising purposes with adjustable limbs and face portions.

Fig. 2 shows the central part of another constructional part of the invention.

Fig. 3 shows the body part of a further constructional form of the invention.

The head 1 of the human figure shown in Fig. 1 is equipped with adjustable and replaceable parts 2 (nose) and 3 (chin). If desired also movable eyes may be arranged. The head rests with a spherical seat on the upper ball-shaped end of a pin or bolt 4 and may be moved in any desired direction. The lower ball-shaped end 5 of this pin 4 is arranged in arcuate or circular seats 35 formed in a block 6, which serves as the body of the figure. On account of this arrangement the pin 4, which forms the neck portion of the figure, may be moved into any desired position, and will be held in any adjusted position by frictional force. The adjustability in lateral directions is increased through slots 35′ arranged at the sides of the seat or socket 35.

The shoulders of the figure are mainly formed by ball-headed rods or pins 7 and 8, which are pivotally connected to vertical threaded pins 7′, 8′ fixed to the body member 6. The ball-shaped outer ends of these rods are arranged in seats 37, 38 in the clamping plates 9, 10 and 11, 12, which form the upper parts of the arms of the figure. The clamping plates 9, 10 and 11, 12 may be pressed together by means of screws 13, 14 and 15, 16 respectively, whereby the frictional pressure which the plates 9, 10 and 11, 12 exert upon the ball-shaped ends of the pivots 7 and 8 may be regulated in such a manner, that the arms are held in any position into which they are brought.

The fore-arms of the figure are formed by means of rods 17, 18 with ball-shaped ends and the upper ends of these rods are arranged in suitable seats formed in the plates 9, 10 and 11, 12 respectively.

The lower part of the body consists of a block-shaped member in which three rods or pins 19, 20 and 21 with ball-shaped heads are fastened. The upper end of the pin 19 is seated in a substantially circular cavity 36 in the block 6, whereby a kind of universal joint is produced between the upper and the

lower body part. The adjustability in lateral directions is increased through slots 36' arranged at the sides of the cavity 36.

The outer ends of the pins 20 and 21 rest in seats in clamping plates 23, 24 and 25, 26 respectively. This connection is of the same kind as the connection between the shoulder members 7, 8 and the plates forming the upper parts of the arms of the puppet. The plates 23, 24 and 25, 26 form the thighs of the figure and are furnished with clamping screws 27, 28 and 29, 30 respectively, by means of which the pressure exerted by the said plates may be regulated. The legs consist of plates 31 and 32, which are connected to the thighs by means of the clamping screws 28 and 30 respectively.

The feet are formed by blocks 33 and 34 of such form that a stable and self-supporting figure is obtained. The feet may be turned about pins or the like arranged transversally to the plates 31 and 32.

The adjustability of the shoulder and hip joints may be further increased by arranging sockets or seats 37, 38, 39, 40 only in the outer plates of the individual limbs and shortening the corresponding inner clamping plates in such a manner, that only the upper ends of the same contact with the balls to be clamped.

According to Fig. 2 also the thighs are formed by block-shaped members 43 and 44. The body block 41 and the thigh blocks 43 and 44 are each equipped with a ball-headed pin and the heads 42, 45, 46 of these pins are seated between triangular clamping plates 47 and 48, which are held together by means of a clamping screw 49 and a winged nut 50.

Fig. 3 shows a constructional form of the invention at which the body part of the figure consists of two triangular clamping plates 51 and 52 which are interconnected by means of a clamping screw 53 and a winged nut 54. The heads of the pins carrying the upper parts 57, 58 of the arms are directly seated in sockets arranged in one of the body plates or in both body plates. At the lower end of the plate 51 a substantially circular socket 59 is arranged, which is adapted to serve as a seat for a ball-headed pin 60, which is passed through a pair of clamping plates 61, 62, which form a cross-piece and are adapted to hold the heads 65, 66 of the pins carrying the thigh plates 63, 64. The lower end of the pin 60 is threaded and the pressure exerted by the clamping plates 61 and 62 may be regulated by means of the winged nut 67. At this constructional form of the invention only two clamping screws are needed for regulating the clamping pressure exerted by the clamping members and for securing an universal adjustability of all parts of the figure.

It is obvious, that various changes and modifications may be made in practicing the invention, in departure from the particular showing and description, without departing from the true spirit of the invention. It is for instance not necessary that the heads of the connecting pins, which in the specification and claim are named ball-shaped, are exactly of spherical form. In certain cases it may for instance be advantageous to employ pin heads of substantially ovular shape and I want it to be understood, that the appended claim is meant also to cover pin heads which are not strictly spherical.

I claim:—

In a jointed figure of the class described, a member having a pin provided with a ball and a second member comprising a pair of plates of unequal length, the longer having an opening forming a seat for the reception of the outer side of the ball of the pin and the shorter bearing at one end against the inner side of the said ball and an adjusting screw passing transversely through and connecting said plates and serving to adjust said plates toward and from each other in order to increase or decrease friction between the plates and the ball.

In testimony whereof I have affixed my signature.

ARTUR OTTO WILHELM DEICHMANN.