United States Patent [19]

Sapkus et al.

[11] **3,852,911**

[45] **Dec. 10, 1974**

[54] **MANUALLY-MANIPULATED ANIMATED FIGURE TOY**

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[73] Assignee: **Mattel, Inc.**, Hawthorne, Calif.

[22] Filed: **July 12, 1973**

[21] Appl. No.: **378,458**

[52] **U.S. Cl.** **46/126**, 46/128, 46/140, 46/142, 46/148

[51] **Int. Cl.** **A63h 7/00**

[58] **Field of Search** 46/119, 120, 126, 128, 46/134, 138, 140, 142, 148

[56] **References Cited**

UNITED STATES PATENTS

1,317,505	9/1919	Kessler	46/138
1,502,010	7/1924	Banks	46/119
1,502,599	7/1924	Timmons	46/119 X
1,580,993	4/1926	Beck	46/138
1,695,095	12/1928	Hall	46/138
2,725,671	12/1955	Morsch	46/138 X
3,410,024	11/1968	Stubbmann	46/119 X
3,492,759	2/1970	Lewis et al.	46/120 X
3,564,764	2/1971	Crosman et al.	46/126

FOREIGN PATENTS OR APPLICATIONS

73,453	11/1951	Denmark	46/126
821,310	4/1937	France	46/128
657,992	10/1951	Great Britain	46/126

Primary Examiner—Louis G. Mancene
Assistant Examiner—J. Q. Lever
Attorney, Agent, or Firm—Max E. Shirk; Stephen L. King

[57] **ABSTRACT**

A puppet is supported by a rigid, hollow member in which a puppet-manipulating rod is slideably and rotatably mounted for selectively moving different puppet limbs in accordance with the axial position of the rod and the direction of rotation thereof.

