

FIG. 1

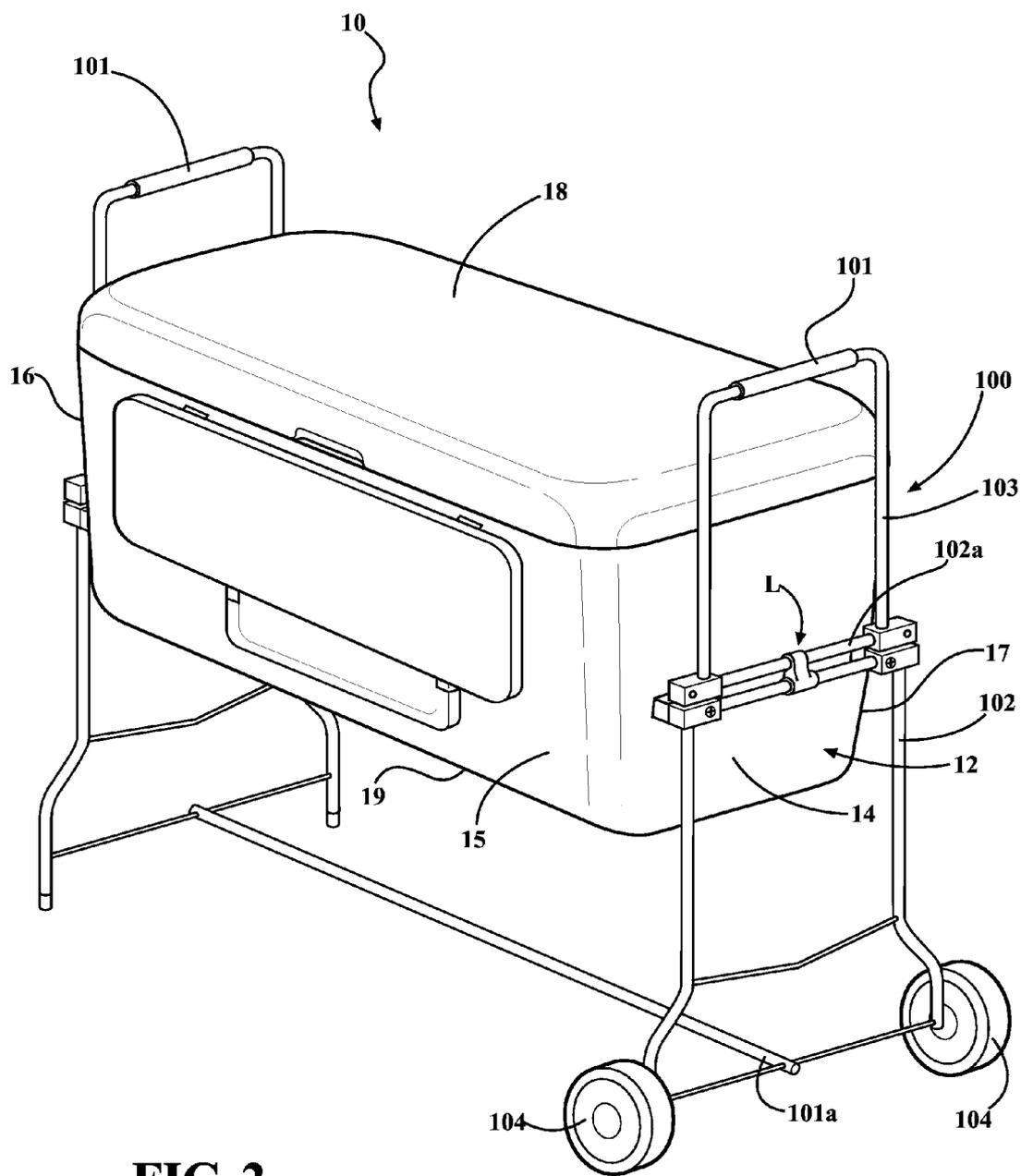


FIG. 2

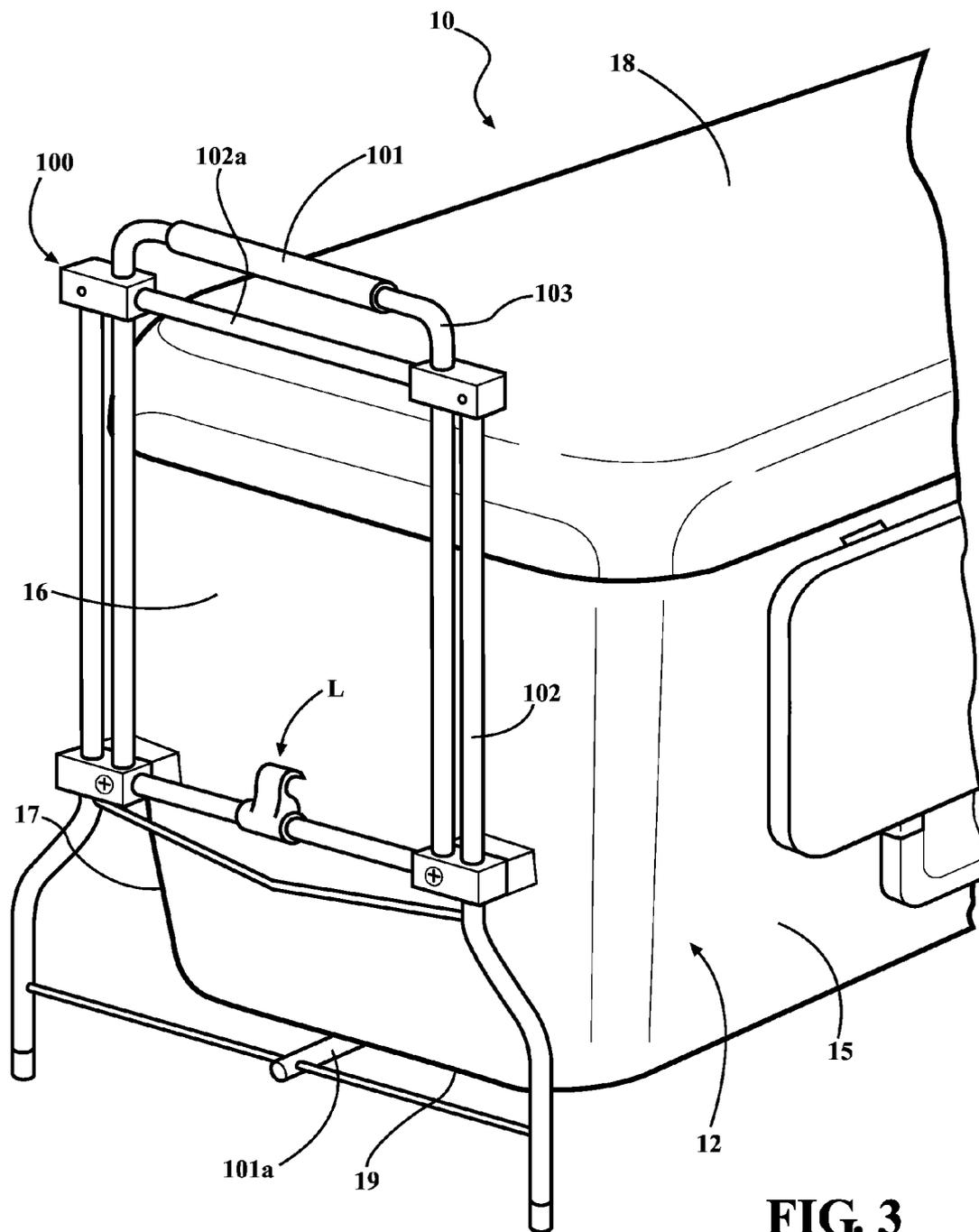


FIG. 3

