



(43) International Publication Date
12 July 2012 (12.07.2012)

(10) International Publication Number
WO 2012/094412 A2

(51) International Patent Classification:

A63H 17/26 (2006.01) *A63H 18/00* (2006.01)
A63H 17/44 (2006.01) *A63H 17/00* (2006.01)

(21) International Application Number:

PCT/US2012/020215

(22) International Filing Date:

4 January 2012 (04.01.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/429,669 4 January 2011 (04.01.2011) US

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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

(54) Title: CONTAINER FOR SELF PROPELLED TOY VEHICLE

(57) Abstract: A structure for a self propelled toy vehicle is provided, the structure having: an enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening; a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position; a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position; a first mechanism for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening; a second mechanism for releaseably engaging a feature of the second door in order to retain the second door in the closed position; and an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and an apply an opening force to the first door such that the first door and the second door may move to the open position.



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CONTAINER FOR SELF PROPELLED TOY VEHICLE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application Serial No. 61/429,669 filed January 4, 2011, the contents of which are incorporated herein by reference thereto.

BACKGROUND

[0002] Exemplary embodiments of the present invention relate generally to a self opening container for use with a self propelled toy vehicle.

[0003] Toy train sets or toy vehicle track sets have been popular for many years and generally include one or more track sections arranged to form a path around which one or more toy vehicles can travel. Toy vehicles which may be used on such track sets are either self-powered vehicles or may receive power from an external source.

[0004] However, with many track sets, the vehicles run on a closed loop track moving through the same track features lap after lap thus, the motion of the vehicle generally remains consistent for each vehicle as it travels along a specific section of the track. This repetitive nature of vehicle travel may result in loss of interest in the track set over a short period of time.

[0005] Accordingly, it is desirable to provide toy track set with interchangeable elements to provide enhanced play.

SUMMARY OF THE INVENTION

[0006] In one embodiment a structure for a self propelled toy vehicle is provided, the structure having: an enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening; a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position; a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position; a first mechanism for retaining the self propelled toy vehicle in the enclosure

after the self propelled toy vehicle has entered the enclosure through the inlet opening; a second mechanism for releaseably engaging a feature of the second door in order to retain the second door in the closed position; and an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and an apply an opening force to the first door such that the first door and the second door may move to the open position.

[0007] In another exemplary embodiment, a structure for a self propelled toy vehicle is provided. The structure having: an enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening; a first mechanism for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening; and a second mechanism for actuating an on/off switch of the self propelled toy vehicle when it is received in the enclosure, wherein the second mechanism actuates the on/off switch of the self propelled toy vehicle when at least one door pivotally secured to the enclosure is opened or closed.

[0008] In still another exemplary embodiment, a track set for use with a self propelled toy vehicle is provided, the track set having: a track segment defining a path; a structure configured to be removably positioned in a portion of the path, the structure having: an enclosure having an inlet opening and an outlet opening, the inlet opening aligned with the outlet opening and the inlet opening being configured to receive the self propelled toy vehicle from the track segment and the outlet opening is configured to direct the self propelled toy vehicle onto the track segment; a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position; a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position; a first mechanism for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening; a second mechanism for releaseably engaging a feature of the second door in order to retain

the second door in the closed position; and an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and an apply an opening force to the first door such that the first door and the second door may move to the open position.

[0009] In yet another exemplary embodiment, a method for receiving, retaining and subsequently releasing a self propelled toy vehicle is provided, the method including the steps of: locating an enclosure in a path of the self propelled toy vehicle, the enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening; a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position, wherein the first door provides a ramp into the enclosure when it is in the open position; a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position, wherein the second door provides a ramp out of the enclosure when it is in the open position; retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening with a first mechanism; releaseably engaging a feature of the second door in order to retain the second door in the closed position with a second mechanism; and releasing the self propelled toy vehicle from the structure by moving an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and an apply an opening force to the first door such that the first door and the second door may move to the open position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Other advantages of exemplary embodiments 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:

[0011] FIGS. 1A-C are side views of a self opening structure in accordance with one embodiment;

[0012] FIG. 2 is a bottom perspective view of the self opening structure illustrated in FIGS. 1A-1C;

[0013] FIGS. 3A-3B are side views of the self opening structure in accordance with one embodiment;

[0014] FIG. 4 is a top perspective view of a receiving member for the self opening structure;

[0015] FIG. 5 is a perspective view of a track set employing a self opening structure in accordance with one embodiment;

[0016] FIG. 6 is an exploded view of the self opening structure in accordance with one embodiment;

[0017] FIG. 7 is a perspective view of a partially assembled self opening structure in accordance with one embodiment;

[0018] FIG. 8 is a side view of a partially assembled self opening structure in accordance with one embodiment;

[0019] FIG. 9 is a bottom view of the self opening structure in accordance with one embodiment;

[0020] FIGS. 10A-10F are views illustrating a self opening structure in accordance with another exemplary embodiment;

[0021] FIGS. 11A-13E are views illustrating a self-opening structure in accordance with yet another alternative exemplary embodiment.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0022] In one embodiment, a self opening crate, container or structure for use with a self propelled toy vehicle such as a motorized toy train is disclosed herein. Of course, other types of toy vehicles (self propelled or otherwise) are contemplated to be used with various embodiments of the present invention. The crate will have at least one door that automatically opens when the crate is placed upon a track or a surface that engages an actuation button of the crate. In one implementation, a special receiving piece is provided and is located proximate to a track set such that upon actuation of the button the self propelled vehicle can leave the crate and travel onto a track set. In one implementation, doors on both sides of the crate open up such that if the crate is left in a strategic location the self propelled vehicle will travel back into the crate.

[0023] In operation, the crate or container is configured to receive and release a self propelled toy vehicle such as a battery operated train. When the crate is in a “receive mode” at least one of the doors of the crate are open and an inlet opening of the crate is aligned with a track segment or a path the toy vehicle is travelling on. The crate will have a first mechanism for stopping the toy vehicle in the crate. Thereafter, a user closes the doors of the crate and a second mechanism retains the doors or at least one of the doors in a closed position. The crate can then be removed from the track set with the toy vehicle therein. Once the crate is returned to the track set a release button is actuated and the first mechanism releases the toy vehicle while the second mechanism releases the doors so that they can pivot open and allow the toy vehicle to exit the container and travel back onto the toy track set. Still further another embodiment is provided wherein the toy vehicle 12 can be recaptured by the crate 10 or simply pass therethrough.

[0024] In an alternative embodiment, the container will further comprise a movable lever coupled to either the first mechanism or the second mechanism or both wherein the movable lever is configured to move an on/off switch of the toy vehicle when it is in the container. In one embodiment movement of the moveable lever is caused by movement of the actuation button and the closing of at least one of the doors of the crate.

[0025] In this embodiment, the train is initially held in the crate by the first mechanism while the engine is still running. Thereafter, a user closes the doors and the first mechanism moves to a second non-blocking position and a movable lever moves an on/off switch of the train into an “off” position and the wheels of the train stop moving. Alternatively, the toy train is simply held in position while running via a movable member that holds the toy vehicle in place until the movable member is moved out of the blocking position.

[0026] Accordingly and when the train is in the crate and the doors are closed it is repositionable by a user or other mechanism, such as a crane, that can raise and lower the crate onto the track set. When the crate is placed upon a supporting surface or track a button or buttons on the bottom surface of the crate are depressed and the doors of the crate open up and the movable lever inside the crate is actuated to move the on/off switch of the battery operated train into the “on” position such that upon landing of the crate on a surface, the doors open up and the train is turned on and drives out of the crate onto the track set. Alternatively and in the embodiment without the moveable lever for actuating or moving an on/off switch of the toy vehicle the blocking member simply is moved from the blocking position and the toy vehicle travels out of the crate since as it is already running.

[0027] In still another embodiment, the crate or container will be provided with a slide switch that manipulates movement of the blocking member such that it can be moved between a blocking position for capture of the toy vehicle and a non-blocking position wherein the toy vehicle can travel out of the crate or container regardless of the position of the doors of the crate. In other words and in this example, the slide switch can reposition the blocking member such that the toy vehicle can be captured when travelling into the crate or simple travel through the crate when the blocking member is in the non-blocking position and the doors of the crate are opened.

[0028] Referring now to the attached FIGS. non-limiting exemplary embodiments of the present invention are illustrated. Here a structure 10 for a self propelled toy vehicle 12 is provided. In one implementation, the structure has a main

housing portion 14 that defines an enclosure having an inlet opening 16 and an outlet opening 18. In one configuration and so that the vehicle can drive into and out of the enclosure, the inlet opening is aligned with the outlet opening.

[0029] The structure has a first door 20 pivotally mounted to the housing proximate to the inlet opening for movement between an open position (See at least FIGS. 1A, 1B) and a closed position (See at least FIG. 1C). In addition, a second door 22 is also pivotally mounted to the housing proximate to the outlet opening for movement between an open position (See at least FIGS. 1A, 1B) and a closed position (See at least FIG. 1C).

[0030] The structure will also have a first mechanism 24 for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening and the first mechanism is in a first position or first blocking position. A second mechanism 26 for releaseably engaging a feature 28 of the second door in order to retain the second door in the closed position is also provided. In addition, the second mechanism 26 can also be configured to retain and release the first door in addition to the second door. In various embodiments, the second mechanism may perform other functions such as opening a door of the housing by application of an opening force and manipulating an on/off switch 27 of the toy vehicle.

[0031] In one embodiment and in order to actuate the first mechanism and the second mechanism, an actuation button 30 is located on a surface 32 of the housing. In one embodiment, the actuation button 30 is coupled to the first mechanism 24 and the second mechanism 26 such that movement of the actuation button 30 will cause the first mechanism 24 to release the self propelled toy vehicle 12 as well as cause the second mechanism 26 to release the feature 28 of the second door 22.

[0032] In one embodiment, a receiving member 34 is provided. Here the receiving member 34 is configured to have a protrusion 36 that engages the actuation button 30 when the enclosure 10 is placed upon the receiving member 34. In the illustrated embodiment, the receiving member has a plurality of wall members 38 configured to align with the periphery of the enclosure such that as it is lowered onto the

receiving member 34 the protrusion 36 will engage the actuation button 30 and cause the desired movement of the first mechanism 24 and the second mechanism 26.

[0033] In one exemplary embodiment, the receiving member 34 is located within a path 40 of a track 42 of track set 44. In this embodiment, the self propelled toy vehicle 12 is a toy train configured to travel on track 42, which is configured as a railroad track. As illustrated, the receiving member 34 is positioned between two track segments of the track such that when the structure or crate 10 is positioned on the receiving member 34 the first door 20 is in the open position and the toy vehicle or train will travel into the crate 10 through the inlet opening 16 and if the first mechanism 24 is in the first position it will engage a portion of the train such that it will be retained in the crate. Thereafter, a user can close the doors 20, 22 of the crate and the same can be removed from the receiving member 34 by a user's hands or other mechanism such as a crane 46 (illustrated schematically in FIG. 5).

[0034] In order to allow for the crate or housing 10 to be engaged by the crane 46 the housing has a loop 48 extending from an upper surface of the structure. Accordingly, the toy vehicle can be captured from the track set 44 and removed to another location by the crane 46. Thereafter, the crane 46 can be used to return the crate 10 to the receiving member 34 such that upon receipt of the crate 10 on the receiving member 34 the doors 20, 22 of the crate 10 will open and the toy vehicle or train 12 will drive out of the crate 10 onto the track. Alternatively, multiple receiving members may be employed and such that the crate can be deposited in numerous locations to release the toy vehicle 12.

