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(57) **ABSTRACT**

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A puppet having left and right upper and lower limbs, a body and head. Each upper limb includes a finger recess shaped to receive a respective finger of a first one of an operators hands, and the head has at least one finger recess to receive a finger of the first one of the operators hands, and each lower limb includes a finger recess shaped to receive a respective finger of the other, operators hand. At least one of the upper limbs may have a movable finger associated therewith, the finger being movable by a cable drive arrangement operable by a lever mounted upon the body. The head may have a pair of finger recesses associated therewith to receive respective fingers of the first one of the operators hands, wherein the finger recesses associated with the head comprise respective finger receiving components, each of which is pivotally connected to the head such that relative forward-backward movement between the finger receiving components drives the head for angular movement.

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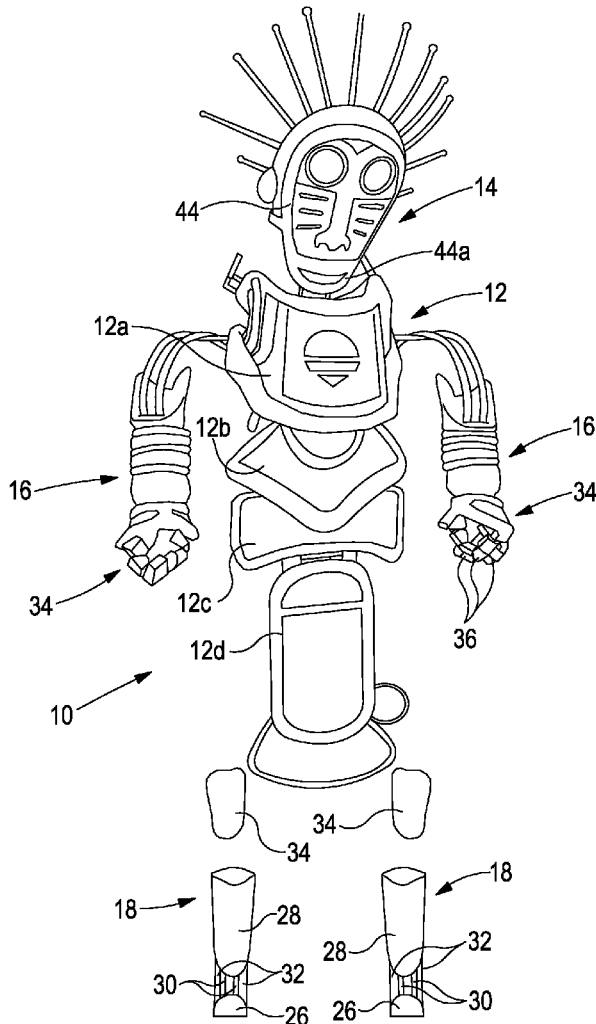
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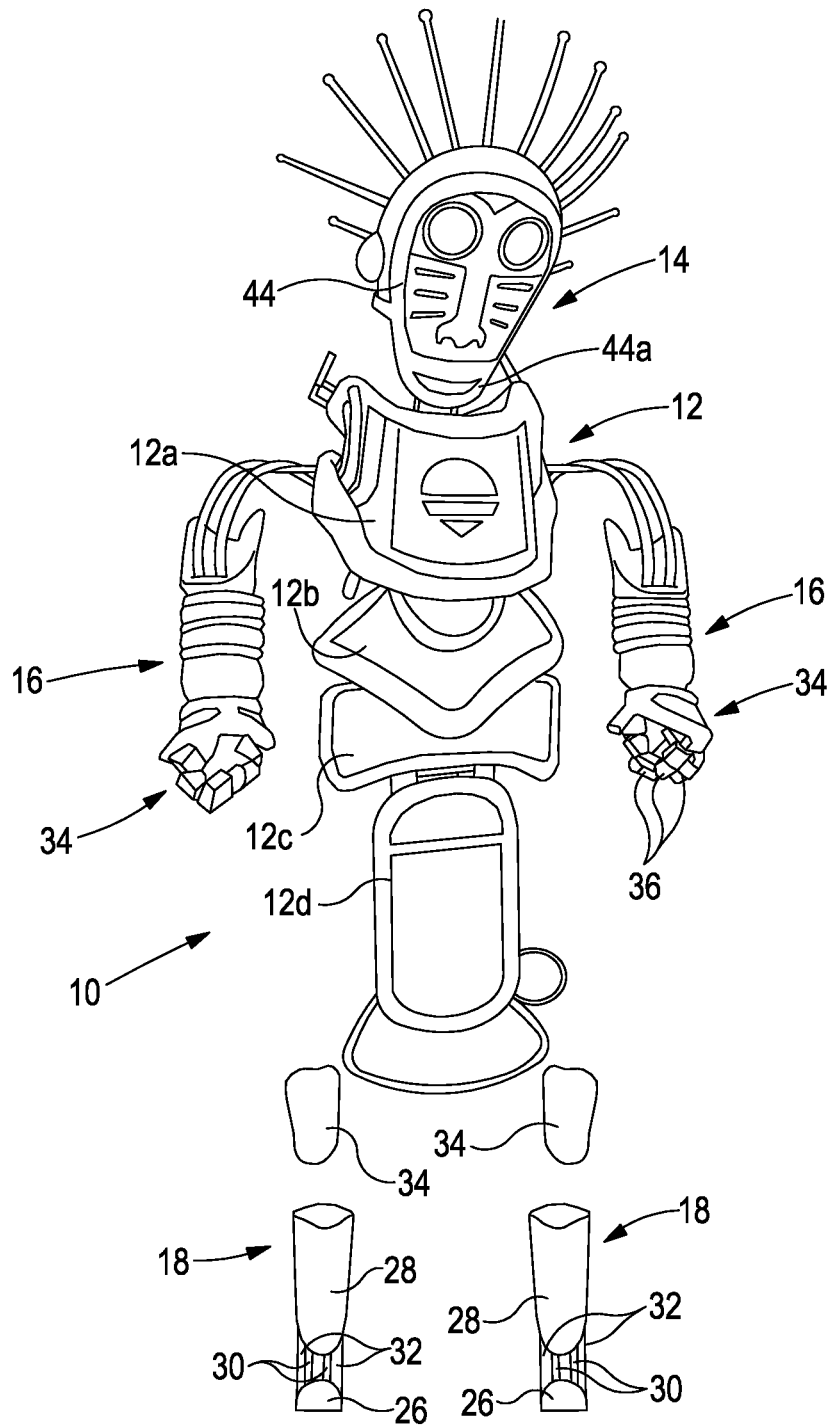