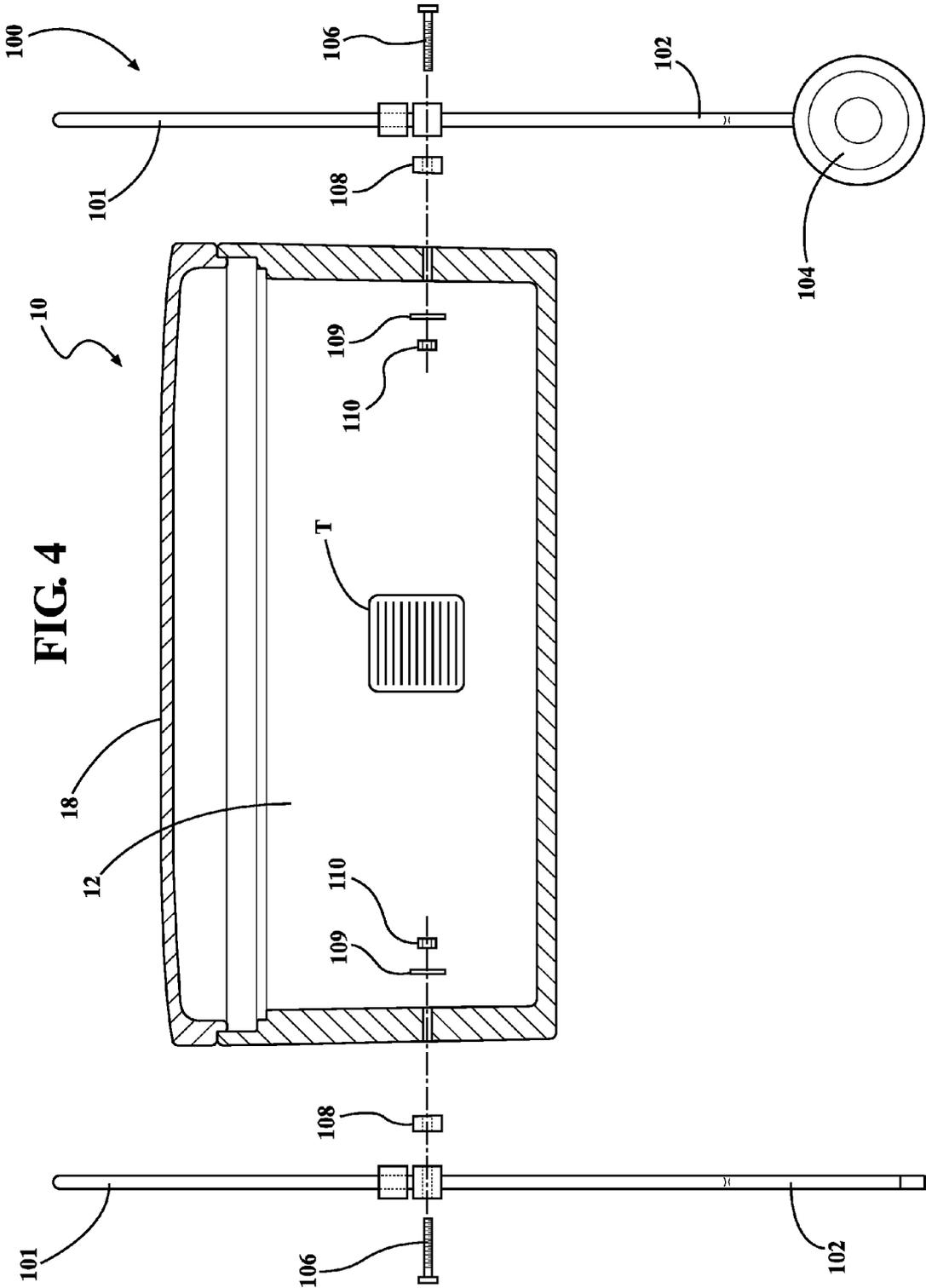
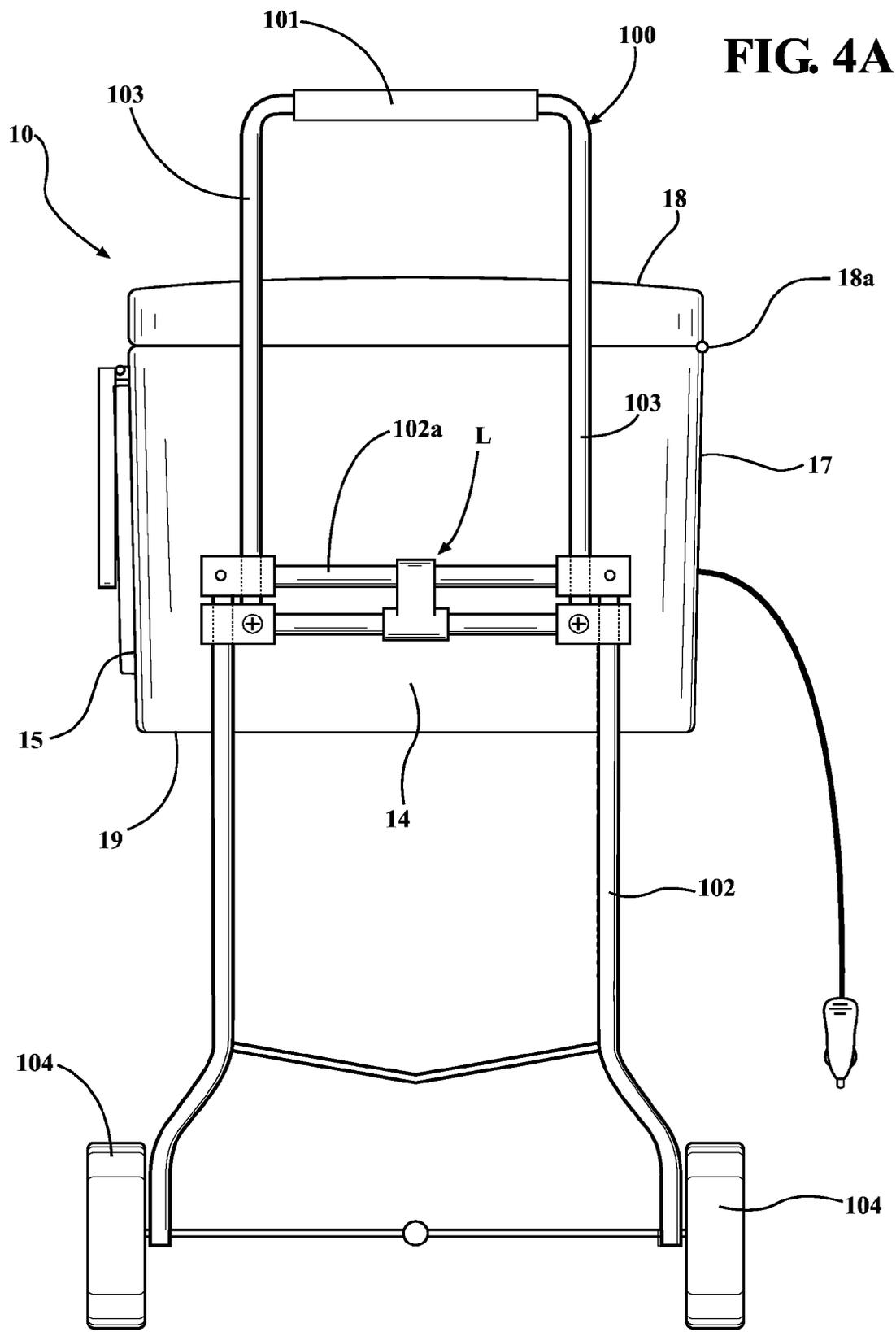
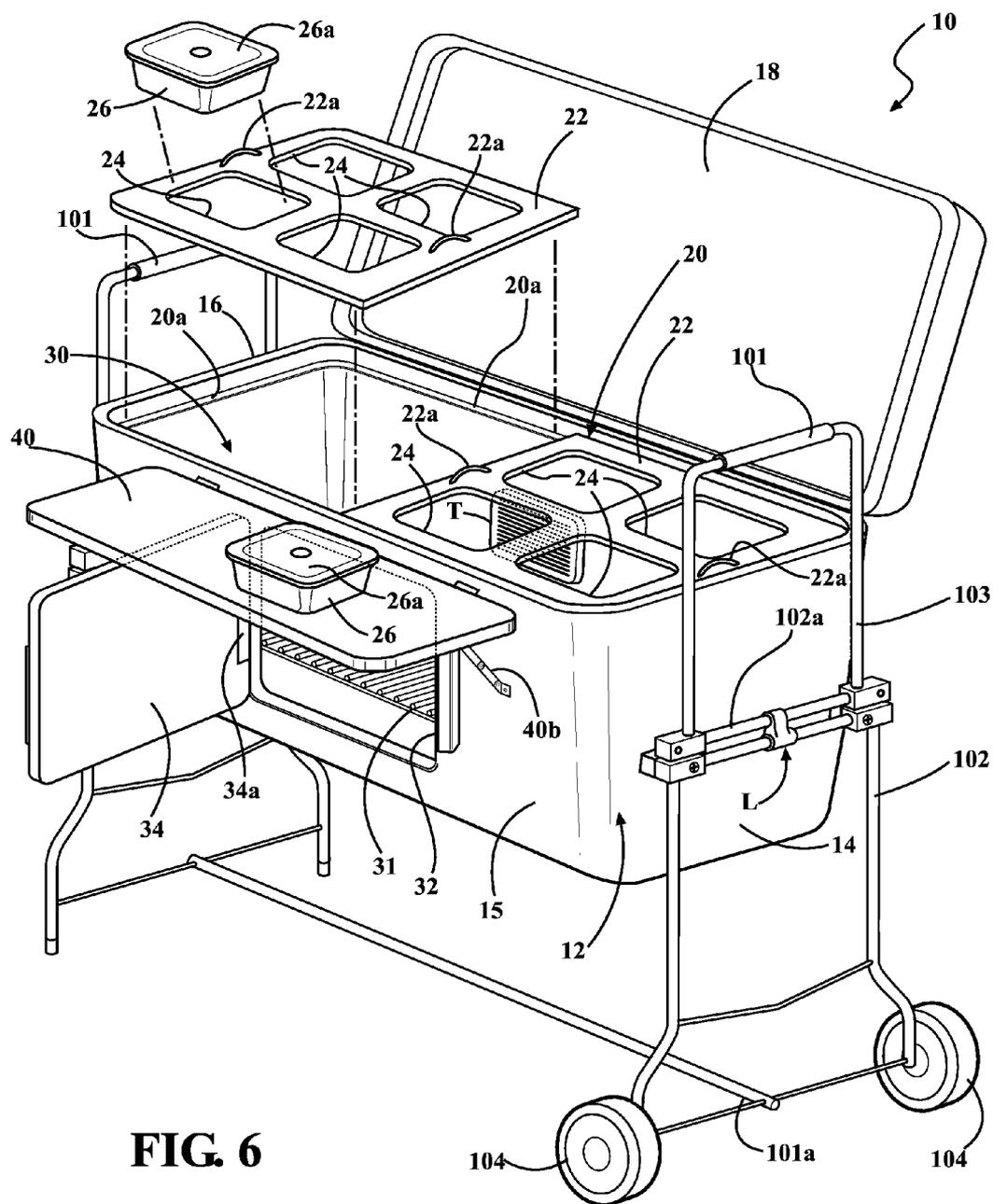


