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(54) Title: JOIST MOUNTED CONTAINER

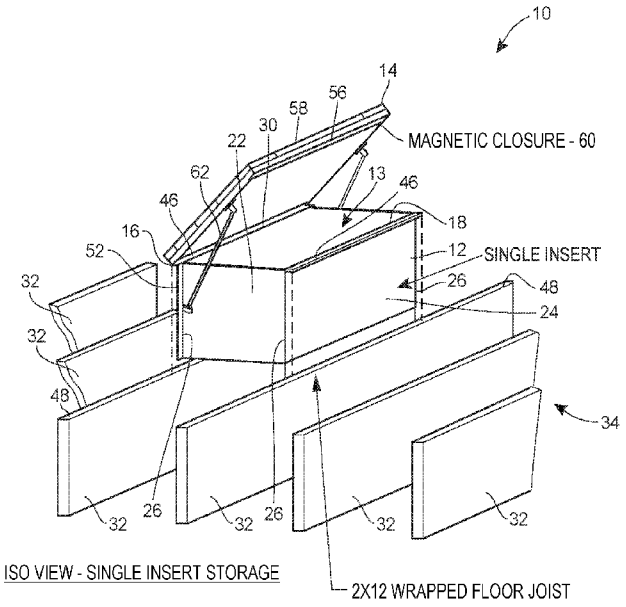


FIG. 1

(57) **Abstract:** A container is described herein that is configured to be mounted between joists in a substrate of a structure, such as a floor, wall, or ceiling. The container includes a body portion sized to be disposed between the joists and a lid to cover an opening to the body. The lid can further be configured to be coplanar with a covering material of the substrate so that the container does not project outwardly from the substrate.

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JOIST MOUNTED CONTAINER

Field of the Disclosure

[0001] The present disclosure is directed to containers and, more particularly, to lidded containers.

Background

[0002] In many structures, storage space can be limited. Some systems and containers are available to provide organized storage in conventional storage locations, such as closets, garages, and so forth. Such systems and containers, however, may be configured to rest on a floor or mount to a wall or ceiling, which takes up space within the storage locations and does not utilize the space within such substrates.

Summary

[0003] A container is described herein that utilizes such available space by being configured to be mounted between joists in a substrate of a building. The container includes a body having at least one wall portion that defines an interior. The at least one wall portion includes an edge defining an opening to the interior. The container further includes flanges that project outwardly from opposite sides of the body that are configured to abut the joists with the body in an installed position between the joists. The container further includes a lid that is pivotably coupled to the body to selectively cover the opening.

[0004] In some embodiments, the container can further include a magnetic coupling having one or more components coupled to the body and/or lid to thereby releasably hold the lid in a closed position.

[0005] In some embodiments, the body of the container can be box-shaped and the at least one wall portion includes end wall portions, side wall portions extending between the end wall portions, and a bottom wall portion opposite the opening. In further embodiments, the flanges extend along the edges of the side wall portions. In yet further embodiments, the container can include transverse flanges that extend along corners between the end walls and side walls to abut the joists.

[0006] In some embodiments, the container can include a hydraulic lift support mechanism coupled to the body and the lid that is configured to aid in lifting the lid.

[0007] In some embodiments, the substrate can include a covering material extending over the joists and an outer surface of the lid can be coplanar with an outer surface of the covering material. In further embodiments, the covering material can be a floor that includes a sub-floor

and a finished floor. The lid can then include an outer layer that is the same material as the finished floor.

[0008] In some embodiments, the body can include two chambers where each chamber is configured to be positioned between joists in the substrate. As such, the body can include a bridge portion that extends between the chambers and is configured to extend over a joist between the chambers.

Brief Description of the Drawings

[0009] The above needs are at least partially met through provision of the container embodiments described in the following detailed description, particularly when studied in conjunction with the drawings, wherein:

[0010] Fig. 1 is a perspective view of a first embodiment of a container configured to be mounted between joists in a substrate of a structure in accordance with various embodiments;

[0011] Fig. 2 is a top plan view of the container of Fig. 1 installed in a substrate of a structure showing a lid thereof in a closed position in accordance with various embodiments;

[0012] Fig. 3 is a side cross-sectional view of the container taken along the line 3-3 in Fig. 2 in accordance with various embodiments;

[0013] Fig. 4 is a side cross-sectional view of the container taken along the line 4-4 in Fig. 2 in accordance with various embodiments;

[0014] Fig. 5 is a front cross-sectional view of the container taken along the line 5-5 in Fig. 1 in accordance with various embodiments;

[0015] Fig. 6 is a perspective view of a second embodiment of a container configured to be mounted between adjacent joists in a substrate of a structure in accordance with various embodiments; and

[0016] Fig. 7 is a side elevational view of the container of Fig. 6 in accordance with various embodiments.