Figure 1

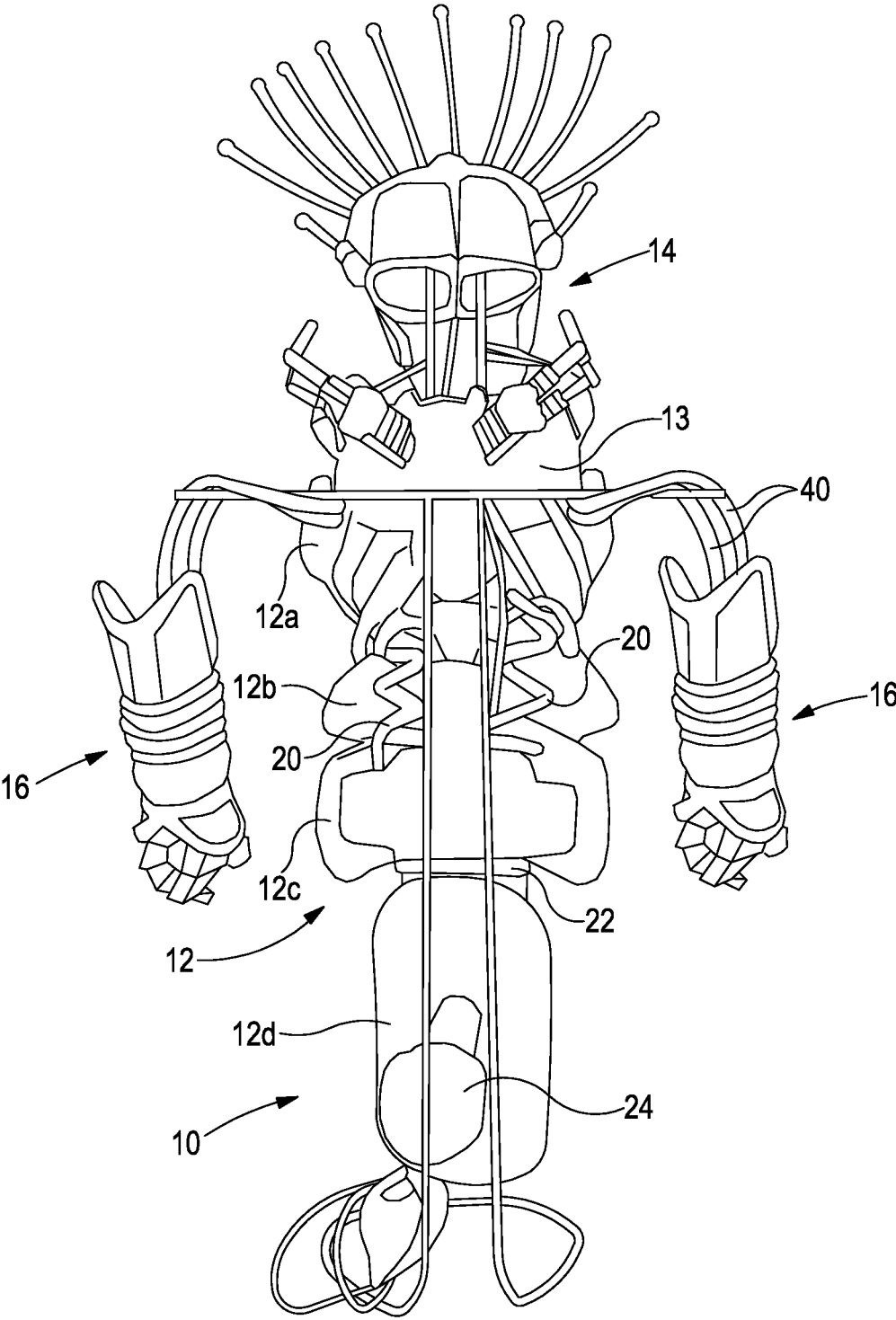


Figure 2

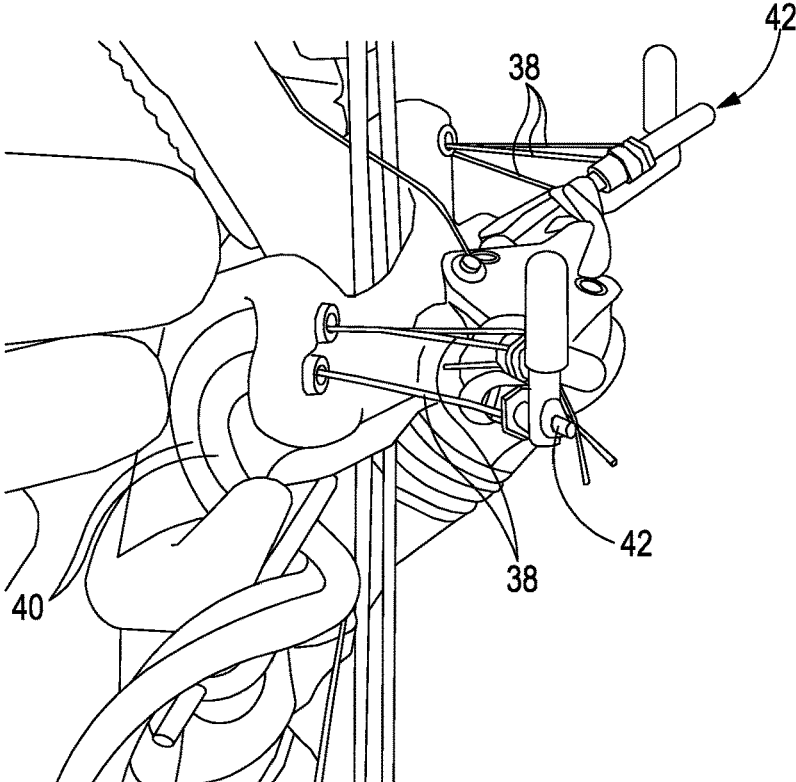


Figure 3

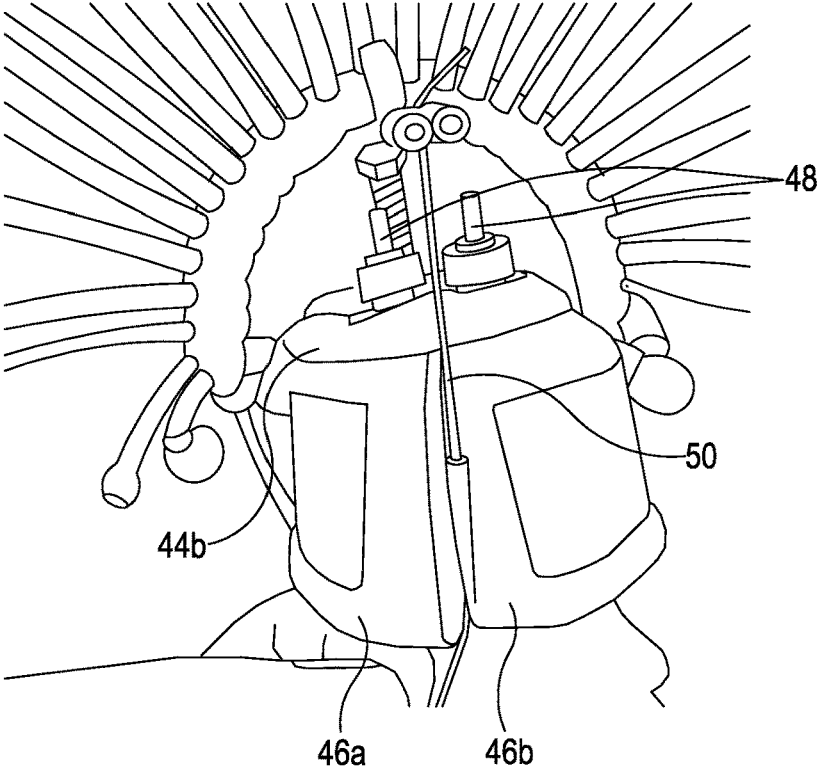


Figure 4

## PUPPET

[0001] This invention relates to a puppet.

[0002] A wide range of puppets are known, for example glove puppets, finger puppets and marionettes. One difficulty often faced when controlling a puppet is to try and achieve a life-like range of movement of various parts of the puppet, for example to allow the puppet to give the appearance of walking or dancing in a natural manner, for its arms to move in a realistic manner or the like, and to allow control over numerous parts of the puppet.

[0003] It is an object of the invention to provide a puppet whereby control over the puppet to achieve a life-like appearance when parts of the puppet are moved is aided.

[0004] According to the present invention there is provided a puppet comprising left and right upper limbs, left and right lower limbs, a body and a head, wherein each upper limb includes a finger recess shaped to receive a respective finger of a first one of the operators hands, and the head has at least one finger recess associated therewith to receive a finger of the first one of the operators hands, and each lower limb includes a finger recess shaped to receive a respective finger of the other, second one of the operators hands.

[0005] It will be appreciated that in normal use, the operators first hand will be orientated with its fingers pointing in a generally upward direction, the operators second hand being orientated with its fingers pointing in a generally downward direction, the backs of the users hands facing towards one another. In this way, the joints in the users fingers mimic the hip, knee and shoulder joints associated with the lower and upper limbs, respectively, allowing the puppet to be controlled in a natural, life-like appearing manner.

[0006] According to another aspect of the invention there is provided a puppet comprising left and right upper limbs, a body and a head, wherein each upper limb includes a finger recess shaped to receive a respective finger of a first one of an operators hands, and the head has a pair of finger recesses associated therewith to receive respective fingers of the first one of the operators hands, wherein the finger recesses associated with the head comprise respective finger receiving components, each of which is pivotally connected to the head such that relative forward-backward movement between the finger receiving components drives the head for angular movement.

[0007] The pivotal connections between the finger receiving components and the head are conveniently located close to one another such that a relatively small amount of relative forward-backward movement drives the head for movement through a relatively large angle. By way of example, the pivotal connections are spaced apart from one another by a distance of less than 10 mm, preferably in the range of 5-10 mm.

[0008] Such an arrangement is advantageous in that the head can easily be moved through a relatively large angle without disrupting control over the remainder of the puppet.

[0009] The puppet may further include a pair of lower limbs controlled in the fashion set out hereinbefore.