FIG. 4





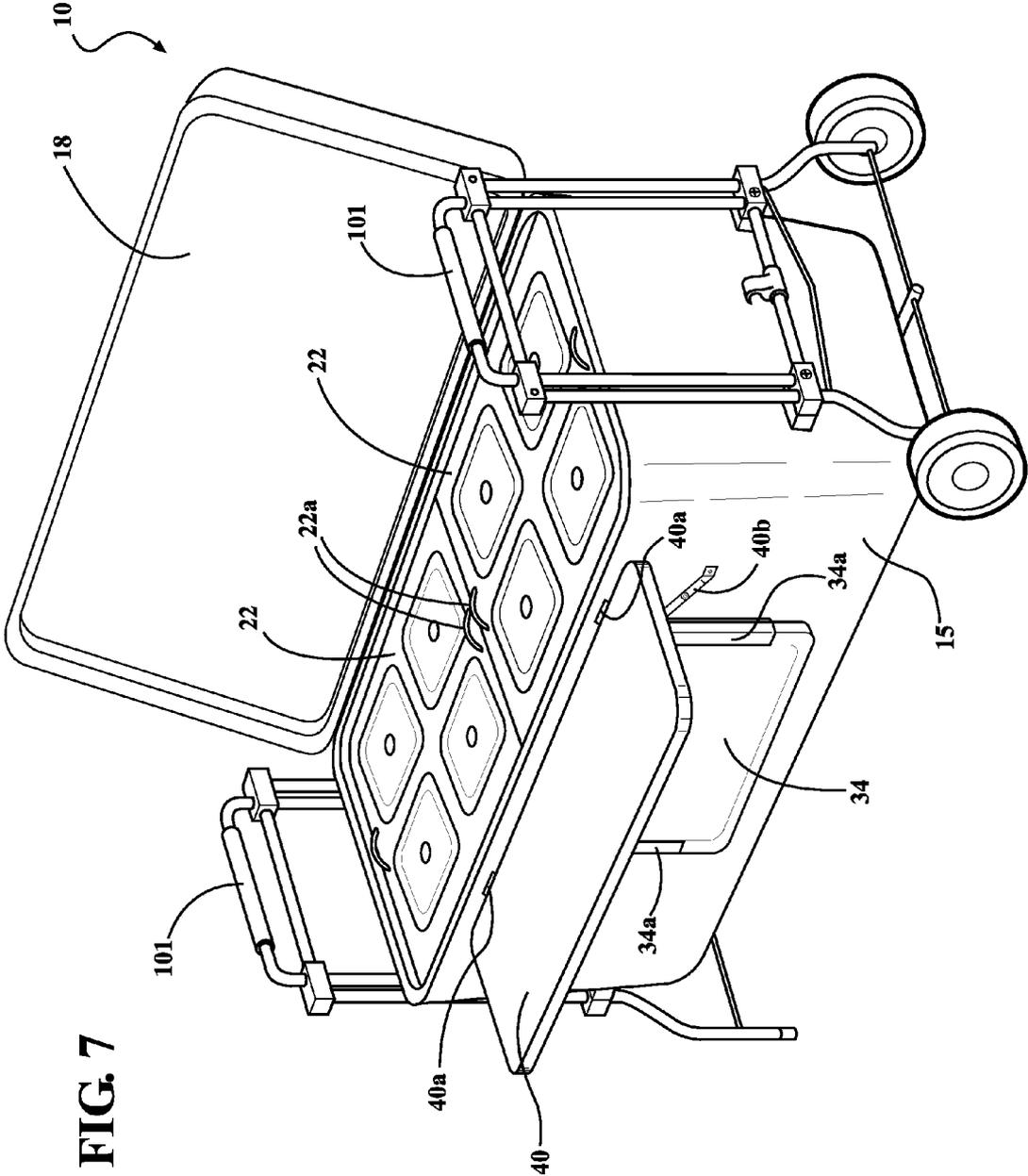
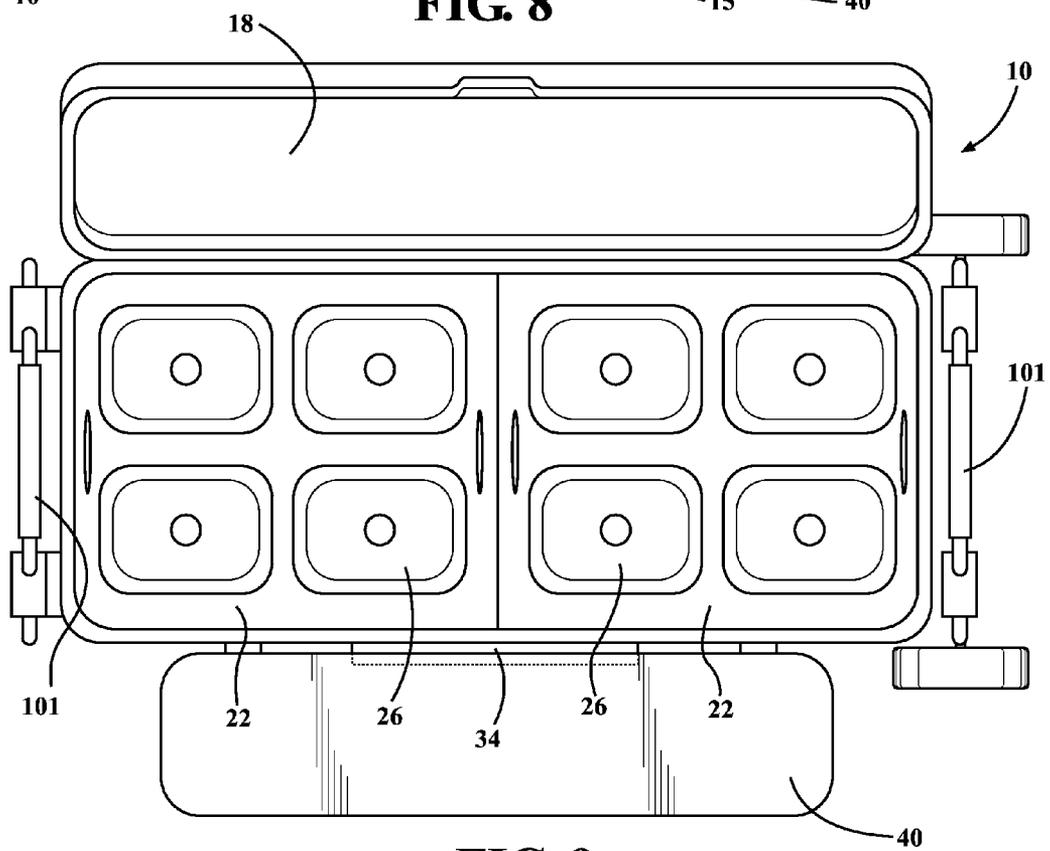
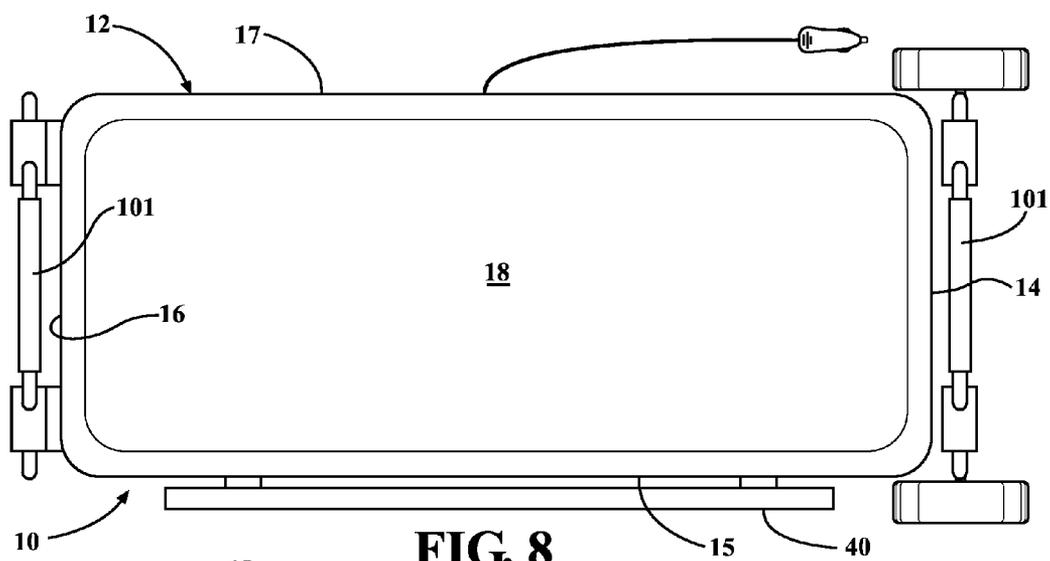


