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Sun et al.

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(54) **COSTUME APPARATUS**

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Related U.S. Application Data

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(51) **Int. Cl.**
A63H 33/00 (2006.01)

(52) **U.S. Cl.** **446/28**; 446/26

(58) **Field of Classification Search** ..... 446/26, 446/28; 472/70; 244/22, 28, 72, 151 R, 244/155 R

See application file for complete search history.

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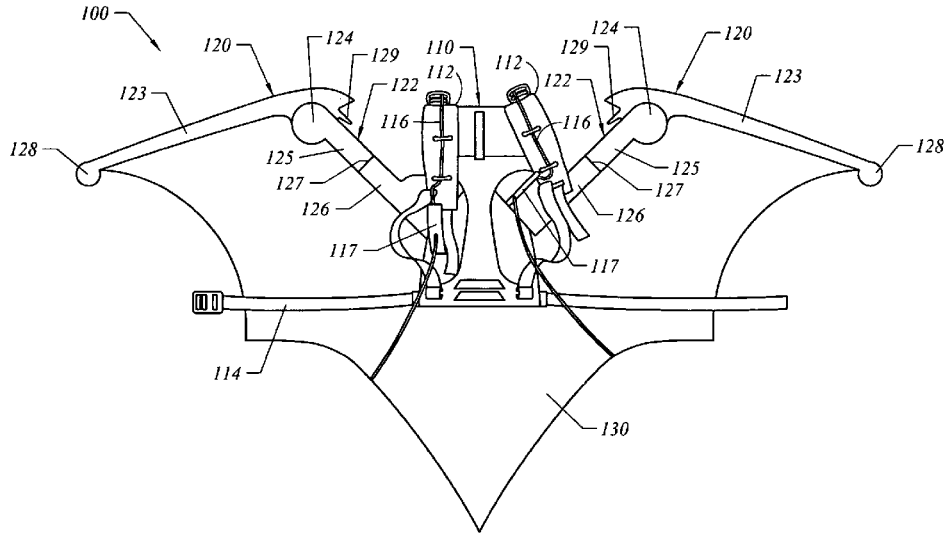
(57) **ABSTRACT**

This invention refers to a costume apparatus for enabling a user to engage in role play activities or action play adventures. The costume apparatus may be mounted on a user's back, and comprises deployable arm assemblies which are controlled by a pull cord system. In one embodiment, the costume apparatus takes the form of expandable wings. The arm assembly of the costume apparatus may include two arm pieces connected by a pivoting joint, and may further include a hinged joint within one of the arm pieces. The hinged joint provides a safety feature for the deployed costume apparatus by allowing the arm assemblies to fold rearward when obstacles are encountered.

