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(54) **DEPRESSED PORTAL IN WIRE STAND**

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(52) **U.S. Cl.**
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,283,389 A * 10/1918 Miles B65D 7/26 211/74
2,101,487 A * 12/1937 Anderson A47J 37/108 211/74
3,160,308 A * 12/1964 Hare B65D 21/046 206/513
3,536,000 A * 10/1970 Whitehill A47J 36/022 99/425
3,972,318 A * 8/1976 Lenoir A47J 37/10 D7/354
4,191,160 A * 3/1980 Elliott F24B 1/205 99/450
5,503,062 A * 4/1996 Buff, IV A47J 36/22 220/756
6,341,704 B1 * 1/2002 Michel, Jr. A47L 19/04 211/119.011
6,668,708 B1 * 12/2003 Swinford A47J 37/0694 99/449
7,267,308 B1 * 9/2007 Jenson A47J 47/16 248/37.3

(Continued)

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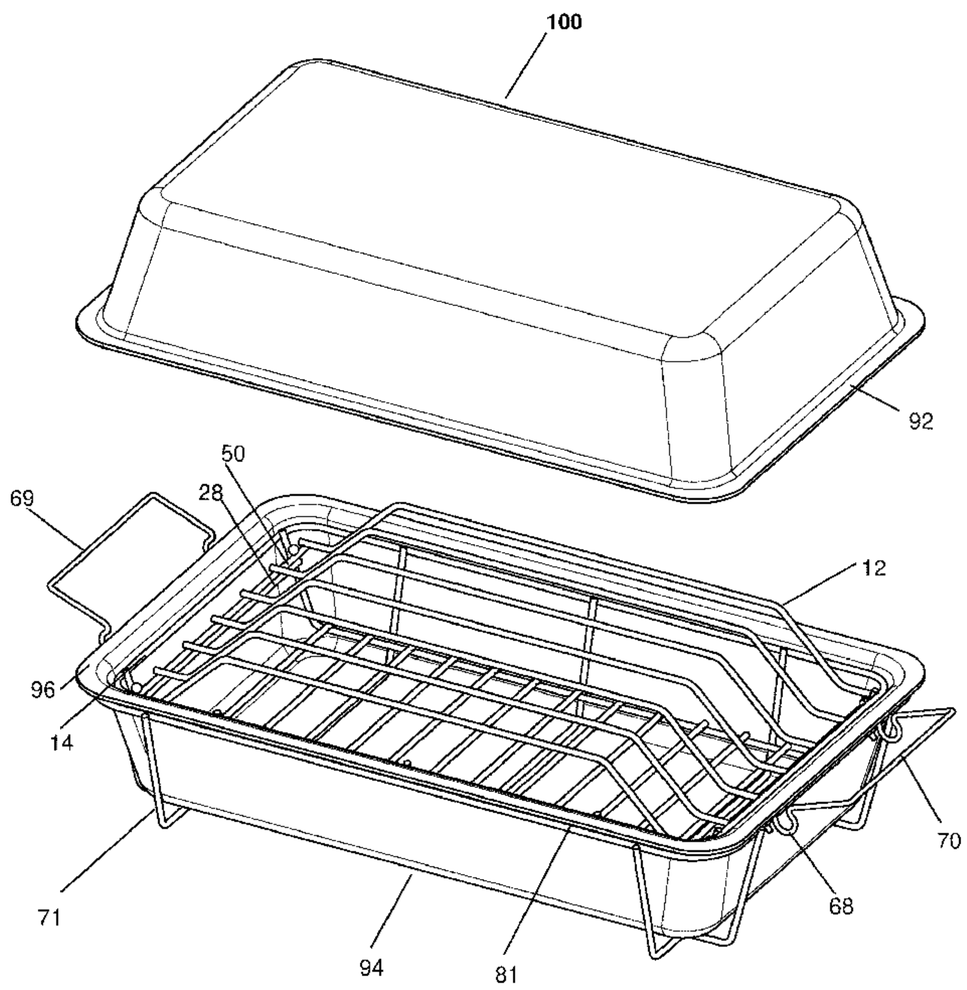
(57) **ABSTRACT**

A wire pan and interlocking top insert component are disclosed. The wire pan's top side is formed by a closed loop wire, which is connected to the parallelly placed bottom of the wire pan by inwardly sloping wires. Attached to the inwardly sloping wires are frictional clamping flanges and bent wires, which connect opposite inwardly sloping wires. The distance between the frictional clamping flanges and bent wire is substantially equal to the top insert edge wires' diameter. Thus, the top insert can be entered into the spaces between the bent wires and frictional clamping flanges, holding it in place during usage. The majority of the bent wires abut the top insert wire, besides for their central depressions which form portals. These portals are sufficiently wide, in some embodiments, to enter a finger into in order ease the process of the detachment of the top rack from the wire pan.

5 Claims, 5 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

7,587,973	B2 *	9/2009	Kaliveh	A47J 37/0694 99/449
9,155,422	B1 *	10/2015	Wohld	A47J 43/18
11,197,583	B2 *	12/2021	Rose	A47J 47/005
11,564,534	B2 *	1/2023	Skvorecz	A47J 47/02
2018/0168394	A1 *	6/2018	Casternovia	A47J 36/022