[0035] Once the vehicle 12 drives onto the track several play options are available for example, the crate can be left in the path such that the toy vehicle 12 can once again be captured by the crate or housing 10. Alternatively, the housing or crate 10 can configured to simply allow the toy vehicle 12 to travel through the crate 10 without being captured. Still further, the housing or crate 10 can be removed from the path once the toy vehicle 12 leaves the crate 10 and the toy vehicle 12 can continue to travel along the path of the track set. In another implementation, the crate 10 can be repositioned to

receive the toy vehicle 12 and capture it such that a user can then position the crate 10 on the receiving member 34 and the crate will open and the toy vehicle will be able to travel onto the track from the crate 10. Accordingly, numerous methods of capture and release of a toy vehicle can be accomplished with exemplary embodiments of the present invention.

[0036] Referring now to FIGS. 6-8 portions of the structure or crate 10 are illustrated. As illustrated, the housing portion has a first housing member 50, a second housing member 52, a top portion 54 and a bottom portion 56. The bottom portion 56 has an opening 58 for receiving actuation button 30 therein. Actuation button 30 is configured to engage a portion of the first mechanism. More particularly, button 30 is configured to move a member 60 of the first mechanism that is pivotally mounted to the housing. In one embodiment, the button 30 is biased into a first position by a spring 62 such that a portion 64 of the first mechanism coupled to or linked to member 60 is located within the housing in a blocking position when the button is not depressed. Accordingly, the toy vehicle will be stopped in the housing when the first mechanism is in the first position. Thereafter, movement of actuation button will cause the first mechanism to move from the first position to a second position, which causes the portion 64 of the first mechanism 24 to no longer be in the blocking position and thus, the toy vehicle 12 can then leave the housing 10. In other words, portion 64 is retracted into an opening of the housing when the first mechanism is moved from the first position to the second position such that portion 64 is no longer in a blocking configuration with respect to the incoming toy vehicle.

[0037] In still another embodiment and as an alternative feature to the aforementioned embodiment, the crate or housing 10 further comprises a slide switch 45 positioned on an exterior of the housing or any other suitable location that is movably mounted to the crate and coupled to at least portion 64 of the first mechanism 24. In this embodiment, the slide switch 45 is capable of moving portion 64 between the blocking and unblocking position regardless of the position of actuation button 30. In other words, slide switch 45 is capable of moving portion 64 into a blocking position even though crate 10 is placed upon receiving member 34 and protrusion 36 is engaging actuation

button 30 thus and in this configuration the toy vehicle 12 can be captured or recaptured by the crate when it is on the receiving member 34 and button 30 is depressed and slide switch 45 has moved the portion 64 into the blocking configuration. For example and in one non-limiting embodiment, slide switch 45 is configured to decouple member 60 and thus portion 64 from actuation button 30 such that spring 62 will move portion 64 into the blocking position regardless of the position of actuation button 30. Of course, numerous other means of achieving the desired movement of portion 64 with slide switch 45 are considered to be within the scope of exemplary embodiments of the present invention.

[0038] Alternatively, the slide switch 45 is positioned to not engage or move portion 64 and thus portion 64 is in the unblocking position when the crate 10 is positioned on the receiving member 34 and actuation button 30 is engaged by protrusion 36. In this configuration, the toy vehicle 12 will simply travel through the crate 10 since portion 64 is in the unblocking position. In yet another alternative, the crate 10 can be simply rotated (e.g., 180 degrees) on receiving member 34 such that actuation button 30 is not aligned with and thus not engaged by protrusion 36 when placed on the receiving member 34 and thus portion 64 would be in the blocking position. Still further, the crate 10 can be simply placed upon the surface that does not have receiving member 34 and thus actuation button is not engaged by protrusion 36 and portion 64 would be in the blocking position. It being understood that numerous embodiments of the present invention can be configured with or without slide switch 45 such that the desired position of portion 64 can be provided such that the toy vehicle 12 is captured, released, recaptured, etc.

[0039] As illustrated, the second mechanism 26 has a pair of linking members 70 and a linking member 72. Linking members 70 are mounted for movement in the direction of arrows 74 while linking member 72 is mounted for movement in the direction of arrows 76. In one embodiment, the movement of the pair of linking members 70 and linking member 72 is caused by the closing of at least the first door 20 or movement of the actuation button 30. As illustrated, each linking member 70 is biased downward by a spring 78 while linking member 72 is biased away from the inlet opening by a spring 80 such that a distal end 82 applies an opening force to the first door 20 when

the biasing force is released so that the first door 20 moves to the open position when the second mechanism 26 is actuated.

[0040] In an alternative embodiment, the second mechanism 26 further comprises an arm member 84 configured to manipulate an on/off switch 27 of the self-propelled vehicle when the linking member 72 and/or the actuation button is/are moved.

[0041] In this embodiment, movement of at least one of the pair of linking members 70 causes the same to be engaged and disengaged with feature 28 of the second door. For example and when the actuation button 30 is pushed into the housing, member 60 moves at least one of the pair of linking members 70 upward and feature 28 is no longer engaged such that movement of the toy vehicle towards the outlet opening 18 will cause the door to be pivoted open by the toy vehicle 12. Alternatively, each of the doors 20, 22 may be propelled open by a spring biased linking member that is released by actuation of button 30.

[0042] Therefore, at least one door is opened by movement of the actuation button 30 which causes the linking member 72 to open the first door. At this moment, the toy vehicle 12 is also released and the toy vehicle 12 moves the second door to the open position. As illustrated, the first door 20 provides a ramp into the enclosure 10 when it is in the open position and the second door 22 provides a ramp out of the enclosure 10 when it is in the open position. Although, specific configurations of the first mechanism 24 and the second mechanism 26 are illustrated it is of course understood that numerous other means for linking components of the first mechanism 24 and the second mechanism 26 are considered to be within the scope of exemplary embodiments of the present invention and would be within the knowledge of those skilled in the related arts.

[0043] Referring now to FIGS. 10A-10F an alternative embodiment is illustrated, here three buttons are located on a bottom surface of the crate namely: (1) a stopper release button 90, which when depressed (e.g., contacts a surface underneath the crate), the movable engine stopper 64 inside the crate will go down thus allowing the engine 12 to leave the crate 10 when it is turned on (e.g., the engine stopper 64 when positioned up stops the train 12 in the crate 12); (2) a front door release button 92, which

when depressed (e.g., contacts a surface underneath the crate), a front door lock (inside the slot of the crate frame) will be released and the front door will fall down; and (3) a back door release button 94, which when depressed (e.g., contacts a surface underneath the crate), the back door lock (inside the slot of the crate frame) will be released and a push lever will eject out to push the back door down. The back door push lever will also activate the "turn-on lever" inside the crate wall. The turn-on lever will then sweep an on/off knob of the toy vehicle to turn it on to allow the train to drive out of the crate. As illustrated, a slide lever 96 is also positioned on a side of the crate. The slide lever 96 being configured to move the turn-on lever, which sweeps the on/off switch of the vehicle. Alternatively, the slide lever 96 can be removed and is actuated by the actuation button 30. In still another alternative embodiment, the on/off lever can be located on a special track piece located proximate to the crate, which is coupled to the mechanisms for turning the vehicle on and off. In yet another embodiment, the on/off mechanism is completely removed and the first mechanism is configured to merely stop the toy vehicle in place while its wheels are spinning and thereafter release it when the actuation button is pressed and the portion of the mechanism engaging the toy vehicle is lowered such that the same can travel out of the crate.

[0044] Referring now to FIGS. 11A-13E still another alternative embodiment of the present invention is illustrated. Here the crate or container 10 has a slide switch 45 directly coupled to a movable portion 64 of a first mechanism 24 that is capable of movement between a first blocking position illustrated in at least FIG. 11B when the slide switch 45 is in the capture position illustrated in at least FIG. 11A and FIGS. 13A-13D and a second non-blocking position illustrated in at least FIG. 11D when the slide switch 45 is in the release position illustrated in at least FIG. 11C and FIGS. 12A-12B and the movable portion 64 is in a non-blocking position such that as the toy vehicle or train 12 travels into the crate or container 10 it will not be captured by the crate and simply pass therethrough (see for example FIGS. 12A-12B illustrating the toy vehicle 12 traveling through the crate 10).

[0045] When the slide switch 45 is in the first blocking position, the movable portion 64 is also in the blocking position and thus the toy vehicle or train 12

when traveling into the crate 10 will be captured or stopped by movable portion 64 since it is elevated above a surface 21 of the crate or container 10. In one embodiment, movable portion or member 64 is configured to cause the toy train to be slightly elevated from surface 21 such that the wheels or other driving mechanism of the toy vehicle will spin or intermittently contact surface 21 while the toy train runs inside crate 10. In other words, an elevated platform is provided that the toy vehicle drives up onto. Alternatively, movable portion 64 simply blocks the path of the toy vehicle while it is running inside the crate 10. As illustrated in FIGS. 13A-13C, the toy vehicle 10 will be captured in the crate or container 10 and thereafter the first and second doors 20, 22 can be pivoted to the closed position and the crane 46 can lift the crate or container 10 as illustrated in at least FIG. 13D.

[0046] Thereafter and in order to release the toy vehicle 12, the crate or container 10 is placed upon a receiving member 34 which comprises a portion of track 42 of the track set 44. In this embodiment, actuation button 30 depends away from a lower surface of the crate or container 10 and once depressed when the crate or container 10 contacts a surface or receiving member 34 actuation button 30 is depressed and the first mechanism 24 and the second mechanism 26 are actuated thus causing the doors 20 and 22 to be released into the open position and movable member 64 is relocated to the non-blocking position such that the toy vehicle or train 12 can travel out of the crate or container 10. In other words, actuation button 30 is coupled or linked to the first mechanism 24, the second mechanism 26 as well as components thereof (e.g., portion 64, slide switch 45, etc.) such that movement of button 30 causes desired movement of components of the mechanisms of the crate 10. In this embodiment and when the toy vehicle 12 is captured, movable member or portion 64 prevents the self-propelled toy vehicle or train 12 from traveling out of the crate until movable member or portion 64 is repositioned into the non-blocking position.

[0047] Accordingly and in this embodiment, the crate or container 10 is configured to have a first position of the first mechanism 24 wherein the movable member 64 is in the blocking position such that an incoming self-propelled toy vehicle 12 will be retained within the crate 10. Thereafter and once the crate 10 is lifted and then

placed on a surface such that actuation button 30 is manipulated, the first mechanism 24 and movable member 64 are repositioned such that the toy vehicle 12 can travel out of the crate 10. In addition and during this movement, the second mechanism 26 also releases the pivotally mounted doors 20 and 22. Alternatively, the pivotally mounted doors may be simply pushed open by the self-propelled toy vehicle 12. In addition and in this embodiment, the crate or container 10 via slide switch 45 can provide at least two different operational modes, one in which the toy vehicle 12 simply travels through the crate or container 10 since the movable member 64 is in the non-blocking position or a recapture mode wherein the toy vehicle or train 12 is captured via movable member 64 that is in a blocking position.