7 Claims, 6 Drawing Sheets



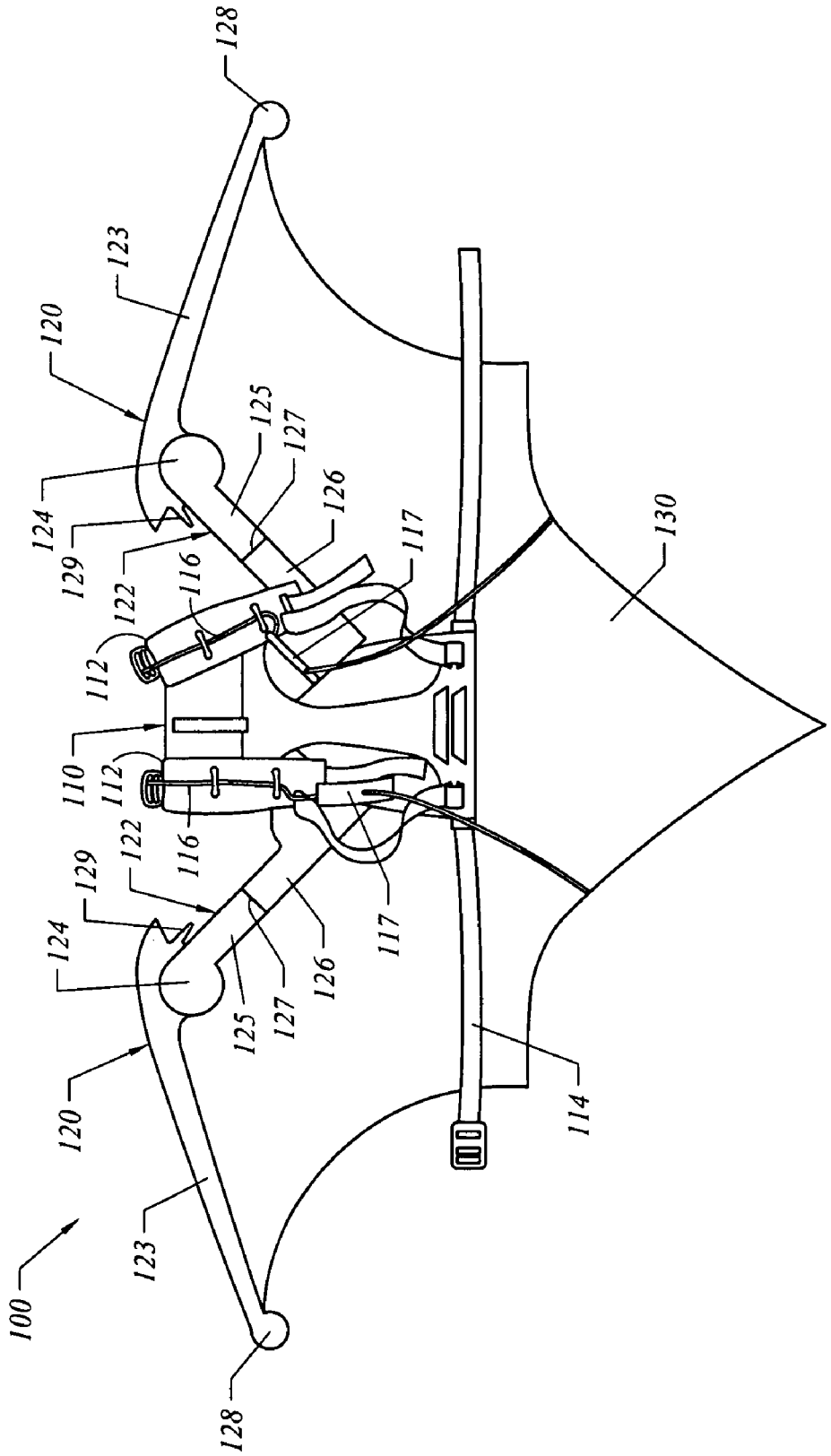


FIG. 1

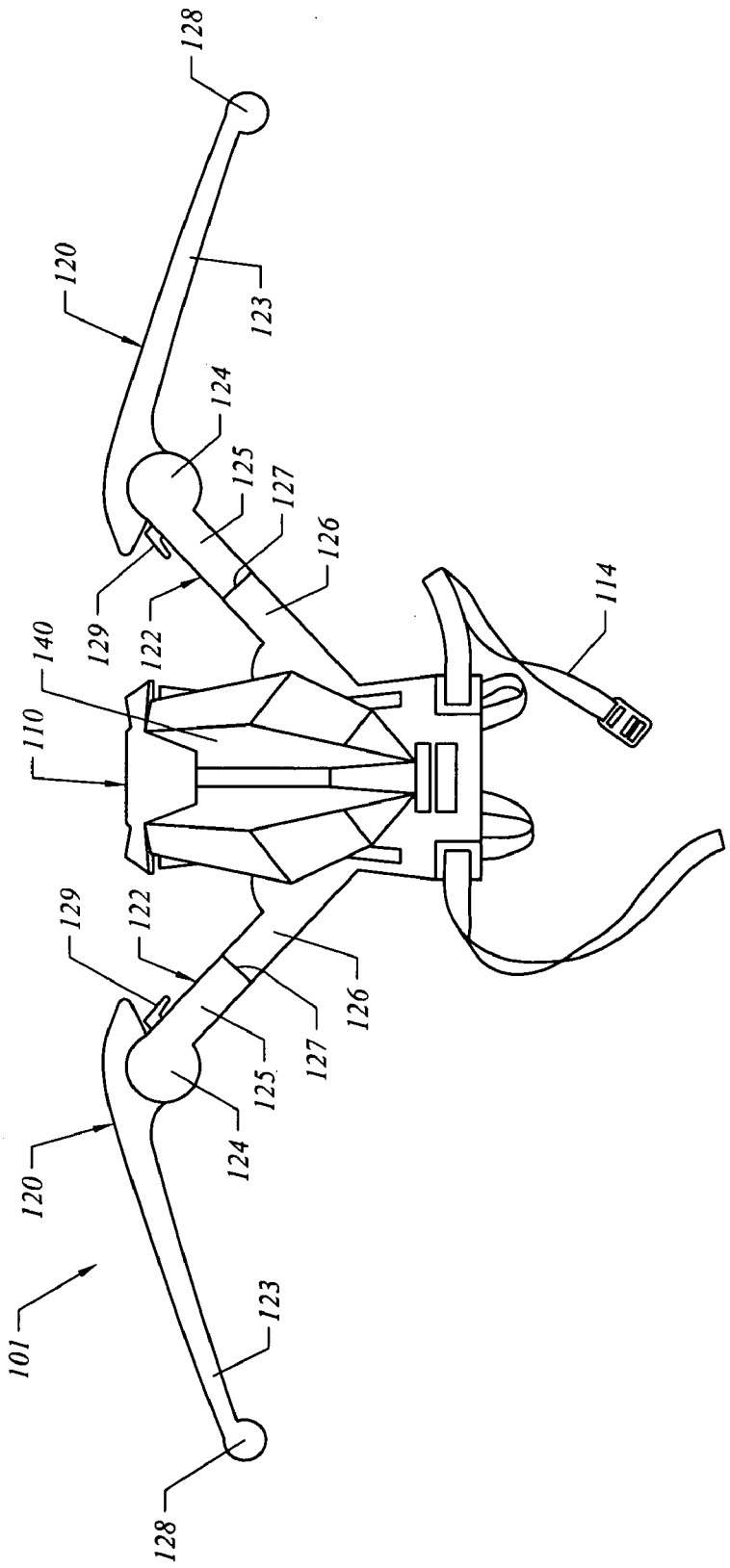

128
120
123
124
125
127
126
114
140
129
122
110
129
122
126
127
125
124
120
101
123
128