* cited by examiner

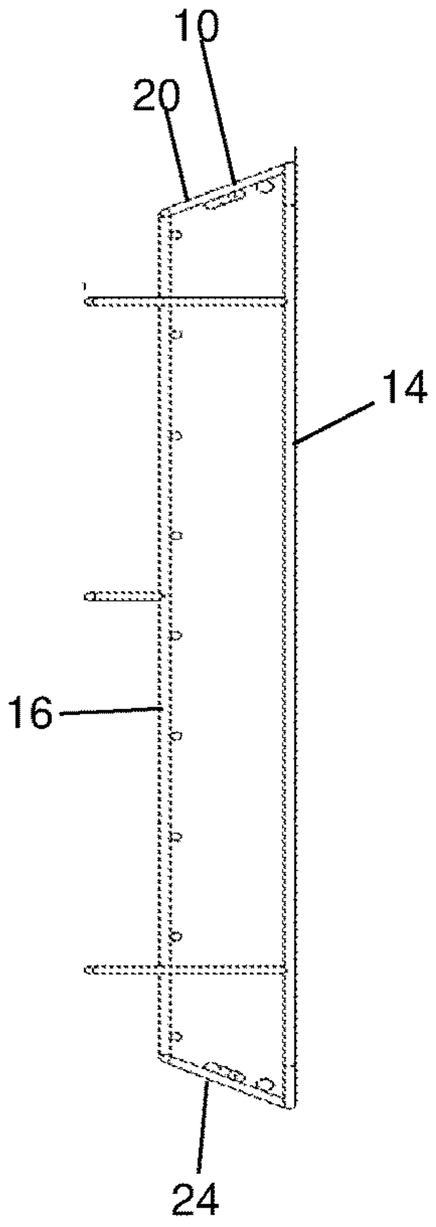
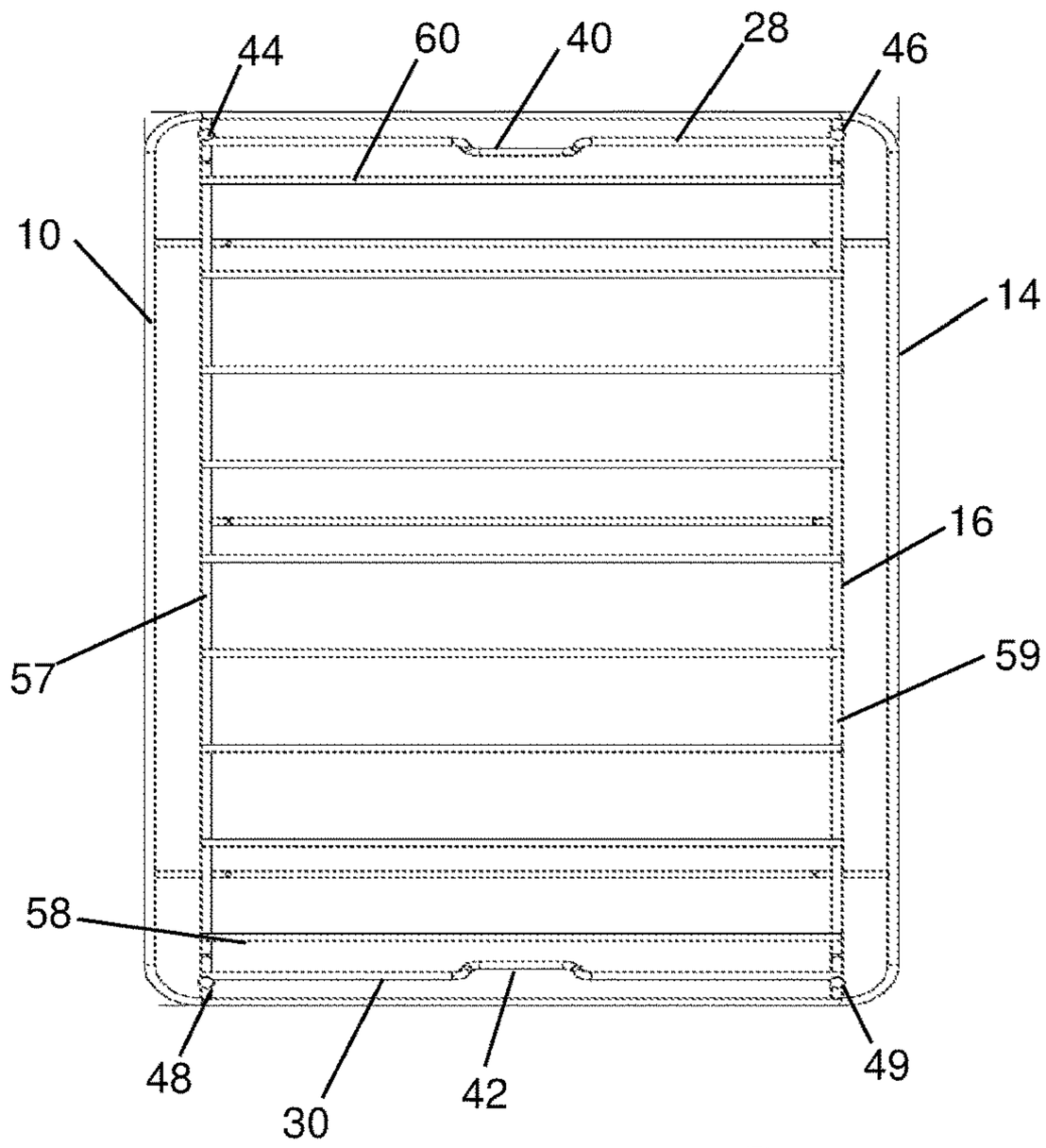


