

MULTI-BODY SHOW ELEMENT SYSTEMS AND METHODS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and the benefit of U.S. Provisional Application No. 63/627,769, entitled “MULTI-BODY SHOW ELEMENT SYSTEMS AND METHODS” and filed January 31, 2024, which is incorporated by reference herein in its entirety for all purposes

BACKGROUND

[0002] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present techniques, which are described and/or claimed below. This discussion is believed to be helpful in providing the reader with background information to facilitate a better understanding of the various aspects of the present disclosure. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

[0003] Amusement parks and other entertainment venues often provide a selection of unique attractions. For example, an amusement park may include a variety of attractions, such as rides and show performances, that utilize complex show sets and animated figures to entertain guests.

SUMMARY

[0004] Certain embodiments commensurate in scope with the originally claimed subject matter are summarized below. These embodiments are not intended to limit the scope of the claimed subject matter, but rather these embodiments are intended only to provide a brief summary of possible forms of the subject matter. Indeed, the subject matter may encompass a variety of forms that may be similar to or different from the embodiments set forth below.

[0005] In an embodiment, a system includes a show element with a first show element body coupled to a second show element body via one or more tether assemblies. Each tether assembly of the one or more tether assemblies includes a tether

and a first retainer at a first end of the tether and positioned in a first recess of the first show element body. The one or more tether assemblies enable the first show element body to move relative to the second show element body to transition the show element between an engaged configuration and a disengaged configuration.

[0006] In an embodiment, a system includes a show element with multiple show element bodies coupled together via one or more tether assemblies, wherein the one or more tether assemblies block separation of the multiple show element bodies from one another and enable the multiple show element bodies to move relative to one another to transition the show element from an engaged configuration to a disengaged configuration.

[0007] In an embodiment, a method of operating a show element system includes applying a force to at least one show element body of multiple show element bodies to cause the at least one show element body of the multiple show element bodies to move relative to at least one other show element body of the multiple show element bodies. The method also includes retaining the at least one show element body of the multiple show element bodies to the at least one other show element body of the multiple show element bodies via one or more tether assemblies as the at least one show element body of the multiple show element bodies moves relative to the at least one other show element body of the multiple show element bodies.

BRIEF DESCRIPTION OF DRAWINGS

[0008] These and other features, aspects, and advantages of the present disclosure will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings, wherein:

[0009] FIG. 1 is a perspective view of an embodiment of a show element system with a show element including multiple show element bodies coupled together via one or more tether assemblies, in accordance with the present disclosure;

[0010] FIG. 2 is a rear view of an embodiment of a portion of the show element of FIG. 1, wherein two show element bodies of the multiple show element bodies are

coupled together via one tether assembly of the one or more tether assemblies, in accordance with the present disclosure;

[0011] FIG. 3 is a rear view of an embodiment of a portion of the show element of FIG. 1, wherein two show element bodies of the multiple show element bodies are coupled together via one or more magnets and one tether assembly of the one or more tether assemblies, in accordance with the present disclosure;

[0012] FIG. 4 is a schematic illustration of an embodiment of a transition of a portion of the show element of FIG. 1 between an engaged configuration and a disengaged configuration, in accordance with the present disclosure;

[0013] FIG. 5 is a rear view of an embodiment of the show element of FIG. 1, wherein the show element includes an animated figure, in accordance with the present disclosure; and

[0014] FIG. 6 is a perspective view of an embodiment of a portion of an attraction system that implements the show element system of FIG. 1, in accordance with the present disclosure.

DETAILED DESCRIPTION

[0015] When introducing elements of various embodiments of the present disclosure, the articles “a,” “an,” and “the” are intended to mean that there are one or more of the elements. The terms “comprising,” “including,” and “having” are intended to be inclusive and mean that there may be additional elements other than the listed elements. Additionally, it should be understood that references to “one embodiment” or “an embodiment” of the present disclosure are not intended to be interpreted as excluding the existence of additional embodiments that also incorporate the recited features.

[0016] One or more specific embodiments of the present disclosure will be described below. In an effort to provide a concise description of these embodiments, all features of an actual implementation may not be described in the specification. It should be appreciated that in the development of any such actual implementation, as in any engineering or design project, numerous implementation-specific decisions must be

made to achieve the developers' specific goals, such as compliance with system-related and business-related constraints, which may vary from one implementation to another. Moreover, it should be appreciated that such a development effort might be complex and time consuming, but would nevertheless be a routine undertaking of design, fabrication, and manufacture for those of ordinary skill having the benefit of this disclosure.

[0017] It is presently recognized that an entertainment venue may have a limited amount of time to stage and restage a show set in an attraction to provide a consistent experience for all guests. Similarly, it is presently recognized that the entertainment venue may have a limited amount of time to repair the show set after damage to the show set. Accordingly, it is also presently recognized that it would be desirable to streamline staging, restaging, and/or repair processes to thereby reduce an amount of time utilized to operate and maintain the attraction.

[0018] The present disclosure is directed to a show element system that may be incorporated into an attraction (e.g., ride, haunted house, escape room, performance stage, maze, walkway or path, scenery, store display, window display, other show area, and/or any other type of attraction) at an entertainment venue (e.g., amusement park, theatre, sports arena, hotel, restaurant, retail location, and/or any other type of venue). The show element system may include a show element utilized to entertain guests. The show element may include or have an appearance of at least part of an animated figure, a costume, a show prop, a vehicle, a building, a wall, and/or any other structure.

[0019] The show element may be assembled by coupling multiple show element bodies to one another, and/or the show element may be disassembled by decoupling the multiple show element bodies from one another. Accordingly, the show element with the multiple show element bodies may be easier to transport, store, maintain, and/or repair, in comparison to a single-body show element of a similar size. For example, when damage occurs to the show element, instead of replacing an entirety of the show element, an operator may opt to replace one or more of the multiple show element bodies (e.g., replace fewer than all show element bodies) to repair the show element. Furthermore, the show element may provide greater versatility for creativity, allowing design of more complex and impressive guest entertainment experiences. For example, the multiple show element bodies may produce an illusion of a unified show element

(e.g., unified structure, one cohesive element) and then transition to appear as several individual show elements. As a more specific example, the multiple show element bodies may produce the illusion of the unified show element and then disengage into the several individual show elements during a show effect.