FIG. 2

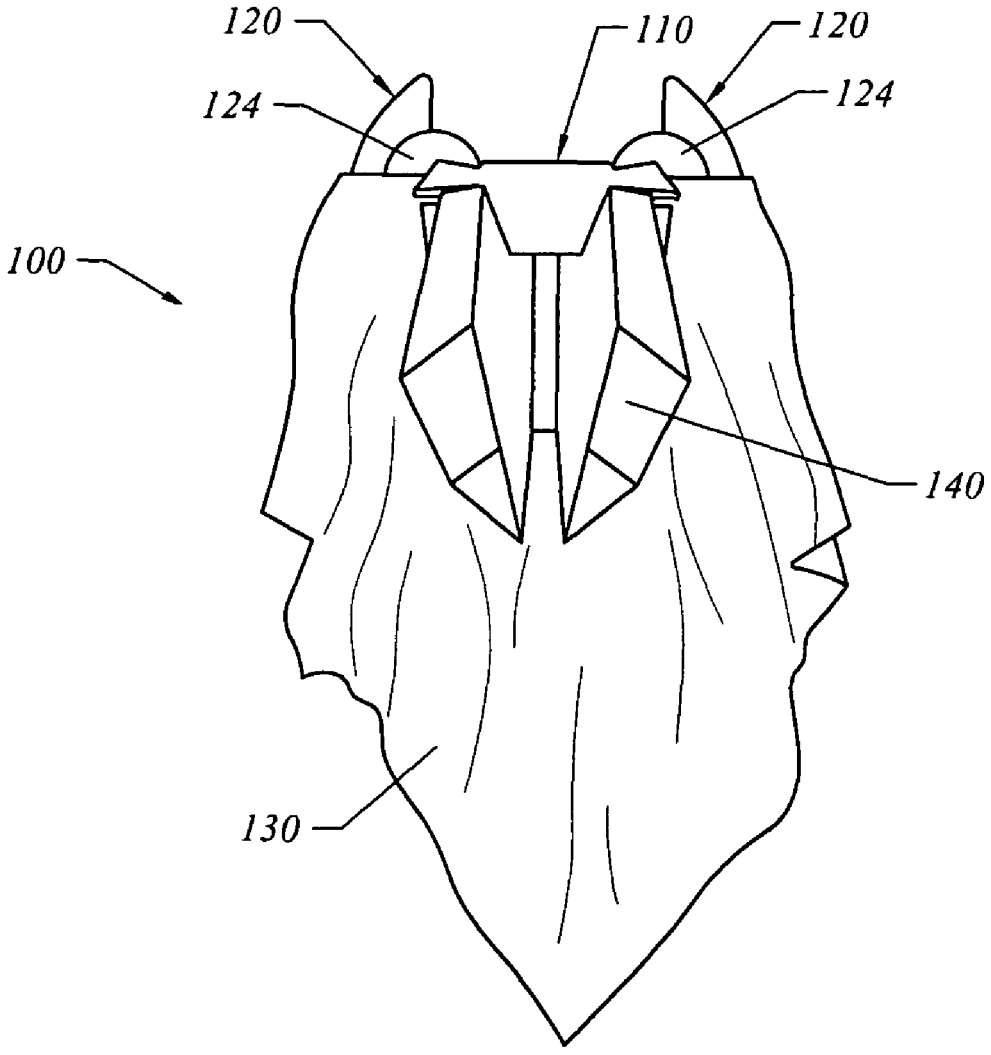


FIG. 3

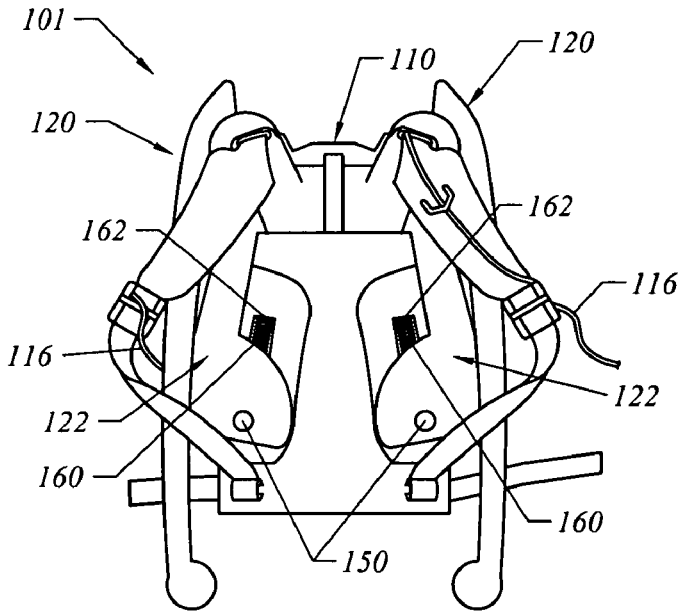

101
110
120
120
162
162
116
116
122
122
160
160
150

FIG. 4

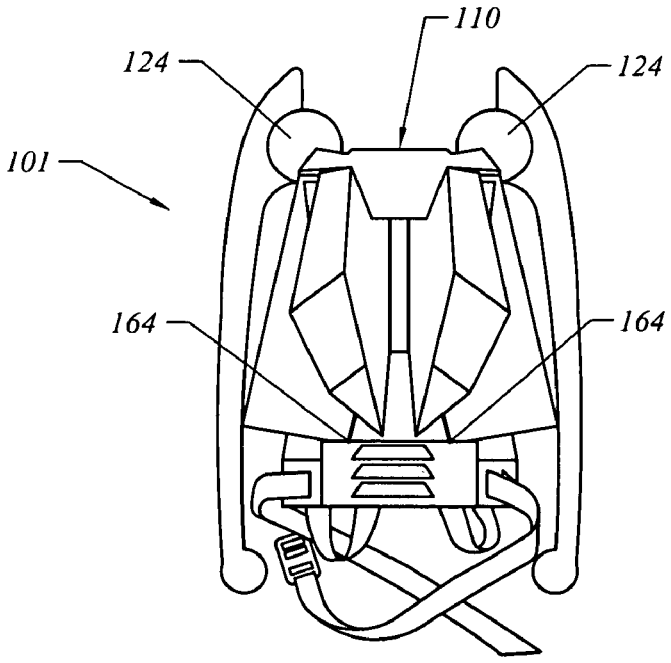

110
124
124
101
164
164

FIG. 5

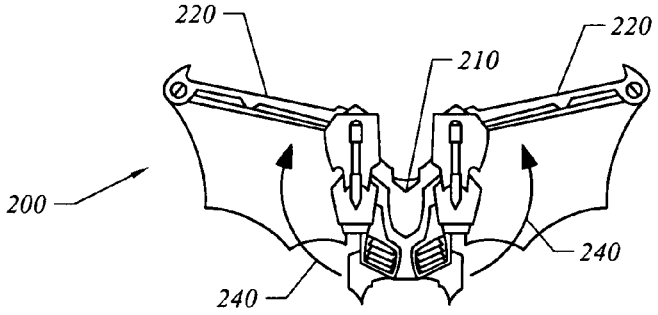


FIG. 6A

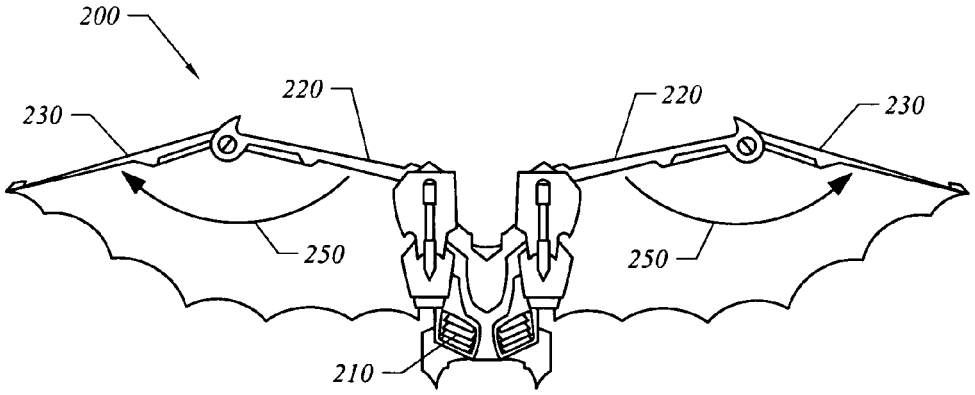


FIG. 6B

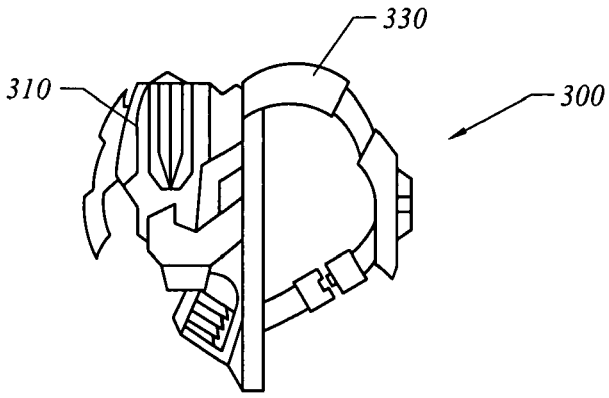


FIG. 7A

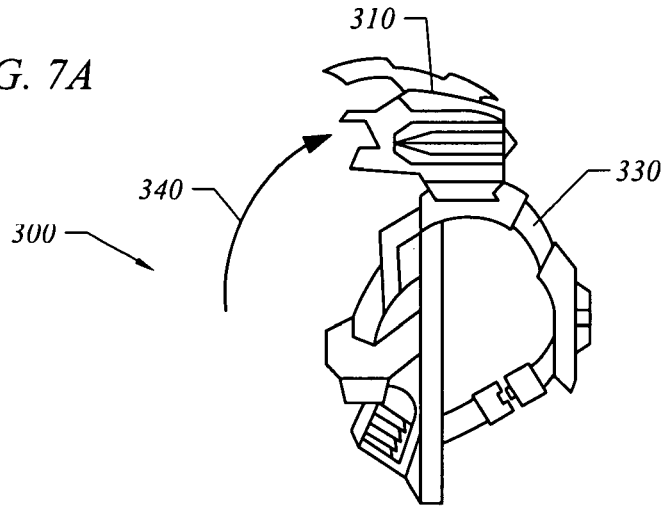


FIG. 7B

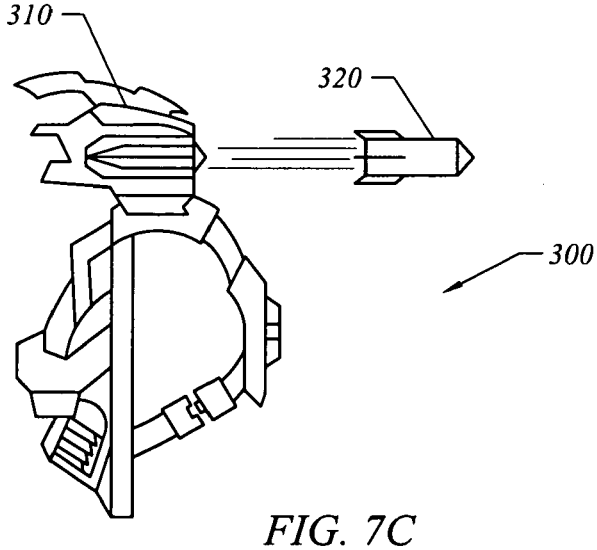


FIG. 7C

COSTUME APPARATUS

RELATED APPLICATIONS

This application claims priority to U.S. Provisional Patent Application Ser. No. 60/972,795 filed on Sep. 15, 2007 entitled "Costume Apparatus," which is hereby incorporated by reference as if set forth in full in this application for all purposes.

BACKGROUND OF THE INVENTION

Winged costumes are used in many situations such as stage productions, holiday events, and children's role playing activities. Over the years, these costumes have utilized a variety of features to improve their appearance and functionality. In one aspect, the ease of putting on or removing a winged costume has been addressed with detachable pads, shoulder and wrist straps, and harnesses. In other aspects, wings have been made to be collapsible using inflatable components, overlapping plates, or fabric mounted on pivoting rods. Flapping motion for wings has been provided by electrical motors, air bellows, and mechanical systems incorporating levers and springs. Unique ways of devising these features as well as other novel elements for winged costumes can result in improved amusement value and increased functionality for a user.