Figure 1

Figure 2



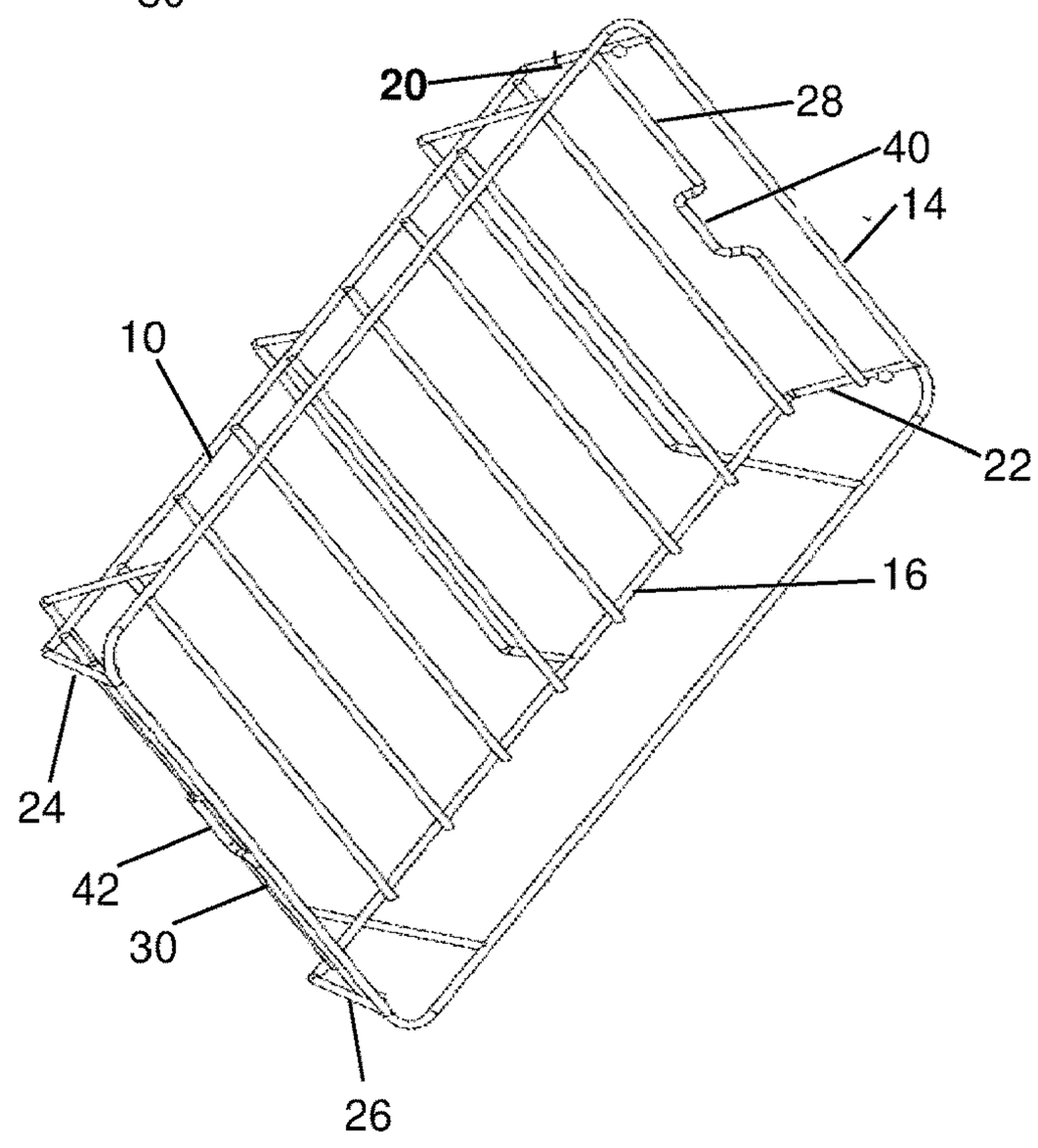


Figure 3

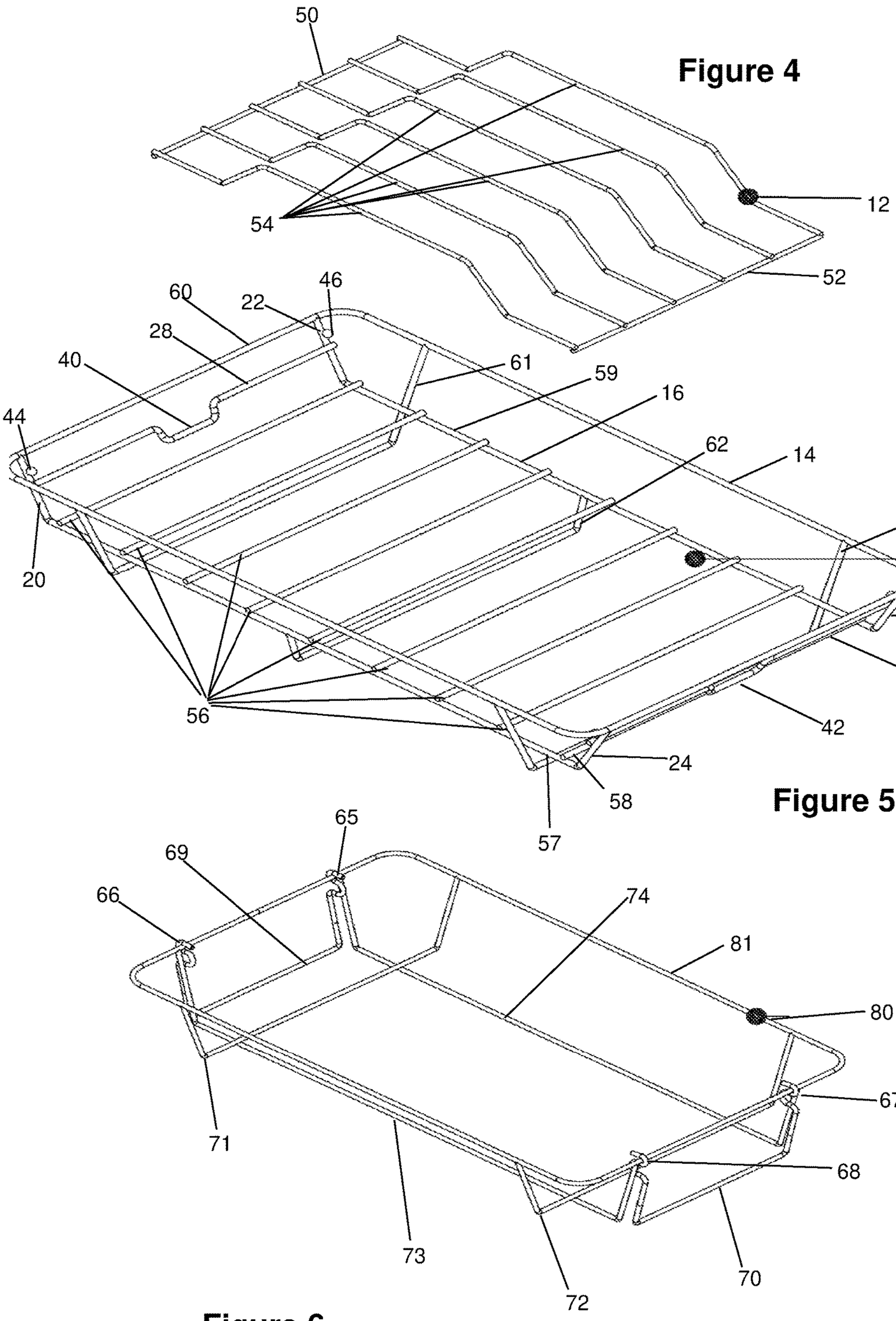


Figure 4

Figure 5

Figure 6