[0017] Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been drawn to scale. For example, the dimensions and/or relative positioning of some of the elements in the figures may be exaggerated relative to other elements to help to improve understanding of various embodiments of the present invention. Also, common but well-understood elements that are useful or necessary in a commercially feasible embodiment are often not depicted in order to facilitate a less obstructed view of these various embodiments. It will further be appreciated that certain actions and/or steps may be described or depicted in a particular order of occurrence while those skilled in the art will

understand that such specificity with respect to sequence is not actually required. It will also be understood that the terms and expressions used herein have the ordinary technical meaning as is accorded to such terms and expressions by persons skilled in the technical field as set forth above except where different specific meanings have otherwise been set forth herein.

Detailed Description

[0018] A container is described herein that is configured to be mounted between joists in a substrate of a structure, such as a floor, wall, or ceiling. A container having such a configuration advantageously utilizes space for storage that would otherwise be unusable. The container can further be configured to be coplanar with a covering material of the substrate so that the container does not project outwardly from the substrate. By utilizing a matching material for an outer layer of a lid for the substrate, the container can be effectively concealed.

[0019] Details of one embodiment of such a container 10 are shown in Figs. 1-5. As shown, the container 10 includes a body 12 defining an interior chamber 13 and a lid 14 that is pivotably coupled to the body 12 by a hinge or hinges 16. The lid 14 is configured to be pivoted between open and closed positions exposing and covering an opening 18 to the interior 13 of the body 12.

[0020] In the illustrated form, the body 12 is generally box-shaped having a frame including end walls 22, side walls 24 extending between the end walls 22 and joined by corners 26, and a bottom wall or platform 28. The opening 18 is opposite the bottom wall 28 and defined by top edges 30 of the end and side walls 22, 24. The end walls 22, side walls 24, and bottom wall 28 can be connected or secured together using any suitable method, such as fasteners, welding, one or more pieces of material bent as desired, and so forth.

[0021] The body 12, and specifically, the end walls 22 thereof are preferably sized to extend between joists 32 in a substrate 34 of a structure, so that the container 10 can be mounted therebetween. Further, the end and side walls 22, 24 can have a depth corresponding to a width of the joists 32, such as generally equal to or less then the width thereof.

[0022] The substrate 34 can be a floor as shown in the figures, a wall, or a ceiling of the structure. Further, the substrate 34 can include a covering material 36 mounted or coupled to the joists 32 to extend thereover. The covering material 36 may further include one or more layers. For example, if the substrate 34 is a floor, the covering material 36 can include a subfloor layer 38 and a finished layer 40. If the substrate 34 is a wall or ceiling, the covering material 36 can be drywall, plaster configured with slats and/or mesh as commonly understood, and so forth. As shown in the figures, the substrate 34 can include an opening 42 extending

through the covering material 36 to expose an area 44 between two adjacent joists 32. The opening 42 can preferably have width and length dimensions generally equal to or slightly larger than the body 12, specifically and the end and side walls 22, 24 thereof, so that the container 10 fits snugly within the opening 42.

[0023] The container 10 can further include lateral flanges 46 that project outwardly from the top edges 30 of the side walls 24 in a direction generally parallel with the covering material 36. The flanges 46 are configured to project over and abut outward surfaces 48 of the joists 32 or the covering material 36. If the substrate 34 is a floor, the flanges 46 prevent the container 10 from falling between the joists 32 and hold the body opening 18 adjacent to the covering material 36. Where the substrate 34 is a wall or ceiling, the flanges 46 aid in mounting the container 10 by abutting the joists 32. Further, if desired, a user can mount the container to the joists 32 through the flanges 46 using fasteners 50.

[0024] The container 10 can further include one or more transverse flanges 52 that project outwardly from some or all of the corners 26 of the body 12 to extend along a portion of the width of the joists 32. One or more fasteners 54 can then be inserted through the transverse flanges 52 to thereby secure the container 10 to the joists 32. The flanges 46, 52 enable a user to secure the container 10 to the joists 32 without puncturing the end or side walls 22, 24 corresponding to the body interior 13. The flanges 46, 52 can be portions of the end walls 22, the side walls 24, or can be secured thereto by welding, fasteners, or the like.

[0025] As set forth above, the lid 14 is pivotably coupled to the body 12 via one or more hinges 16. In the illustrated form, the hinges 16 are concealed from view. For example, the hinges 16 can be disposed between the body 12 and lid 14 and/or disposed in a recessed position adjacent to the flanges 46 or side wall 24. So configured, the hinges 16 are hidden from view when the container 10 is installed between the joists 32 as shown in Fig. 2.