4 Claims, 14 Drawing Figures

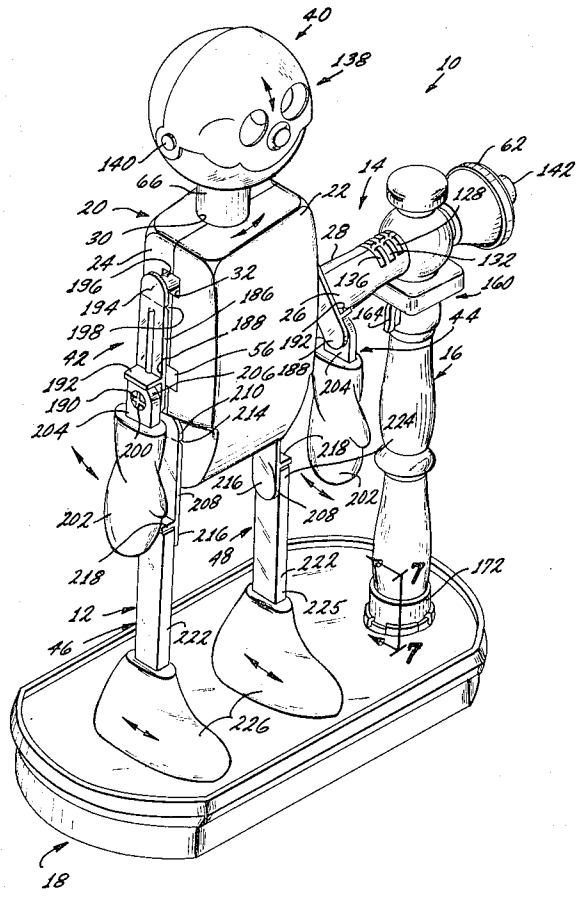


FIG. 1

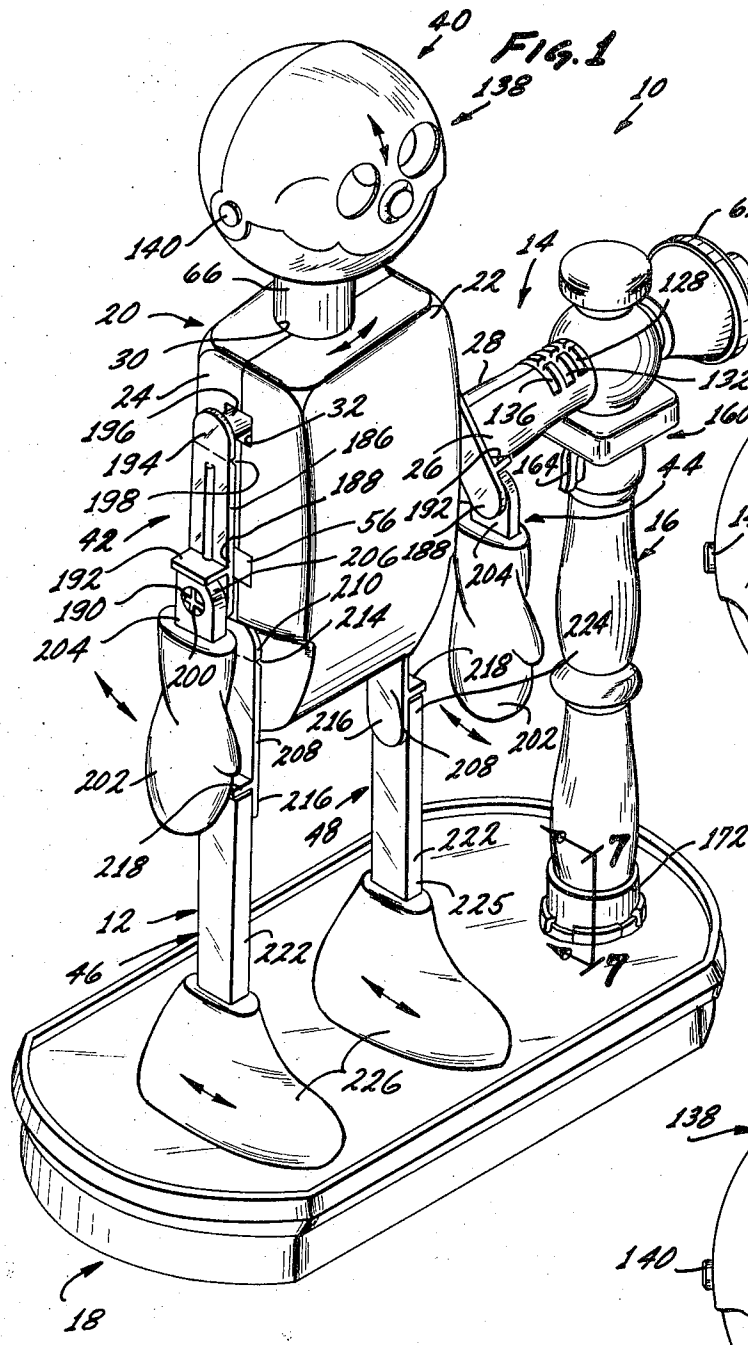


FIG. 9

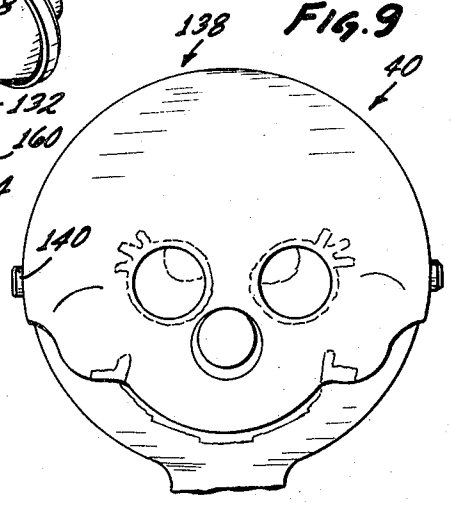
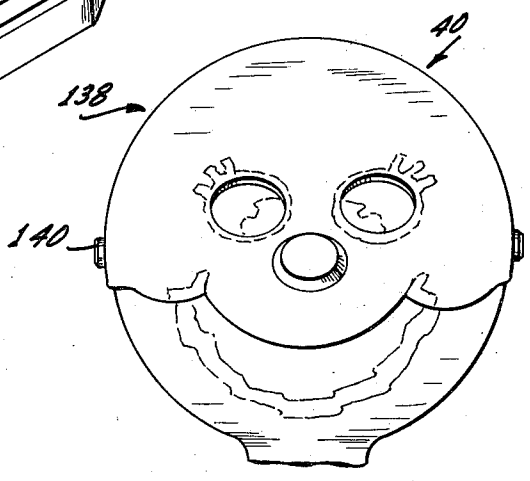