Figure 7

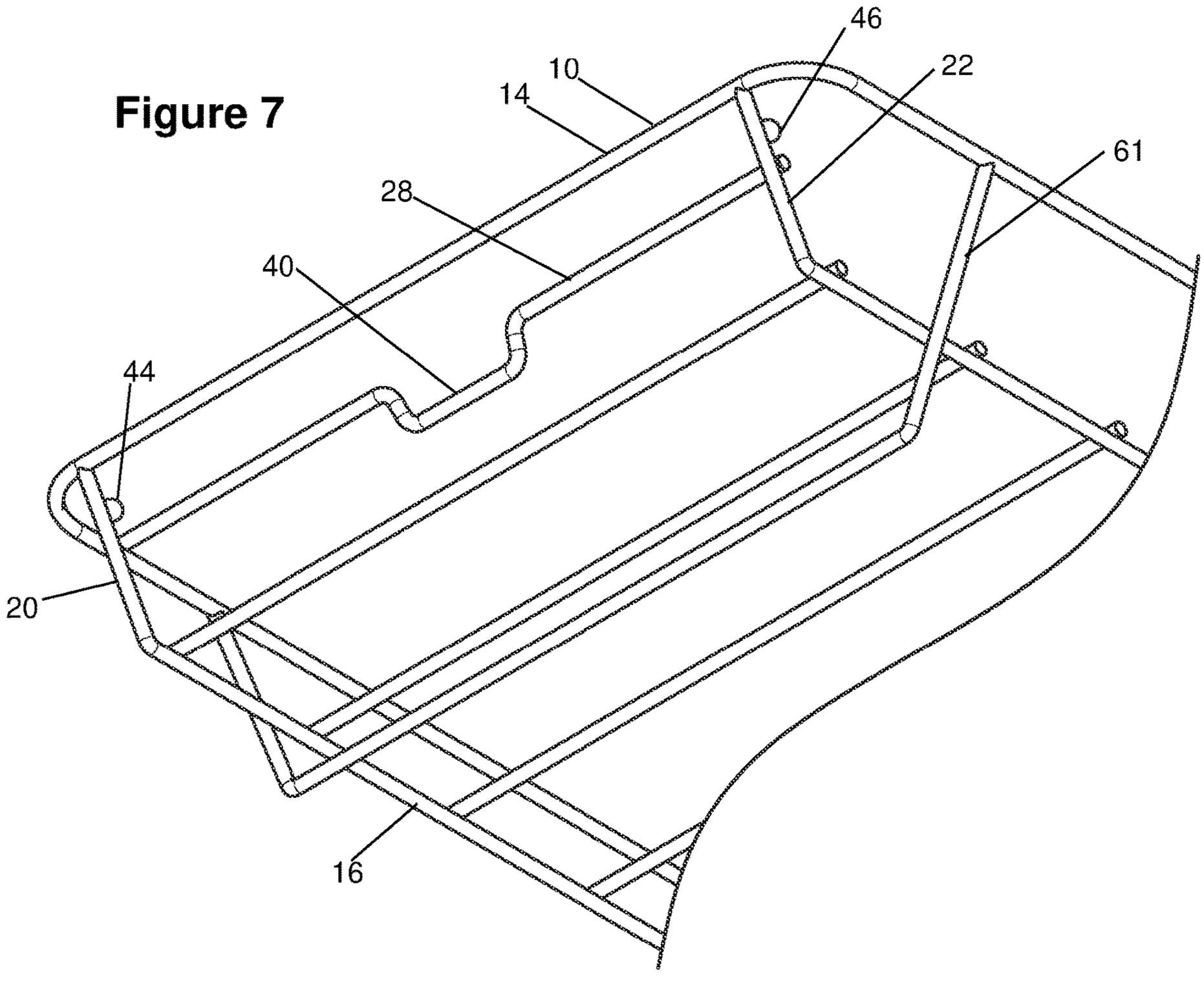


Figure 8

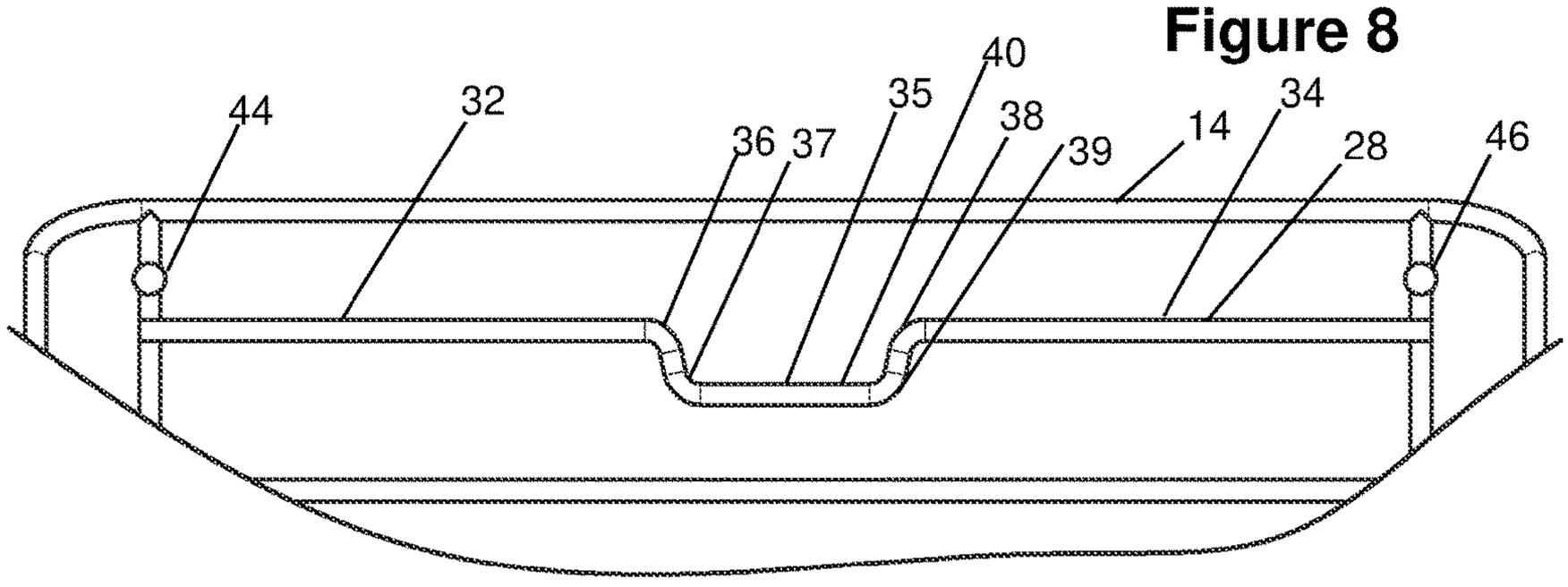
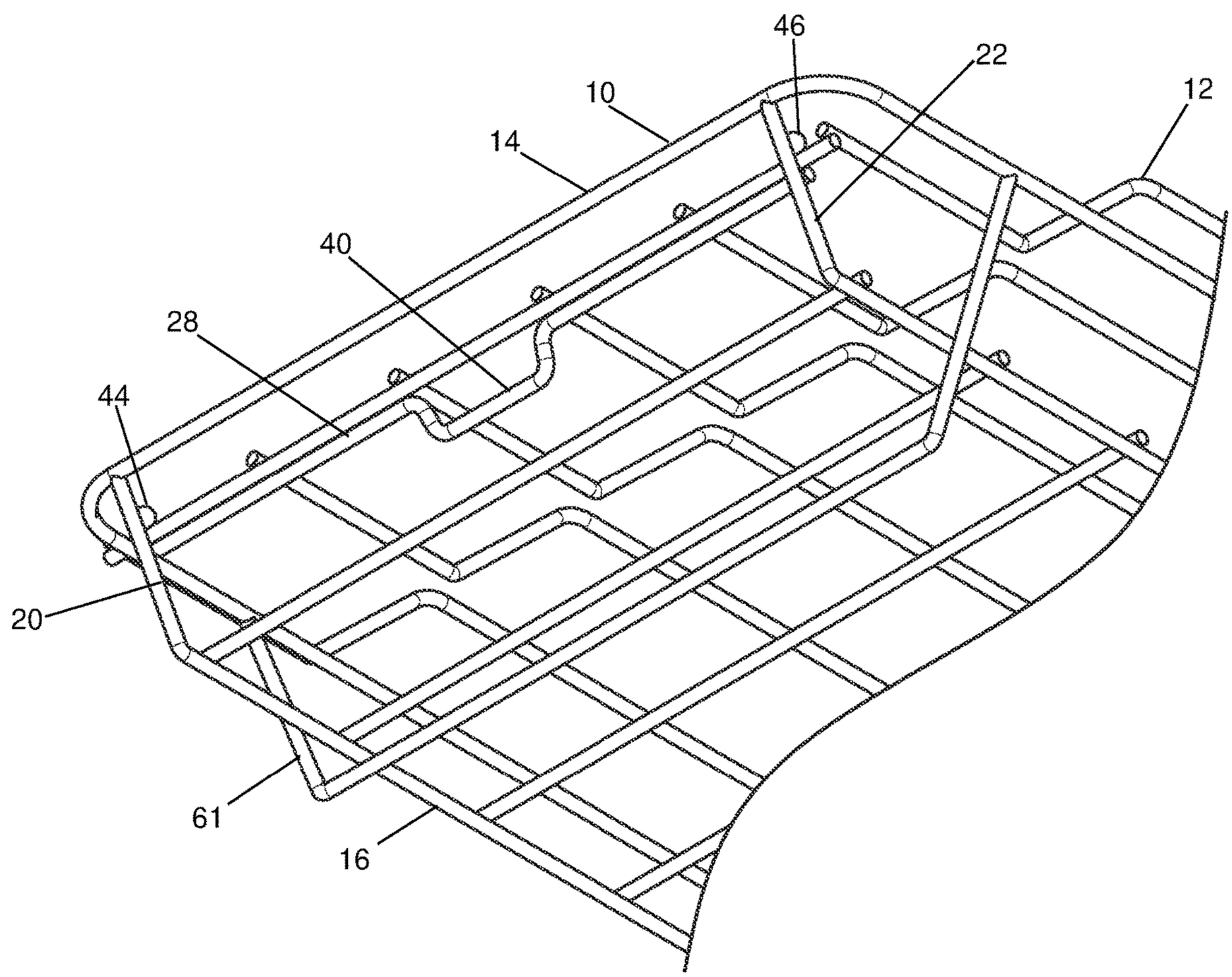