[0020] The show element with the multiple show element bodies may also include features that facilitate staging and restaging of the show element in an efficient and consistent manner. As described herein, the multiple show element bodies may be coupled to one another via a tether system to construct the show element. The tether system may include one or more tether assemblies, and each of the one or more tether assemblies may include a tether, a first retainer at a first end of the tether, and a second retainer at a second end of the tether. The first retainer may be supported and retained in a first recess of one show element body of the multiple show element bodies, and the second retainer may be supported and retained in a second recess of another show element body of the multiple show element bodies. In this way, the one or more tether assemblies may limit relative movement of the multiple show element bodies and may keep the show element at least partially intact (e.g., engaged) through the one or more tether assemblies.

[0021] In an embodiment, the show element may include at least one sensor. For example, each show element body of the multiple show element bodies may include a respective sensor. The at least one sensor may generate sensor data indicative of engagement of the multiple show element bodies. The sensor data may also be indicative of respective positions, respective orientations, and/or respective movements of the multiple show element bodies. In an embodiment, a computing system may receive and process the sensor data to determine the engagement, the respective positions, the respective orientations, and/or the respective movements of the multiple show element bodies in real time (e.g., substantially real time, such as within milliseconds). Then, the computing system may output instructions to adjust the respective positions, the respective orientations, and/or the respective movements of one or more show element bodies of the multiple show element bodies and/or at least a portion of a tether system to facilitate manipulation of and/or to efficiently manipulate the show element during certain operations, such as during setup, restaging, and/or repair operations.

[0022] In an embodiment, the show element may be a static show element that is intended to remain stationary or fixed within the attraction. In an embodiment, the show element may be a dynamic show element that is intended to move within the attraction. In such cases, the show element may be programmed to execute a series of movements. For example, the show element may interact with an actor, a visitor, and/or other show elements within the attraction. The show element may include at least one actuator to articulate the series of movements. The at least one actuator may be commutatively coupled to the computing system and may automatically adjust the respective positions and/or the respective orientations of the one or more show element bodies of the multiple show element bodies and/or at least the portion of the tether system according to the instructions outputted by the computing system.

[0023] In an embodiment, the show element may be designed to transition from an engaged configuration to a disengaged configuration as part of a show effect, such as via the at least one actuator and/or via intentional or directed contact with another object (e.g., a ride vehicle, an actor, a guest, another show element). Additionally or alternatively, the show element may be designed to transition from the engaged configuration to the disengaged configuration via unintentional (e.g., accidental or unplanned; not part of a desired show effect) contact with another object (e.g., a ride vehicle, an actor, a guest, another show element). In this way, the show element may change its configuration to provide the show effect and/or to protect the show element from damage, for example.

[0024] With the preceding in mind, FIG. 1 is a perspective view of an embodiment of a show element system 10, which may be used in a venue (e.g., an entertainment venue, such as an amusement park). The show element system 10 may include a show element 12 including multiple show element bodies 14, wherein the multiple show element bodies 14 are coupled to one another via a tether system 16 with one or more tether assemblies 18.

[0025] The show element 12 may include or have an appearance of at least part of an animated figure, a costume, a show prop, a vehicle, a building, a wall, and/or any other structure. For example, the animated figure may be a robotic figure that appears to be an animal, a human, a character, and so forth. The costume may include clothing or other items (e.g., jewelry, hat) worn or carried by an actor, an animated figure, and

so forth. The show prop may include environmental objects, such as tables, chairs, trees, and so forth, and/or portable objects, such as handheld objects, swords, and so forth. The vehicle may include a ride vehicle that carries one or more guests, a performance vehicle that is part of a show set, and so forth. The building may include a structure that provides shelter or appears to provide shelter, and the wall may include a ceiling, floor, and/or side structure that is part of a building, a room, and so forth. In an embodiment, the multiple show element bodies 14 may be engaged with one another to produce an illusion of the show element 12 being a unified show element (e.g., unified structure, one cohesive element). For example, in FIG. 1, the multiple show element bodies 14 are engaged with one another produce an illusion of the show element 12 being a unified wall structure.

[0026] As described herein, at least one of the multiple show element bodies 14 may become disengaged from at least another one of the multiple show element bodies 14. In an embodiment, this may cause the multiple show element bodies 14 to appear as multiple individual show elements and/or as the unified show element with a different appearance (e.g., collapsed, broken, bent; from a perspective of the guests). It should be appreciated that an appearance of the show element 12 may change in any suitable degree or manner when the at least one of the multiple show element bodies 14 may become disengaged from the at least another one of the multiple show element bodies 14. For example, the show element 12 may be designed to have a substantial change in the appearance, such as to provide a show effect with collapse of the show element 12 as part of an experience of the guests (e.g., a change in the appearance of the show element 12 is intended to be and/or is likely to be noticed by the guests). As another example, the show element 12 may be designed to have a minimal change in the appearance, such as to provide some flexibility of the show element 12 with a minimal disruption to an experience of the guests (e.g., a change in the appearance of the show element 12 is not intended to be and/or is unlikely to be noticed by the guests).

[0027] In an embodiment, transition between engaged and disengaged may be programmed to occur at a specific location within the show element 12 and/or at a specific time, such as while the guests are within a viewing range of the show element 12. Additionally or alternatively, the transition between engaged and disengaged may occur due to unintentional contact with the show element 12. In any case, the transition

between engaged and disengaged may be limited and/or guided via particular construction of the show element 12, such as based on features of the tether system 16 and/or geometry of the multiple show element bodies 14. For example, such features of the tether system 16 may include placement of the one or more tether assemblies 18 relative to the multiple show element bodies 14, separation distances between proximate (e.g., adjacent; facing) show element bodies of the multiple show element bodies 14 provided by the one or more tether assemblies 18, and so forth. The transition between engaged and disengaged may be limited and/or guided via particular construction of the multiple show element bodies 14 as well. One or more show element bodies of the multiple show element bodies 14 may include one or more different materials and/or may differ in shape and/or size. The multiple show element bodies 14 may be rigid, elastic, or a combination thereof to create a realistic appearance and/or to provide a desired show effect.