[0026] In the illustrated form, the lid 14 includes a lower layer 56 of a rigid material to cover the body opening 18 and an upper layer 58 that can be utilized as a decorative layer, such as to be the same material or match the finished layer 40 of the covering material 36. Preferably, the lower layer 56 and upper layer 58 have a depth combined that is generally equal to the covering material 36 so that an upper surface of the container 10 is coplanar with the covering material 36.

[0027] To hold the lid 14 in the closed position, the container 10 can include a closure member or mechanism 60 to releasably hold the lid 14 in the closed position. By one approach, the closure mechanism 60 can be one or more magnetic members 60 coupled to one of the body 12 or lid 14 with the other having aligned metal portions configured to magnetically attach

to the magnetic members 60. In the illustrated form, the magnetic member 60 is a strip that aligns with the flange 46 opposite the hinge 16. If desired, the magnetic member 60 can also include a push mechanism that is configured to be depressed to pop-out from a first, closed position to a second, raised position to thereby make the lid 14 easier to grab by a user. Of course, other suitable closure members can be utilized, such as hook-and-loop fasteners, snap fit structure, or other cooperating members.

[0028] With some materials and configurations, the lid 14 may be heavy to lift for a user. In such cases, or to ease use, the container 10 can include one or more hydraulic gas strut lifts 62 coupled to the lid 14. In the illustrated form, the lifts 62 are further coupled to the transverse flanges 52 to thereby extend along an exterior surface 64 of the end walls 22 and provide a ready-to-install container 10.

[0029] While the container 10 has been described with a one chamber interior 13, as shown in Figs. 6 and 7, a container 10' can be expanded to include multiple chambers, each configured to be disposed between adjacent joists 32. In this embodiment, the container 10 includes two body portions 12' that, when installed, are disposed on either side of a central joist 32. The two body portions 12' are coupled together by a bridge portion 64 that is configured to extend over the central joist 32. Each body portion 12' includes corresponding end walls 22', side walls 24', and bottom walls 26'. As shown, the lid 14' of this form is sized to extend over and cover the openings 18' to both body portions 12'. Components configured as described above with regard to the container 10 are labeled in the figures with like reference characters. Additional embodiments can include more body portions 12' as desired.

[0030] Those skilled in the art will recognize that a wide variety of modifications, alterations, and combinations can be made with respect to the above described embodiments without departing from the scope of the invention, and that such modifications, alterations, and combinations are to be viewed as being within the ambit of the inventive concept.

What is claimed is:

1. A container configured to be mounted between joists in a substrate of a building, the container comprising:

a body including at least one wall portion defining an interior, the at least one wall portion having an edge defining an opening to the interior;

flanges projecting outwardly from opposite sides of the body, the flanges configured to abut the joists with the body in an installed position between the joists;

a lid pivotably coupled to the body to cover the opening.

2. The container of claim 1, further comprising a magnetic coupling having one or more components coupled to the body and/or lid to thereby releasably hold the lid in a closed position.

3. The container of claim 1, wherein the body is box-shaped, the at least one wall portion including end wall portions, side wall portions extending between the end wall portions, and a bottom wall portion opposite the opening.

4. The container of claim 3, wherein the flanges extend along the edges of the side wall portions.

5. The container of claim 4, further comprising transverse flanges extending along corners between the end walls and side walls to abut the joists.

6. The container of claim 1, further comprising a hydraulic lift support mechanism coupled to the body and the lid and configured to aid in lifting the lid.

7. The container of claim 1, wherein the substrate includes a covering material extending over the joists and an outer surface of the lid is coplanar with an outer surface of the covering material.

8. The container of claim 7, wherein the covering material comprises a floor, the floor including a sub-floor and a finished floor.

9. The container of claim 8, wherein the lid includes an outer layer, the outer layer comprising a same material as the finished floor.

10. The container of claim 1, wherein the body includes two chambers, each chamber configured to be positioned between joists in the substrate, the body including a bridge portion extending between the chambers configured to extend over a joist between the chambers.