FIG. 10



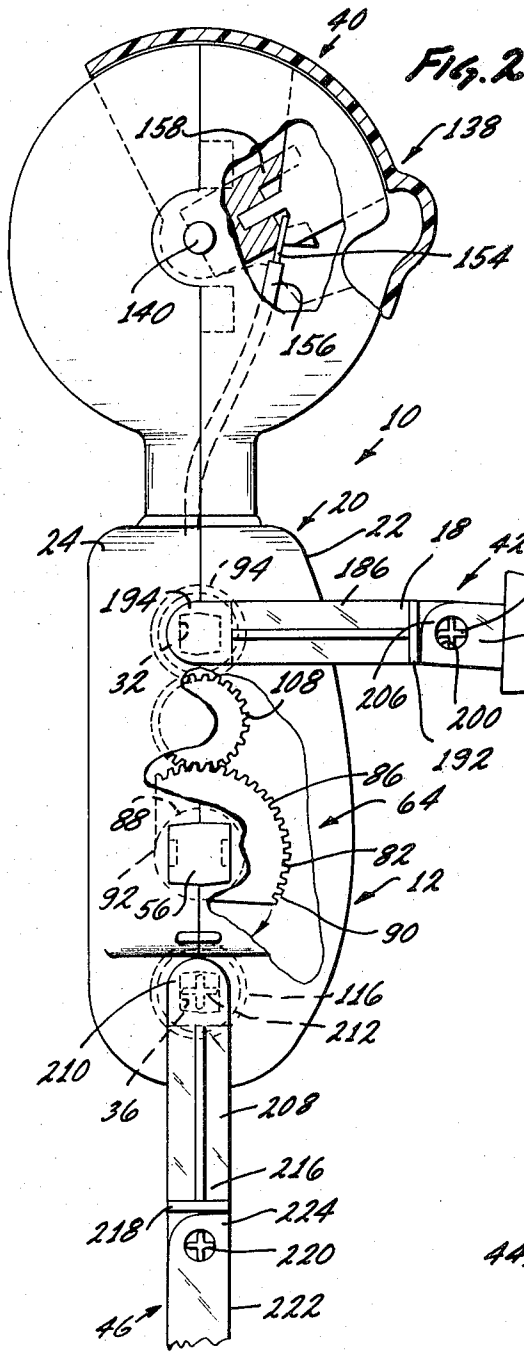


FIG. 2

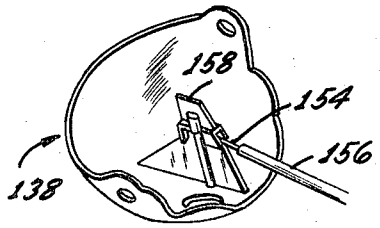


FIG. 8

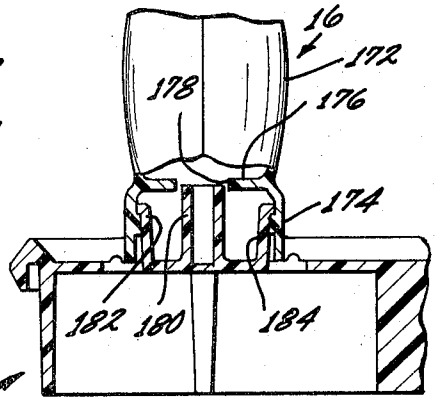


FIG. 7

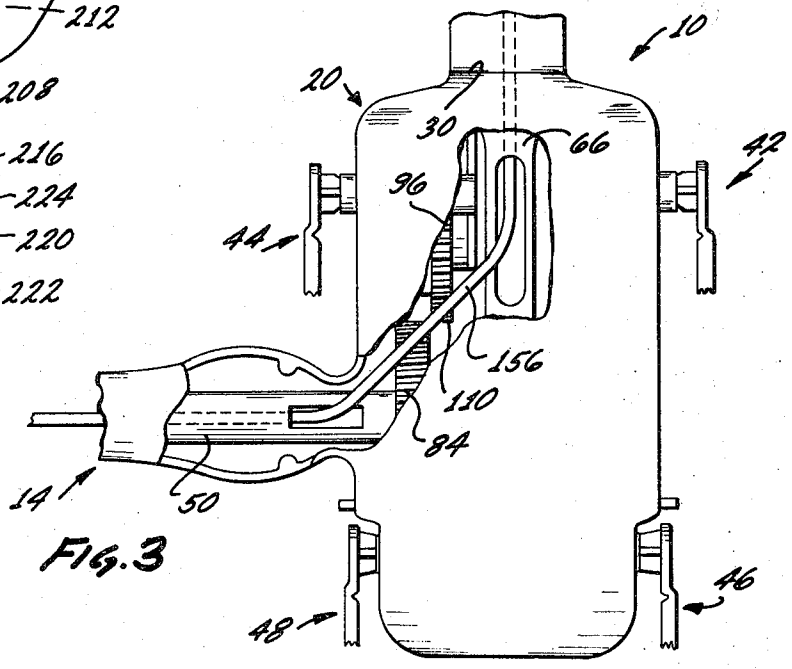
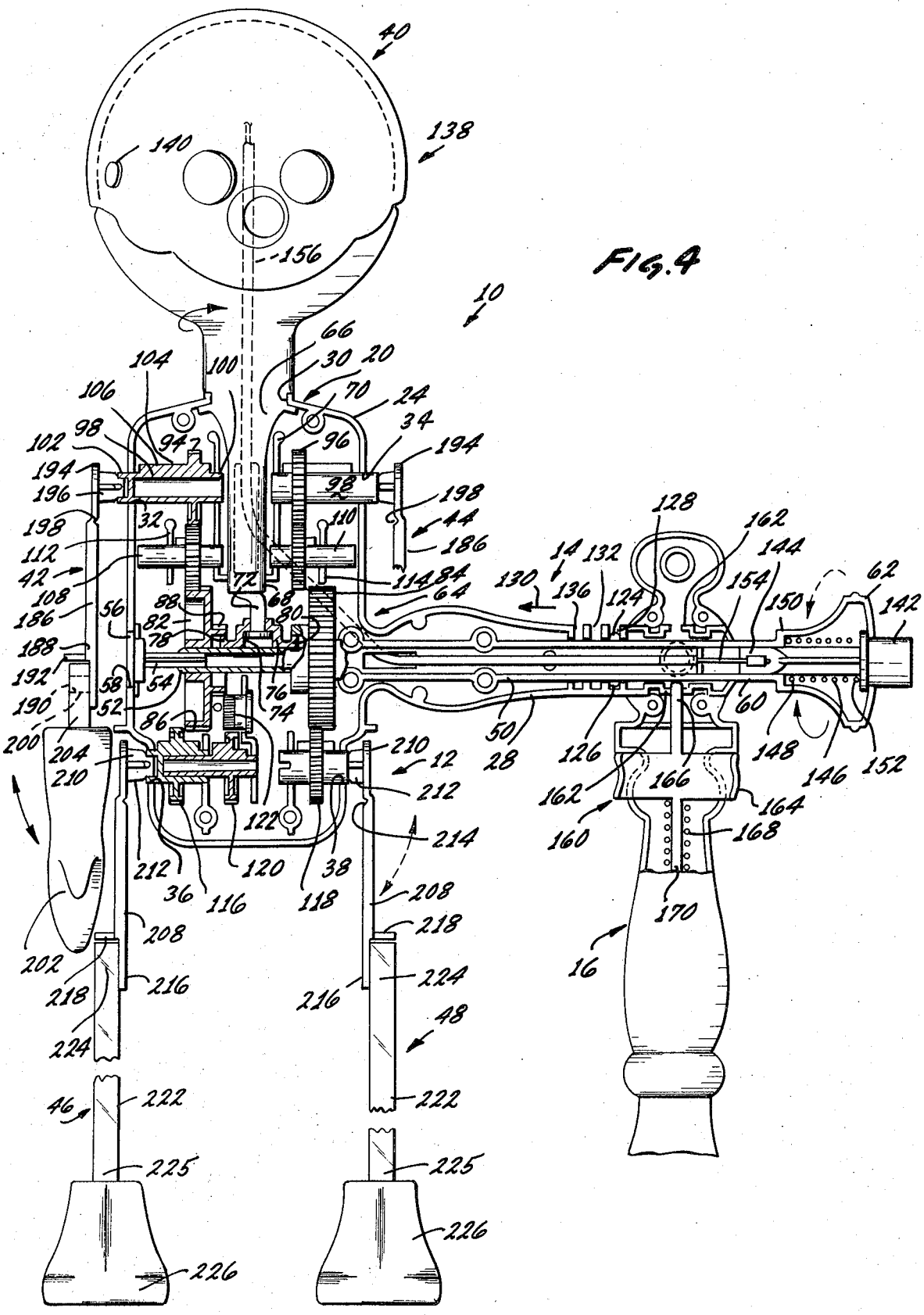


FIG. 3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138
140
156
10
66
30
20
70
24
34
104
100
106
98
94
96
102
194
196
198
32
110
44
186
112
42
108
56
88
82
78
72
114
84
64
68
80
188
192
190
200
58
54
52
86
76
74
204
210
122
120
38
116
118
212
214
208
218
216
224
36
202
46
222
225
226
48
130
14
132
136
124
128
162
144
154
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62
142
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146
152
166
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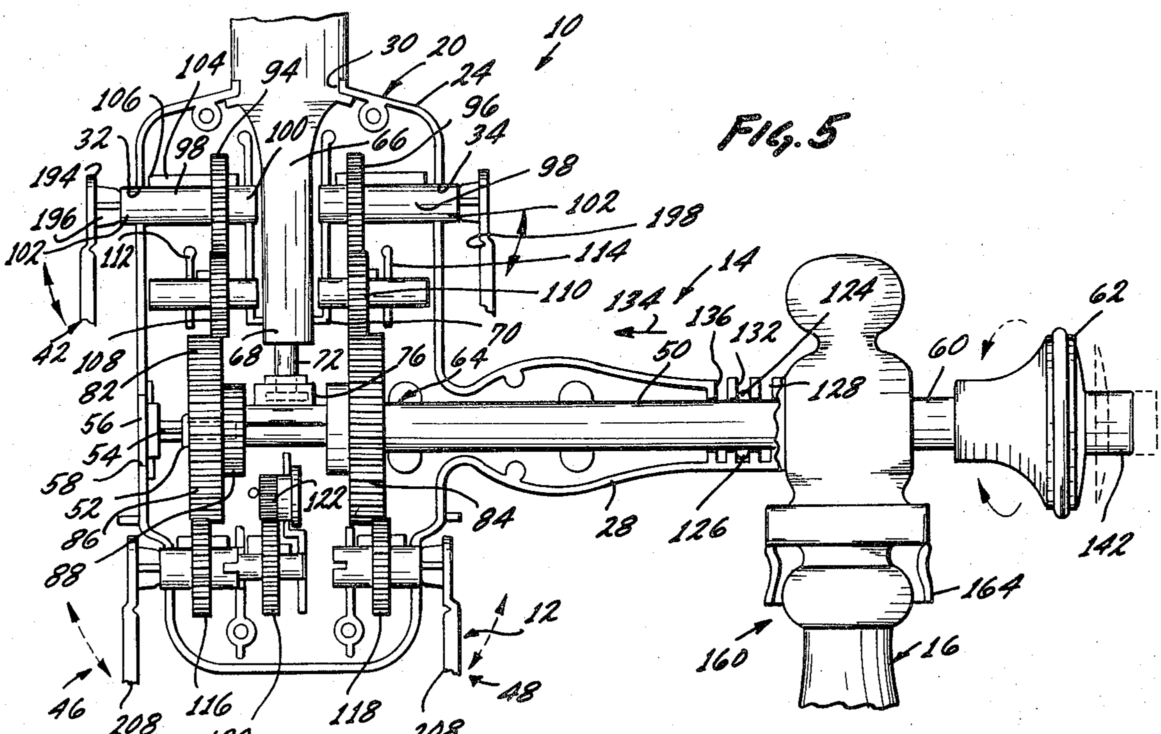
170
16