[0028] FIG. 2 is a rear view of an embodiment of a portion of the show element 12, wherein two show element bodies of the multiple show element bodies 14 are coupled together via one tether assembly of the one or more tether assemblies 18. Each of the one or more tether assemblies 18 includes a tether 20, a first retainer 22 at a first end 21 of the tether 20, and a second retainer 24 at a second end 23 of the tether 20. The first retainer 22 is positioned in a first recess 26, 26A formed in a first show element body 14, 14A of the multiple show element bodies 14, and the second retainer 24 is positioned in a second recess 26, 26B formed in a second show element body 14, 14B of the multiple show elements bodies 14. The first recess 26, 26A may be sized to enable the first retainer 22 to move or rotate within the first recess 26, 26A, and the second recess 26, 26B may be sized to enable the second retainer 24 to move or rotate within the second recess 26, 26B. The one or more tether assemblies 18 may enable the multiple show element bodies 14 to move and/or rotate relative to each other, and such movement and/or rotation may be limited or constrained by the one or more tether assemblies 18.

[0029] It should also be appreciated that at least one of the one or more tether assemblies 18 may be anchored on or fixed at one of the first end 21 of the tether 20 or the second end 23 of the tether 20. For example, instead of the second retainer 24 at the second end 23 of the tether 20 being movably and/or rotatably retained and/or

contained in the second recess 26, 26B of the second show element body 14, 14B of the multiple show element bodies 14, the second end 23 of the tether 20 may be anchored on and/or fixed to the second recess 26, 26B of the second show element body 14, 14B of the multiple show element bodies 14.

[0030] As will be appreciated, components of each of the one or more tether assemblies 18 may be any suitable shape and/or size. For example, respective dimensions (e.g., shape, length, width, volume, diameter, circumference) of the first retainer 22 and the second retainer 24 may be designed to limit the relative movement and/or rotation between the multiple show element bodies 14. For example, the first retainer 22 may be shaped as a rectangular block to be positioned in the first recess 26, 26A with a corresponding rectangular shape to block rotation of the first retainer 22 within the first recess 26, 26A. As another example, the first retainer 22 may be shaped as a cylinder to be positioned in the first recess 26, 26A with a corresponding cylindrical shape so that the first retainer 22 is confined to rotate about a central axis of the first retainer 22. As noted herein, the first retainer 22 may have a same or different configuration as the second retainer 24. Indeed, the first retainer 22 and the first recess 26, 26A may have a different configuration than the second retainer 24 and the second recess 26, 26B. Further, the one or more tether assemblies 18 may include multiple tether assemblies that have a same or different configurations compared to one another (e.g., any combination of configurations, including shapes, attachments, and so forth).

[0031] In an embodiment, the tether 20 may be a rigid bar, such that the first retainer 22 and the second retainer 24 are kept at a certain distance apart from one another. In one embodiment, the tether 20 may be a flexible linkage between the first retainer 22 and the second retainer 24, such that the multiple show element bodies 14 may have greater degrees of freedom. In an embodiment, the rigid bar may include a material (e.g., ceramic, metal, plastics) and/or be configured with a geometry, such that the bar is substantially rigid and/or stiff. In an embodiment, the flexible linkage may be formed from an elastomer material, a fabric material, a metal or metal alloy material, or any other suitable material that provides flexibility (e.g., bending and/or stretching). The flexible linkage may include a string, a rope, a chain, a coil, a spring, an elastic member, or any other suitable form. For example, the flexible linkage may be coiled (e.g., compressed) when the multiple show element bodies 14 are held together, and

then the flexible linkage may be uncoiled (e.g., expanded) when the multiple show element bodies 14 are disengaged from one another. In any case, the tether 20 may have any suitable dimensions (e.g., shape, length, width, volume, diameter, circumference). For example, the tether 20 may include a length that extends between the first retainer 22 and the second retainer 24 that is between about 1 to 20, 2 to 10, or 3 to 5 centimeters. The tether 20 may include the length that allows for a desirable level or degree of change in the appearance of the show element 12. For example, the tether 20 may have a first, longer length that allows for a first, larger degree of change (e.g., a solid structure collapses to have the appearance of a pile of rubble on a floor surface, such as completely destroyed or separated into pieces that form the pile of rubble on the floor surface) or the tether 20 may have a second, shorter length that allows for a second, smaller degree of change (e.g., a solid structure bends or leans toward a floor surface). Further, as noted herein, the one or more tether assemblies 18 may include multiple tether assemblies that have a same or different configurations compared to one another (e.g., any combination of configurations, including shapes, attachments, and so forth).

[0032] In an embodiment, the one or more tether assemblies 18 may include a continuous tether 20 (e.g., a single continuous tether) that extends through at least a subset (e.g., 2, 3, 4, 5, or more) of the multiple show element bodies 14 to connect these pieces to one another via the continuous tether 20. Further, the continuous tether 20 may extend through respective first and second retainers 22, 24 at each interface between adjacent show element bodies of the multiple show element bodies 14. This configuration may facilitate reassembly and reengagement of these pieces to one another via applying force to the continuous tether 20 (e.g., via pulling on an exposed end of the continuous tether 20 to restack or realign these pieces to one another; via placing two these pieces together, the continuous tether 20 may pull a remainder of these pieces into place).