SUMMARY OF THE INVENTION

This invention refers to a costume apparatus for enabling a user to engage in role play activities or action play adventures. The costume apparatus may be mounted on a user's back, and comprises deployable arm assemblies which are controlled by a pull cord system. In one embodiment, the costume apparatus takes the form of expandable wings. The arm assembly may include two arm pieces connected by a pivoting joint, and may further include a hinged joint within one of the arm pieces. The hinged joint provides a safety feature for the deployed costume apparatus by allowing the arm assemblies to fold rearward when obstacles are encountered. Alternatively, the hinge joint may instead be a rotating joint which allows the user to alter the orientation of the wings. The costume apparatus of this invention sets forth winged configurations and features not described previously in the art, thus providing a user with new opportunities for creative play.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. **1** provides a front view of an assembled embodiment of a deployed costume apparatus according to the present invention;

FIG. **2** shows a rear view of the underlying structure of the costume apparatus of FIG. **1**;

FIG. **3** depicts a rear view of the costume apparatus of FIG. **1** with arms folded;

FIG. **4** gives a front view of the costume apparatus structure of FIG. **2** with arms folded;

FIG. **5** is a rear view of the costume apparatus structure of FIG. **4**;

FIGS. **6**A and **6**B illustrate another embodiment according to the present invention; and

FIGS. **7**A, **7**B, and **7**C depict a further embodiment according to the present invention, in which a costume apparatus is mounted with a projectile launcher.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Embodiments according to the present invention shall now be described in more detail in reference to the accompanying figures. In this disclosure, a "housing" shall be described as a backpack configuration but may also refer to other types of carriers such as a bag or a hard case. The term "pull cords" is described as cords used to actuate a costume apparatus, but may also refer to wires, fabric straps, plastic tubing, or the like. Similarly, reference to shoulder and waist straps may imply other means for enabling a user to wear a costume apparatus such as harnesses or vests. Although the cape described in this disclosure is illustrated in the shape of bat wings, other shapes are possible such as angel wings, bird wings, and airplane wings.

FIG. **1** provides a front view of an assembled embodiment of a costume apparatus **100**. In this figure, a housing **110** includes two shoulder straps **112**, a waist strap **114**, and pull cords **116** with cord handles **117** along each shoulder strap **112**. Two arm assemblies **120** are coupled to each side of housing **110**. Arm assemblies **120** each comprise a main arm **122** and an outer arm **123** pivotally joined at an elbow joint **124**. Main arms **122** each include an upper main arm **125** and a lower main arm **126** which meet at a joint **127**. Tips **128** of outer arms **123** may be covered with a padded material such as foam. Hooks **129** near each elbow joint **124** latch into the top of housing **110** to secure the arm assemblies **120** in a folded configuration. Alternatively, hooks **129** may be incorporated onto housing **110**. A wing material **130** hangs from arm assemblies **120** and across housing **110**.

In the embodiment of FIG. **1**, housing **110** is configured as a backpack. Alternatively, housing **110** may take other forms such as a bag or other type of carrier which is capable of housing mechanical components associated with deployment of the arm assemblies **120** and which is amenable to being worn as a costume by the user. Housing **110** is hung on a user's shoulders with shoulder straps **112**, and may be additionally supported on the user's body with waist strap **114**. Pull cords **116**, which are mechanically coupled to a deployment system within the interior of housing **110**, are tethered along the front of shoulder straps **112** such that cord handles **117** may be accessed by the user. When cord handles **117** are pulled downward by the user, pull cords **116** toggle the arm assemblies **120** between an expanded or open position, as shown in FIG. **1**, and a closed position as shown in FIG. **3**. Note that while two pull cords **116** are embodied in FIG. **1**, a single pull cord or more than two are also possible. In another embodiment, one set of cords may control the opening of the arm assemblies **120** while another set of cords may be used to close the arm assemblies **120**.