[0010] According to another aspect of the present invention there is provided a puppet comprising left and right upper limbs, a body and a head, wherein each upper limb includes a finger recess shaped to receive a respective finger of a first one of an operators hands, and the head has at least one finger recess associated therewith to receive a finger of

the first one of the operators hands, wherein at least one of the upper limbs has a movable finger associated therewith, the finger being movable by a cable drive arrangement operable by a lever mounted upon the body.

[0011] The cable drive arrangement conveniently includes a cable extending within a flexible tube. The tube may be of a suitable plastics material or a rubber or rubber-like material (such as silicon). The finger is conveniently of resilient form, adopting an extended condition at rest, the cable drive arrangement being resiliently biased to place the cable thereof under tension pulling the finger to a contracted position. It will be appreciated that in such an arrangement, depression of the lever results in extension of the finger, release of the lever resulting in the finger returning to its contracted condition.

[0012] The tube may include a loosely wound helical support member operable to reduce contact between the cable and the tube and thereby reduce frictional resistance to movement.

[0013] Preferably, at least two fingers are provided. One or more of the fingers may be controllable independently of the remaining fingers.

[0014] Both upper limbs may be provided with fingers of this type.

[0015] In each of the arrangements outlined hereinbefore, the body may be of multi section form. The sections may be interconnected by spring means. Such an arrangement allows the sections to move relative to one another in a natural looking manner.

[0016] Certain of the joints within the puppet may be flexible, taking the form of sections of a flexible tube, for example of a plastics material or a rubber or synthetic rubber (such as silicon) material into the ends of which are fitted the ends of metallic rods. Joints of this type are advantageous in that they allow bending and limited axial movement between the ends of the rods, and so allow a natural looking appearance to be achieved. Joints of this type may be incorporated into, for example, the lower limbs of the puppet (where provided) for example to serve as ankle and/or toe joints. Two such joints of this type may be provided side-by-side to achieve a preferred direction of bending, allowing only restricted degrees of movement in other directions, or resisting movement other than in the preferred direction.

[0017] Whilst potentially all of the parts of the puppet may be interconnected with one another, it may be preferred for, for example, the lower limbs to be separate from the remainder of the puppet. Certain parts of the puppet may be secured to one another using magnets or the like.

[0018] The invention will further be described, by way of example, with reference to the accompanying drawings, in which:

[0019] FIG. 1 is a view illustrating a puppet in accordance with an embodiment of the invention;

[0020] FIG. 2 is a view illustrating the rear of the puppet of FIG. 1; and

[0021] FIGS. 3 and 4 are views illustrating parts of the puppet in greater detail.

[0022] Referring to the accompanying drawings, a puppet 10 in accordance with an embodiment of the invention is illustrated. The puppet 10 is intended to have a generally human-like, warrior-like appearance, comprising a body 12, a head 14, left and right upper limbs in the form of arms 16 and left and right lower limbs in the form of legs 18.

[0023] The body 12 is of multi part form, comprising chest, mid and abdomen section 12a, 12b, 12c. As best shown in FIG. 2, the sections 12a, 12b, 12c are provided with hooks or the like that interact with a pair of plastics material springs 20, the springs 20 flexibly connecting the sections 12a, 12b, 12c to one another. It will be appreciated, therefore, that the sections 12a, 12b, 12c are able to move relative to one another. The permitted movement allows the sections 12a, 12b, 12c to adopt a wide range of relative positions. By way of example, the springs 20 allow angular movement between the sections 12a, 12b, 12c. They also allow a degree of twisting movement, vertical stretching and other movements to occur.

[0024] The chest part 12a includes, on its rear, a loop 13 through which the operator can introduce two of his fingers (the same fingers as are used to control the head 14 as described below) to support the body 12.

[0025] A loin part 12d is connected by a hinge 22 to the lower edge of the abdomen section 12c. It will be appreciated that this connection provides a more restricted level of relative movement to occur. On the rear of the part 12d is provided a T-shaped feature 24 which allows the part 12d to be gripped between the second and third fingers of one of the operators hands.

[0026] It will be appreciated that movement between the users hands results in the various parts of the body 12 moving relative to one another in the manner set out above, the operator having a good degree of control over the positions adopted by the parts of the body 12.