[0033] With reference to FIG. 1., the multiple show element bodies 14 are engaged and/or assembled, and thus the show element 12 may be considered to be in an engaged configuration 30. With reference to FIG. 2, the first show element body 14, 14A and the second show element body 14, 14B are disengaged or disassembled, and thus may be considered to be in a disengaged configuration 32. In FIG. 2, the engaged

configuration 30 is also illustrated in dashed lines to facilitate discussion. As shown in FIG. 2, the first show element body 14, 14A and the second show element body 14, 14B may transition (e.g., move) between the engaged configuration 30 and the disengaged configuration 32 due to movement of the first retainer 22 within the first recess 26, 26A and/or the second retainer 24 within the second recess 26, 26B. In this way, the first show element body 14, 14A and the second show element body 14, 14B may disengage from one another (e.g., move apart from one another). The first recess 26, 26A may include respective narrow portions 25, 25A that allow the first retainer 22 to be retained within the first recess 26, 26A (e.g., a dimension of the respective narrow portion 25, 25A is less than a dimension of the first retainer 22). Similarly, the second recess 26, 26B may include respective narrow portions 25, 25B that allow the second retainer 24 to be retained within the second recess 26, 26B (e.g., a dimension of the respective narrow portion 25, 25B is less than a dimension of the second retainer 24). This configuration may limit relative movement and block separation of the first show element body 14, 14A and the second show element body 14, 14B from one another.

[0034] As used herein, proximate show element bodies of the multiple show element bodies 14 may be described as engaged or assembled (e.g., the engaged configuration 30) when proximate surfaces (e.g., facing surfaces) of the proximate show element bodies of the multiple show element bodies 14 are in a first position relative to one another (e.g., contact one another; are at a first distance from one another). Further, the proximate show element bodies of the multiple show element bodies 14 may be described as disengaged or disassembled (e.g., the disengaged configuration 32) when the proximate surfaces of the proximate show element bodies of the multiple show element bodies 14 are in a second position relative to one another (e.g., do not contact one another; are a second distance from one another. In an embodiment, the second distance may be greater than the first distance. In an embodiment, the multiple show element bodies 14 may be at second distance from one another, and the second distance may exceed a threshold). Thus, it should be appreciated that the proximate show element bodies of the multiple show element bodies 14 remain coupled (e.g., linked) together via the one or more tether assemblies 18 while the proximate show element bodies of the multiple show element bodies 14 are engaged or disengaged relative to one another.

[0035] As used herein, the proximate show element bodies of the multiple show element bodies 14 may be described as separated when the proximate show element bodies of the multiple show element bodies 14 are no longer coupled together via the one or more tether assemblies 18. For example, the proximate show element bodies of the multiple show element bodies 14 may be manually separated by an operator, such as to perform repair operations (e.g., remove, repair, and/or replace components) for the show element 12. For example, the tether system 16 may include additional features so that the first retainer 22 may be removed from the first recess 26, 26A and/or so that the second retainer 24 may be removed from the second recesses 26, 26B. The additional features may include a respective cover over the first recess 26, 26A and/or a respective cover over the second recess 26, 26B. If present, the respective cover over the first recess 26, 26A may be manipulated by the operator to enable the operator to access and/or remove the first retainer 22 from the first recess 26, 26A. If present, the respective cover over the second recess 26, 26B may be manipulated by the operator to enable the operator to access and/or remove the second retainer 24 from the second recess 26, 26B. The additional features may facilitate efficient repair operations, such as to efficiently separate the at least one of multiple show element bodies 14 while leaving the show element 12 in place to entertain the guests.

[0036] With reference to FIG. 1, the one or more tether assemblies 18 may include multiple tether assemblies. In an embodiment, the multiple tether assemblies may provide one tether assembly to extend between proximate show element bodies of the multiple show element bodies 14. For example, the multiple tether assemblies may provide one tether assembly at each interface between proximate show element bodies of the multiple show element bodies 14, such as only a first tether assembly to couple a first show element body and a second show element body of the multiple show element bodies 14, only a second tether assembly to couple the first show element body and a third show element body of the multiple show element bodies 14, and so forth. Alternatively, the multiple tether assemblies may provide multiple tether assemblies to extend between proximate show element bodies of the multiple show element bodies 14. For example, the multiple tether assemblies may provide respective sets of multiple tether assemblies at each interface between proximate show element bodies of the multiple show element bodies 14, such as a first set of multiple tether assemblies to couple a first show element body and a second show element body of the multiple show

element bodies 14, a second set of multiple tether assemblies to couple the first show element body and a third show element body of the multiple show element bodies 14, and so forth.

[0037] It should be appreciated that any number of variations in arrangement and/or number of the one or more tether assemblies 18 are envisioned, such as with one tether assembly of the multiple tether assemblies 18 designed to couple a group of the multiple show element bodies 14. For example, the one tether assembly may include a respective tether with multiple appendages, wherein each appendage has a respective retainer at one end to be positioned in a respective recess formed in a respective show element body. In any case, it should be appreciated that respective recesses 26 may be provided in the multiple show element bodies 14 in a corresponding manner to accommodate the one or more tether assemblies 18.

[0038] In an embodiment, the tether system 16 may be camouflaged or concealed, such that it may be hidden from view of the guests. For example, the one or more tether assemblies 18 may be positioned on a back side of the multiple show element bodies 14 or embedded within the multiple show element bodies 14 to maintain a cohesive appearance of the show element 12 from a perspective of the guests. As another example, as shown in FIG. 1, a front side of the show element 12 may appear to be a unified wall structure, and the one or more tether assemblies 18 may be accessible and/or viewable from a back side of the show element 12.

[0039] FIG. 3 is a rear view of an embodiment of a portion of the show element 12, wherein two show element bodies of the multiple show element bodies 14 that are in the disengaged configuration 32 and that are configured to coupled together via one or more magnets 34 and one tether assembly of the one or more tether assemblies 18. The one or more magnets 34 may be arranged to facilitate securement of proximate show element bodies of the multiple show element bodies 14. For example, the first show element body 14, 14A of the multiple show element bodies 14 is coupled to the second show element body 14, 14B of the multiple show element bodies 14 via the one or more magnets 34, such as a magnet that is disposed on the first show element body and a reaction material that is disposed on the second show element body. In such cases, the first magnet may be a permanent magnet (e.g., neodymium magnet), and the reaction material may include a strip of ferromagnetic material, a permanent magnet, and/or any

other suitable magnetically attractable material. It should be appreciated the first magnet and/or the reaction material may include electromagnets. The one or more magnets 34 (and corresponding reaction materials) provide structural support to the show element 12 and also facilitate efficient reconstruction of the show element 12 after disengagement and/or separation of the multiple show element bodies 14 from one another. It should be appreciated that the one or more magnets 34 may also assist in assembly and/or disassembly, such as by having electromagnets with like magnetic poles push against one another.