FIG. 4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20
24
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104
94
106
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66
100
34
32
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194
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102
198
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114
110
14
134
136
124
62
132
60
42
108
70
68
72
76
64
50
128
82
56
54
58
52
122
84
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126
142
86
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164
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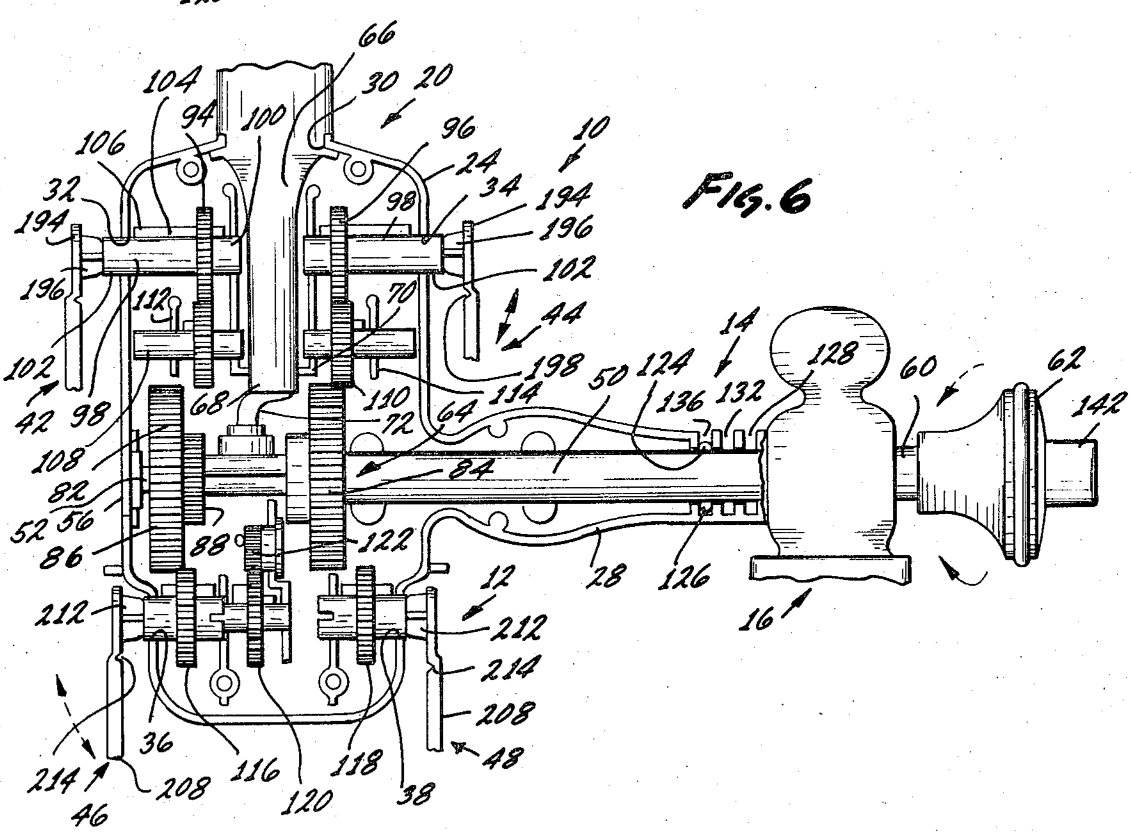
116
120
118
208
46
48
160
16

Fig. 5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34
194
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196
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44
102
98
110
198
14
42
68
114
50
124
128
60
62
142
108
72
64
136
132
82
84
52
56
86
88
122
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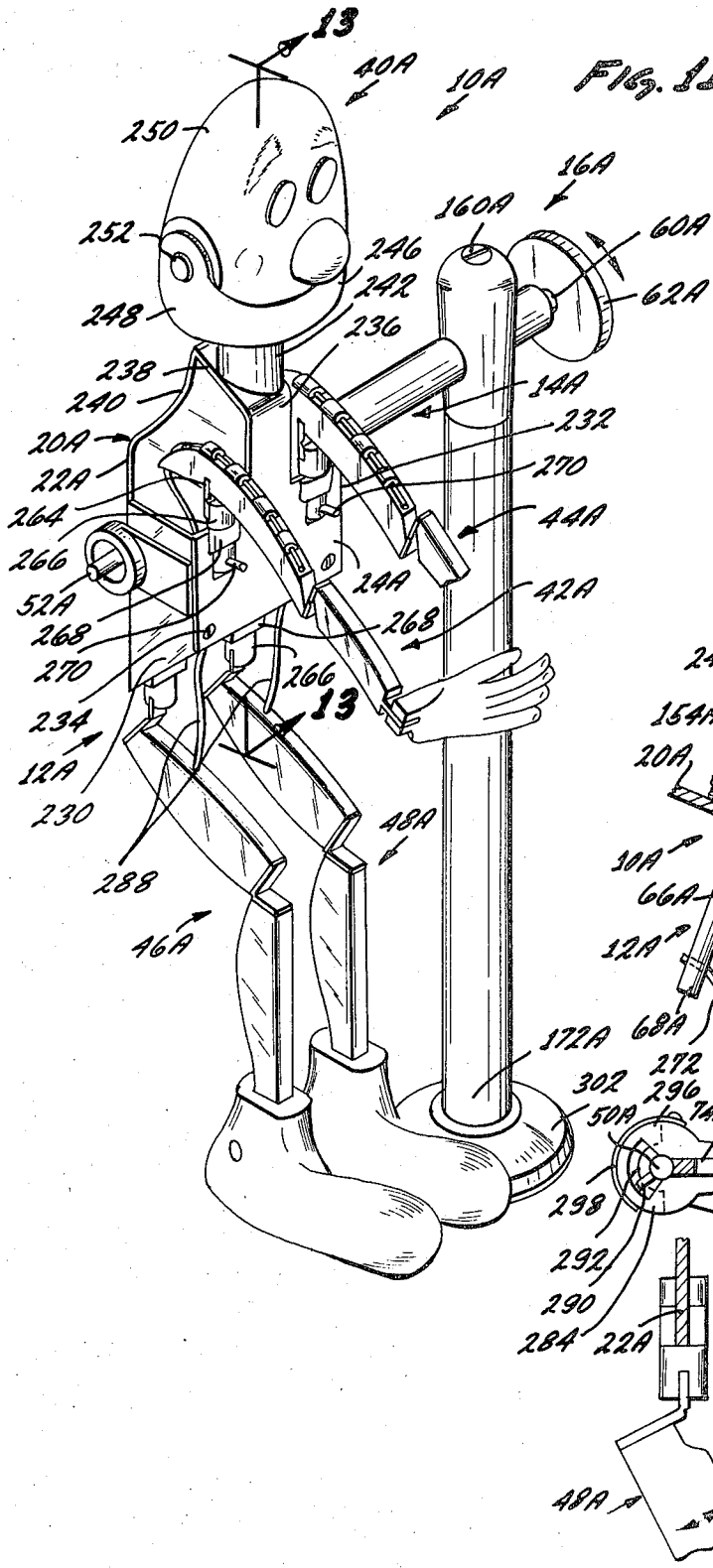
212
12
212
214
208
36
116
118
38
48
214
208
46
120