[0048] Slide switch 45 is linked or coupled to movable member 64 as well as actuation button 30. In one non-limiting embodiment and as illustrated in at least FIGS. 11A and 11B when the slide switch 45 is moved to the left movable member 64 is in the blocking position. Thereafter actuation or depression of actuation button 30 causes movable member 64 to be positioned in the non-blocking position and slide switch 45 is moved to the right (see at least FIGS. 11C and 11D). In this embodiment, this is typically caused by the crate or container 10 being placed upon a surface wherein actuation button 30 is depressed. However and in this embodiment with the crate still upon the surface and actuation button 30 is being depressed, a user can manipulate the slide switch 45 to the left and thus reposition movable member 64 into the blocking position even though actuation button 30 is depressed. In this configuration, the toy train or vehicle 12 will be recaptured once it reenters into the crate or container 10. Alternatively, a user may leave the slide switch 45 positioned to the right and allow the toy train or vehicle 12 to travel through the crate or container 10 since movable member 64 is no longer in the blocking position. Although left and right positions are mentioned above with respect to slide switch 45 it is, of course, understood that other positions are considered to be within the scope of exemplary embodiments of the present invention. Accordingly, this embodiment allows a user via slide switch 45 to vary the position of the movable member 64 as well as the first mechanism 24 while the crate or container is resting upon a surface and actuation button 30 is depressed. As mentioned above, further actuation of button 30 will cause the slide switch 45, movable member 64 and the first mechanism 24 to

transition from a first position wherein the toy vehicle 12 is captured to a second position wherein the toy vehicle 12 is released.

[0049] Various embodiments of the present invention provide a crate configured to allow a train to drive into the crate and catch on a portion of a mechanism or assembly in the bottom of the crate so that it will keep running but not drive out the other side of the crate. Then the sides of the crate are manually closed, which in one alternative embodiment causes the train to be turned off. Thereafter, the crate can be picked up by a crane or other equivalent member that picks up the crate and places it on a special track piece which will cause the doors to open, turn the train on, if necessary, and release it from the crate to drive onto the track. If the crate is kept on the track the toy train drives around the track set until it reaches the crate and it will again drive into the crate and be either re-captured or allowed to pass therethrough depending on the configuration of the crate or container 10. While numerous embodiments have been disclosed herein it is understood that features of the various embodiments may be combined in anyone of numerous variations in accordance with exemplary embodiments of the present invention.

[0050] While the invention has been described with reference to one or more exemplary embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the invention. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from the essential scope thereof. Therefore, it is intended that the invention not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out this invention, but that the invention will include all embodiments falling within the scope of the appended claims.

CLAIMS

What is claimed is:

1. A structure for a self propelled toy vehicle, comprising:
 - an enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening;
 - a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position;
 - a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position;
 - a first mechanism for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening;
 - a second mechanism for releaseably engaging a feature of the second door in order to retain the second door in the closed position; and
 - an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and an apply an opening force to the first door such that the first door and the second door may move to the open position.
2. The structure as in claim 1, wherein the second mechanism is configured to manipulate an on/off switch of the self propelled vehicle when the actuation button is moved.
3. The structure as in claim 1, wherein the second mechanism is configured to manipulate an on/off switch of the self propelled vehicle when the first door is moved between the open and closed position.

4. The structure as in claim 1, wherein the first mechanism is configured for movement between a first position and a second position and the first mechanism engages a portion of the self propelled toy vehicle when it is in the enclosure and when the first mechanism is in the first position and the first mechanism does not engage the self propelled toy vehicle when it is in the second position and wherein movement of the actuation button causes the first mechanism to move from the first position to the second position, wherein the first door provides a ramp into the enclosure when it is in the open position and wherein the second door provides a ramp out of the enclosure when it is in the open position.

5. The structure as in claim 1, wherein the actuation button is located in a recess on a bottom surface of the structure such that a protruding feature is required to actuate the actuation button when the structure is placed upon a surface.

6. The structure as in claim 1, further comprising a loop extending from an upper surface of the structure and wherein the structure further comprises a slide switch for moving a blocking portion of the first mechanism between a blocking position and a non-blocking position.

7. A structure for a self propelled toy vehicle, comprising:

an enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening;

a first mechanism for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening; and

a second mechanism for actuating an on/off switch of the self propelled toy vehicle when it is received in the enclosure, wherein the second mechanism actuates the on/off switch of the self propelled toy vehicle when at least one door pivotally secured to the enclosure is opened or closed.

8. The structure as in claim 7, wherein the first mechanism is configured for

movement between a first position and a second position, wherein the first mechanism engages a portion of the self propelled toy vehicle when it is in the enclosure and when the first mechanism is in the first position and wherein the first mechanism does not engage the self propelled toy vehicle when it is in the second position.

9. The structure as in claim 8, wherein the first mechanism is moved between the first position and the second position when the at least one door pivotally secured to the enclosure is opened or closed.

10. The structure as in claim 7, wherein the at least one door is opened by an actuation button disposed on a lower surface of the enclosure, wherein the first door provides a ramp into the enclosure when it is in the open position and wherein the second door provides a ramp out of the enclosure when it is in the open position.

11. The structure as in claim 7, wherein the at least one door pivotally secured to the enclosure provides a ramp into the inlet opening for the self propelled toy vehicle when the at least one door is in an open position.

12. A track set for use with a self propelled toy vehicle, the track set comprising:

a track segment defining a path;

a structure configured to be removably positioned in a portion of the path, the structure comprising:

an enclosure having an inlet opening and an outlet opening, the inlet opening aligned with the outlet opening and the inlet opening being configured to receive the self propelled toy vehicle from the track segment and the outlet opening is configured to direct the self propelled toy vehicle onto the track segment;

a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position;

a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position;

a first mechanism for retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening;

a second mechanism for releaseably engaging a feature of the second door in order to retain the second door in the closed position; and

an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and to apply an opening force to the first door such that the first door and the second door may move to the open position.

13. The track set as in claim 12, wherein the second mechanism is configured to manipulate an on/off switch of the self propelled vehicle when the actuation button is moved.

14. The track set as in claim 12, wherein the second mechanism is configured to manipulate an on/off switch of the self propelled vehicle when the first door is moved between the open and closed position.

15. The track set as in claim 12, wherein the first mechanism is configured for movement between a first position and a second position and the first mechanism engages a portion of the self propelled toy vehicle when it is in the enclosure and when the first mechanism is in the first position and the first mechanism does not engage the self propelled toy vehicle when it is in the second position and wherein movement of the actuation button causes the first mechanism to move from the first position to the second position, wherein the first door provides a ramp into the enclosure when it is in the open position and wherein the second door provides a ramp out of the enclosure when it is in the open position.

16. The track set as in claim 12, wherein the actuation button is located in a recess on a bottom surface of the structure such that a protruding feature is required to actuate the actuation button when the structure is placed upon a surface.

17. The track set as in claim 12, further comprising a crane configured to engage a loop extending from an upper surface of the structure.

18. The track set as in claim 17, wherein the track segment is configured to resemble a railroad track and the self propelled toy vehicle is a train.

19. A method for receiving, retaining and subsequently releasing a self propelled toy vehicle, the method comprising:

locating an enclosure in a path of the self propelled toy vehicle, the enclosure having an inlet opening and an outlet opening, the inlet opening being aligned with the outlet opening;

a first door pivotally mounted to the enclosure proximate to the inlet opening for movement between an open position and a closed position, wherein the first door provides a ramp into the enclosure when it is in the open position;

a second door pivotally mounted to the enclosure proximate to the outlet opening for movement between an open position and a closed position, wherein the second door provides a ramp out of the enclosure when it is in the open position;

retaining the self propelled toy vehicle in the enclosure after the self propelled toy vehicle has entered the enclosure through the inlet opening with a first mechanism;

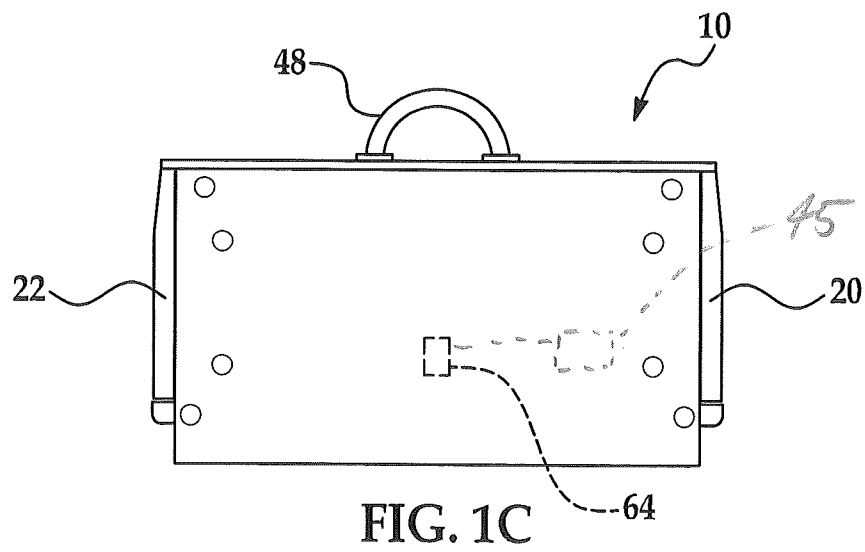
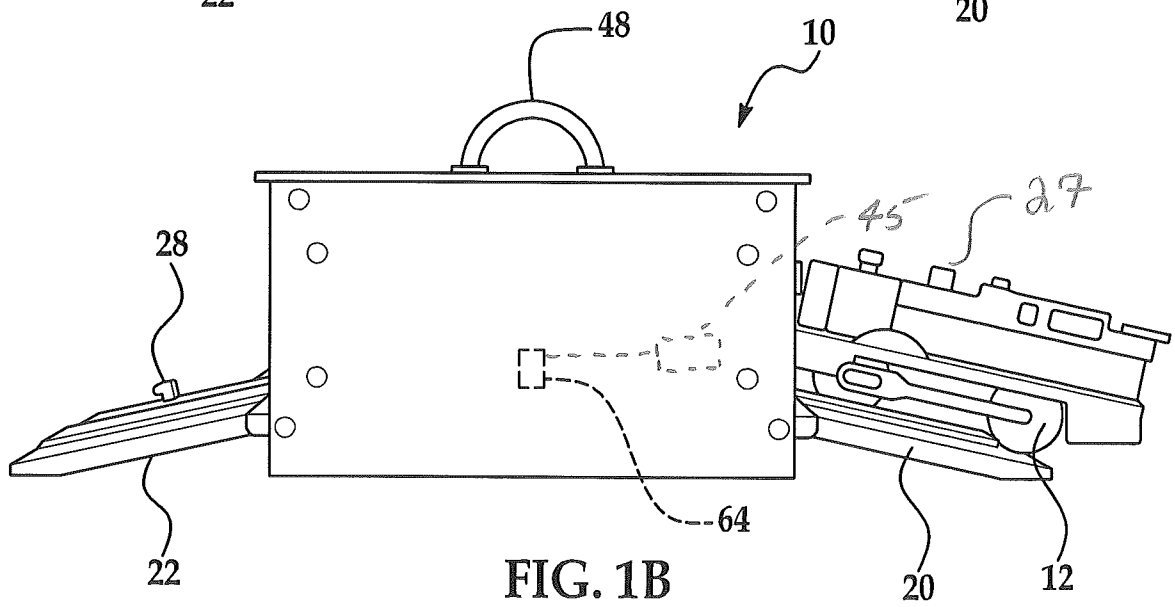
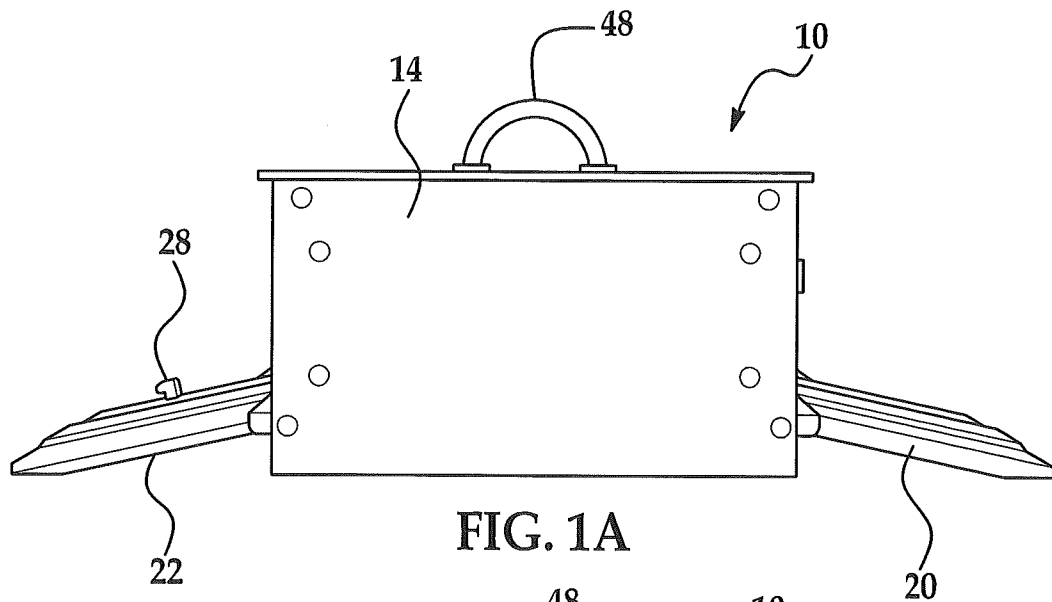
releaseably engaging a feature of the second door in order to retain the second door in the closed position with a second mechanism; and