[0027] The legs 18 each comprise a foot 26 connected to the lower end of a calf part 28. The part 28 is hollow, defining a finger receiving recess adapted to receive an end part of one of the fingers of the same one of the operators hands as is gripping the part 12d. The joint between the foot 26 and the part 28 is of flexible form, comprising a pair of flexible tube sections 30, into the ends of which are forced the ends of metallic rods that protrude from the foot 26 and the part 28. The tube sections 30 may be of, for example, a plastics material or a rubber or rubber like material such as silicon. The rods seal a volume of air within the tube section 30 resisting extension of the section 30. The tube sections 30 are able to flex to allow the foot 26 to move relative to the part 28, to mimic an ankle joint. By providing a pair of tube-based joints side-by-side, it will be appreciated that the foot 26 is able to pivot upwards and downwards relative to the part 28, but other movements are more restricted. Stabilising elastic bands 32 are provided to further stabilise the ankle joint. Similar tube-based joints are provided to form the two joints.

[0028] Each leg further comprises a separate thigh part 34 in the form of a ring to be placed upon respective ones of the operators fingers.

[0029] In use, the legs 18 are fitted onto the first and fourth fingers of the operators hand, the second and third fingers gripping the part 12d as mentioned above.

[0030] The arms 16 are each shaped to define finger receiving recesses to receive parts of respective fingers of the other of the operators hands. Each arm 16 is shaped to define a hand 34 including three fingers 36. Each finger 36 takes the form of a plastics material tube that, at rest, adopts a substantially straight, extended condition. Cables 38 are connected to the fingers, the cables 38 extending through openings formed in the arm 16 and through flexible tubes 40 to the chest part 12a. Upon the chest part 12a is mounted a

resiliently biased lever arrangement 42, biased in this case by an elastic band, operable to apply a tension to the cable 38, urging the finger 36 to adopt a contracted position. In the arrangement shown, two lever arrangements 42 are provided, one being operable to control movement of one of the fingers, the other control the position of the other two fingers.

[0031] Within each tube 40 is located a loosely wound helical spring-like member that serves to reduce contact between the tube 40 and the cable 38, thereby reducing frictional resistance to movement.

[0032] Both hands are provided with moveable fingers of this type, and respective lever arrangements 42 are provided towards each side of the section 12a.

[0033] It will be appreciated that, in use, the arms 16 are fitted onto the first and fourth fingers of the other of the operators hands, and the lever arrangements 42 for both hands 34 can be manipulated by the operators thumb to control extension of the fingers 36.

[0034] The head 14 includes a face 44 and a pair of finger receiving components 46a, 46b arranged to receive respective ones of the second and third fingers of the operators hand, the first and fourth fingers of which are fitted into the arms 16. Each of the components 46a, 46b includes a protruding, upwardly extending pivot pin 48 that extends through a respective opening in a bracket 44b fitted to the back of the face 44 such that relative forward-backward movement between the components 46a, 46b drives the face 44 for rotation to look to the left or right. The pins 48 are located close to one another, for example spaced apart by a distance less than 10 mm, so that only a relatively small relative forward-backward movement is required to achieve rotation of the face through a large angle.

[0035] The face 44 includes a movable lower section 44a spring biased towards a closed position, and movable to an open position by a cable 50. The cable 50 may run to a position adjacent the part 12d and be connected to a fitting adapted to be fitted onto the thumb of the operators hand used to control the legs 18. Alternatively, a lever may be mounted upon the T-shaped feature 24 to which the cable 50 is connected, operation of the lever, for example by the operator using the thumb of the hand to which the legs 18 are fitted, pulling the cable 50 to open the mouth, release of the lever resulting in the mouth closing under the action of the spring biasing, and in the lever returning to its rest position. Such an arrangement has the advantage that the operator is able to quickly separate his hands, if needed, simply by releasing them from the T-shaped feature 24.

[0036] The face 44 is conveniently securable to the bracket by magnets. Likewise, other parts of the puppet may be secured in position using magnets. Such an arrangement may allow substitution of parts, for example to allow changing the puppet character whilst using the same operating mechanism, or to allow, for example, a change in facial expression or the like.

[0037] In use, with the operators fingers fitted into the parts of the puppet as described hereinbefore, it will be appreciated that movement of the fingers of one of the operators hands can be used to give the appearance of the puppet walking, running, jumping, dancing or the like, the operators finger joints giving the puppet the appearance of having movable knee and hip joints, and so resulting in the puppet having a more life-like appearance when moving. Movement of the fingers of the other of the operators hands

adjusts the direction in which the head is facing, and adjusts the positions of the arms 16. The operator can use his thumbs to operate the fingers and to adjust the face 44 to move the part 44a to open or close the puppets mouth. Relative movement of the operators hands results in the body position of the puppet changing.