[0040] The one or more magnets 34 may be disposed at a distance (e.g., offset) from the one or more tether assemblies 18 or integrated with (e.g., into, overlap) the one or more tether assemblies 18. The placement of the one or more magnets 34 and the one or more tether assemblies 18 may be selected to minimize misalignment of the one or more magnets 34 and block entanglement of one or more tether assemblies 18 during the disengagement and/or the separation of the multiple show element bodies 14. For example, the one or more magnets 34 may be positioned in a center region of the multiple show element bodies 14, while two tether assemblies of the one or more tether assemblies 18 are offset (e.g., laterally offset) from the one or more magnets 34. However, in FIG. 3, one tether assembly of the one or more tether assemblies 18 is positioned in a center region of the multiple show element bodies 14 and two sets of the one or more magnets 34 (and corresponding reaction materials) are offset (e.g., laterally offset) from the one tether assemblies of the one or more tether assemblies 18. Furthermore, each of the one or more magnets 34 may be carefully selected to possess proper attributes (e.g., size, length, shape, magnetic field strength) and/or positioned to enable and/or facilitate the engagement and/or disengagement and/or the separation of the multiple show element bodies 14 under certain circumstances (e.g., forces).

[0041] A respective strength of a respective magnetic field for each of the one or more magnets 34 may be different. For example, stronger magnets and weaker magnets may be utilized at various locations of the show element 12 to facilitate desirable disengagement patterns. For example, when subjected to certain forces, the stronger magnets may hold the show element 12 together across the stronger magnets and the weaker magnets may enable the show element 12 to break apart across the weaker magnets, in accordance with a desired show effect.

[0042] FIG. 3 also illustrates that the respective recesses 26, such as the first recess 26, 26A and/or the second recess 26, 26B, may include or have any of a variety of geometries (e.g., shapes and/or sizes). For example, a first dashed line 27, 27A illustrates an optional geometry that may be provided for the first recess 26, 26A, such as with variations in tapers or slopes of walls of the first recess 26, 26A to provide and/or enable desired movement of the one tether assembly of the one or more tether assemblies 18, and thus desired movement of the show element 12. Additionally, a second dashed line 27, 27B illustrates an optional geometry that may be provided for the second recess 26, 26B, such as with variations in tapers or slopes of walls of the second recess 26, 26B to provide and/or enable desired movement of the one tether assembly of the one or more tether assemblies 18, and thus desired movement of the show element 12. Further, the first dashed line 27, 27A and the second dashed line 27, 27B illustrate other features or characteristics that may be included in the first recess 26, 26A and/or the second recess 26, 26B. For example, such features or characteristics may include curved wall portions along the first recess 26, 26A and/or the second recess 26, 26B (e.g., in place of a point or an edge between two intersecting or meeting surfaces along the first recess 26, 26A and/or the second recess 26, 26B), which may reduce wear and/or stress at the one tether assembly of the one or more tether assemblies 18.

[0043] FIG. 4 is a schematic illustration of an embodiment of a transition of a portion of the show element 12 between the engaged configuration 30 and the disengaged configuration 32. As shown, at a first time while the show element 12 is in the engaged configuration 30, an object 36 may apply contact and/or otherwise apply force to the show element 12. The object 36 may include an electronically-controlled object (e.g., non-human object), such as a ride vehicle, another show element, and/or an actuator. The object 36 may include a human-controlled object (e.g., human object), such as an actor, a guest, and/or an item held or moved by the actor or the guest. The contact and/or force may cause at least one of the multiple show element bodies 14 to disengage from other show element bodies of the multiple show element bodies 14. Thus, the show element 12 may transition from the engaged configuration 30 to the disengaged configuration 32, as shown or represented by arrow 62. Accordingly, at a second time during or after the contact or the force, the show element 12 is in the disengaged configuration 32.

[0044] As shown, the show element 12 in the disengaged configuration 32 may have a structural configuration that is different from the engaged configuration 30. For example, in the disengaged configuration 32, gaps may form or exist between proximate show element bodies of the multiple show element bodies 14. Additionally, the show element 12 in the disengaged configuration 32 may have an appearance that is different from the engaged configuration 30, such as from a perspective or view of the guests. However, instead of the at least one of the multiple show element bodies 14 separating entirely from the other show element bodies of the multiple show element bodies 14 due to the contact or the force, the at least one of the multiple show element bodies 14 may disengage in a limited (e.g., controlled, guided, constrained, designed, or expected) manner and may also be efficiently reengaged to reconstruct the show element 12. Thus, the tether system 16 with the one or more tether assemblies 18 incorporated into the show element 12 may provide some flexibility to the show element 12 (e.g., to absorb the force from the contact by the object 36) and may also keep the multiple show element bodies 14 coupled to block separation of the multiple show element bodies 14 (e.g., block the multiple show element bodies 14 from falling onto the object 36, other objects, the ground, and so forth).

[0045] As such, the multiple show element bodies 14 may remain coupled in a loose pattern, ready to be reconstructed by reengaging (e.g., stacking; aligning the one or more tether assemblies 18; aligning the one or more magnets 34 of FIG. 3) the multiple show element bodies 14. For example, the show element 12 may transition from the disengaged configuration 32 to the engaged configuration 30, as shown or represented by arrow 60. Accordingly, at a third time, the show element 12 may be reconstructed and returned to the engaged configuration 30.

[0046] In an embodiment, this may be accomplished by moving (e.g., lifting, pushing, or pulling) a subset of the multiple show element bodies 14, such as one of the multiple show element bodies 14 along a top row of a stacked arrangement of the multiple show element bodies 14. It should also be appreciated that this may be accomplished via the operator, at least one actuator, or any suitable source. For example, the at least one actuator may retract to pull the one of the multiple show element bodies 14 along the top row of the stacked arrangement of the multiple show element bodies 14 so that the one or more magnets 34 are positioned closely enough to

pull the one of the multiple show element bodies 14 into alignment to return the show element 12 to the engaged configuration 30. In this way, the show element 12 may be designed to break apart when intentionally and/or unintentionally contacted or affected by the object 36, but the multiple show element bodies 14 may remain coupled to one another and may be efficiently reengaged to return the show element 12 to the engaged configuration 30.