releasing the self propelled toy vehicle from the structure by moving an actuation button located on a surface of the housing, the actuation button being coupled to the first mechanism and the second mechanism wherein movement of the actuation

button will cause the first mechanism to release the self propelled toy vehicle as well as cause the second mechanism to release the feature of the second door and an apply an opening force to the first door such that the first door and the second door may move to the open position.

20. The method as in claim 19, wherein the path is defined by a railroad track and the self propelled toy vehicle is a train and the structure further comprises a loop extending from an upper surface of the structure and the method further comprises removing the train from the railroad tack by lifting the enclosure with the crane when the train is retained in the enclosure.

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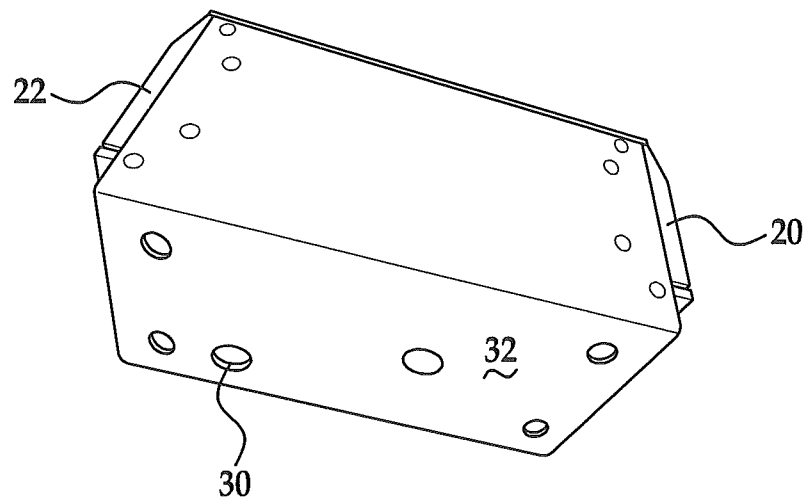


FIG. 2

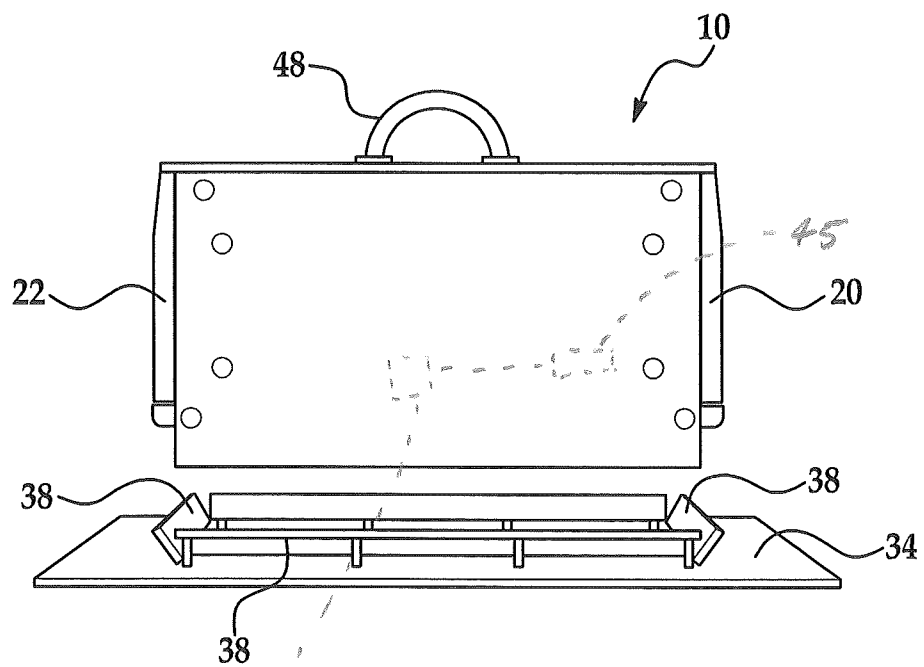


FIG. 3A

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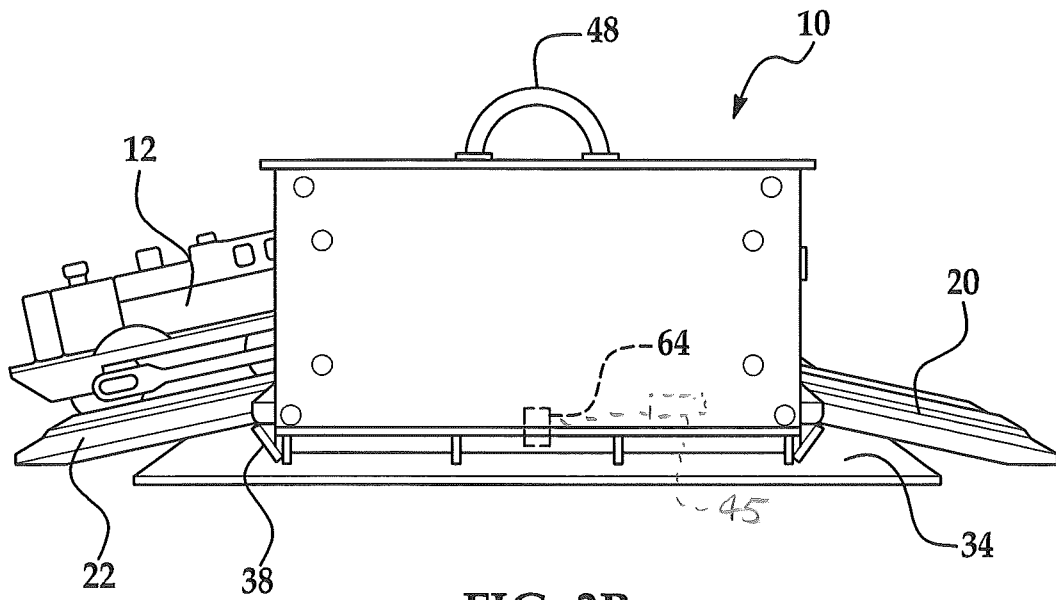


FIG. 3B

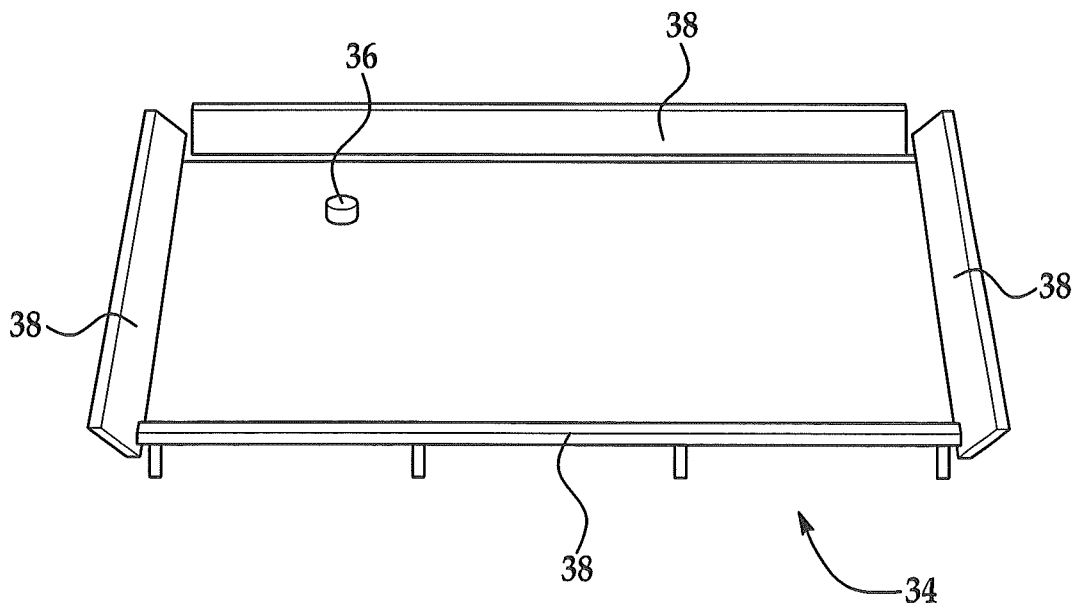


FIG. 4

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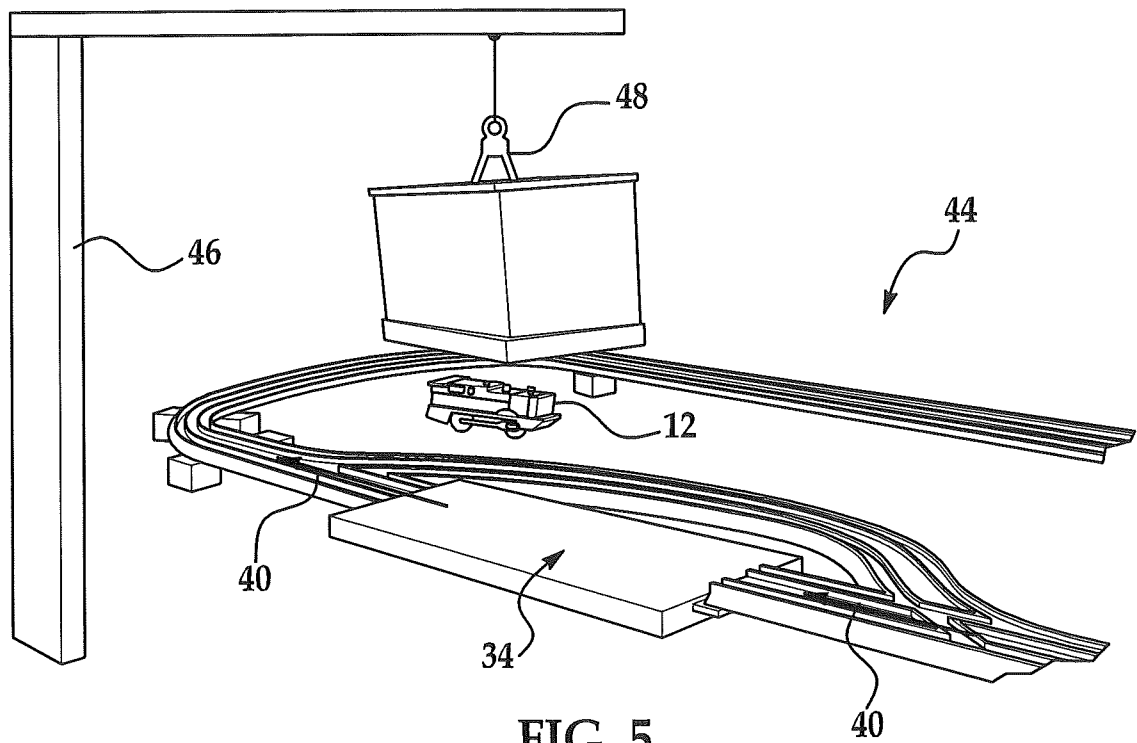