Fig. 6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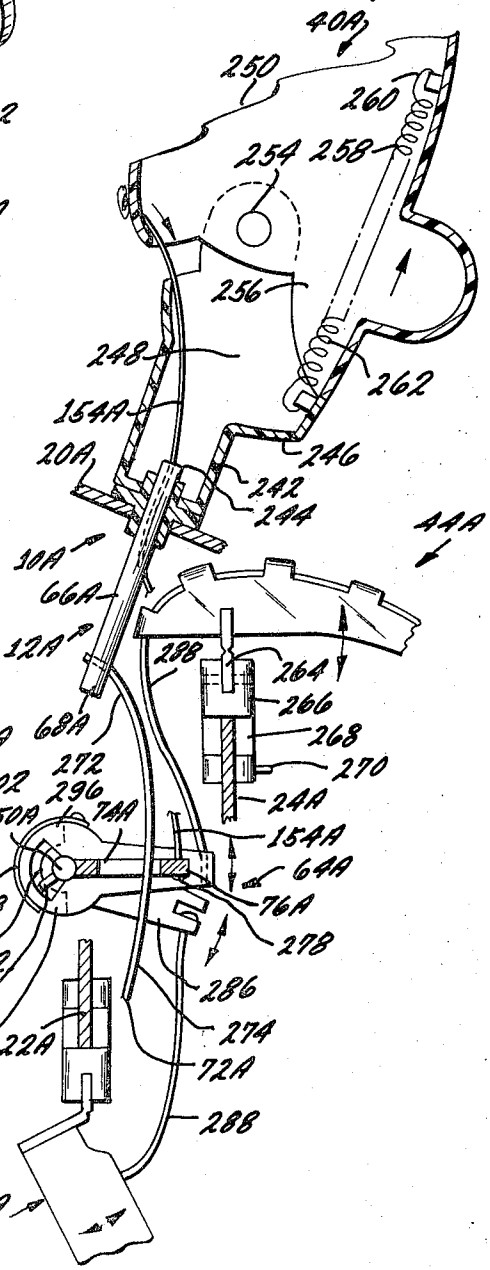
40A
10A
250
252
246
242
248
236
238
240
20A
22A
264
266
52A
268
270
234
12A
230
288
46A
160A
16A
60A
62A
14A
232
270
44A
24A
42A
268
266
13
48A
172A
302
50A

FIG. 11


40A
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12A
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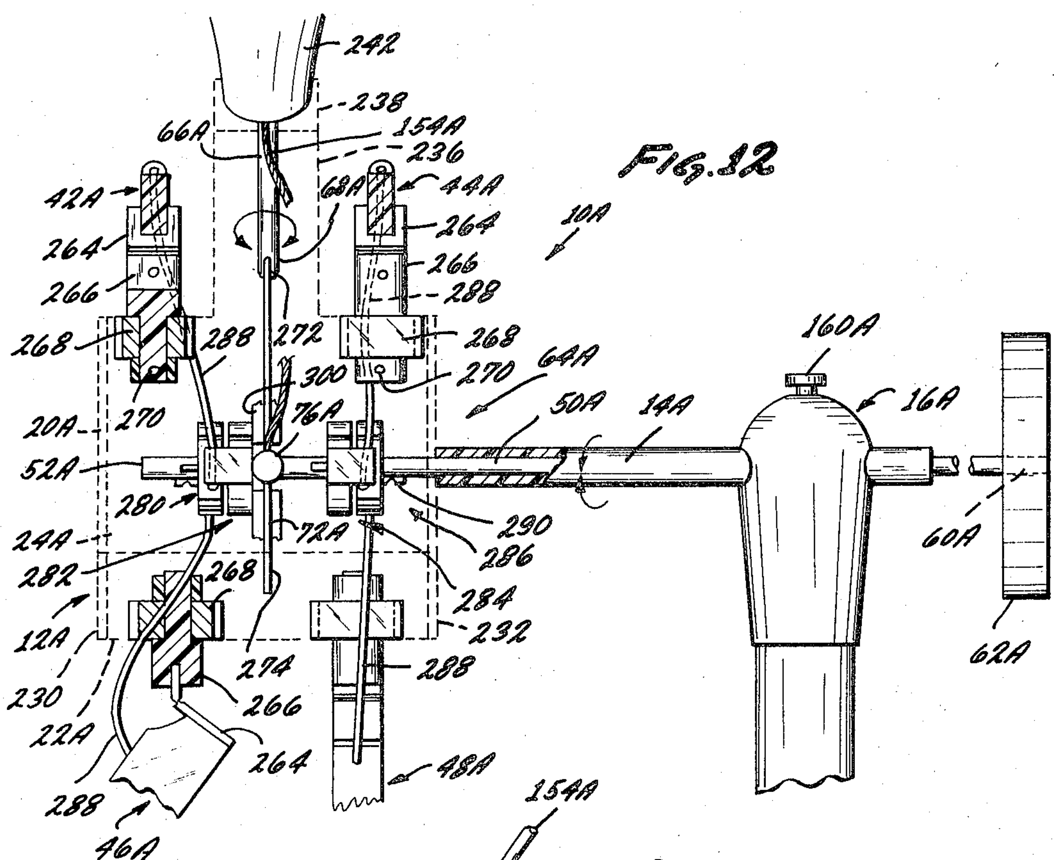
266
268
270
68A
272
296
24A
74A
154A
64A
76A
278
298
292
290
284
22A
286
274
72A
288
48A

FIG. 13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238
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42A
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264
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266
266
288
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288
268
270
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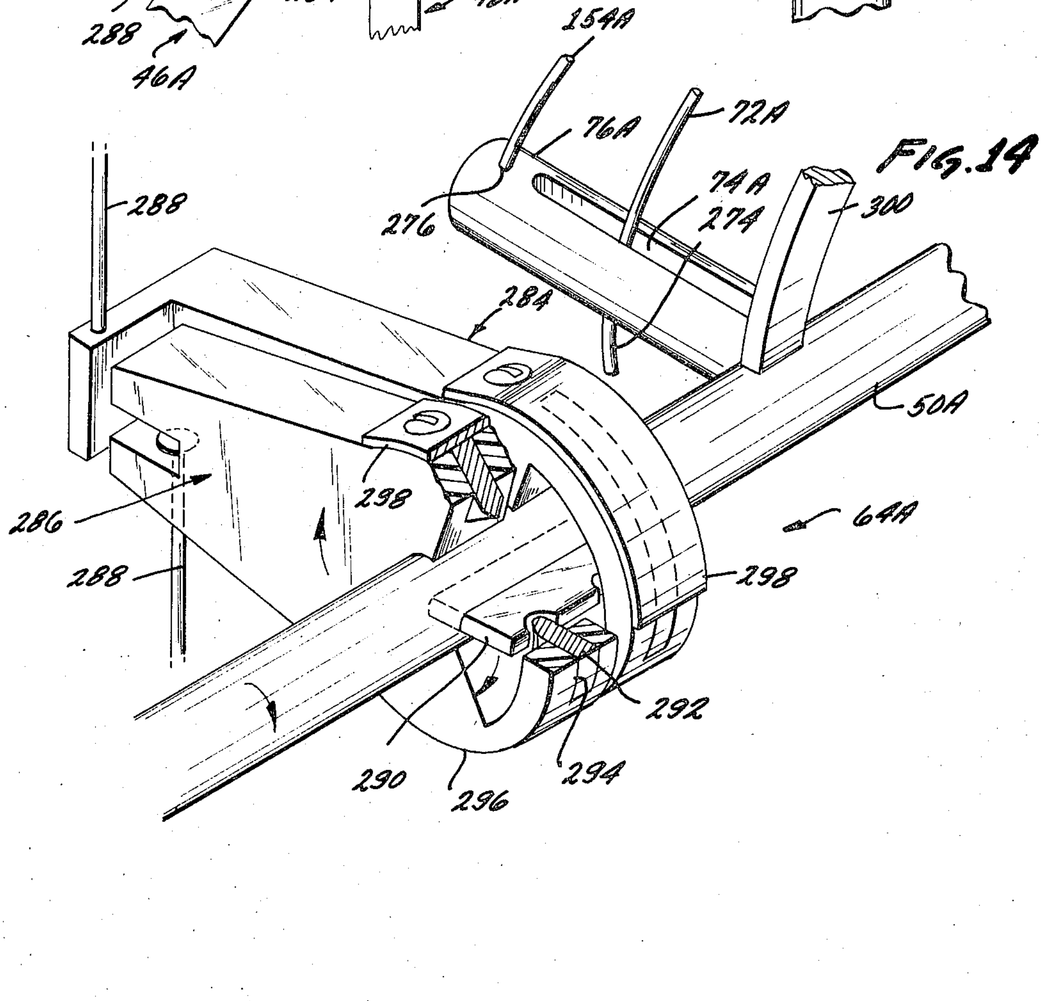
270
64A
76A
50A
14A
160A
16A
20A
52A
280
290
24A
72A
286
282
268
284
12A
232
230
274
288
22A
266
264
48A
288
46A
60A
62A
10A
FIG. 12