[0047] FIG. 5 is a rear view of an embodiment of the show element 12, wherein the show element 12 includes an animated figure 50. In a similar manner as discussed herein with respect to FIGS. 1-4, the show element 12 including the animated figure 50 may include the multiple show element bodies 14 coupled to one another via the tether system 16 with the one or more tether assemblies 18. To facilitate discussion, the multiple show element bodies 14 are shown as including a first show element body 52 and a second show element body 54 that are coupled to one another via a first tether assembly 56 of the one or more tether assemblies 18. In particular, the first show element body 52, which resembles a head of the animated figure 50, is coupled to the second show element body 54, which resembles a chest of the animated figure 50, via the first tether assembly 56. Other portions (e.g., body portions, such as arm, leg, other appendage or other body portion) of the animated figure 50 are formed by coupling the multiple show element bodies 14 to one another in particular ways. In one embodiment, the one or more magnets 34 are provided to facilitate securement of the proximate show element bodies of the multiple show element bodies 14.

[0048] In an embodiment, the show element 12 in the form of the animated figure 50 may be designed to be dynamic (e.g., an interactive robot). For example, certain portions of the animated figure 50 may be driven to move relative to other portions of the animated figure 50 and/or relative to an environment via at least one actuator 80. The at least one actuator may be internal and/or external to the animated figure 50. In one embodiment, the multiple show element bodies 14, the one or more tether assemblies 18, and/or the one or magnets 34 may be designed and arranged to maintain the engaged configuration under first circumstances (e.g., normal operating conditions for a certain show effect). For example, the at least one actuator 80 may drive the first show element body 52 to rotate relative to the second show element body 54, such as to rotate about a central axis 72 of the first tether assembly 56, as part of a storyline or

show performance. During this movement, the first show element body 52 and the second show element body 54 may remain in the engaged configuration 30.

[0049] However, the first show element body 52 may disengage from the second show element body 54 to transition to the disengaged configuration 32 under second circumstances (e.g., normal operating conditions for a second show effect; unintentional contact or force). For example, the first show element body 52 may be driven by the at least one actuator 80 to tilt or bend relative to the second show element body 54, with limits or constraints provided by the first tether assembly 56. As another example, the first show element body 52 may be driven by unintentional contact with an object (e.g., the object 36 of FIG. 4) to tilt or bend relative to the second show element body 54, with limits or constraints provided by the first tether assembly 56. The show element 12 in the form of the animated figure 50 may also be efficiently reconstructed, such as described herein with reference to FIGS. 1-4.

[0050] Indeed, it should be appreciated that the show element 12 including the animated figure 50 may include any of the features described herein with respect to FIGS. 1-4. For example, the first tether assembly 56 may be camouflaged or hidden from view of the guests under a cover, such as a flexible cover formed from fabric, elastomer, or other suitable material that forms a shirt, collar, cape, skin layer, or other suitable layer.

[0051] Returning to FIG. 1, the show element system 10 may include additional features, such as a computing system 40 with a processor 42, a memory device 44, an output device 46, and a communication device 48. As described herein, in one embodiment, the show element 12 is configured to transition between the engaged configuration 30 and the disengaged configuration 32 according to programmed settings (e.g., intentional disengagement), such as for a show effect. In such cases, the computing system 40 may provide instructions (e.g., control signals) to the at least one actuator 80 to drive the multiple show element bodies 14 to perform a movement (e.g., a gesture). The movement may cause or include transition of the show element 12 from the engaged configuration 30 to the disengaged configuration 32. Advantageously, the movement may provide the show effect for the guests, while also constraining motion of the multiple show element bodies 14 and/or maintain linkage between the multiple show element bodies 14 to facilitate reconstruction to return the show element 12 to the

engaged configuration 30. In such cases, the computing system 40 may provide instructions (e.g., control signals) to the at least one actuator 80 to drive the multiple show element bodies 14 to return the show element 12 to the engaged configuration 30 (e.g., to reset the show element 12). The computing system 40 may control the at least one actuator 80 in this manner to repeat the movement, such as to repeat the show effect for different groups of guests (e.g., during different show performances or ride cycles).

[0052] In an embodiment, the show element 12 may be designed to break apart after an object strikes or otherwise applies force to the show element 12 to provide the show effect. In any case, the one or more tether assemblies 18 may be positioned and/or configured to enable the show element 12 to change form (e.g., shape) via disengagement of at least one of the multiple show element bodies 14 in response to the force to the show element 12 (e.g., due to adjustable coupling or interfaces provided by the one or more tether assemblies 18). In this way, the show element 12 may provide or create the planned show effect. It should be appreciated that the planned show effect may be provided via the contact and/or the force applied by the object, which may be another show element and/or other object that is controlled via the computing system 40 (e.g., according to programmed settings). However, the planned show effect may also be provided via the contact and/or the force applied by the object, wherein the object is an actor, guest, or other object that is not controlled via the computing system 40 (e.g., not according to a programmed movements).

[0053] In an embodiment, the show element system 10 may include at least one sensor 38. The at least one sensor 38 may generate sensor data indicative of a configuration of the show element 12, such as wherein the show element 12 is in the engaged configuration 30 or the disengaged configuration 32. The sensor data may also be indicative of respective configurations, respective positions, respective orientations, and/or respective movements of the multiple show element bodies 14. In an embodiment, the computing system 40 may receive and process the sensor data to determine the configuration of the show element 12, and/or the respective configurations, the respective positions, the respective orientations, and/or the respective movements of the multiple show element bodies 14, in real time (e.g., substantially real time, such as within milliseconds). Then, the computing system 40 may output instructions to adjust the respective positions, the respective orientations,

and/or the respective movements of the multiple show element bodies 14 to facilitate manipulation of and/or to efficiently manipulate the show element 12 during certain operations, such as during setup, restaging, and/or repair operations. In an embodiment, the computing system 40 may output an alert (e.g., visual and/or audible notification), such as via the output device 46. For example, the alert may include a text message presented on a graphical user interface, and the text message may indicate that the show element 12 is in the disengaged configuration 32, provide instructions to the operator to perform a reset to return the show element 12 to the engaged configuration 30, and so forth. In some cases, the alert may include a representation of the show element 12, such as a representation of the multiple show element bodies 14 and their respective configurations, respective positions, respective orientations, and/or respective movements (e.g., similar to and/or with any of visual features show in the schematic illustration of FIG. 4). In an embodiment, the computing system 40 may communicate (e.g., via wired or wireless protocols) with other systems (e.g., an attraction system, a separate server or database, a mobile device).