FIG. 5

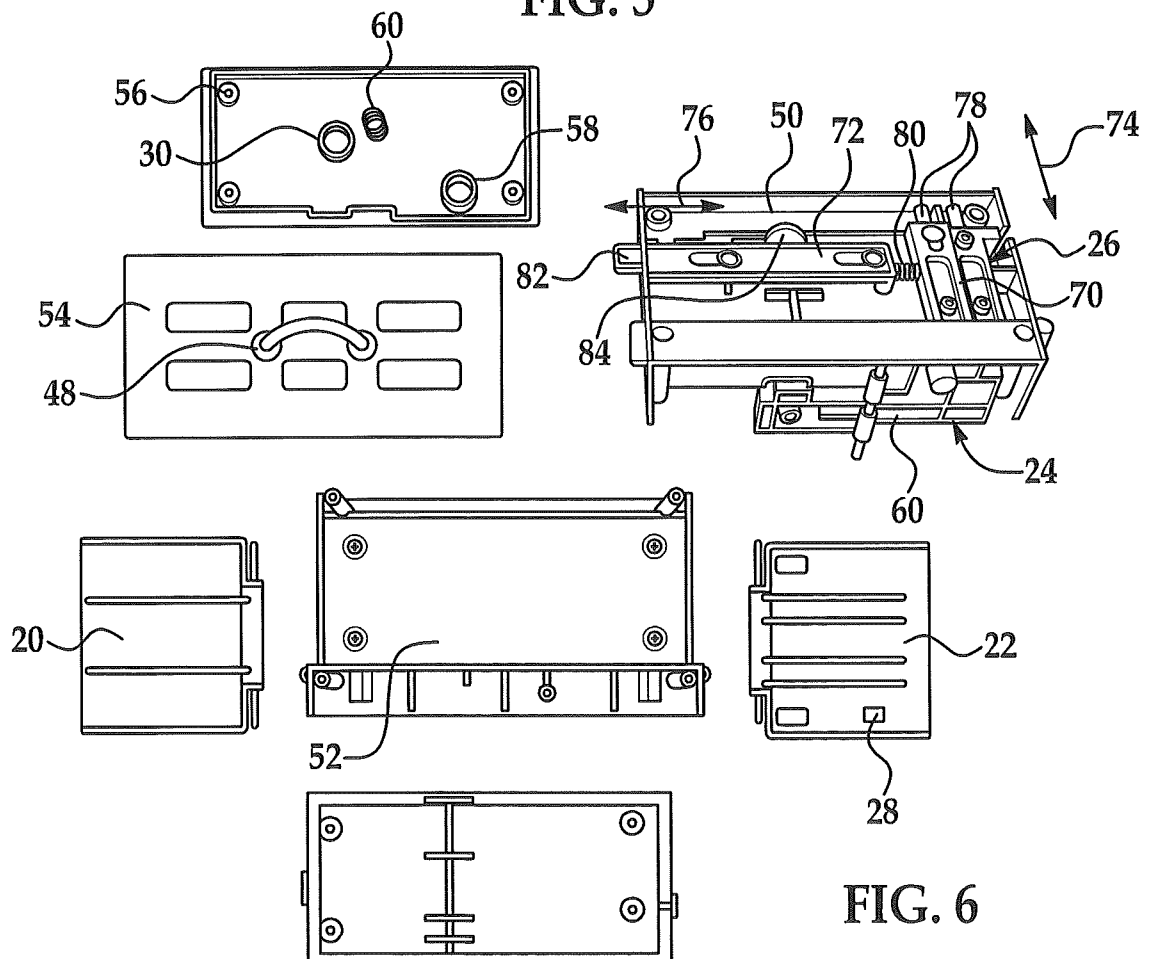


FIG. 6

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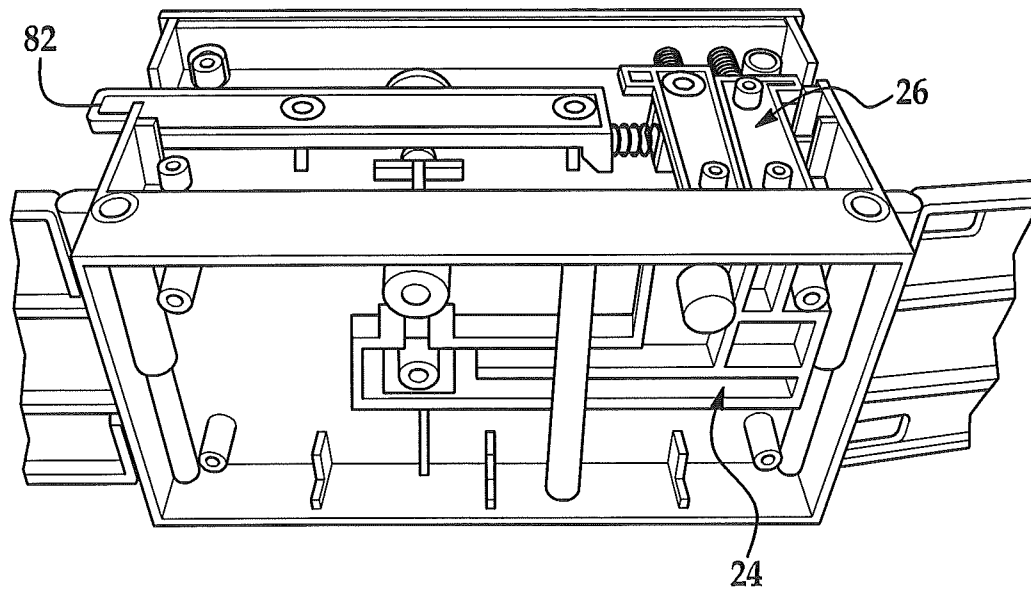


FIG. 7

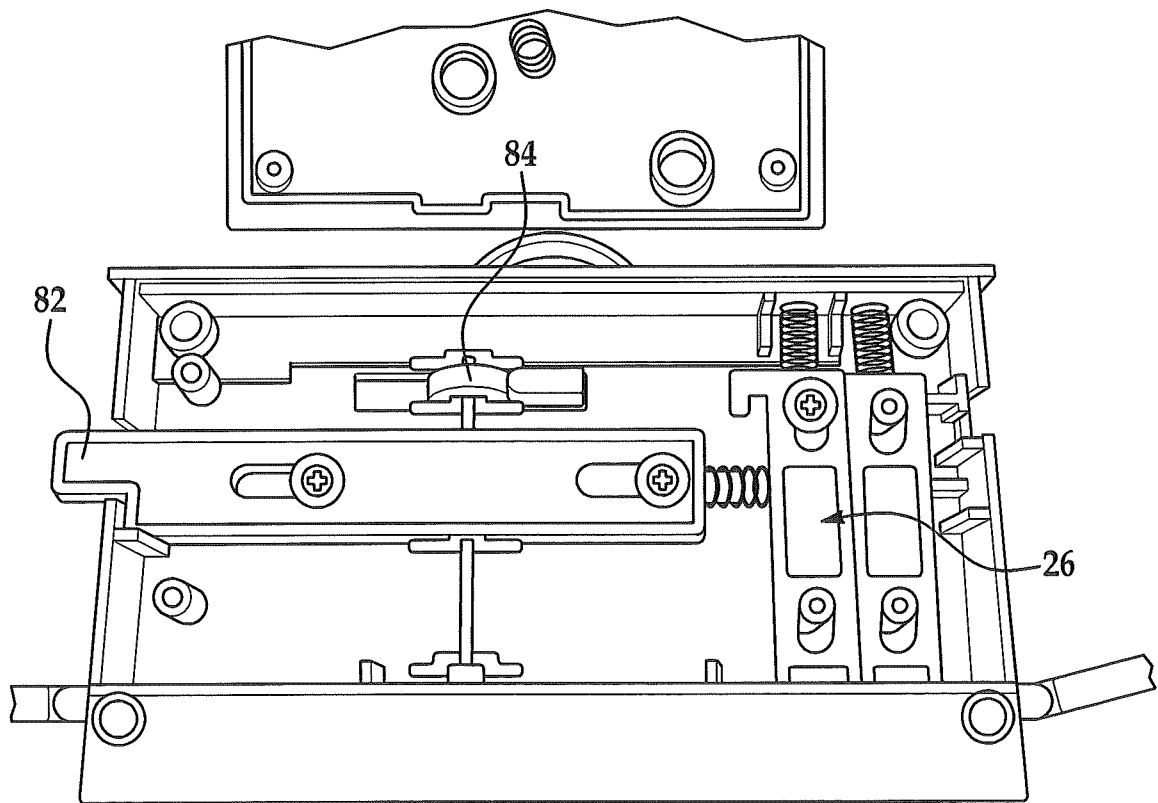


FIG. 8

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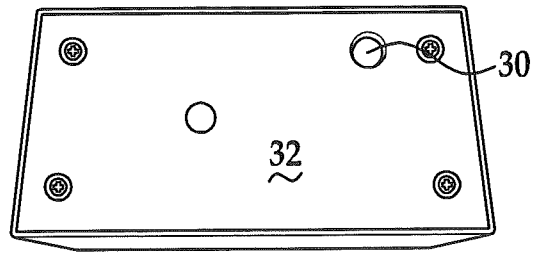