FIG. 7



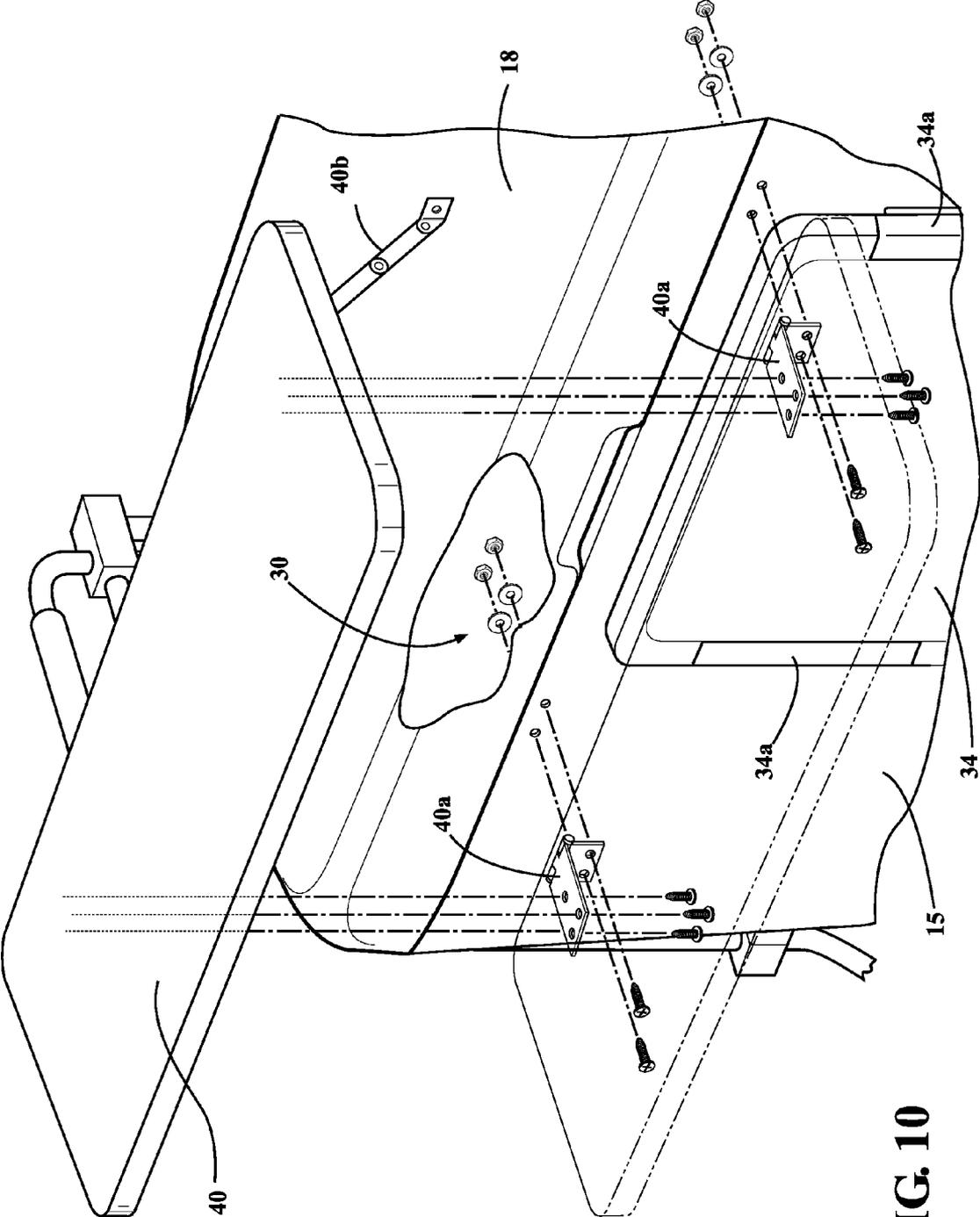


FIG. 10

FIG. 11

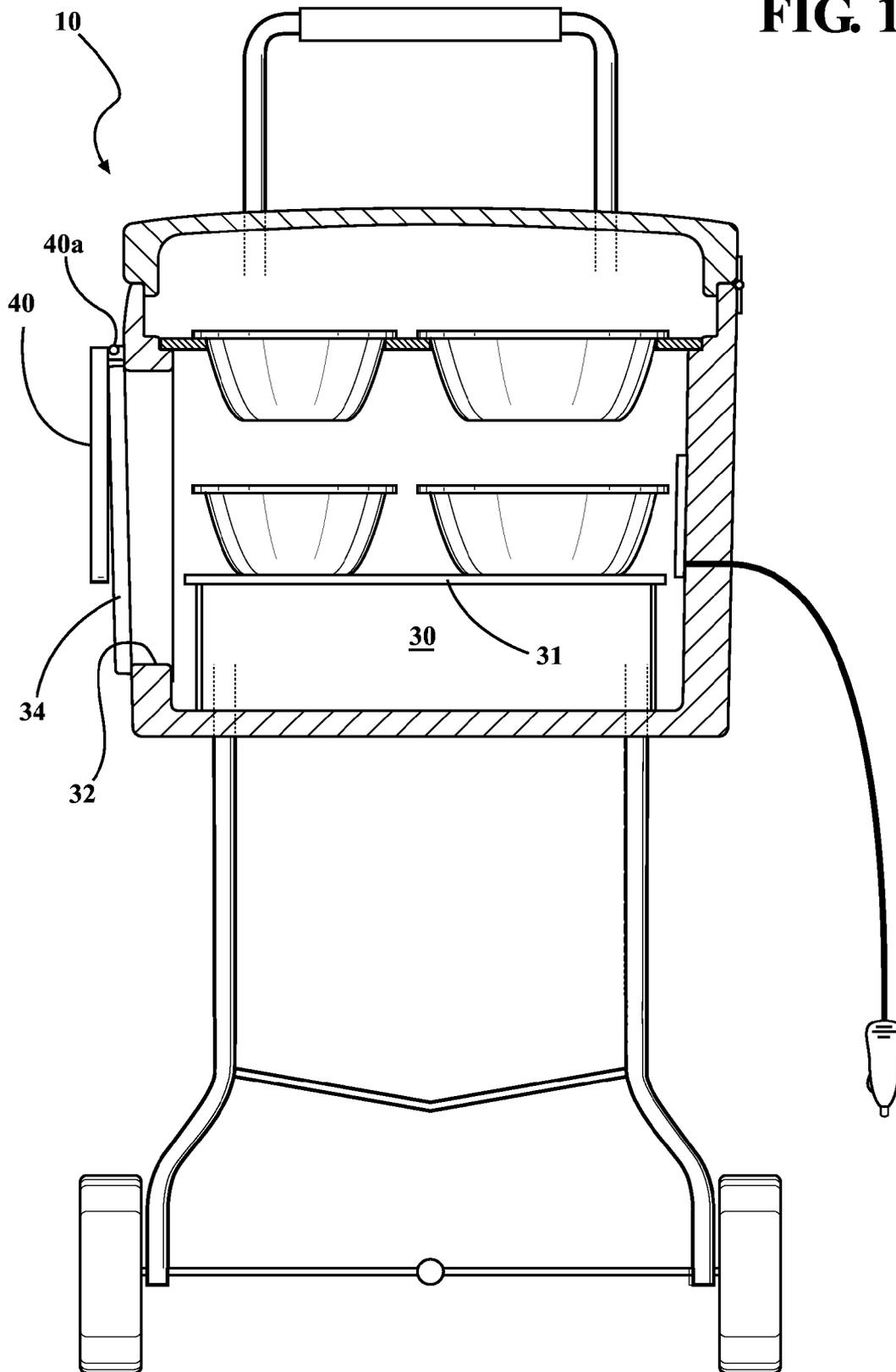


FIG. 12

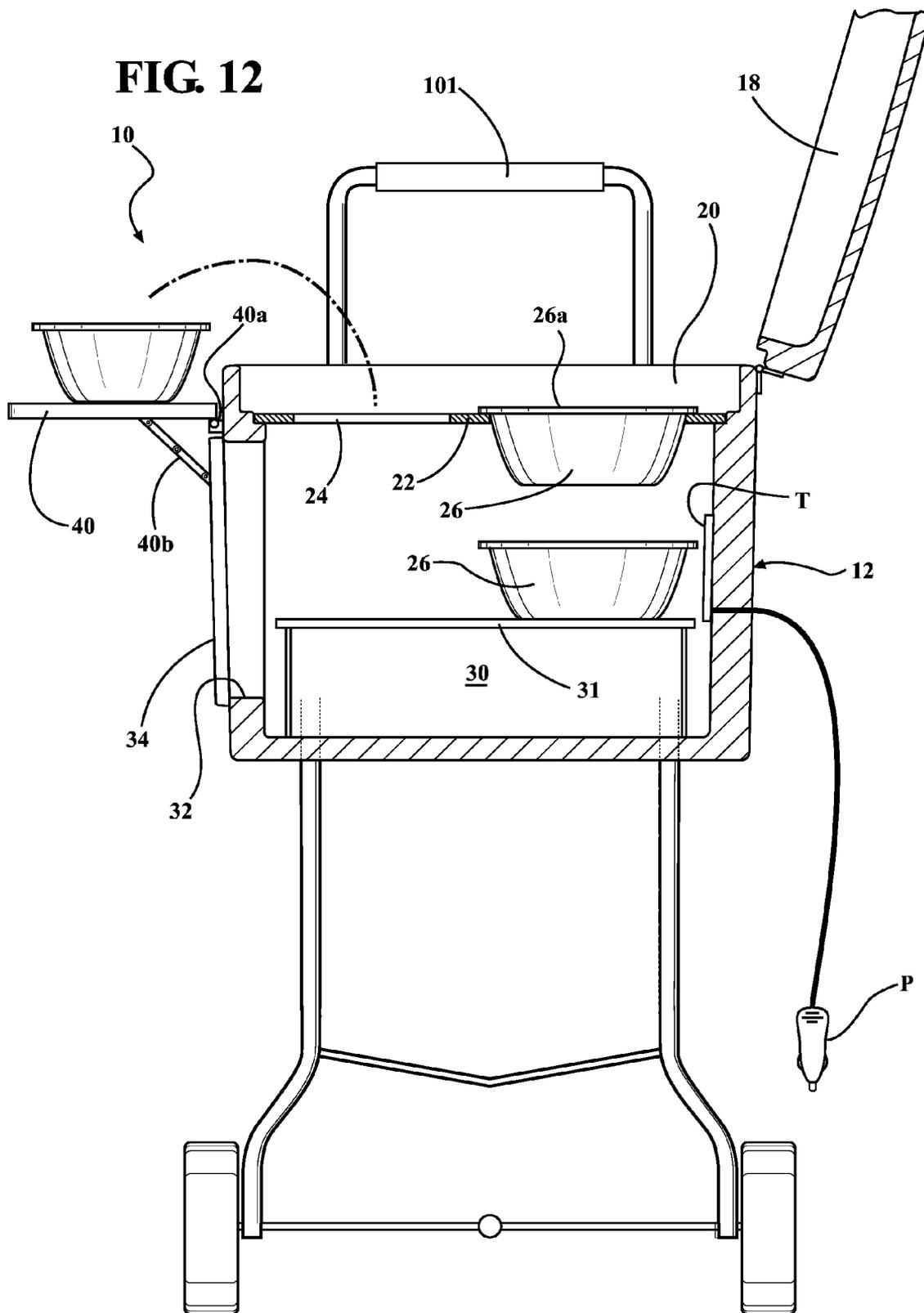


FIG. 13