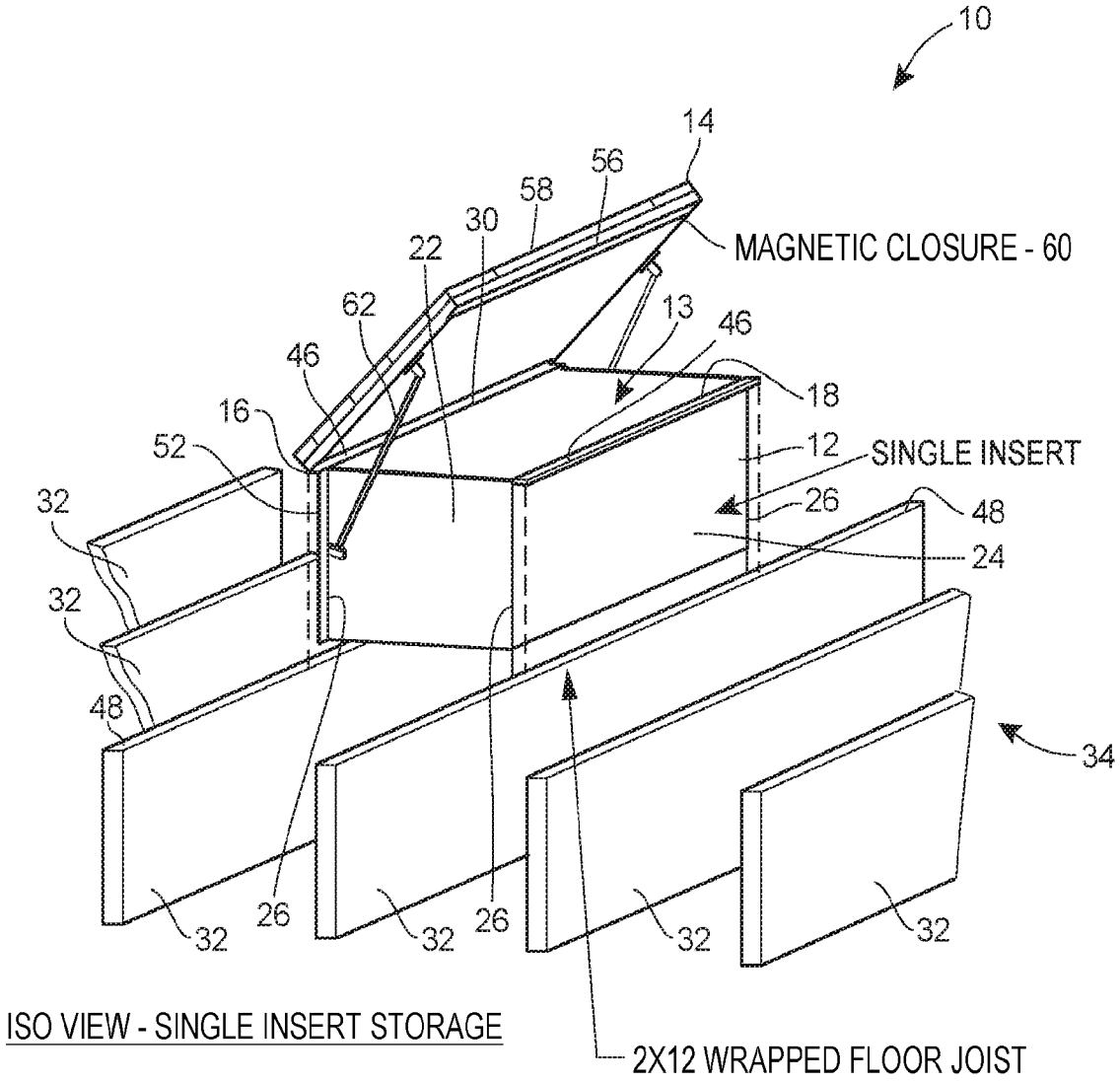
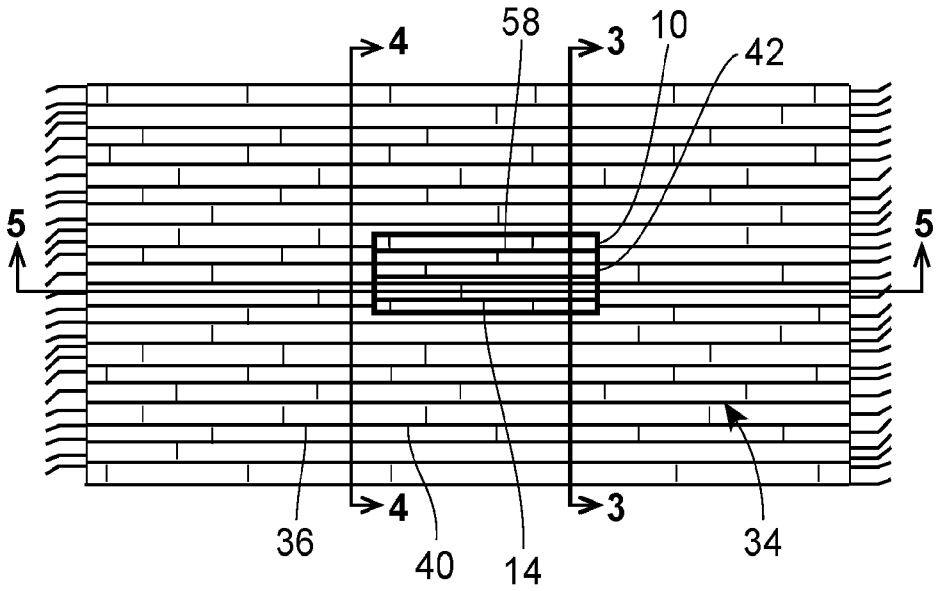