**[0038]** It will be appreciated that the operator is able to control the puppet in a relatively simple and convenient manner to achieve a life-like appearance and realistic looking movements.

**[0039]** A wide range of materials may be used in the construction of the parts of the puppet. By way of example, moulded parts thereof may be of cured resin materials, with metallic rods or the like being moulded into the parts to aid connection of the parts to one another. In the arrangement shown, certain parts of the puppet are not connected to other parts. By way of example, the legs are not connected to the remainder of the puppet. However, the various parts could be interconnected with one another if desired.

**[0040]** Whilst the invention is described herein with reference to the accompanying drawings, it will be appreciated that a wide range of modifications and alterations may be made thereto without departing from the scope of the invention. By way of example, the puppet may be modified to take on the appearance of an animal rather than to be of substantially human like form. Although the described arrangement includes upper and lower limbs, it will be appreciated that aspects of the invention may be employed in arrangements that only include, for example, upper limbs.

1. A puppet comprising left and right upper limbs, left and right lower limbs, a body and a head, wherein each upper limb includes a finger recess shaped to receive a respective finger of a first one of an operators hands, and the head has at least one finger recess associated therewith to receive a finger of the first one of the operators hands, and each lower limb includes a finger recess shaped to receive a respective finger of the other, second one of the operators hands.

2. The puppet according to claim 1, wherein, in use, the operators first hand is orientated with its fingers pointing in a generally upward direction, the operators second hand being orientated with its fingers pointing in a generally downward direction, the backs of the users hands facing towards one another.

3. The puppet according to claim 1, wherein the head has a pair of finger recesses associated therewith to receive respective fingers of the first one of the operators hands, wherein the finger recesses associated with the head comprise respective finger receiving components, each of which is pivotally connected to the head such that relative forward-backward movement between the finger receiving components drives the head for angular movement.

4. The puppet according to claim 3, wherein the pivotal connections between the finger receiving components and the head are located close to one another such that a relatively small amount of relative forward-backward movement drive the head for movement through a relatively large angle.

5. The puppet according to claim 4, wherein the pivotal connections are spaced apart from one another by a distance of less than 10 mm.

6. The puppet according to claim 5, wherein the pivotal connections are spaced apart from one another by a distance in the range of 5-10 mm.

7. The puppet according to claim 1, wherein at least one of the upper limbs has a movable finger associated therewith, the finger being movable by a cable drive arrangement operable by a lever mounted upon the body.

8. The puppet according to claim 7, wherein the cable drive arrangement includes a cable extending within a flexible tube between the lever and the finger.

9. The puppet according to claim 8, wherein the finger is of resilient form, adopting an extended condition at rest, the cable drive arrangement being resiliently biased to place the cable thereof under tension pulling the finger to a contracted position.

10. The puppet according to claim 8, wherein the tube includes a loosely wound helical support member operable to reduce contact between the cable and the tube and thereby reduce frictional resistance to movement.

11. The puppet according to claim 7, wherein at least two fingers are provided, and one or more of the fingers is controllable independently of the remaining fingers.

12. The puppet according to claim 1, wherein the body is of multi section form, the sections being interconnected by spring means.

13. The puppet according to claim 12, wherein one of the body sections includes a feature to be gripped between two of the fingers of the operators second hand such that relative movement between the operators hands adjusts the positions of the body sections.

14. A puppet comprising left and right upper limbs, a body and a head, wherein each upper limb includes a finger recess shaped to receive a respective finger of a first one of an operators hands, and the head has a pair of finger recesses associated therewith to receive respective fingers of the first one of the operators hands, wherein the finger recesses associated with the head comprise respective finger receiving components, each of which is pivotally connected to the head such that relative forward-backward movement between the finger receiving components drives the head for angular movement.

15. A puppet comprising left and right upper limbs, a body and a head, wherein each upper limb includes a finger recess shaped to receive a respective finger of a first one of an operators hands, and the head has at least one finger recess associated therewith to receive a finger of the first one of the operators hands, wherein at least one of the upper limbs has a movable finger associated therewith, the finger being movable by a cable drive arrangement operable by a lever mounted upon the body.

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