154A
72A
76A
74A
274
276
300
288
284
50A
298
286
64A
288
298
292
290
296
294
FIG. 14

MANUALLY-MANIPULATED ANIMATED FIGURE TOY

BACKGROUND OF THE INVENTION

The background of the invention will be set forth in two parts.

1. Field of the Invention

The present invention pertains generally to the field of manually-manipulated animated figure toys and more particularly to a puppet which is supported by a rigid, hollow member in which a puppet-manipulating rod is slideably and rotatably mounted.

2. Description of the Prior Art

The prior art known to Applicant is listed by way of illustration, but not of limitation, in separate communication to the U.S. Patent Office.

Among this prior art are British patent No. 657,992 and U.S. Pat. Nos. 3,298,131 and 3,564,764. These patents disclose puppets having a rigid member extending from the body of the puppet for supporting the puppet while it is manipulated by means which either extend through the rigid member or are otherwise associated with it.

The present invention exemplifies improvements over puppets of this type.

SUMMARY OF THE INVENTION:

According to the present invention, two embodiments of a manually-manipulated animated figure toy are disclosed. In each embodiment, a puppet is supported by a hollow, rigid tubular member in which an operating rod is rotatably and reciprocably mounted for manipulation by an operator.

The rod has a first end extending to a position inside the body of the puppet and a second, free end extending to a position beyond the free end of the hollow, rigid tubular member.

Each embodiment also includes means connecting the first end of the rod to the head, legs and arms so that the head may be rotated by moving the rod axially so that the legs and arms may be selectively moved, depending upon the axial position of the rod and the direction in which it is rotated. In a first embodiment, these connecting means comprise gears and gear sectors and in the second embodiment these means comprise swingable arms and strings or cords.

Each embodiment includes a fixed lower jaw and a swingable upper jaw. In the first embodiment, the upper jaw may be swung upwardly away from the lower jaw by operating a Bowden cable which extends through the rod. In the second embodiment, the upper jaw is connected to the rod by a string in such a manner that the jaw may be swung upwardly by rotating the rod in a predetermined direction.

In both embodiments, the hollow, rigid tubular member is rotatably mounted at the upper end of a support post and means are provided to fix the tubular member in different rotated positions so that the puppet may be supported in erect, inverted or horizontal positions.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with the further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings

in which like reference characters refer to like elements in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a manually-manipulated animated figure toy constituting a first embodiment of the present invention;

FIG. **2** is an enlarged, side-elevational view, with parts removed to show internal construction, looking in at the right side of the figure toy of FIG. **1**;

FIG. **3** is an enlarged, partial rear-elevational view with parts removed to show internal construction of the figure toy of FIG. **1**;

FIGS. **4, 5** and **6** are enlarged, front-elevational views of the figure toy of FIG. **1** with the cover removed to show the internal parts in different operating positions;

FIG. **7** is an enlarged, partial cross-sectional view taken along line **7—7** of FIG. **1**;

FIG. **8** is a perspective view of a face plate used on the figure toy of FIG. **1**;

FIGS. **9** and **10** are front-elevational views of the head of the figure toy of FIG. **1** showing the facial expression thereof in mouth-closed and mouth-open positions, respectively;

FIG. **11** is a perspective view of a manually-manipulated animated figure toy constituting a second embodiment of the present invention;

FIG. **12** is an enlarged, partial, front-elevational view of the figure toy of FIG. **11**;

FIG. **13** is an enlarged, partial cross-sectional view taken along line **13—13** of FIG. **11**; and

FIG. **14** is an enlarged, partial perspective view of the actuator portion of the figure toy of FIG. **11.**

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring again to the drawings, and more particularly to FIGS. **1–4,** manually-manipulated animated figure toy constituting a first embodiment of the present invention, generally designated **10,** includes a puppet assembly **12** carried by a hollow tubular member **14** rotatably mounted on a post **16** upstanding from a platform **18.**

Puppet **12** includes a torso or housing assembly **20** comprising rear and front housing halves or torso portions **22, 24,** respectively, which may be formed integrally with front and rear halves **26, 28,** respectively, of tubular member **14** from a suitable polymeric material by injection molding techniques. Torso **20** is provided with a neck opening **30,** a pair of upper limb openings **32, 34** and a pair of lower limb openings **36, 38** in which a head assembly **40,** right and left arms **42, 44** and right and left legs **46, 48,** respectively, are journaled.

Puppet **12** may be manipulated by a hollow operating rod **50** slideably and rotatably mounted in tubular member **14.** Operating rod **50** includes a first end **52** journaled in torso **20** on a fixed pin **54** having a rectangular head **56** trapped in an opening **58** provided in torso **20** and a second, free end **60** which carries an operating knob **62** adapted to be grasped by an operator for rotating and reciprocating operating rod **50.**

Referring now to FIGS. **4, 5** and **6,** figure toy **10** also includes connecting means **64** which connect the first end **52** of operating rod **50** to the head and limbs of puppet **12** for manipulation thereof by rotating and re-

ciprocating rod **50**. Connecting means **64** includes a neck post **66** rotatably mounted in neck opening **30** in torso **20** and having a lower end **68** journaled in a journal box **70** and carrying a crank pin **72** (FIG. **4**) working in a crank slot **74** provided in a yoke **76** retained in position on end **52** of operating rod **50** by a pair of semi-circular ears **78, 80**. Connecting means **64** also includes a pair of driving gear sectors **82, 84** keyed to end **52** of rod **50** on opposite sides of yoke **76**. Each driving gear sector **82, 84** includes a large gear sector **86** and a small gear sector **88** each having a toothed portion **90** and a reduced-diameter, smooth portion **92** (FIG. **2**). Ears **78, 80** of yoke **76** are trapped by small gear sections **88** in such a manner that rod **50** is free to rotate relative to yoke **76**, but will move yoke **76** laterally when rod **50** is reciprocated.