Figure 9



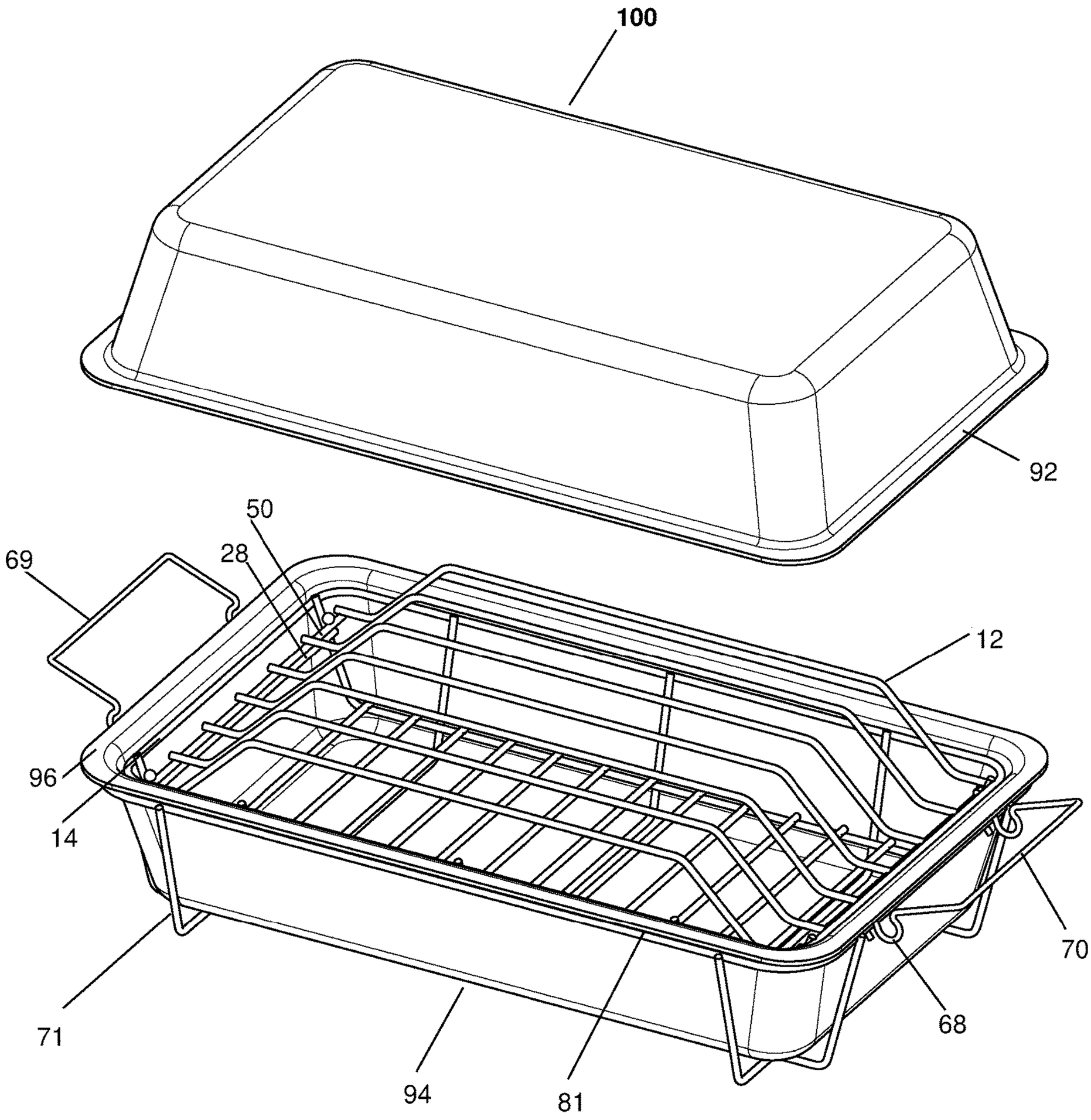


Figure 10

DEPRESSED PORTAL IN WIRE STAND

FIELD OF THE DISCLOSED TECHNOLOGY

The disclosed technology relates generally to roasting pans, and more specifically to a roasting pan which integrates with a foil pan.