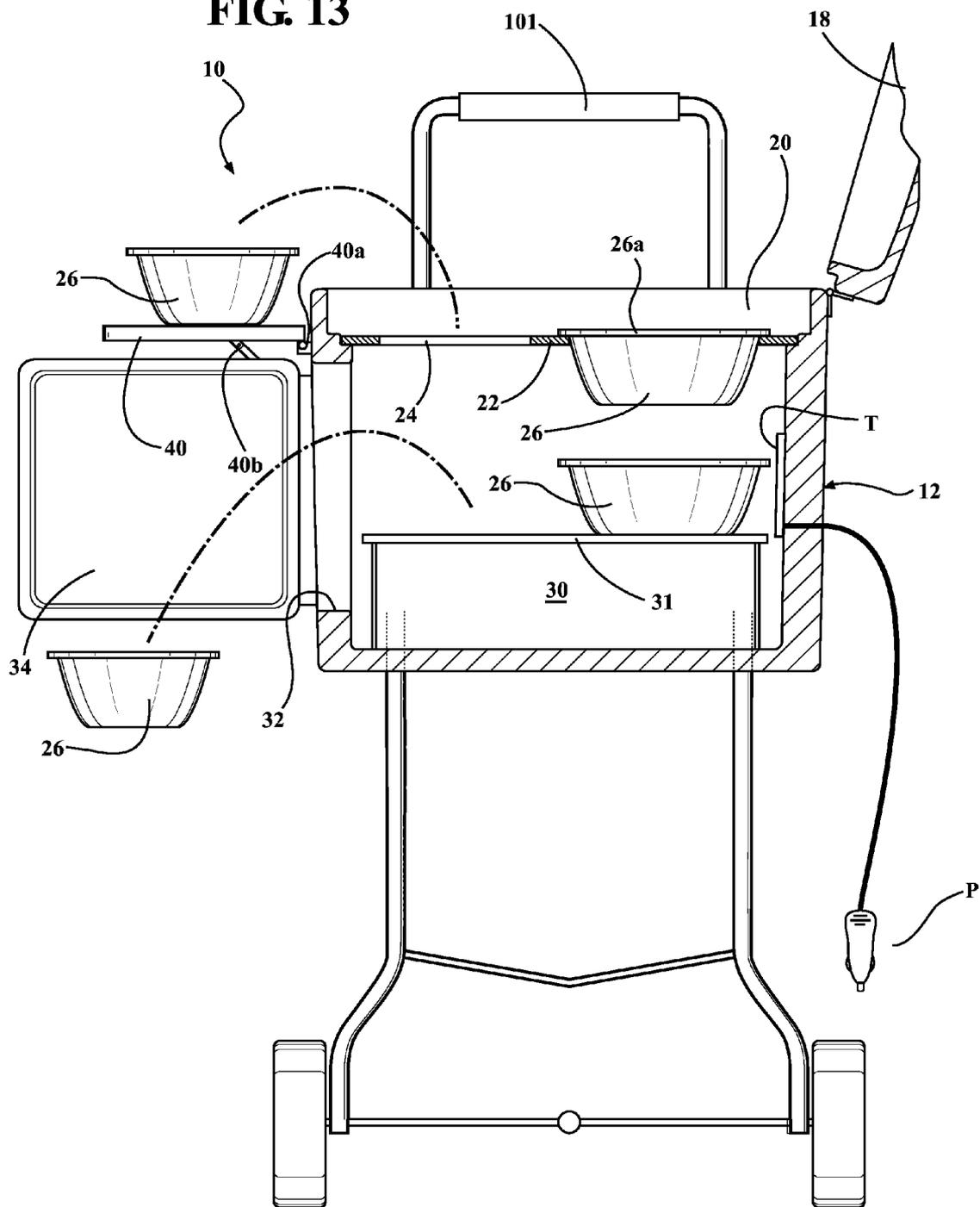
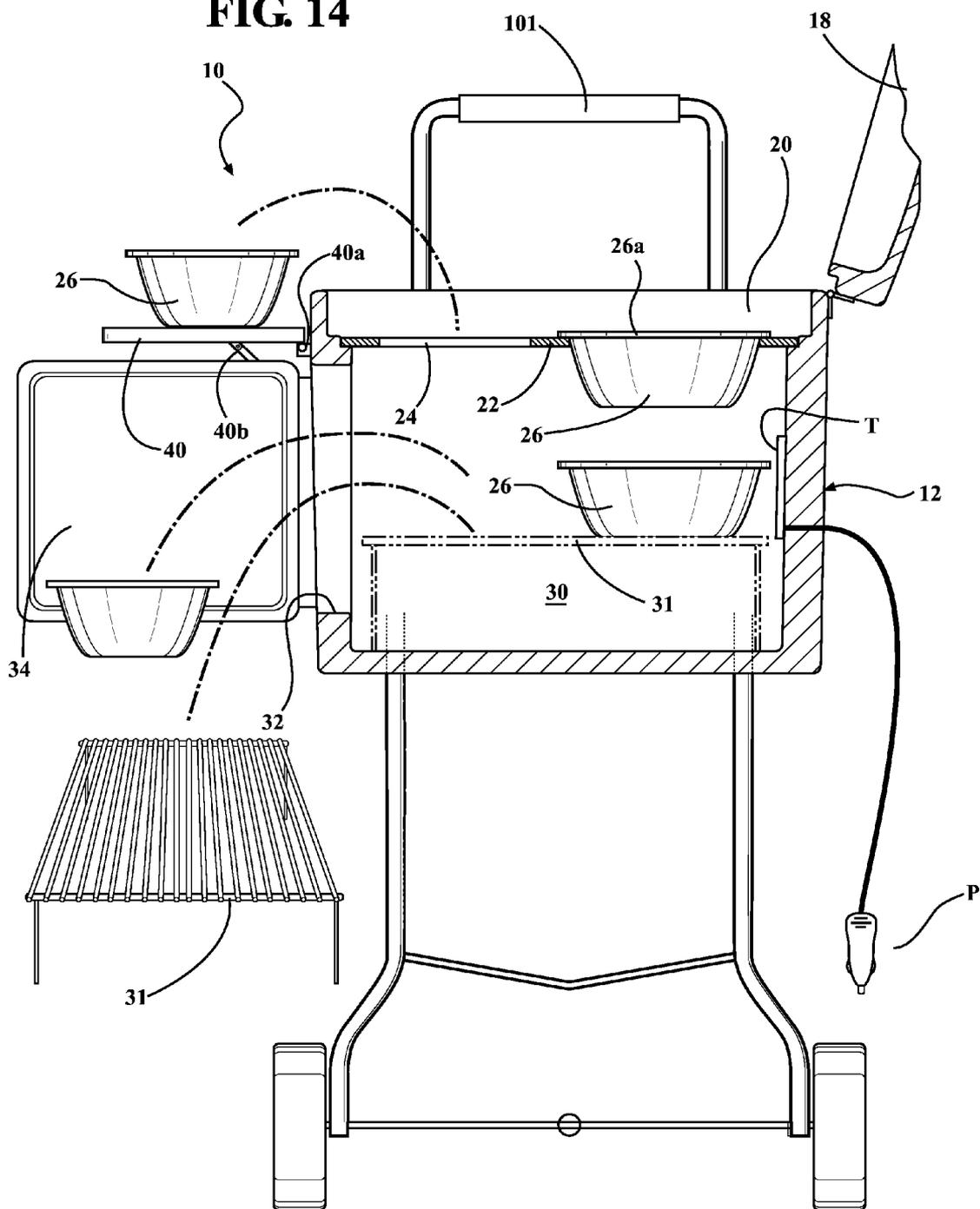


FIG. 14



SERVING STAND COOLER

RELATED APPLICATIONS/PRIORITY BENEFIT CLAIM

[0001] This application claims the benefit of U.S. Provisional Application No. 61/480,757, filed Apr. 29, 2011 by the same inventor (Bose), the entirety of which provisional application is incorporated herein by reference.