10
14
56
58
30
22
MAGNETIC CLOSURE - 60
62
13
46
46
18
16
52
12
SINGLE INSERT
32
26
48
24
32
48
34
32
26
32
26
32
32
ISO VIEW - SINGLE INSERT STORAGE
2X12 WRAPPED FLOOR JOIST

FIG. 1



FLOOR PLAN

FIG. 2

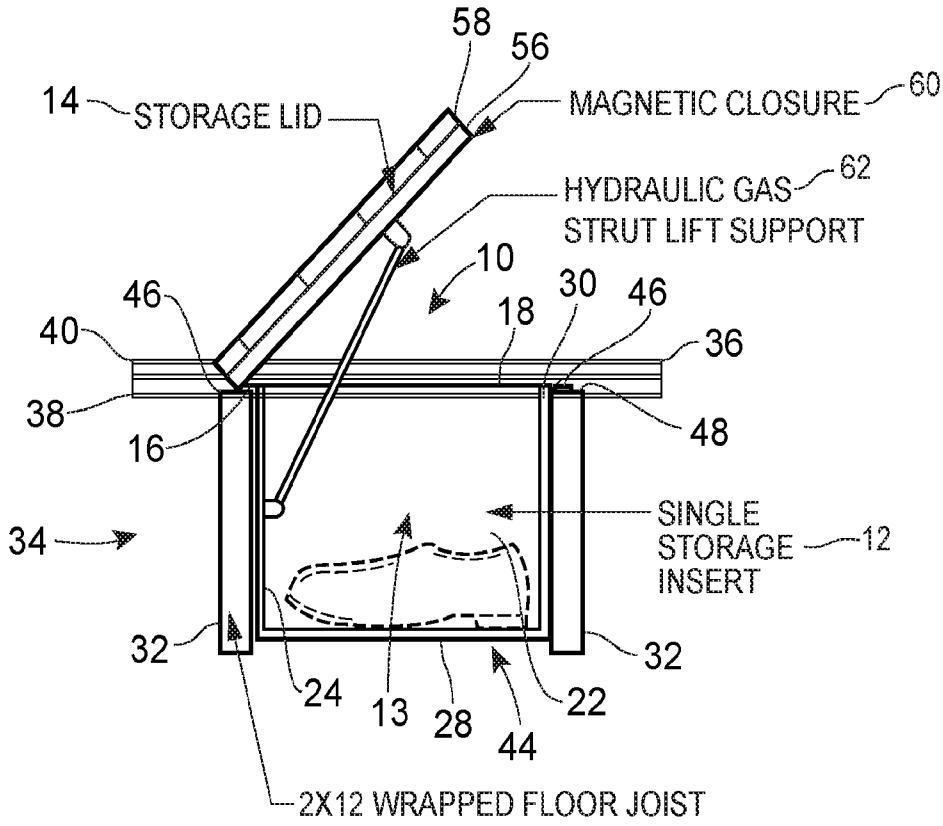


FIG. 3

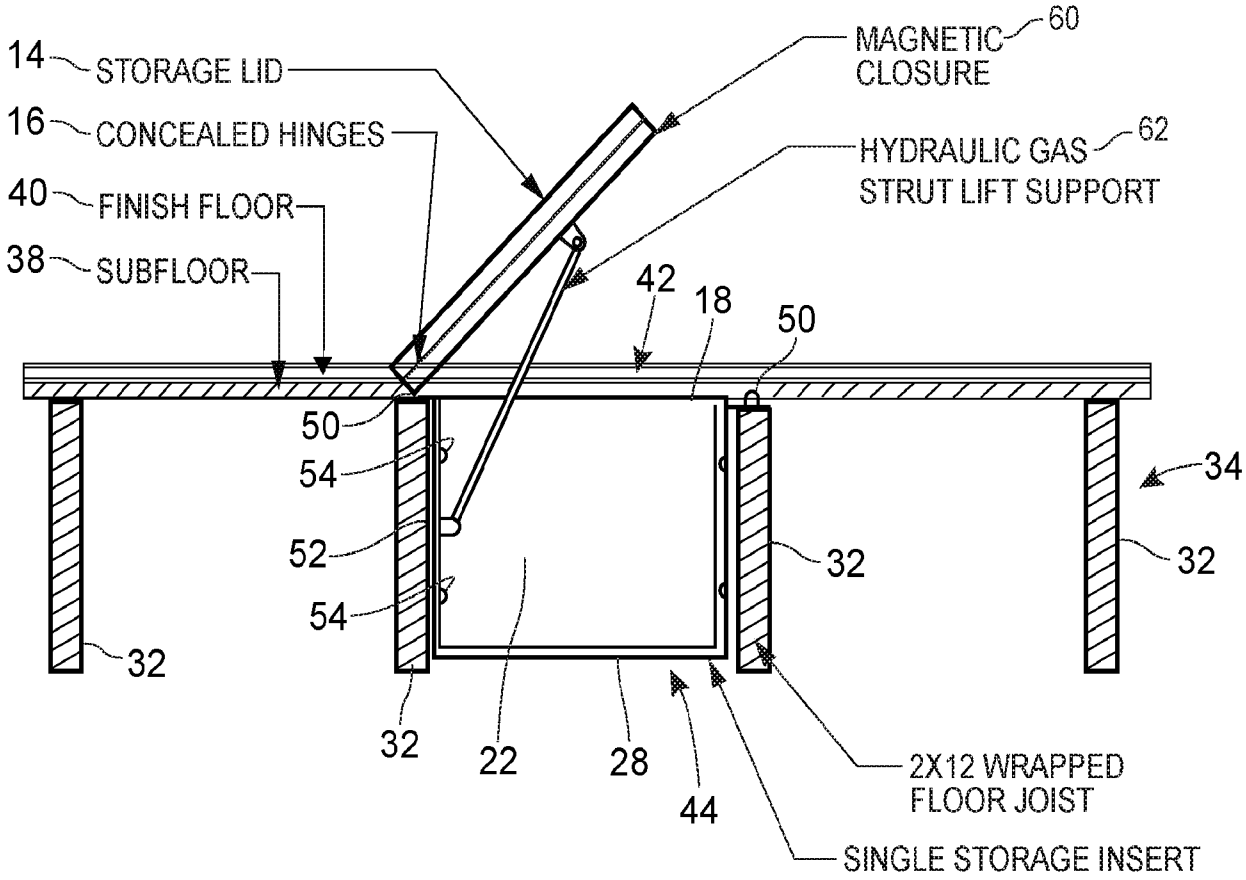

14
STORAGE LID
16
CONCEALED HINGES
40
FINISH FLOOR
38
SUBFLOOR
MAGNETIC CLOSURE
60
HYDRAULIC GAS STRUT LIFT SUPPORT
62
42
18
50
50
54
52
54
32
32
32
32
34
32
22
28
44
2X12 WRAPPED FLOOR JOIST
SINGLE STORAGE INSERT