BACKGROUND

Wire stands with top inserts are used to orient pans and enable them to be used more efficiently by optimizing their storage abilities. Typically, a stand holds the pan, while an interior wire pan and insert rest inside the pan. This insert is used, for example, to organize food in a way that allows it to be cooked properly. However, these components are not all one piece. They need to be attachable and detachable in order to allow for removal and entry of an insertable pan and its contents. Hence, this necessitates a system by which the pieces can be assembled and disassembled from the larger structure.

When two items are held together against one another, a force must be applied to separate them. However, where gripping the items is difficult and one's finger tips like lack the necessary dexterity to separate two items, such as wires secured together, this causes use of products requiring attachment and separation to be very difficult. Force must be applied from between the two items in order to push them apart. This raises the difficulty, though, of how to enter a tool, a finger, or some other object in between two close objects. The existing technology to address this issue, and particularly with regard to wire stand components, does not adequately address this issue, thereby necessitating the disclosed technology for further developments in this area.

SUMMARY OF THE DISCLOSED TECHNOLOGY

A wire pan has a top rack. The top rack has a closed loop wire, which forms the top side of the wire pan. The wire pan further has a bottom rack, whose largest planar area is parallel to the area enclosed by the top closed loop.

A bent wire is attached to, and extends between, each wire of the first set of inwardly sloping wires. This bent wire can be divided into three portions. The two side portions are straight are parallel to a plane enclosed by the wires of the top closed loop. The central portion has at least one bend forming a central depression between the two straight side components. In some embodiments of the technology, the central depression is formed by four bends and has a depressed, elongated side that is parallel to the wire of the top loop. Angled portions of the bent wire (that is, the bent portions of the wire) connect the central portion to the side portions of the bent wire in embodiments of the disclosed technology.

A wire pan also has two sets of inwardly sloping wires which secure the top loop to the bottom wire pan. Each wire of the first set of inwardly sloping wires may have a frictional, and in some embodiments, spherical clamping flange, which is spaced apart from the bent wire by the diameter, or at least the diameter of the bent wire. The diameter is the distance from one end of the wire through its center which is transverse to the greatest length of the wire. The distance between the two frictional clamping flanges is equal to the minimum length of the opposite end wires of the top rack in embodiments of the disclosed technology. A top rack end wire's abutment of the majority of the bent wire on a side where the two wires are parallel to one another may be facilitated by the securement of the end wire between the two frictional clamping flanges and the bent wire by way of friction.

Embodiments of the disclosed technology and their components can also be described in another way. A top rack with multiple equally spaced apart cross wires are each connected to a first and second end wire. A bottom wire pan has multiple cross wires, whose ends are joined by perpendicular connecting wires. The cross wires of the bottom wire pan are perpendicular to the cross wires of the top rack. Simultaneously, the cross wires of the bottom wire pan are parallel to the spaced apart end wires of the top rack. Inwardly sloping wires connect each of four corner sections of a closed loop to the perpendicular connecting wires of the bottom wire pan. There is at least one bent cross beam connected to adjacent inwardly sloping wires. Frictional clamping flanges are fixedly connected to the inwardly sloping wires. At least one of the pair of top rack end wires removably abuts the majority of the cross beam. The distance between the frictional clamping flanges and the bent wire may be at least equal to the length of the diameter of the top rack end wires. A portal is formed between an end wire and the bent wire. The width of this portal may be greater than the width of an average adult human finger. The width of the portal may be greater than the depth of the portal.

A method of using the devices described above can be carried out as follows. First, an end of the top rack is abutted between the bent wire and a pair of frictional clamping flanges. Subsequently, the same is done with the second end of the top rack and the second pair of frictional clamping flanges. Objects are then placed between the wires of the top rack, such that the objects rest on the wires of the bottom wire pan, which are perpendicular to said wires of said top rack. After usage of the top wire rack with the objects, the top rack can be removed from the bottom wire pan by entering at least one finger into the depression and pulling the top rack the frictional clamping flanges. The force used to free the top rack from the bottom wire pan is applied to counteract and overpower the frictional force of frictional locking mechanism, which is caused by the abutment of the top rack end wires and the bent wire and the frictional clamping flanges.

For purposes of this disclosure, directional indicators are relative to a typical use of the device with respect to a direction of the pull of gravity. Or, the directional indicators can be understood as being relative to each other wherein "top" or "upper" is opposite "bottom" or "lower" and so forth.

"Closed loop" is defined as "a planar region that is circumscribed by a continuous border."

"Continuous" is defined as "without interruption for at least 95% of a given measured length."

"Inwardly sloping" is defined as "positioned at an angle towards a given point, which is within larger, predefined boundaries."

"Wire" is defined as "a prismic structural component, whose length is elongated in relation to the dimensions of the circumference."

"Bent" is defined as "non-linear at, at least a 5 degree angle."

"Plane" is defined as "a surface in which any given plurality of points, lines, or objects wholly lie."

"Depression" is defined as "a cavity formed from a downward extension of component relative to adjacent components or part(s) of a component."

"Central" is defined as "located, in part, within 15% of the total length of the given surface or wire's midpoint."

"Side portions" is defined as "non-central regions of a given object and/or linear region on either side of a bent region."

"Elongated" is defined as "exceeding another dimension of a given object by a factor of at least ten."

"Frictional" is defined as "resistance that one surface or object encounters when moving over another which, in some embodiments, causes two objections at rest to remain at rest while abutting one another"

"Clamping" is defined as "purposefully applying force to at least one object in order to secure its position at least in part based on friction."

"Spherical" is defined as "having one smooth surface on which every point is substantially the same distance from the center of the solid."

"Substantially" is defined as "within 5%."

"Majority" is defined as "more than 50%."

"Abutting" is defined as "causing a face of a solid to lie substantially against a face of another solid, such that the two faces are parallel to one another."

Words describing relative heights, such as "raised", "lowered", "lower", "above", and "below" refer, unless stated otherwise, to the orientation in which the device is typically used, which is, from bottom to top, as follows: wire chafing stand, lower pan, base rack, raised rack, upper pan.

Any device or step to a method described in this disclosure can comprise or consist of that which it is a part of, or the parts which make up the device or step. The term "and/or" is inclusive of the items which it joins linguistically and each item by itself.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side perspective view of the wire pan in an embodiment of the disclosed technology.

FIG. **2** is a top plan view of the wire pan in an embodiment of the disclosed technology.

FIG. **3** is a bottom and side perspective view of the wire pan in an embodiment of the disclosed technology.

FIG. **4** is a top perspective view of the top insert in an embodiment of the disclosed technology.

FIG. **5** is a top and side perspective view of the wire pan in an embodiment of the disclosed technology.