Connecting means **64** also includes a pair of arm-swinging gears **94, 96** each carried by a journal **98** having a first end **100** rotatably received in journal box **70** and a second end **102** journaled in an associated one of the arm openings **32, 34**. Each gear and journal assembly may be integrally formed from suitable polymeric materials by injection molding techniques and may be strengthened by a plurality of axially-extending flutes **104** having ends **106** engageable with torso **20** for minimizing axial movement of journals **98**. A pair or idler gears **108, 110** drivingly engage the gears **94, 96**, respectively, and are rotatably mounted between journal box **70** and journal brackets **112, 114**, respectively.

Connecting means **64** also includes a pair of leg-swinging gears **116, 118** journaled in lower limb openings **36, 38**, respectively, in laterally-offset positions with respect to the arm-swinging gears **94, 96**. The leg-swinging gear **116** is operatively connected to an auxiliary gear **120** drivingly engaged by an idler gear **122** which, in turn, is adapted to be driven by the small gear sector **88** on driving gear sector **82** when operating rod **50** is moved axially to the position shown in FIG. **4**. This position is established by seating a pair or protuberances **124, 126**, which are mounted on end **60** of rod **50**, in a first annular slot **128** (FIG. **1**) provided in tubular member **14** (FIG. **4**) and including shoulders (not shown) engageable by protuberances **124, 126** to limit the rotation of rod 50° to 180°. The location of these shoulders is such that driving gear sectors **82, 84** will drive leg-swinging gears **116, 118**, respectively, when knob **62** is rotated 90° counterclockwise (looking in from the right hand side of FIG. **4**) from a predetermined neutral position and will drive the idler gear **108** and arm-swinging gear **94** when knob **62** is rotated 90° in a clockwise direction.

Rod **50** may then be shifted axially in the direction of arrow **130** (FIG. **4**) for moving the protuberances **124, 126** to the position shown in FIG. **5** where they may be worked in a second annular slot **132** (FIG. **1**). This moves driving gear sectors **82, 84** into alignment with both the leg-swinging gears **116, 118** and the idler gears **108, 110**, whereby both arms **42, 44** will be swung by clockwise rotation of knob **62** (looking in at knob **62** from the right in FIG. **5**) and both legs **46, 48** will be swung when knob **62** is rotated in a counterclockwise direction. Rod **50** may then be slid axially in the direction of arrow **134** (FIG. **5**) until protuberances **124, 126** seat in a third annular slot **136** (FIG. **1**) where driving gear sectors **82, 84** will be moved to the positions shown in FIG. **6** wherein gear sector **82** will engage leg-swinging gear **116** to swing right leg **46** when knob **62** is rotated in a counterclockwise direction and will not engage idler gear **108** when knob **62** is rotated in a clockwise direction. Sector gear **84** will engage idler gear **110** for swinging left arm **44** when knob **62** is rotated clockwise but will not engage leg swinging gear **118** when knob **62** is rotated counterclockwise. Moving rod **50** axially rotates head **40** through yoke **70**, crank-pin **72** and neck post **66**.

Referring now to FIGS. **1–4** and **8–10**, figure toy **10** also includes a face plate **138** swingably mounted on head **40** by fixed pins, like the one shown at **140** in FIG. **1**, for swinging movement from the position shown in FIGS. **1** and **9** to the position shown in FIG. **10** when a button **142** on knob **62** is depressed. Face plate **138** then automatically returns to the position shown in FIG. **9** when button **142** is released. Button **142** is carried by a stem **144** (FIG. **4**) which is biased to the right (as viewed in FIG. **4**) by a compression spring **146** having a first end **148** seated against a fixed wall **150** in knob **62** and a second end **152** seated against button **142**. Stem **144** is connected to a filament **154** reciprocably mounted in a sheath **156** mounted inside hollow rod **50** and extending through torso **20** and neck post **66** to a position adjacent a fixed bracket **158** carried by face plate **138**. Filament **154** is connected to bracket **158** for swinging face plate **138** to the position shown in FIG. **10** when button **142** is depressed.

Puppet **12** may be rotated from the upright position shown in FIG. **1** to suitable horizontal and inverted positions by releasing a detent mechanism **160** (FIG. **4**) from engagement with an associated one of the cylindrical bores **162** carried by tubular member **14**. Detent mechanism **160** includes a gripper plate **164**, which is slideably mounted in post **16**, and which includes a finger **166** biased into engagement with bore **162** by a compression spring **168** encompassing a post **170** carried by plate **164**. Post **16** includes a lower end **172** (FIGS. **1** and **7**) encompassed by a collar **174** above which a horizontal partition **176** is mounted. Partition **176** is provided with an aperture **178** through which an upstanding post **180**, which is provided on platform **18**, passes when collar **174** is engaged with resilient fingers, like the ones shown at **182, 184**, to lock post **16** in position on platform **18**. It will be apparent to those skilled in the art that post **16** may be readily removed from platform **18** when it is desired to use puppet **12** apart from its platform.

Referring now to FIGS. **2** and **4**, the arms **42, 44** each includes a unitary arm portion **186** having a lower end **188**, which carries a splined pin **190** and a horizontal shelf **192**, and an upper end **194**, which carries a splined pin **196** and which is provided with a living hinge **198** formed therein by reducing the cross section thereof. Pin **196** frictionally engages end **102** of journal **98** for non-rotatably connecting arm member **186** thereto and pin **190** is engaged by an aperture **200** provided in a hand member **202** for swingably connecting it to arm member **186**. Hand **202** includes a shank portion **204** having an end **206** which engages shelf **192** to prevent hand member **202** from being swung in one direction and which clears shelf **192** when hand member **202** is swung in the other, opposite direction. The legs **46, 48** each includes an upper unitary leg member **208** having an upper end **210**, which carries a pin **212** engageable with an associated one of the gears **116, 118** and a living hinge **214**, and a lower end **216**, which carries a horizontal shelf **218** and a splined pin **220**.

Legs 46, 48 each also includes a lower unitary leg member 222 having an upper end 224 swingably connected to pin 220 and engageable with shelf 218 to prevent swinging of leg member 222 in one direction while permitting swinging thereof in the other, opposite direction and a lower end 225 (FIG. 1) which carries a foot 226.

Referring now to FIGS. 11–14, a manually-manipulated animated figure toy constituting a second embodiment of the present invention, generally designated 10A, includes a puppet assembly 12A carried by a hollow tubular member 14A rotatably mounted on a post 16A and maintained in predetermined rotated positions thereon by a set screw 160A.