The joints **127** located along the length of main arms **122** provide unique play features to the costume apparatus **100**. In one embodiment, joints **127** are hinged to enhance safety to the user and the costume apparatus **100** while the arm assemblies **120** are deployed. Because of the wide wingspan of costume apparatus **100**, arm assemblies **120** may collide with structures encountered during play. Hinged joints **127** allow arm assemblies **120** to fold, typically rearward, when an obstacle is encountered, thus decreasing potential damage to the arm assemblies **120**. The positioning of joints **127** may be chosen based on the desired span at which a user may safely pass through obstacles, such as a doorway, with the arm

assemblies **120** open. In one embodiment, joints **127** may include a torsion spring in addition to a hinge such that upper main arms **125** rebound back in alignment with lower main arms **126** when arm assemblies **120** are no longer in contact with the obstacle. Alternatively, a torsion spring may be omitted from joint **127** such that upper main arms **125** may be manually straightened by the user.

In another embodiment, joints **127** may be configured as a pin joint or other type of rotational joint. For instance, a pin oriented parallel to the axis of main arm **122** allows upper main arm **125** to rotate, that is, twist, around the axis of the pin. Consequently, outer arm **128** is also rotated and is re-oriented from extending laterally outward from the user to pointing rearward from the user. Such a rotating joint offers the user creative play scenarios not possible without the intermediate joints **127**.

FIG. **2** provides a rear view of a costume apparatus **101** in a deployed position. Costume apparatus **101** is identical to the costume apparatus **100** of FIG. **1**, although without the wing material **130** attached so that the arm assemblies **120** may be seen more clearly. The same components related to housing **110** and arm assemblies **120** as previously described in FIG. **1** are similarly viewed here in FIG. **2**. Additionally, a decorative panel **140** attached to housing **110** is seen in this rear view.

FIG. **3** shows a rear view of the costume apparatus **100** from FIG. **1**, now with arm assemblies **120** in a folded position. In this folded position, only the elbow joints **124** of arm assemblies **120** are visible. Wing material **130** covers the folded arm assemblies **120**, as well as the majority of housing **110**. Panel **140** is layered over wing material **130** to provide aesthetic value as well as to assist in keeping wing material **130** secured to housing **110**.

Further details of the underlying components of the costume apparatus **101** of FIG. **2** will now be discussed. FIGS. **4** and **5** show front and rear views, respectively, of costume apparatus **101** with arm assemblies **120** in their folded positions. Housing **110** is shown without ergonomic covering or padding so that its mechanical structure can be seen. In FIG. **4**, joints **150**, compression springs **160**, and slots **162** are visible near the lower sides of housing **110**. Main arms **122** are pivotally coupled to housing **110** at joints **150**, which are pin joints in this embodiment. Compression springs **160**, seen within slots **162**, are coupled to joints **150** and remain at their natural length when arm assemblies **120** are folded. Pull cords **116**, with cord ends **164** fixedly attached to housing **110** as shown in FIG. **5**, traverse a pulley system, not shown, within housing **110**. When the user pulls the pull cords **116**, the pull cords **116** lift joints **150** upward along slots **162**, causing compression springs **160** to compress. Compression springs **160** are locked in a fully compressed position using a pulley clutch or other latching mechanisms known in the art coupled to compression springs **160**. As main arms **122** are lifted, the previously described hooks **129** are unlatched from housing **110**, and main arms **122** pivot outwardly from housing **110**. Main arms **122** may naturally pivot outward due to gravity or may be assisted by a spring. Outer arms **123** are caused to pivot outwardly in conjunction with the pivoting movement of main arms **122** by mechanisms housed within elbow joints **124**. The mechanisms within elbow joints **124** may comprise levers, springs, elastic bands, or other components known in the art. Furthermore, the compression springs **160** may be augmented or replaced by gears, levers, or other mechanical assemblies known in the art.

To retract arm assemblies **120** from their deployed positions in the embodiment of FIGS. **4** and **5**, the user pulls the pull cords **116** again. This action releases the latching mechanisms which are coupled to compression springs **160**, thus unlocking compression springs **160** from their compressed state. The released compression springs **160** push downward on joints **150**, causing them to slide downward in slots **162**. Consequently, main arms **122** and outer arms **123** are pivoted back into their closed positions. In other embodiments, arm assemblies **120** may be manually closed, or a separate pull cord may be used to retract arm assemblies **120**. Retraction of arm assemblies **120** with one or more pull cords may encompass, for example, a pulling action in a single stroke, or multiple pulls in a ratcheting action.