FIELD

[0002] The subject matter of the present application is in the field of portable insulated ice chests or “coolers”.

BACKGROUND

[0003] Coolers with supplemental inserts or attachments for food-organizing and food-serving functions are known.

[0004] U.S. Pat. No. 3,880,485 to Schmelzer teaches a cooler with a plurality of trays selectively stored on the lid or connected to the sides of the cooler for use.

[0005] U.S. Pat. No. 5,437,165 to White et al teaches a food organizing and protecting insert that mounts in a portable cooler to provide a horizontal shelf with food receptacle receiving apertures and a closed chamber to hold ice when the cooler lid is open. The food receptacles are held by their upper rims in apertures in the insert shelf so that the body of each food receptacle is within the cooled chamber. One or more hinged transparent covers close to cover the food receptacles.

[0006] U.S. Pat. No. 5,605,056 to Brown et al teaches a portable cooler with a drawer having a food grate located above an ice storage space in the drawer. The grate keeps the food spaced from the ice beneath it.

[0007] U.S. Pat. No. 6,269,965 to White et al. discloses an insert that fits into the interior of a portable cooler, with a planar platform with apertures that support flanged food receptacles.

[0008] U.S. Pat. No. 6,357,252 to Rand shows a portable cooler with a drawer in the front wall communicating with a lower storage compartment.

[0009] Prior coolers such as the foregoing examples are often too limited in function and/or too complicated for all-around use, especially for use as a general purpose serving station for cold food and beverages at parties or picnics.

BRIEF SUMMARY

[0010] I have invented a truly useful cooler for serving cold foods and beverages while protecting them from heat, insects, and contamination. The cooler comprises a cooler with a main lid covering a top opening; at least one, and preferably a plurality, of removable food container trays supported in the top opening for supporting separately-sealed food containers; a cold/thermal compartment below the food container trays in direct thermal communication with the underside of the food container tray(s); a side (preferably front) access door in a side wall of the cooler to provide access to the cold compartment; and a flip-up shelf, with a lowered storage position folded flat against the sidewall over the front access door, and a raised serving position projecting horizontally from the cooler above the access door adjacent the food container tray.

[0011] In a preferred form, the removable food container trays fully cover the top opening of the cooler to seal and insulate the cold compartment beneath.

[0012] In a further form, the cooler is mounted on a wheeled support frame, and is movable on the support frame between a lowered transport position and a raised serving position.

[0013] The top opening, lid, and removable food container trays define a serving area that can be conveniently closed off to protect it from sun and insects between servings, and that even in use preserves the cold temperature of the cold compartment. The individual food containers are held in their trays such that they are covered by the cooler lid when their own individual lids or covers are removed, so that the cooler main lid can function as a supplemental cover if the individual container lids are missing. The serving shelf is positioned to support a plate or bowl adjacent the serving area while food is served from the containers.

[0014] If the cooler is supplied with a thermoelectric module or some other type of heating-capable element, the “cooler” can also be used to keep foods warm.

[0015] These and other features and advantages of the invention will become apparent from the detailed description below, in light of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 is a front perspective view of a cooler according to the present invention, with the cooler in a lowered transport position on a support frame.

[0017] FIG. 2 is similar to FIG. 1, but with the cooler in a raised serving position on the support frame.

[0018] FIG. 3 is a front perspective view of the cooler of FIG. 1, showing the right (non-wheeled) end of the cooler in more detail.

[0019] FIG. 4 is a front elevation view of the cooler of FIG. 1, with the support frame exploded away from the cooler box, and the cooler box in section, to illustrate an example attachment method.

[0020] FIG. 4A is an end elevation view of the cooler of FIG. 1, showing the support frame extended and the cooler in a raised serving position.

[0021] FIG. 5 is a perspective view similar to FIG. 1 but with the cooler in the raised serving position, and with the cooler lid open and the front serving shelf stowed flat.

[0022] FIG. 6 is similar to FIG. 5, but shows the front shelf deployed up, the front access door open, and a food container storage tray exploded from the cooler interior and a food container from the remaining tray placed on the shelf.

[0023] FIG. 7 is similar to FIG. 5, but the access door is closed while the shelf is deployed up, the cooler is lowered to what would normally be the transport position, and the food container trays are both in place in the cooler body.

[0024] FIG. 8 is a top view of the cooler of FIG. 1, with the shelf stowed flat.

[0025] FIG. 9 is a top view of the cooler of FIG. 1, with the shelf up and the main lid open.

[0026] FIG. 10 is a detail perspective view of the shelf and its mounting hardware exploded away from the front of the cooler and the access door.

[0027] FIG. 11 is a left side (end) view of the cooler of FIG. 1, sectioned through the cooler body to show the interior, and with the serving shelf down and cooler lid closed.

[0028] FIG. 12 is similar to FIG. 11, but with the shelf raised and the cooler lid open.

[0029] FIG. 13 is similar to FIG. 12, but with the access door open beneath the shelf.

[0030] FIG. 14 is similar to FIGS. 11-13, with food containers and interior accessories shown in various positions relative to the cooler.

DETAILED DESCRIPTION

[0031] FIGS. 1 through 4 show an exemplary cooler 10 according to the invention in order to teach how to make and use the claimed invention.

[0032] FIGS. 1 through 4A show cooler 10 combined with a wheeled support frame 100, with the cooler having a lowered position on frame 100 (FIGS. 1 and 3) that helps make the combination stable for transport. Cooler 10 includes a body 12, for example rectangular in shape and made from metal or molded plastic, with insulated walls 14, 15, 16, 17 and an insulated main lid 18 and an insulated bottom 19. FIG. 4 illustrates one example connection between the cooler body 12 and frame ends 101, comprising nuts 110 secured to the end walls of the cooler body, and bolts 106 passing through telescoping upper legs 103 and secured to nuts 110 with appropriate spacers 108 and washers 109 in between.

[0033] FIGS. 2, 4, and 4A show cooler 10 raised by frame 100 to a serving position, the cooler being locked securely in place by a latching mechanism L. Illustrated frame 100 is made from a pair of known, commercially available telescoping handles 101 used for wheeled luggage, one handle 101 attached to each end 14, 16 of the cooler body, the handle ends 101 preferably connected and stabilized with a crosspiece or other connecting member or members 101a (FIG. 3) running between the handles below the cooler body. Each illustrated handle end 101 has an upper frame portion comprising legs 103 connected to cooler body 12 and joined by a handgrip at their upper ends, and a lower frame portion comprising legs 102. Legs 102 may end in feet or supporting wheels 104 at one or both ends of the frame 100. Latching mechanism L may comprise any known or other mechanism that allows upper frame portion 103 to telescope upwardly relative to lower frame 102, and then to latch in place (for example on crossbar 102a connected between legs 102) with sufficient strength to support cooler 10 in the raised, latched position.

[0034] Referring to FIG. 5, main lid 18 has been opened on hinges 18a (FIG. 4A) to expose top opening 20, which in the illustrated embodiment is rectangular, being defined by the upper edges of end walls 14 and 16 and front and rear walls 15 and 17. Top opening 20 supports one or more removable food container serving trays 22, in the illustrated example two trays 22 of equal size each covering half of the top opening.