FIG. 4

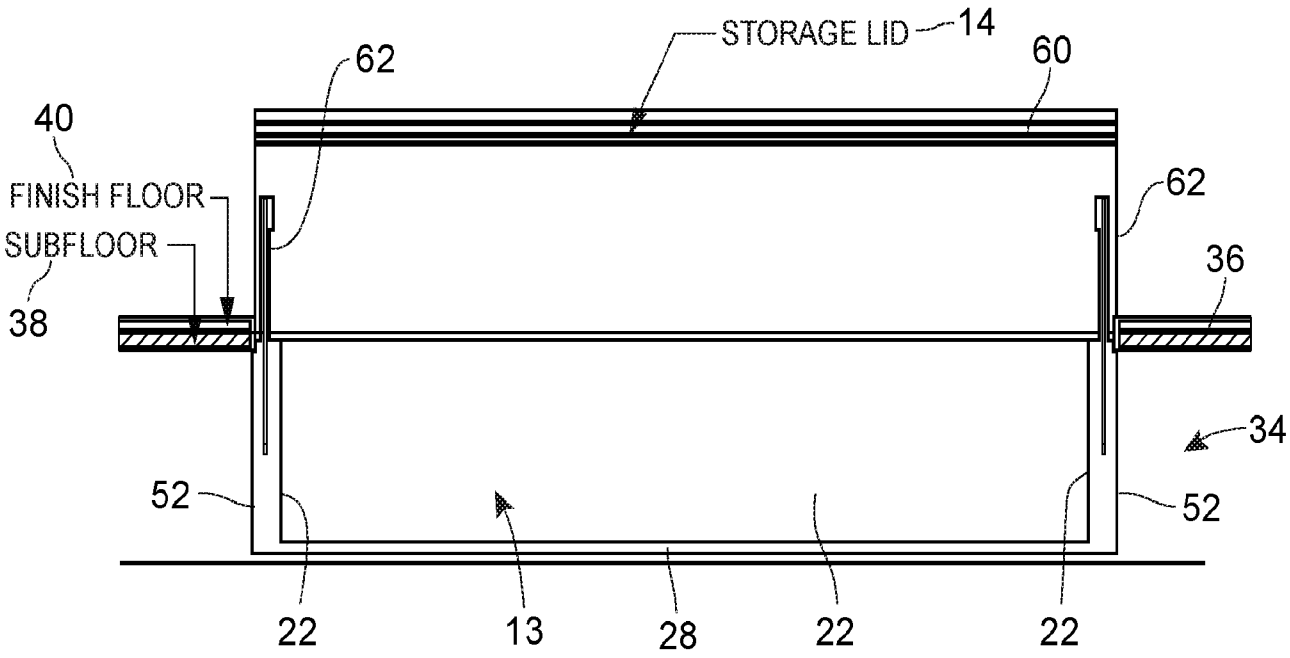

STORAGE LID
14
62
60
40
FINISH FLOOR
SUBFLOOR
38
62
36
34
52
52
22
13
28
22
22

FIG. 5

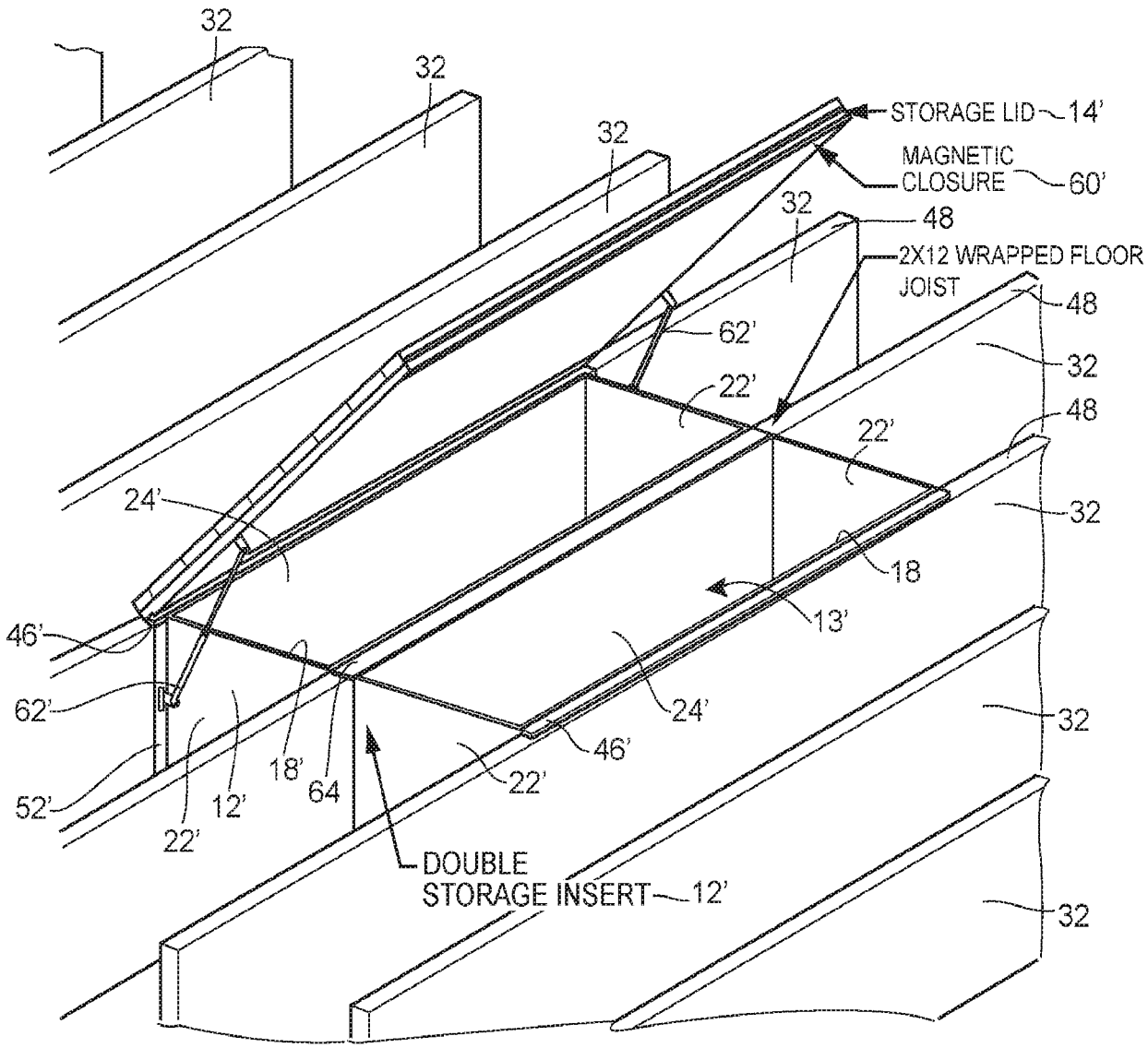

32
32
32
32
STORAGE LID
14'
MAGNETIC
CLOSURE
60'
48
2X12 WRAPPED FLOOR
JOIST
48
62'
32
22'
48
22'
24'
32
18
13'
46'
62'
24'
32
46'
22'
18'
64
12'
52'
22'
DOUBLE
STORAGE INSERT
12'
32