FIG. 9

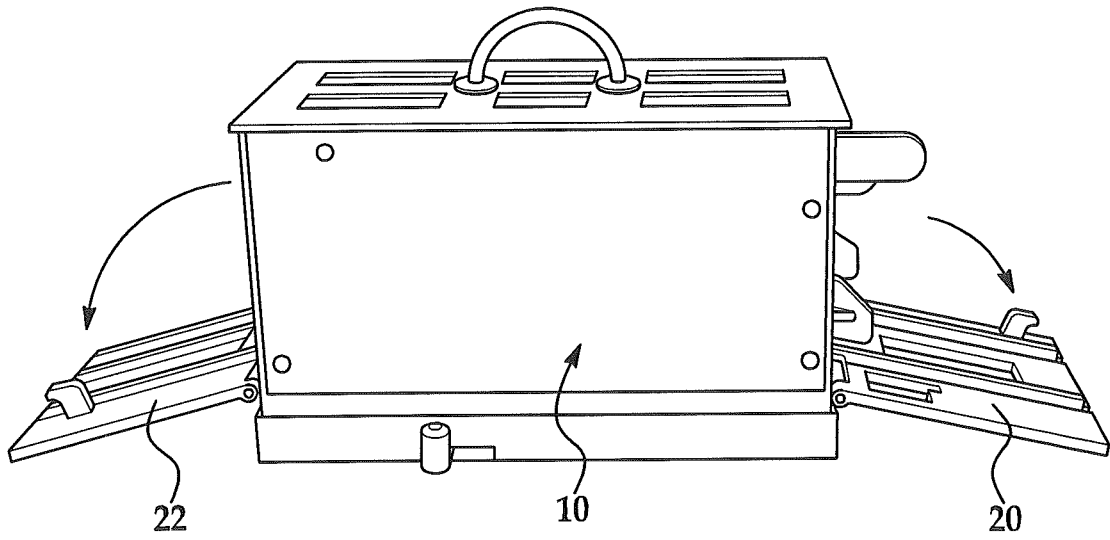


FIG. 10A

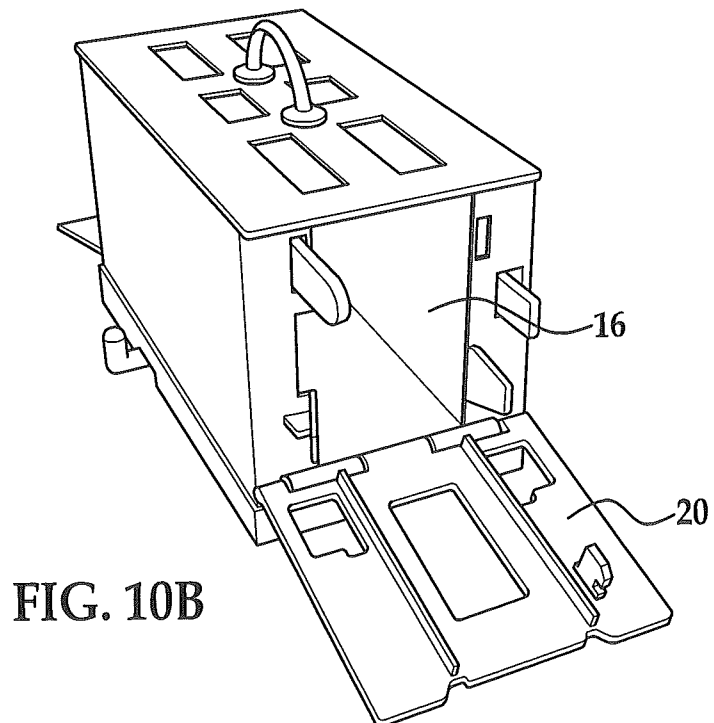
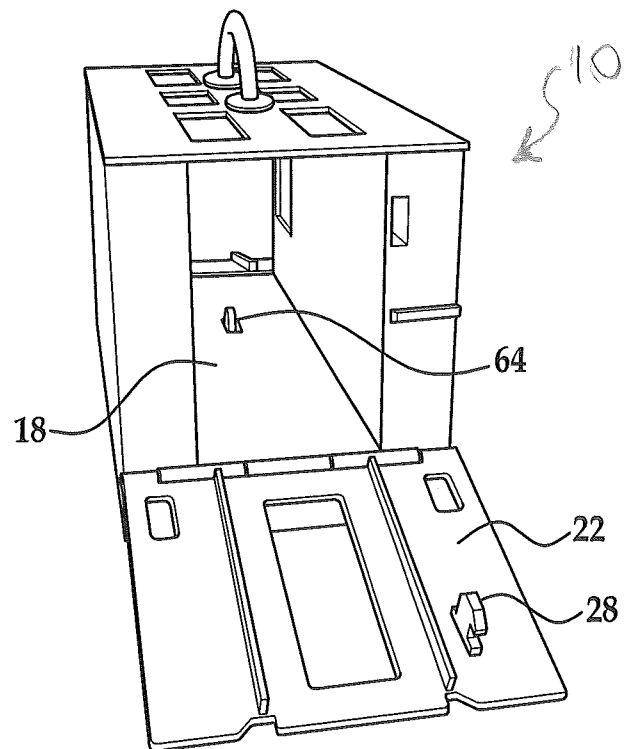
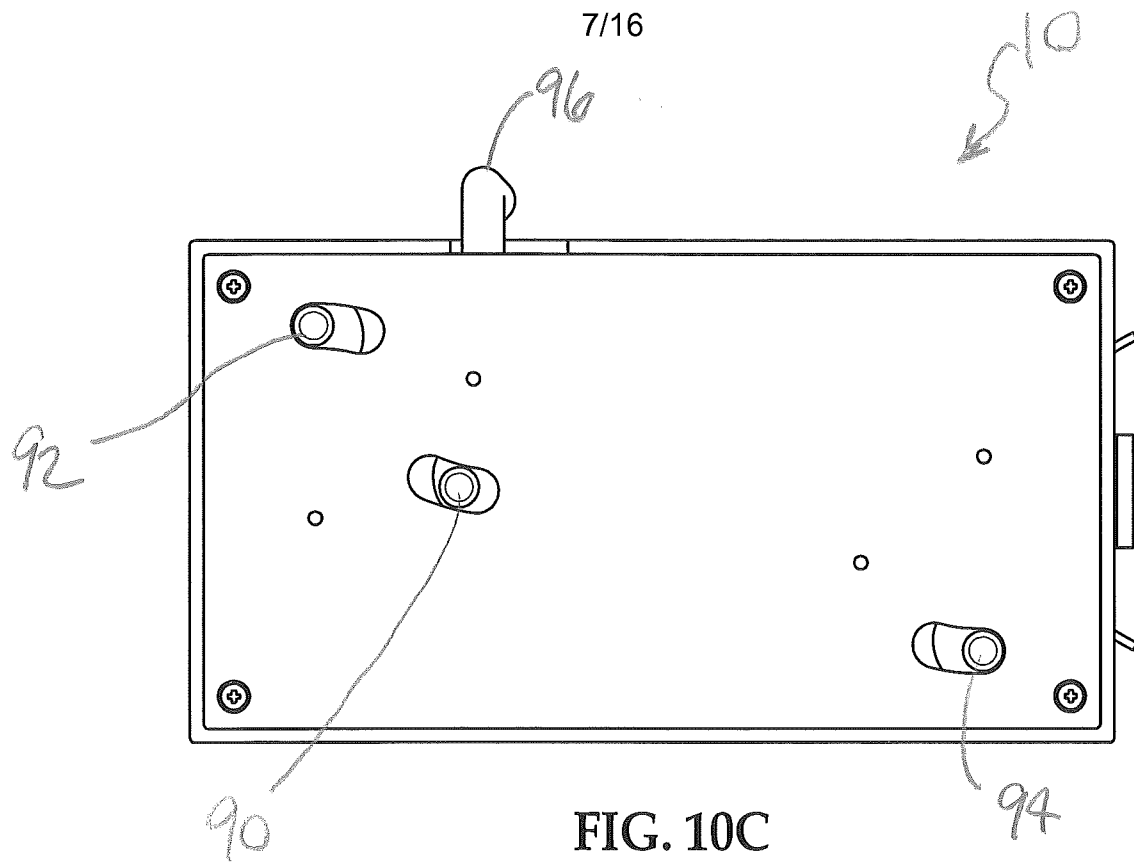


FIG. 10B



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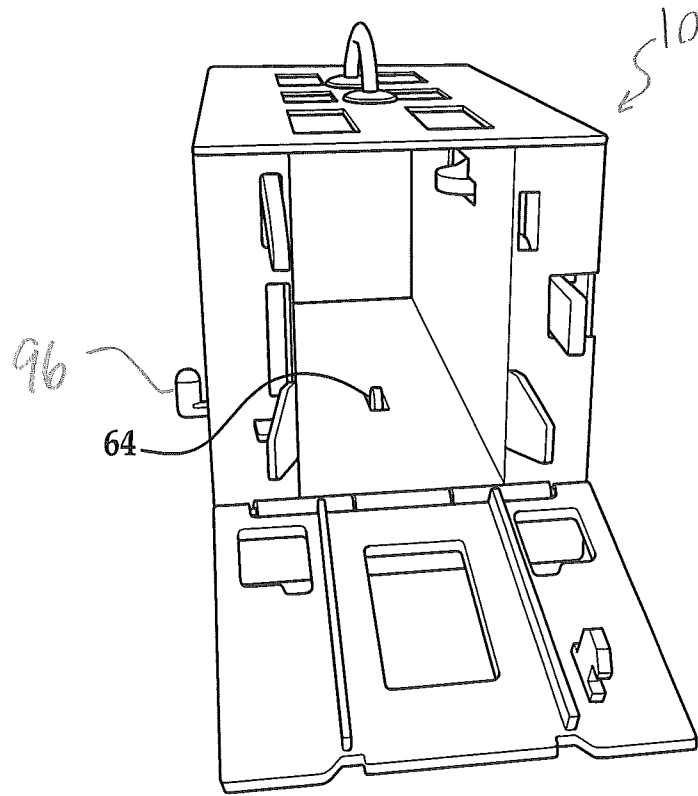