FIG. **6** is a top and side perspective view of the elevating pan in an embodiment of the disclosed technology.

FIG. **7** is a bottom and side perspective view of a portion of the wire pan in an embodiment of the disclosed technology.

FIG. **8** is a side elevation view of the wire pan in an embodiment of the disclosed technology.

FIG. **9** is a bottom side perspective view of a portion of the wire pan and top insert in an embodiment of the disclosed technology.

FIG. **10** is a partially-exploded perspective view of elevation pan **80**, insertable pan, wire pan, top insert, and pan cover.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE DISCLOSED TECHNOLOGY

A wire pan, top insert, and elevation pan are separable and attachable to one another. The wire pan comprises a top closed loop, bent wires with portals on a side or sides of the wire pan, frictional clamping flanges, inwardly sloping wires connecting the top closed loop to a base/bottom side. The wire pan is restable within an elevation pan such that a top wire loop of each are abutted in some embodiments of the disclosed technology. The elevation pan can have stands, bottom wires, clamps, and hooks. The wire pan is placed into the elevation pan and the two are secured by closing the elevation pan's hooks around the top closed loop of the wire pan in some embodiments of the disclosed technology. The top insert comprises of parallel cross wires, as well as connecting end wires. The top insert end wires are designed to be entered into the space between the wire pan's frictional clamping flanges and bent wire, such that the top insert end wires abut a majority of the wire pan's end wires. Fingers can be placed into the portals in order to detach the top insert from the wire pan which are otherwise frictionally held against each other making disconnection thereof without a tool very difficult but for the portal.

Embodiments of the disclosed technology will become more clear in view of the following description of the figures.

FIG. **1** is a side perspective view of the wire pan **10** in an embodiment of the disclosed technology. A top closed wire loop **14**, which is parallel to a bottom rack **16** of the wire pan. Present as well are inwardly sloping wires **20** and **24** which connect the top closed loop **14** and the wires of bottom rack **16**.

FIG. **2** is a top plan view of the wire pan **10** in an embodiment of the disclosed technology. The bottom rack **16**, have perpendicular edge wires **57**, **58**, **59**, and **60** forming a closed loop are also present. Top closed loop **14** circumscribes an interior space which, in embodiments of the disclosed technology, receives a houses the top insert **12** (see FIG. **4**). Bent wires **28** and **30** have central portals **40** and **42** respectively, whose depths, in some embodiments of the disclosed technology, are substantially wider than both an average adult human finger's width and their respective heights. Frictional clamping flanges **44**, **46**, **48**, and **49** are each fixedly connected to an inwardly sloping wire. In some embodiments of the disclosed technology, the frictional clamping flanges are spherical or substantially spherical.

FIG. **3** is a bottom and side perspective view of pan **10** in an embodiment of the disclosed technology. The corner sections of top closed loop **14** are attached to bottom rack **16** by the connecting sloping wires **20**, **22**, **24**, and **26**. Bent wires **28** and **30**, as well as their respective portals **40** and **42**, traverse the rectangle bordered by the sloping wires, the bottom rack connecting wires, and the top closed loop. In some embodiments, the bent wire at the bent section **35** is nearer to perpendicular connecting wires of the bottom rack **16** than the top closed loop **14** of the pan. In this manner, the bent wire **28** (at the depression **40**) can be substantially centered between the top closed loop **14** and the pan **10** (at connecting wire **60**) for greatest structural support and integrity due to the equidistantly spaced connecting points of the wire **28** between the wires **60** and **14**. Further, a trapezoid is formed between the top wire **14**, bottom rack **16** (at the connecting wire **60**), and inwardly sloping wires.

FIG. **4** is a top perspective view of top insert **12** in an embodiment of the disclosed technology. Parallel spaced apart cross wires **54** are connected to parallel end wires **50** and **52**. The distance between each cross wire is substantially equal, thus providing a standard spacing to aid in the ease of use of the product. The diameter of these end wires is the distance between the bent wire and the frictional clamping flanges of the bottom pan.

FIG. **5** is a top and side perspective view of wire pan **10** in an embodiment of the disclosed technology. Bottom rack **16** has parallel cross wires **56** that are surrounded by

perpendicular connecting edge wires **57**, **58**, **59**, and **60**. Cross wires **56** are perpendicular to cross wires **54** of top insert **12** in FIG. **4**. Every cross wire is spaced at a substantially equal distance from one another to contribute to structural integrity. Bottom rack **16** is joined to the parallel top closed loop **14** by inwardly sloping wires **20**, **22**, **24**, and **26**. These components form the outer boundary of the pan, thus defining the space surrounded by these components as interior space, whilst the area outside these components is exterior space. Described another way, "interior" refers to, or is defined as, within a space bounded by a wire or wires. "Exterior" refers to or is defined as "outside of a space bounded by a wire or wires" being described or referenced in context to the word "exterior". Bent wires **28** and **30** function as cross beams, respectively connecting two inwardly sloping wires to one another. Bent wires **28** and **30** have central depressions that form portals **40** and **42** respectively. Fixedly attached to the inwardly sloping wires are frictional clamping flanges **44** and **46**, as well **48** and **49**. The distance between the clamping flanges and their adjacent end wires is substantially equal to the diameter of the top rack insert end wires. Thus, the top insert (when inserted) is held in place while at rest or during normal usage of the device, such as when grilling.

FIG. **6** is a top and side perspective view of the elevation pan **80** in an embodiment of the disclosed technology. Bottom wires **73** and **74** as well as stands **71** and **72** support the pan, allowing it to maintain its position. Clamps **69** and **70** are connected to upper rim **81** by hooks **65** and **66** as well as **67** and **68** respectively. Once wire pan **10** is lowered into the internal cavity of pan **80**, the clamps swing around rim **81** in order to secure the two devices to each other, providing support to pan **10**.

FIG. **7** is a bottom and side perspective view of wire pan **10** in an embodiment of the disclosed technology. Pictured are inwardly sloping wires **20** and **22**, bent wire **28** with a central depression forming portal **40**, frictional clamping flanges **44** and **46**, bottom rack **16**, and top closed loop **14**. Stand **61** protrudes from top closed loop **14** at two opposite sides of the loop, slopes downwards at an angle, and transverses the length of lower rack **16** beneath the surface of lower rack **16**.

FIG. **8** is a side elevation view of pan **10** in an embodiment of the disclosed technology. Top closed loop **14** and frictional clamping flanges **44** and **46** are shown. Bent wire **28** comprises three separate regions: side portion **32**, side portion **34**, and central portal **40**. Central portal **40** is formed from a depression of the wire that has four bends: **36**, **37**, **38**, and **39**. Between two bends on either side is portal section **35** which comprises a substantially straight wire which is parallel to side portions **32** and **34**, as well as top closed loop **14**.