Other variations of the costume apparatus of this invention are possible. For example, FIGS. **6**A and **6**B illustrate a costume apparatus **200** with a two-step expansion process as opposed to a simultaneous deployment of an entire arm assembly as described with costume apparatus **100**. Costume apparatus **200** includes a housing **210**, main arms **220**, and outer arms **230** pivotally attached to main arms **220**. In FIG. **6**A, a first activation step causes the main arms **220** to open as indicated by arrows **240**. A second activation step in FIG. **6**B subsequently extends two outer arms **230**, as indicated by arrows **250**. Note that in this embodiment with costume apparatus **200**, the main arms **220** pivot from the top of housing **210** rather than near the bottom as was the case for costume apparatus **100**. In one embodiment, the two-step expansion may be achieved by utilizing two sets of pull cords, one cord for controlling actuation of main arms **220** and the other cord for controlling actuation of the outer arms **230**. In another embodiment, a locking mechanism—including but not limited to a hook, a latch, or a spring—may be incorporated into the arm assemblies. The locking mechanism keeps outer arm **230** folded against main arm **220** and is disabled only when main arms **220** are open. Thus, a locking mechanism can be used to insure expansion of outer arms **230** only after main arms **220** have been opened. In either of these embodiments, a first pull of a pull cord may open the main arms **220**, while a second pull of a pull cord may deploy the outer arms **230**. Additional configurations for implementing a two-step expansion are possible, and are not limited to the examples described herein.

In the side views of FIGS. **7**A, **7**B, and **7**C, a further embodiment according to the present invention is shown. In FIGS. **7**A, **7**B, and **7**C, a costume apparatus **300** has a projectile launcher **310** mounted on a shoulder strap **330** for releasing a projectile **320**. Projectile launcher **310** may slide along shoulder strap **330** from a stored position in FIG. **7**A to a launching position as indicated by arrow **340** shown in FIG. **7**B. Expandable arm assemblies, not shown in these side views, for costume apparatus **300** may be deployed with the launcher **310** in either the stored or launching position.

Other variations of the invention are yet possible. As one example, the housing, which has been described in this disclosure as a backpack, may instead be configured as a vest or may be secured to the user's torso with horizontal straps around the chest. Instead of pulling on the pull cords to deploy the arm assemblies, the pull cords may be reeled in and out with a rotary wheel. In another variation, the invention may comprise a single arm assembly expanding perpendicularly from the user's back rather than two arm assemblies expanding laterally. This perpendicular arm assembly may simulate, for instance, a blade along the spine of a dragon costume. Furthermore, the hinge joint which has been described within the main arm may instead be located within the outer arm.

While the specification has been described in detail with respect to specific embodiments of the invention, it will be appreciated that those skilled in the art, upon attaining an understanding of the foregoing, may readily conceive of alter-

ations to, variations of, and equivalents to these embodiments. These and other modifications and variations to the present invention may be practiced by those of ordinary skill in the art, without departing from the spirit and scope of the present invention, which is more particularly set forth in the appended claims. Furthermore, those of ordinary skill in the art will appreciate that the foregoing description is by way of example only, and is not intended to limit the invention. Thus, it is intended that the present subject matter covers such modifications and variations as come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A costume apparatus, comprising:

a housing;

a main arm having a first end and a second end, wherein the first end of the main arm is pivotally coupled to the housing, and wherein the main arm has a closed position and an open position;

an outer arm having a base, wherein the base of the outer arm is pivotally coupled to the second end of the main arm;

a hinge joint between the first end and the second end of the main arm, wherein the hinge joint is hinged in a direction to move the outer arm rearward relative to the housing; and

a cord, wherein the cord controls actuation of the main arm between the closed position and the open position.

2. The costume apparatus of claim **1**, wherein the main arm and the outer arm comprise an arm assembly, and wherein two arm assemblies are pivotally coupled to the housing, and wherein the hinge joint of each arm assembly moves the outer arm from extending laterally outward from the housing to rearward of the housing.

3. The costume apparatus of claim **2**, further comprising two cords, wherein each of the cords controls each of the arm assemblies.

4. The costume apparatus of claim **2**, further comprising a wing material coupled to the two arm assemblies.

5. The costume apparatus of claim **1**, wherein the cord is configured to actuate both the main arm and the outer arm when the cord is pulled.

6. A costume apparatus, comprising:

a housing;

a main arm having a first end and a second end, wherein the first end of the main arm is pivotally coupled to the housing, and wherein the main arm has a closed position and an open position;

an outer arm having a base, wherein the base of the outer arm is pivotally coupled to the second end of the main arm; and

a cord, wherein the cord controls actuation of the main arm between the closed position and the open position;

wherein the cord is configured to actuate the main arm to the open position when the cord is pulled a first time, and wherein the cord is configured to actuate the outer arm to an outwardly pivoted position when the pull of the cord is repeated a second time.

7. The costume apparatus of claim **6**, wherein the main arm comprises a rotational joint, and wherein the rotational joint rotates the outer arm rearward relative to the housing.

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