FIG. 10E

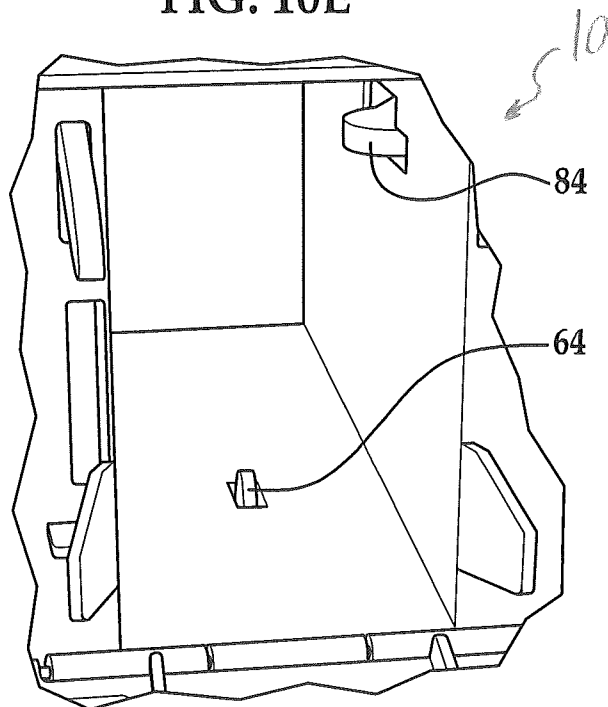


FIG. 10F

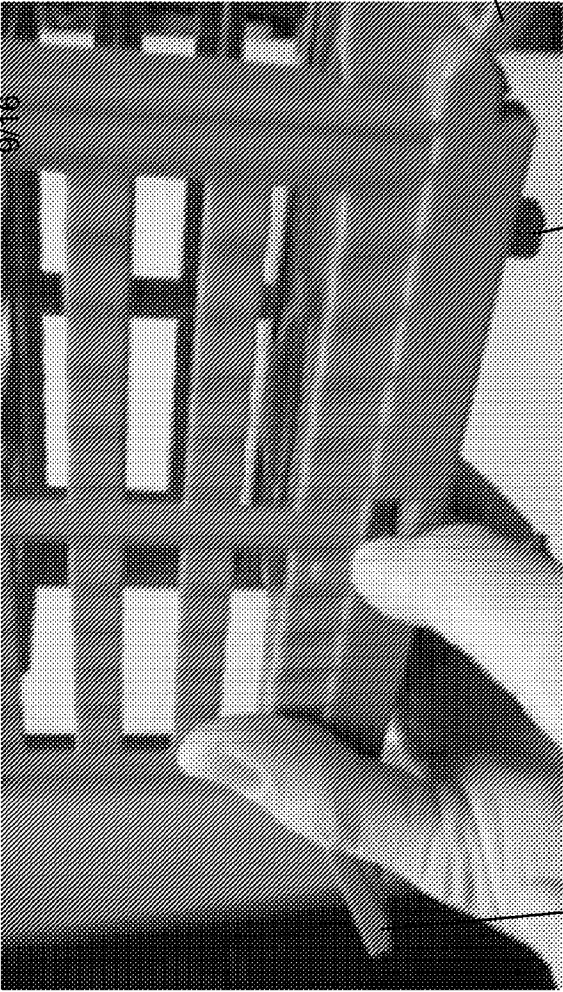


FIG. 11A

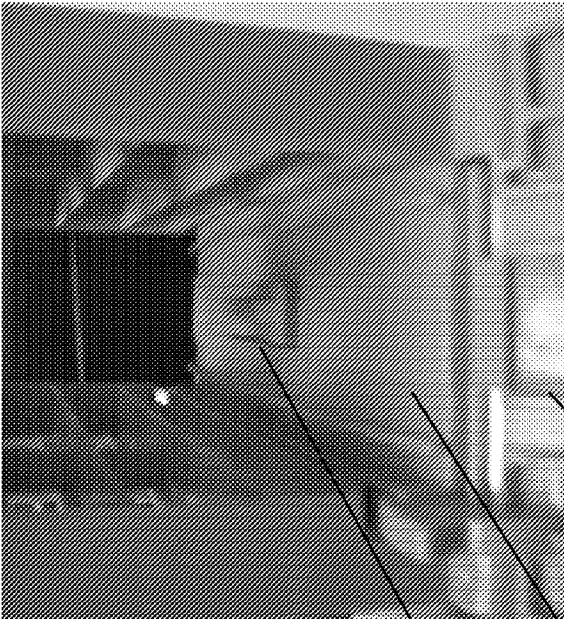
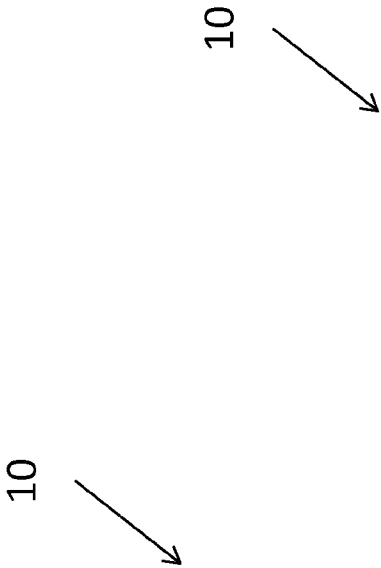


FIG. 11B



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FIG. 11C

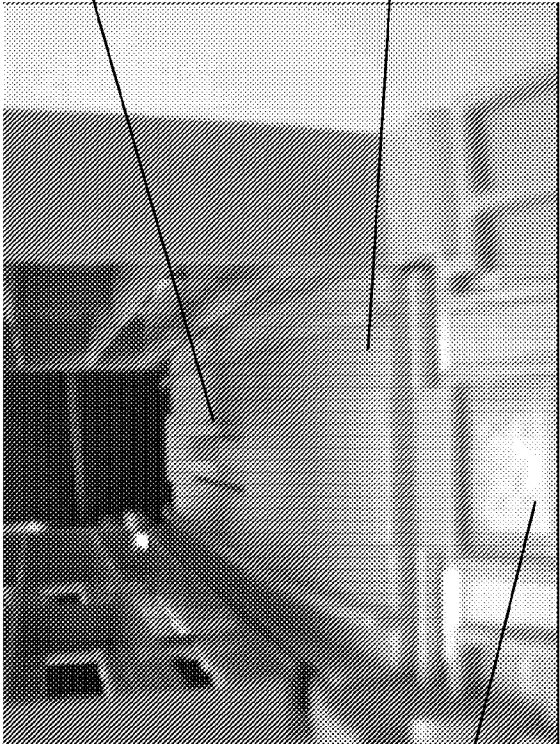


FIG. 11D

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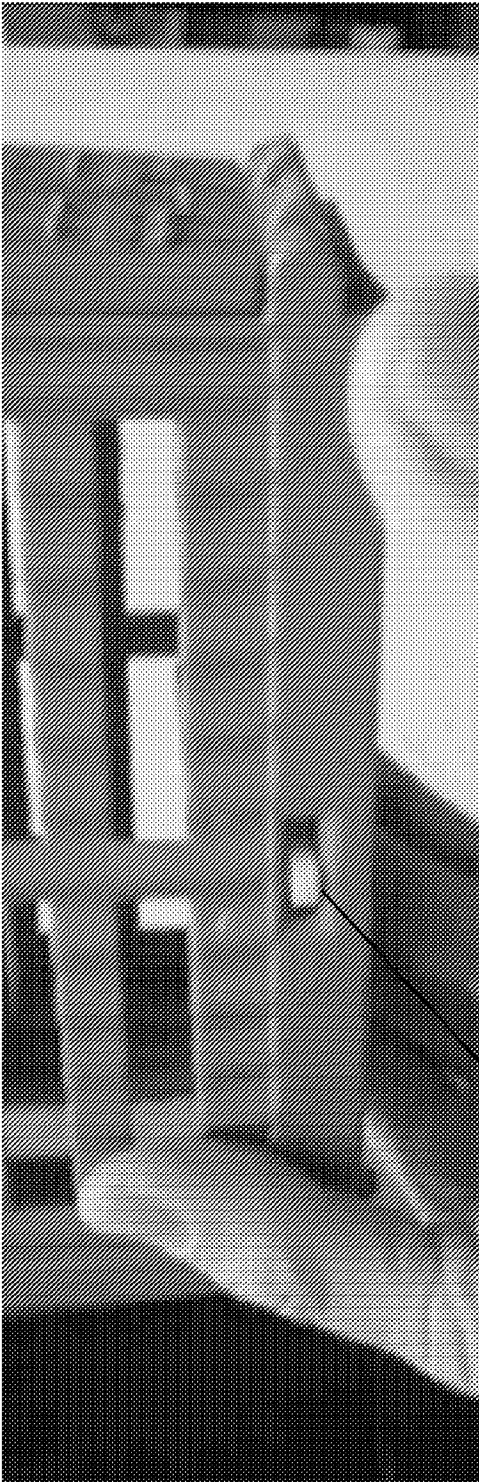


FIG. 11E

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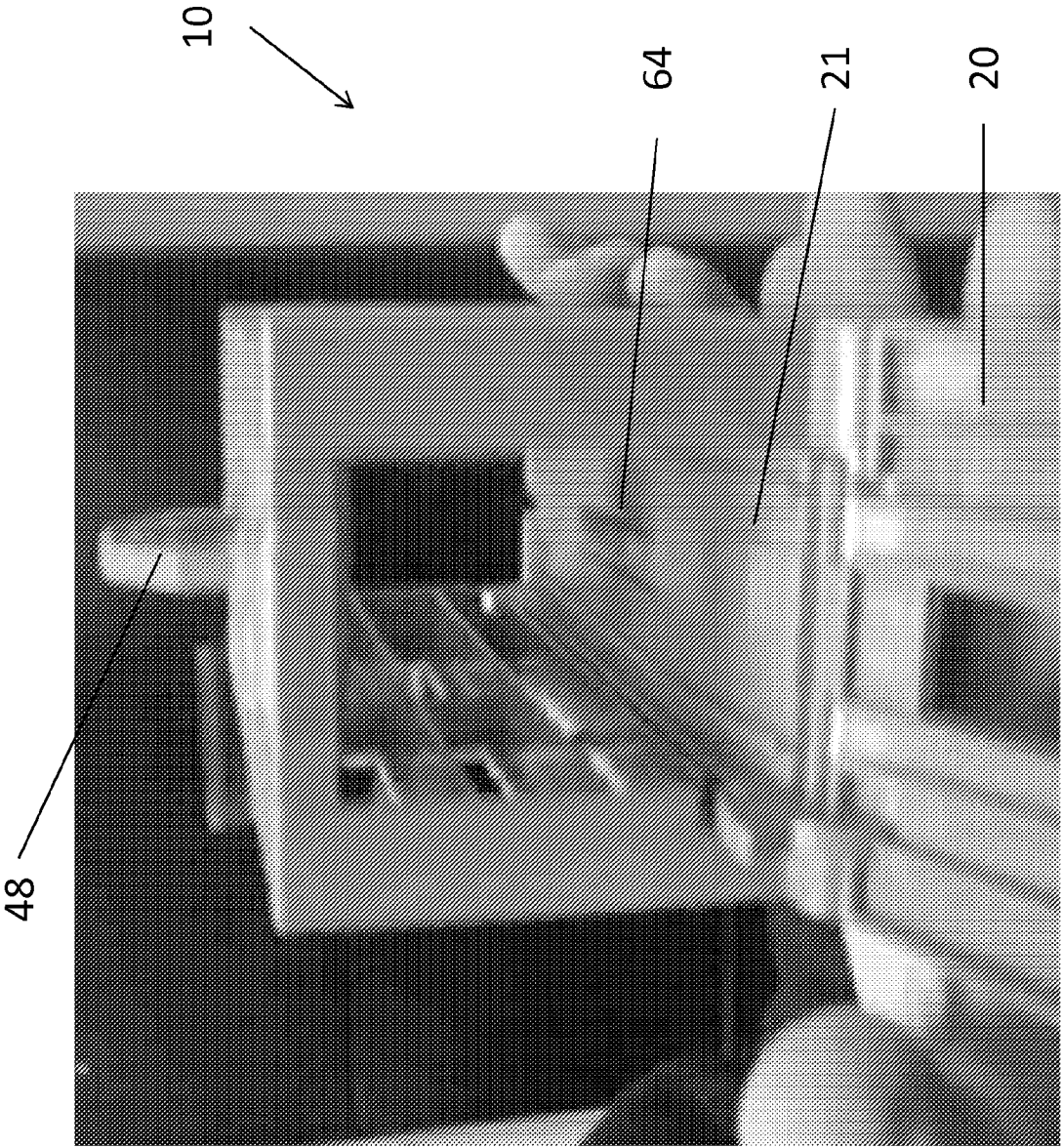