[0054] The at least one sensor 38 may include at least one proximity sensor, contact sensor, pressure sensor, strain gauge, optical sensor, and/or any other suitable type of sensor to detect the engagement and/or the disengagement of the multiple show element bodies. For example, the at least one sensor 38 may be a proximity sensor that detects a distance between proximate show element bodies of the multiple show element bodies 14 and transmits the sensor data indicative of the distance to the computing system 40. In one embodiment, the at least one sensor 38 may include one or more cameras configured to generate the sensor data (e.g., image data), wherein the sensor data is further received and processed by the computing system 40 to determine the configuration for the show element 12. In such cases, the one or more cameras may be external to the show element 12, such as to have a field of view that captures at least a portion of the show element 12. The at least one sensor 38 may include a circuit (e.g., electrical circuit), and changes in the circuit may be detected and may indicate that at least one show element of the multiple show elements 14 is in the disengaged configuration 32. For example, a conductors (e.g., wires) may extend through the multiple show elements 14 and couple to contacts (e.g., electrical contacts, plates) at interfaces between the multiple show elements 14. When the circuit is closed, the computing system 40 may determine that the multiple show elements 14 are in the

engaged configuration 30. When the circuit is open, as indicated by current changes, voltage changes, and/or resistance changes, the computing system 40 may determine that at least one show element of the multiple show elements 14 are in the disengaged configuration 32.

[0055] Thus, the computing system 40 may be provided to provide control signals to the at least one actuator 80 (e.g., for programmed or planned disengagement of the show element 12 to provide a desired show effect), to receive and process the sensor data, to provide alerts, and so forth. The memory device 44 may include volatile memory, such as random-access memory (RAM), and/or non-volatile memory, such as read-only memory (ROM), optical drives, hard disc drives, solid-state drives, or any other non-transitory computer-readable medium that includes instructions to operate the show element. The processor 42 may be configured to execute such instructions. For example, the processor 42 may include one or more application specific integrated circuits (ASICs), one or more field programmable gate arrays (FPGAs), one or more general-purpose processors, or any combination thereof. The memory device 44 may include one or more memory devices, and/or the processor 42 may include one or more processors. Accordingly, the computing system 40 may refer to any configuration of one or more memory devices and/or one or more processors that operate together to carry out techniques disclosed herein. For example, the computing system 40 may include processing circuitry with one processor to perform certain operations, another processor to perform other operations, and so forth.

[0056] FIG. 6 is a perspective view of an embodiment of a portion of an attraction 90 that implements the show element system 10. As shown, the attraction 90 is a ride attraction that includes a ride vehicle 68 that carries one or more guests 70, and the show element 12 may transition from the engaged configuration 30 (shown in dashed lines in FIG. 6 to facilitate discussion) to the disengaged configuration 32 to provide a show effect to the one or more guests 70. For example, the computing system 40 of FIG. 1 may provide instructions to the at least one actuator 80 to drive the multiple show element bodies 14 to cause the show element 12 to transition from the engaged configuration 30 to the disengaged configuration 32.

[0057] In an embodiment, the transition may be timed or coordinated with a ride cycle performed by the ride vehicle 68. For example, the computing system 40 may

receive ride data indicative of a position of the ride vehicle 68 within the attraction 90 and relative to the show element 12. The ride data may be based on a programmed schedule for the ride vehicle 68 and/or sensor data from one or more sensors on the ride vehicle 68 and/or in the attraction 90, for example. In any case, while the ride vehicle 68 is at a target position to place the one or more guests 70 in a vicinity of the show element 12 (e.g., approaching, near, and/or within viewing range of the show element 12), the computing system 40 may provide the instructions to the at least one actuator 80 to drive the multiple show element bodies 14 to cause the show element 12 to transition from the engaged configuration 30 to the disengaged configuration 32. For example, the at least one actuator 80 may drive the multiple show element bodies 14 to cause the show element 12 to appear to break over the ride vehicle 68, to fall toward the ride vehicle 68, and so forth. Advantageously, the multiple show element bodies 14 may provide a realistic show effect of breaking and falling over the ride vehicle and may be brought close to the ride vehicle 68; however, because the multiple show element bodies 14 remain coupled to one another, the multiple show element bodies 14 cannot fall onto the ride vehicle 68.

[0058] As described herein, the computing system 40 may also provide instructions to the at least one actuator 80 to reconstruct the show element 12 to return the show element 12 to the engaged configuration 30. This may be accomplished by retracting the multiple show element bodies 14 and/or moving the multiple show element bodies 14 into alignment (e.g., stacked vertically). Thus, the computing system 40 may efficiently reset the show element 12 to prepare the show element 12 to perform the show effect for a next ride vehicle in the attraction 90.

[0059] While FIG. 6 provides an example in a context of a ride attraction, it should be appreciated that these techniques may be implemented in any suitable attraction or venue, such as in a walkthrough attraction in which the guests walk along a pathway, a conveyor attraction in which the guests are carried on a conveyor, a show performance, and so forth. While certain examples provided herein relate to transitioning the show element 12 from the engaged configuration 30 to the disengaged configuration 32 to provide the show effect, it should be appreciated that the show set system 10 may additionally or alternatively transition the show element 12 from the disengaged configuration 32 to the engaged configuration 30 to provide the show effect. It should

be understood that the show element system 10 may include more or less components than described herein. For example, the show element system 10 may include various other components and/or devices (e.g., lighting, speakers, fluid output devices) located on the show element 12 and/or external to the show element 12 in order to provide other show effects, such as visual effects (e.g., light), audio effects (e.g., sound), smoke effects, water effects, and the like, that may further enhance the experience of the guests. The computing system 40 may be communicatively coupled to the various other components and devices and may instruct generation of the other show effects to complement or supplement the disengagement and/or the engagement of the show element 12.