FIG. 6

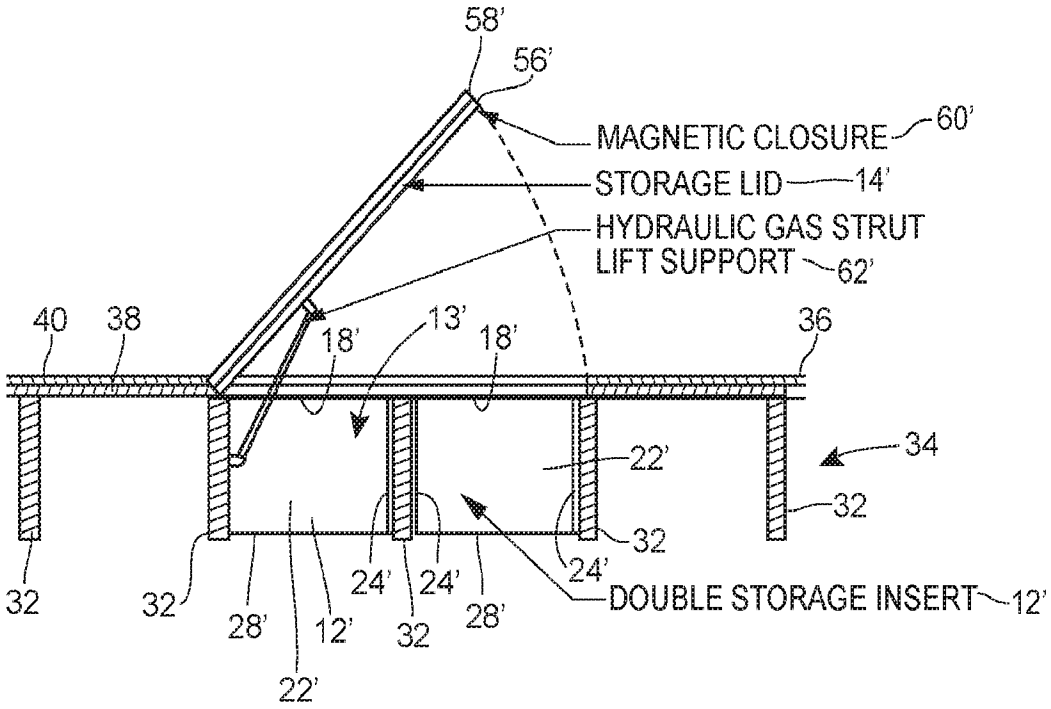

58'
56'
MAGNETIC CLOSURE
60'
STORAGE LID
14'
HYDRAULIC GAS STRUT
LIFT SUPPORT
62'
40
38
18'
13'
18'
36
34
22'
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32
32
32
24'
24'
24'
28'
12'
32
28'
DOUBLE STORAGE INSERT
12'
22'

FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US18/63969

A. CLASSIFICATION OF SUBJECT MATTER
IPC - A47B 96/06; A47F 5/08; B65D 25/22 (2019.01)
CPC - A47B 96/06; A47F 5/0892; B65D 25/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 9,737,144 B1 (BROWN DE) 22 August 2017; figures 1-4; column 7, lines 40-65; column 10, lines 25-30, 65-67	1, 3, 4 --- 2, 5, 6, 10
X --- Y	US 4,738,054 A (MUTH JC et al.) 19 April 1988; figures 4-6; column 2, lines 50-65; column 4, lines 5-15	1, 7, 8 --- 9
Y	CN 102582950 A (BEIJING HUAXING CHANGTAI INTERNET OF THINGS TECHNOLOGY RESEARCH INSTITUTE) 18 July 2012; see machine translation	2
Y	US 2,256,928 A (SLACK WR et al.) 23 September 1941; figures 1, 2; page 1, column 1, lines 5-15	5
Y	CA 2,203,336 A1 (EASY ACCESS PRODUCTS LTD.) 22 October 1998; figure 1; page 6, lines 25-30	6
Y	US 3,131,512 A (MACLEOD JH) 5 May 1964; figure 2; column 2, lines 55-65	9
Y	US 3,326,410 A (ASENBAUER DJ) 20 June 1967; figures 1, 2; column 4, lines 10-25	10
A	US 2008/0036341 A1 (NILSEN J et al.) 14 February 2008; entire document	1-10
A	US 6,088,239 A (ZEISS J) 11 July 2000; ontiro doournont	1-10

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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"P" document published prior to the international filing date but later than the priority date claimed
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
19 January 2019 (19.01.2019)	19 FEB 2019
Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774