FIG. 11F

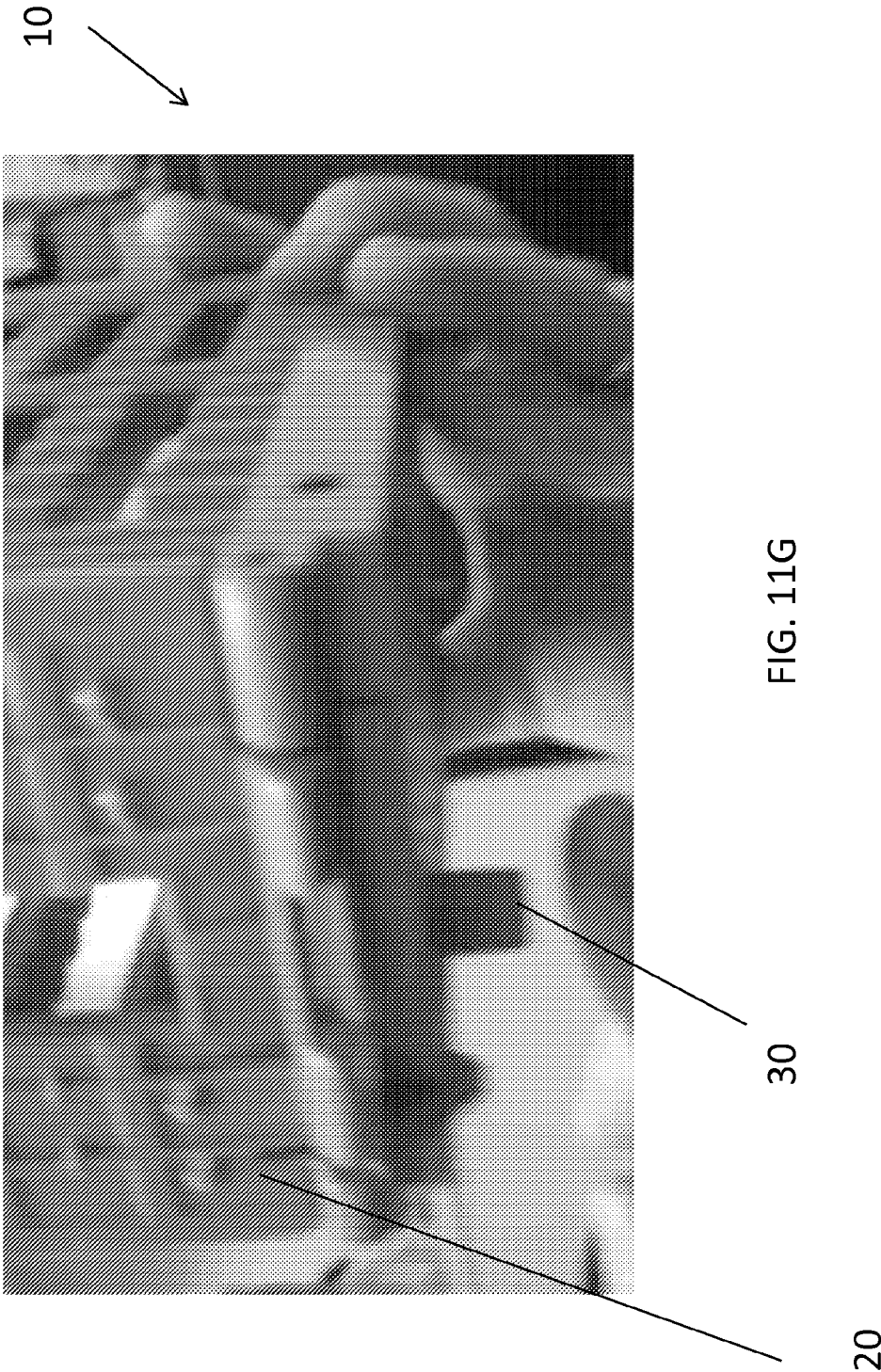
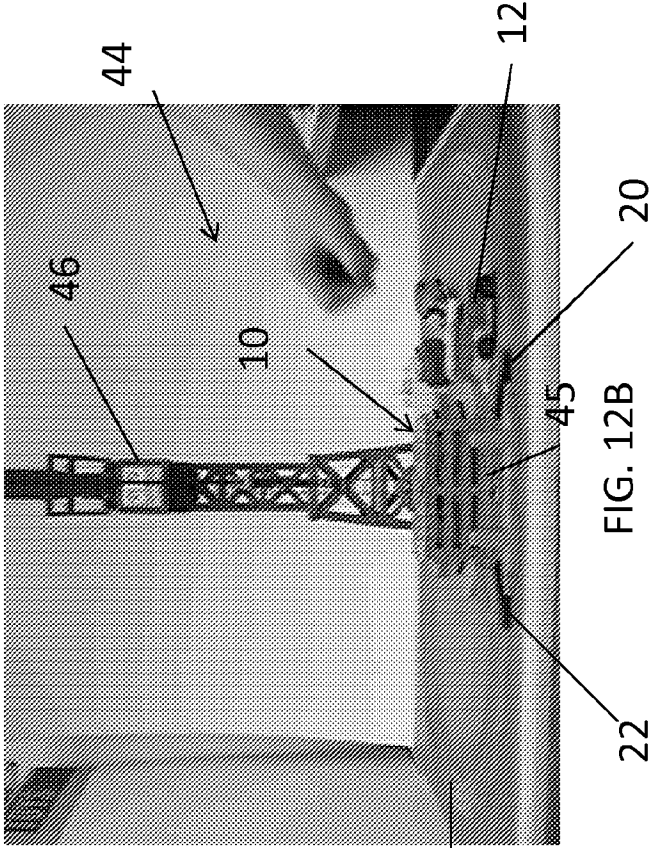
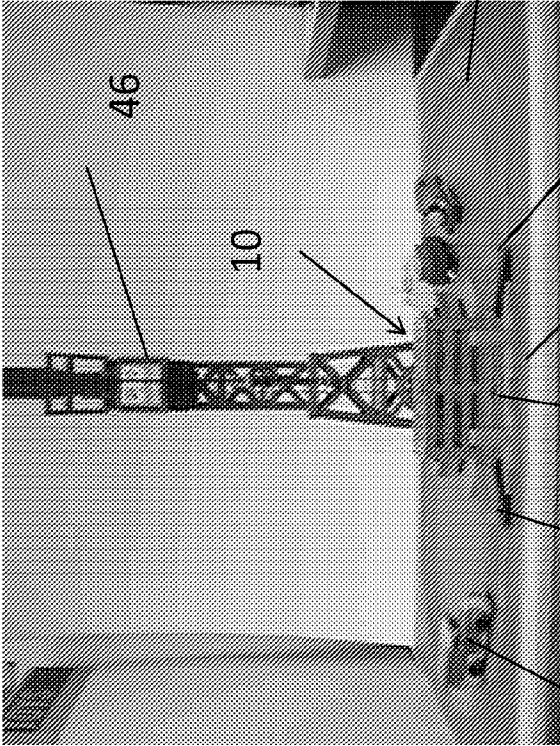
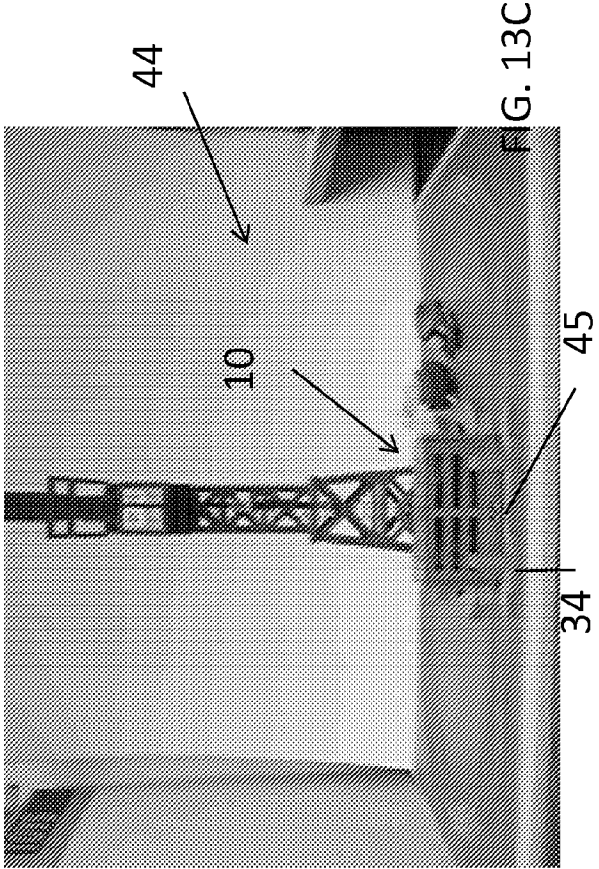
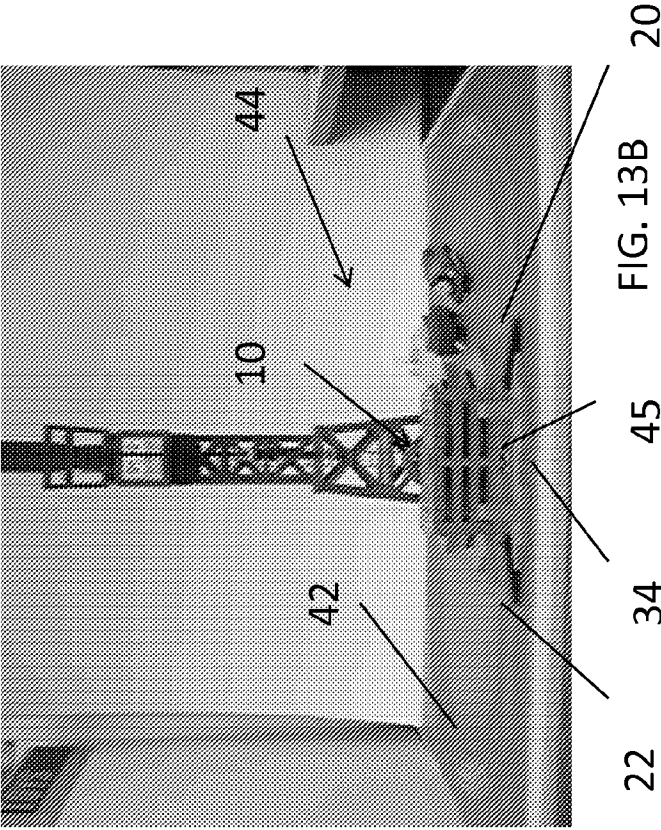
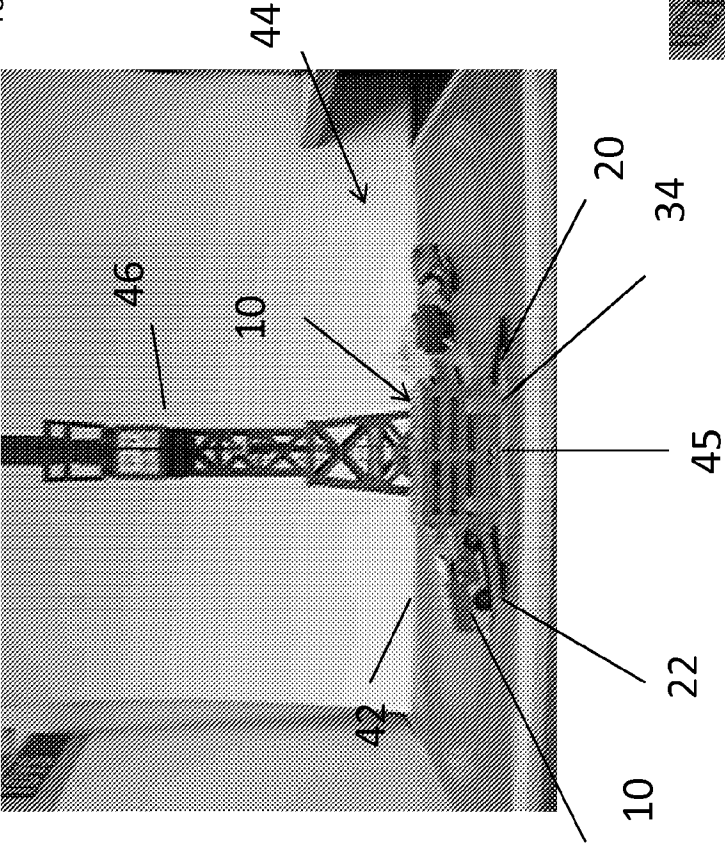


FIG. 11G

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