[0035] Trays 22 rest on a suitable support, for example with the edges 22a of the trays resting on a peripheral shoulder 20a formed in or adjacent the upper ends of the side walls 14, 15, 16, 17 and around the top opening 20 (best seen in FIG. 6). Shoulder 20a may also support or engage a portion of main lid 18 when the main lid is closed, for example to provide a thermal and/or watertight seal, and in such case the thickness of the tray edges should be sized to not interfere with the proper closing and sealing of main lid 18 relative to cooler body 12. Trays 22 may also be supported by other types of supports, including but not limited to legs that reach to the bottom of the cooler, or by projections such as rods or racks or studs extending across or into the top opening from the side walls.

[0036] As best shown in FIG. 6, trays 22 include apertures 24 sized and shaped to receive independently sealable food containers 26 with their own lids 26a. The bodies of food containers 26 extend through trays 22 down into direct ther-

mal communication with a cold compartment below the trays, while their upper ends remain supported above the trays 22 with lids 26a accessible.

[0037] One way to support food containers 26 in apertures 24 is to size each aperture 24 slightly smaller than a horizontally protruding rim or flange portion of its associated container 26 (or lid 26a). Another way to achieve this support is to build some sort of supporting structure into each tray 22 located below the apertures 24, for example container-supporting cages or netting attached to the underside of the trays to support the lower ends of the inserted containers. Other methods/structures for supporting the food containers 26 in trays 22 are possible without interfering with the structure or function of the invention, provided that the lower ends of containers 26 are in thermal communication with the thermal compartment so that the containers' contents stay cold (or hot, as desired). Trays 22 may be insulated.

[0038] Still referring to FIG. 6 and also to FIG. 7, trays 22 are removable from cooler body 12, by simply lifting them out of the top opening 20, for example via handles 22a. The volume beneath trays 22 comprises a thermal compartment 30, which is an insulated volume defined between walls 14, 15, 16, 17 and 19 and trays 22. Ice or ice packs or other low-temperature media can be placed in compartment 30 to lower the temperature of the compartment. The undersides of trays 22, and accordingly the lower ends of any food containers 26 held by the trays, are in thermal communication with thermal compartment 30. By "thermal communication" I mean un-insulated, with convective or conductive cooling or heating between the air or cooling/heating media (ice, gel packs, thermoelectric module T, etc.) of thermal compartment 30 and the food containers 26 protruding from the undersides of trays 22.

[0039] While cooler 10 is shown in use as a cooler, using an appropriate heating element such as a thermoelectric module T in compartment 30 powered by an electrical connector plug P, the thermal communication between the lower ends of containers 26 and the thermal compartment 30 can involve heat transfer to the containers 26 to keep food in the containers warm.

[0040] FIG. 6 shows the cooler body 12 raised to the serving position, and along with FIGS. 7 through 9 further shows details of the operation of trays 22 and a front access door 34 in front wall 15. FIG. 6 shows one of trays 22 removed from opening 20, and a food container 26 removed from its aperture 24 in the tray. The other tray 22 is shown in opening 20, and a food container 26 removed from its aperture and supported on a shelf 40. Shelf 40 normally stores flat against (or adjacent and parallel) the front side wall 15 of cooler body 12, as shown in preceding FIGS. 1-5, and can be raised and locked in a horizontal serving position on lockable hinges or hinged brackets or swing-out supports 40a and 40b as shown in FIGS. 6 and 7. Food containers 26 can be removed from their trays 22 as needed and placed temporarily on shelf 40 for more convenient serving. Alternately, containers 26 can remain in trays 22 and plates, cups, bowls and the like can be placed on shelf 40 adjacent containers 26 to transfer food from the containers to the cups, bowls, plates, etc.

[0041] Thermal compartment 30 can be accessed by removing one or both trays 22, and it may also be accessed through side wall 15 of the cooler body via opening 32 selectively closed by a door or cover 34. Door 34 may be a hinged or snap-on door or cover using one or more hinges or latches 34a. Door 34 may also be a sliding door or other form of

closure, and is preferably insulated and may be transparent. Thermal compartment 30 holds removable cooling and/or heating media such as ice or cold or hot packs, or contains a cooling and/or heating element such as a thermoelectric module T. Thermal compartment 30 may be provided with fixed or removable grates or shelves such as 31 to support extra food containers 26, beverages, condiments, etc. above any cooling media, or simply to provide more efficient storage in the compartment.

[0042] FIGS. 10 and 11 show a preferred relationship between shelf 40 and front access opening/door 32/34. Shelf 40 preferably lies at least partway over door 34 when the shelf is folded flat against wall 15 and the door is closed, for extra security and thermal insulation. When shelf 40 is flipped up to the horizontal serving position, it allows door 34 to freely open while shading and protecting the access opening 32 to thermal compartment 30 from sun, falling food, bird droppings, and the like. FIG. 10 also shows more detail of the hinge and support structure 40a and 40b for shelf 40.

[0043] FIGS. 11 through 14 show different views of cooler 10, and of the function and interrelationship of the various parts and food containers 26 with: removable shelf/grate 31 supporting extra containers 26 in the cold compartment beneath trays 22 (FIG. 11); shelf 40 raised and supporting a container 26 taken from one of trays 22 (FIG. 12); shelf 40 raised and access door 34 opened, with containers being taken both from tray 22 and thermal compartment 30 (FIG. 13); shelf/grate 31 being removed from thermal compartment 30 (FIG. 14); and, shelf/grate 31 shown positioned in thermal compartment 30 to support either extra food containers or removable cooling media (FIG. 14).

[0044] It will be understood that the disclosed embodiments represent presently preferred examples of how to make and use the invention, but are intended to enable rather than limit the invention. Variations and modifications of the illustrated examples in the foregoing written specification and drawings may be possible without departing from the scope of the invention. It should further be understood that to the extent the term "invention" is used in the written specification, it is not to be construed as a limiting term as to number of claimed or disclosed inventions or discoveries or the scope of any such invention or discovery, but as a term which has long been conveniently and widely used to describe new and useful improvements in science and the useful arts. The scope of the invention supported by the above disclosure should accordingly be construed within the scope of what it teaches and suggests to those skilled in the art, and within the scope of any claims that the above disclosure supports, whether the claims are made in this application or in a subsequent application claiming priority to this application.

What is claimed:

1. A cooler for serving cold foods and beverages, comprising:
 - an insulated cooler body with a top opening and a main lid attached to the body to selectively cover the top opening;
 - a removable food container tray supported in the top opening, and a plurality of removable, separately-sealed food containers mounted in recessed fashion in mating apertures in the tray;
 - a thermal compartment below the food container tray and in thermal communication with an underside of the food container tray and with lower portions of the food containers mounted in the tray;
 - an access opening in a side wall of the cooler at a height below the removable food container tray, the access opening communicating directly with the thermal compartment and further including a selectively closeable door; and,
 - an exterior shelf movable between a lowered storage position stored essentially flat against the side wall over the access opening and the door when the door is closed, and a raised serving position projecting horizontally from the cooler above the access opening above the door with sufficient clearance to allow the door to be opened underneath the shelf.
2. The cooler of claim 1, wherein the cooler body is mounted on a wheeled support frame, the cooler body movable on the frame between a lowered transport position and a raised serving position.
3. The cooler of claim 1, wherein the access opening is in a front sidewall of the cooler and the main lid opens to a back side of the cooler.
4. The cooler of claim 1, further comprising a plurality of removable food container trays supported in the top opening.
5. The cooler of claim 4, wherein the removable food container trays cover the top opening of the cooler to seal and insulate the cold compartment beneath.
6. The cooler of claim 1, wherein the removable food container tray covers the top opening of the cooler to seal and insulate the cold compartment beneath.
7. The cooler of claim 1, wherein upper ends of the food containers mounted in the food container tray include individual covers.
8. The cooler of claim 1, wherein upper end of the food containers mounted in the food container tray are covered by the main lid when the main lid is in a closed position on the cooler body.
9. The cooler of claim 1, wherein the food container tray is supported on peripheral edges of the tray by an upper edge of the top opening of the cooler body.

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