FIG. **9** is a bottom side perspective view of a portion of wire pan **10** and top insert **12** in an embodiment of the disclosed technology. Top rack end wire **50** abuts a majority of bent wire **28**. The two are held in place against one another by frictional clamping flanges **44** and **46** which are situated on inwardly sloping wires **20** and **22** respectively. Between the two wires is portal **40**. The distance between the clamping flanges and their adjacent end wires is substantially equal to the diameter of the top rack insert end wires. This enables the top insert **12** and wire pan **10** to be snugly held in place against each other, upon activation of the frictional securement mechanism by entering top insert **12** into the space between the bent wire and the frictional clamping flanges. Stand **61** enables the device to stand on the ground. Bottom rack **16** and top closed loop **14** are parallel to one another, enhancing the symmetry of the product.

FIG. **10** is a partially-exploded perspective view of elevation pan **80**, insertable pan **94**, wire pan **10** (see FIG. **5**), top insert **12**, and pan cover **100**. The insertable pan **94** fits within the elevation pan **80**. The wire pan **10** and top insert **12** fit inside the insertable pan **94**, with top rack opposite end wires **50** and **52** lying on bent wire **28**.

The upper pan **100** is of a height such that when it is placed, in the orientation shown, such that the pan rims **92** and **96** are substantially in contact with each other, the whole of wire pan **10** and top insert **12** fit within a cavity between the pans **100** and **94**. The top insert **12** is also somewhat flexible. That is, opposite corners are bendable and non-permanently deformable such that they are closer together above or below a horizontal plane of the top insert. In this manner, top insert **12** can be placed in wire pan **10** by way of slightly deforming the top insert and then allowing the deforming to be undone so that the top insert fits in snugly (friction at all corners and/or all sides) above the wire pan or within the pan rims **92** and/or **96**.

The walls of insertable pan **94** abut the bent wires **28** and **30** and portals **40** and **42** when wire pan **10** and top insert **12** are placed into pan **94**. This abutment prevents a user from entering their finger into portals **40** or **42** and latching their finger around top rack end wires **50** and **52**. Thus, when the device is fully assembled with an insertable pan **94** in which the bottom wire pan **10** sits within/is surrounded thereby, the top insert **12** is prevented from being removed from the wire pan **10**. This is due to the frictional securement of the two to each other whose release mechanism is unreachable usable under such conditions.

Clamps **69** and **70** are rotatable into a position such that they frictionally secure insertable pan **94** to elevating pan **80**. Thus, the entire device is transportable and useable as one piece, every component being securely fixed to the other components respectively.

The disclosed technology is intended to allow for the repeated securement and subsequent detachment of top insert **12** to/from wire pan **10**. For securement, the top insert **12** is grasped and lowered into the area enclosed by top closed loop **14** such that cross wires **54** are perpendicular to cross wires **56**. Top insert **12**'s cross wire **50** is inserted into the space between bent wire **28** and frictional clamping flanges **44** and **46**, such that end wire **50** abuts a majority of bent wire **28**. Top insert **12**'s end wire **52** is inserted into the space between bent wire **30** and frictional clamping flanges **48** and **49**, such that end wire **52** abuts a majority of bent wire **30**. Top insert **12** is now frictionally held in position. For detachment, one or two fingers are entered into portal **40** and curled around end wire **50**. End wire **50** is pulled up and away from the adjacent frictional camping flanges and inwardly sloping wires. Then, one or two fingers are entered into portal **42** and curled around end wire **52**. End wire **52** is pulled up and away from the adjacent frictional camping flanges and inwardly sloping wires. This process is intended to be repeatable during repeated usages of the technology.

For purposes of this disclosure, the term "substantially" is defined as "at least 95% of" the term which it modifies.

Any device or aspect of the technology can "comprise" or "consist of" the item it modifies, whether explicitly written as such or otherwise.

When the term "or" is used, it creates a group which has within either term being connected by the conjunction as well as both terms being connected by the conjunction.

While the disclosed technology has been disclosed with specific reference to the above embodiments, a person having ordinary skill in the art will recognize that changes can be made in form and detail without departing from the spirit and the scope of the disclosed technology. The described embodiments are to be considered in all respects only as illustrative and not restrictive. All changes that come within the meaning and range of equivalency of the claims are to be embraced within their scope. Combinations of any of the methods and apparatuses described hereinabove are also contemplated and within the scope of the invention.

The invention claimed is:

1. A wire pan system comprising:

a top rack having a plurality of substantially equally spaced apart cross wires, each connected to a first end wire and to a second end wire;

a bottom wire pan with a plurality of cross wires, whose ends are joined by perpendicular connecting wires, wherein said cross wires of said bottom wire pan are perpendicular to said plurality of cross wires of said top rack and said plurality of cross wires of said bottom wire pan are parallel to said spaced apart end wires of said top rack;

a closed loop wire having four corner sections;

inwardly sloping wires connecting each of said four corner sections of said closed loop wire to said perpendicular connecting wires of said bottom wire pan;

at least one bent wire cross beam connecting two of said inwardly sloping wires;

frictional clamping flanges fixedly connected to said inwardly sloping wires;

at least one of said first and said second end wires of said top rack removably abutting a majority of one of said at least one bent wire cross beam;

a portal formed between at least one of said first and said second end wire and said bent wire;

an elevation wire pan, said elevation pan formed, at least in part, from oppositely placed, parallel disposed stands, a rim which is a closed wire loop, and clamps;

said clamps comprising hooks which rotatably connect to said rim;

a solid, non-wire pan sized to fit into said cavity inside said elevation pan;

wherein said wire pan is sized to fit into a cavity of said elevation pan, said cavity being defined formed within said oppositely placed parallel disposed stand, and said closed wire loop;

wherein said clamps each comprise a curvature located adjacent to each of said hooks respectively;

wherein said clamps rotate such that saod curvatures encircle a lip of said solid pan;

upon said encirclement, said solid pan is fixedly attached to said elevation stand; and

wherein said solid pan covering and side of said portal opening to an exterior said bottom wire pan.

2. The wire pan system of claim **1**, wherein a shortest distance between said frictional clamping flanges and said bent wire is substantially equal to a diameter of said first and second end wires of said top rack.

3. The wire pan system of claim **1**, wherein a width of said portal is substantially greater than one average adult human finger.

4. The wire pan system of claim **1** wherein said a width of said portal is greater than a depth of said portal.

5. The wire pan of claim **1** wherein said central depression is inaccessible from an exterior side of said bottom pan, said exterior side being defined by a part of said top closed loop, said bent wire, and one of said perpendicular connecting wires.

* * * * *