Puppet assembly 12A includes a torso or frame assembly 20A having a rear frame half 22A and a front frame half 24A. The rear frame half 22A includes a pair of forwardly extending brackets 230, 232 to which the front frame half 24A is secured by suitable screws, like the one shown at 234. The front frame half 24A includes an upwardly extending portion 236 having an upper end 238 extending rearwardly to the upper end 240 of rear frame half 22A and forming a support for rotatably receiving a neck post 66A. Puppet assembly 12A also includes a head assembly 40A having a hollow neck portion 242 frictionally engaged on the upper end 244 of neck post 66A. Head assembly 40A includes a lower portion 246 including a fixed jaw member 248 and an upper portion 250, which is swingably connected to the lower portion by suitable pins 252, 254, and which includes a swingable jaw portion 256 biased to a closed position on fixed jaw portion 248 by a spring 258 having a first end 260 affixed to upper head portion 250 and a lower end 262 affixed to lower head portion 246.

Puppet assembly 12A also includes right and left arms 42A, 44A and legs 46A, 48A each swingably and rotatably connected to frame assembly 20A by a hinge member 264 engaged in a cylindrical member 266 which, in turn, is rotatably connected to frame assembly 20A by a bushing 268. Rotation of each cylindrical member 266 for arms 42A, 44A is limited by a stop screw 270 carried thereby and engageable with front frame half 24A in two positions of rotation 180° apart.

Puppet 12A may be manipulated by a rod 50A slideably and rotatably mounted in hollow tubular member 14A and having a first end 52A positioned within frame assembly 20A and a second end 60A extending to the outside of hollow tubular member 14A and carrying an operating knob 62A adapted to be grasped by an operator for rotating and reciprocating operating rod 50A. The head and limbs of puppet 12A are connected to end 52A of rod 50A by suitable connecting means 64A including a crank finger 72A having an upper end 272 affixed to the lower end 68A of neck post 66A and a lower end 274 working in a crank slot 74A provided in a rigid finger 76A affixed to rod 50A so that finger 72A will rotate head assembly 40A when rod 50A is reciprocated. Finger 76A is provided with an aperture 276 through which a head-operating cord or string 154A passes. String 154A includes a knot 278 engageable by finger 76A for tensioning cord 154A to pull upper head portion 250 about pivot pins 252, 254 in a counterclockwise direction (as viewed in FIG. 13) to move upper jaw 256 to an open position. Connecting means 64A also includes limb actuators 280, 282, 284 and 286 connected to leg 46A, arm 42A, arm 44A and leg 48A, respectively, by suitable cords, like the one shown at 288 in FIG. 13 for actuator 284 and arm 44A. Each actuator is swingably mounted on rod 50A as shown in FIG. 13 for actuator 284 and may be operatively connected thereto by a key 290 affixed to rod 50A and engageable by an arcuate detent 292 slideably mounted in an arcuate slot 294 provided in the hub portion 296 of actuator 284. An arcuate leaf spring 298 presses the arcuate detent 292 into releasable engagement with key 290 so that reciprocation of rod 50A to the position shown in FIG. 11 will cause the hub portion 296 of leg actuator 280 to bottomout against bracket 230 releasing key 290 from detent 292 so that leg actuator 280 will be disconnected from rod 50A while arm actuator 282 remains in engagement therewith. Additionally, arm actuator 284 and leg actuator 286 will bottom out against a fixed stop 300 so that the key for actuator 284 and 286 will be released from actuator 286 when rod 50A moves to the position shown in FIG. 11. When rod 50A is then moved to the right, as viewed in FIG. 11, to its extreme right hand position, as shown in FIG. 12, actuator 280 and 282 will bottom out against stop 300 and actuators 284 and 286 will bottom out against bracket 232 for releasing actuator 284 and 280. It will, of course, be apparent to those skilled in the art that intermediate positions of rod 50A will connect all of the actuators 280, 282, 284 and 286 to an associated one of the keys 290.

Operation of figure toy 10A will be readily understood. An operator may grasp post 16A and press the suction cup 302, which is provided on the lower end 172A thereof, into engagement with a suitable surface to steady post 16A. With his other hand, the operator may grasp knob 62A and reciprocate it for causing finger 76A to swing head assembly 40A from side-to-side. If knob 62A is rotated clockwise (looking in from the right in FIG. 11) leg actuators 280, 286 will swing upwardly tensioning cords 288 and swinging legs 46A, 48A. Counterclockwise rotation of knob 62A causes finger 76A to tension cord 154A and swing movable jaw 256 to an open position while simultaneously swinging arm actuators 282, 284 downwardly to tension cords 288 and swing arms 42A, 44A. Pushing rod 50A to the left, as viewed in FIG. 11, until knob 62A bottoms out against tubular member 14A causes actuators 280, 282 to bottom out against bracket 230 and causes actuators 284, 286 to bottom out against stop 300 releasing key 290 from the arcuate detents 292 for actuators 282 and 286 so that arm 42A and leg 48A will not be operated when knob 62A is rotated.

Conversely, moving knob 62A to its extreme right hand position, causes actuators 280, 282 to bottom out against stop 300 while actuators 284, 286 bottom out against bracket 232 so that keys 290 will be released from actuators 280 and 284, whereby leg 46A and arm 44A will not be swung when knob 62A is rotated.

While the particular figure toys herein shown and described in detail are fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that they are merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims which form a part of this disclosure. Whenever the term "means" is employed in these claims, this term is to be interpreted as

defining the corresponding structure illustrated and described in this specification or the equivalent of the same.

What is claimed is:

1. A manually-manipulated, animated figure toy comprising:

a puppet assembly including a body, head and limbs;

a hollow, rigid tubular member having a first end secured to said puppet and a second, free end;

an operating rod rotatably and reciprocably mounted in said tubular member, said operating rod having a first end extending to a position inside said puppet and a second, free end extending to a position beyond said free end of said tubular member for manipulation by a puppet manipulator; and

means connecting said first end of said rod to said head, legs and arms for manipulation by rotating and reciprocating said rod, said head including a fixed lower jaw and a swingable upper jaw, said connecting means including means connected to said upper jaw for swinging said upper jaw away from said fixed jaw when said rod is manipulated.

2. A manually-manipulated, animated figure toy comprising:

a puppet assembly including a body, head and limbs;

a hollow, rigid tubular member having a first end secured to said puppet and a second, free end;

an operating rod rotatably and reciprocably mounted in said tubular member, said operating rod having a first end extending to a position inside said puppet and a second, free end extending to a position beyond said free end of said tubular member for manipulation by a puppet manipulator; and

means connecting said first end of said rod to said head, legs and arms for manipulation by rotating and reciprocating said rod, said connector including actuators having arcuate hubs rotatably mounted on said rod, arcuate detend means releasably connecting said hubs to said rods and cords connecting said actuators to said arms and legs.

3. A figure toy as stated in claim **1** wherein

said upper jaw connecting means includes a filament reciprocably mounted in a sheath extending through said tubular member and including an actuating button connected to said filament.

4. A figure toy as stated in claim **1** wherein said upper jaw connecting means includes a cord having one end connected to said upper jaw and another end connected to a finger extending from said operating rod at right angles thereto.

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