[0060] While only certain features of the disclosure have been illustrated and described herein, many modifications and changes will occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the disclosure. It should be appreciated that any features shown and described with reference to FIGS. 1-6 may be combined in any suitable manner.

[0061] The techniques presented and claimed herein are referenced and applied to material objects and concrete examples of a practical nature that demonstrably improve the present technical field and, as such, are not abstract, intangible or purely theoretical. Further, if any claims appended to the end of this specification contain one or more elements designated as “means for (perform)ing (a function)...” or “step for (perform)ing (a function)...”, it is intended that such elements are to be interpreted under 35 U.S.C. 112(f). However, for any claims containing elements designated in any other manner, it is intended that such elements are not to be interpreted under 35 U.S.C. 112(f).

CLAIMS

1. A system, comprising:
a show element comprising a first show element body coupled to a second show element body via one or more tether assemblies, each tether assembly of the one or more tether assemblies comprises:
a tether; and
a first retainer at a first end of the tether and positioned in a first recess of the first show element body;
wherein the one or more tether assemblies enable the first show element body to move relative to the second show element body to transition the show element between an engaged configuration and a disengaged configuration.
2. The system of claim 1, wherein each tether assembly of the one or more tether assemblies comprises a second retainer at a second end of the tether and positioned in a second recess of the second show element body.
3. The system of claim 1, comprising one or more magnets disposed on or in the first show element body and one or more reaction materials disposed on or in the second show element body to magnetically couple the first show element body and the second show element body to one another.
4. The system of claim 3, wherein the one or more magnets and the one or more reaction materials are offset from the one or more tether assemblies.
5. The system of claim 1, wherein the tether comprises a rigid bar.
6. The system of claim 1, wherein the show element comprises an animated figure, a costume, a show prop, a vehicle, a building, a wall, or any combination thereof.
7. The system of claim 1, wherein the show element comprises an animated figure, and the first show element body and the second show element body form body portions of the animated figure.

8. The system of claim 1, comprising a computing system comprising one or more processors and memory storing instructions, wherein the instructions, when executed by the computing system, cause the computing system to:

provide instructions to at least one actuator to drive the first show element body to move relative to the second show element body to transition the show element between the engaged configuration and the disengaged configuration.

9. The system of claim 8, wherein the instructions, when executed by the computing system, cause the computing system to:

determine that one or more guests are in a vicinity of the show element; and

provide the instructions to the at least one actuator to drive the first show element body to move relative to the second show element body to transition the show element between the engaged configuration and the disengaged configuration in response to determining that the one or more guests are in the vicinity of the show element.

10. The system of claim 1, comprising:

one or more sensors configured to generate transition data indicative of occurrence of the transition of the show element between the engaged configuration and the disengaged configuration; and

a computing system comprising one or more processors and memory storing instructions, wherein the instructions, when executed by the computing system, cause the computing system to provide an alert in response to receipt of the transition data.

11. The system of claim 10, wherein the one or more sensors are disposed on the show element.

12. A system, comprising:

a show element comprising a plurality of show element bodies coupled together via one or more tether assemblies, wherein the one or more tether assemblies block separation of the plurality of show element bodies from one another and enable the plurality of show element bodies to move relative to one another to transition the show element from an engaged configuration to a disengaged configuration.

13. The system of claim 12, wherein each tether assembly of the one or more tether assemblies comprises:

a tether; and

a first retainer at a first end of the tether and positioned in a respective recess of a respective show element body of the plurality of show element bodies.

14. The system of claim 13, wherein each tether assembly of the one or more tether assemblies comprises:

a second retainer at a second end of the tether and positioned in a respective recess of a respective show element body of the plurality of show element bodies;

wherein the first retainer is retained within the respective recess of the respective show element body of the plurality of show element bodies and the second retainer is retained in the respective recess of the respective show element body of the plurality of show element bodies to block separation of the plurality of show element bodies from one another.

15. The system of claim 13, wherein the first retainer is retained within the respective recess of the respective show element body of the plurality of show element bodies to block separation of the plurality of show element bodies from one another, and the first retainer is configured to move within the respective recess of the respective show element body of the plurality of show element bodies to transition the show element from the engaged configuration to the disengaged configuration.

16. The system of claim 12, comprising one or more magnets and one or more reaction materials disposed at one or more interfaces between the plurality of show element bodies to magnetically couple the plurality of show element bodies to one another.

17. The system of claim 12, comprising a computing system comprising one or more processors and memory storing instructions, wherein the instructions, when executed by the computing system, cause the computing system to:

provide instructions to at least one actuator to drive at least one show element body of the plurality of show element bodies relative to at least one other show element body of the plurality of show element bodies to transition the show element from the engaged configuration to the disengaged configuration.

18. A method of operating a show element system, the method comprising:

applying a force to at least one show element body of a plurality of show element bodies to cause the at least one show element body of the plurality of show element bodies to move relative to at least one other show element body of the plurality of show element bodies; and

retaining the at least one show element body of the plurality of show element bodies to the at least one other show element body of the plurality of show element bodies via one or more tether assemblies as the at least one show element body of the plurality of show element bodies moves relative to at least one other show element body of the plurality of show element bodies.

19. The method of claim 18, comprising providing, via a computing system, instructions to at least one actuator to apply the force to the at least one show element body of the plurality of show element bodies to cause the at least one show element body of the plurality of show element bodies to move relative to the at least one other show element body of the plurality of show element bodies.

20. The method of claim 18, wherein the plurality of show element bodies are arranged in an engaged configuration to appear as a unified show element, and applying the force provides an illusion of the unified show element breaking into multiple pieces.