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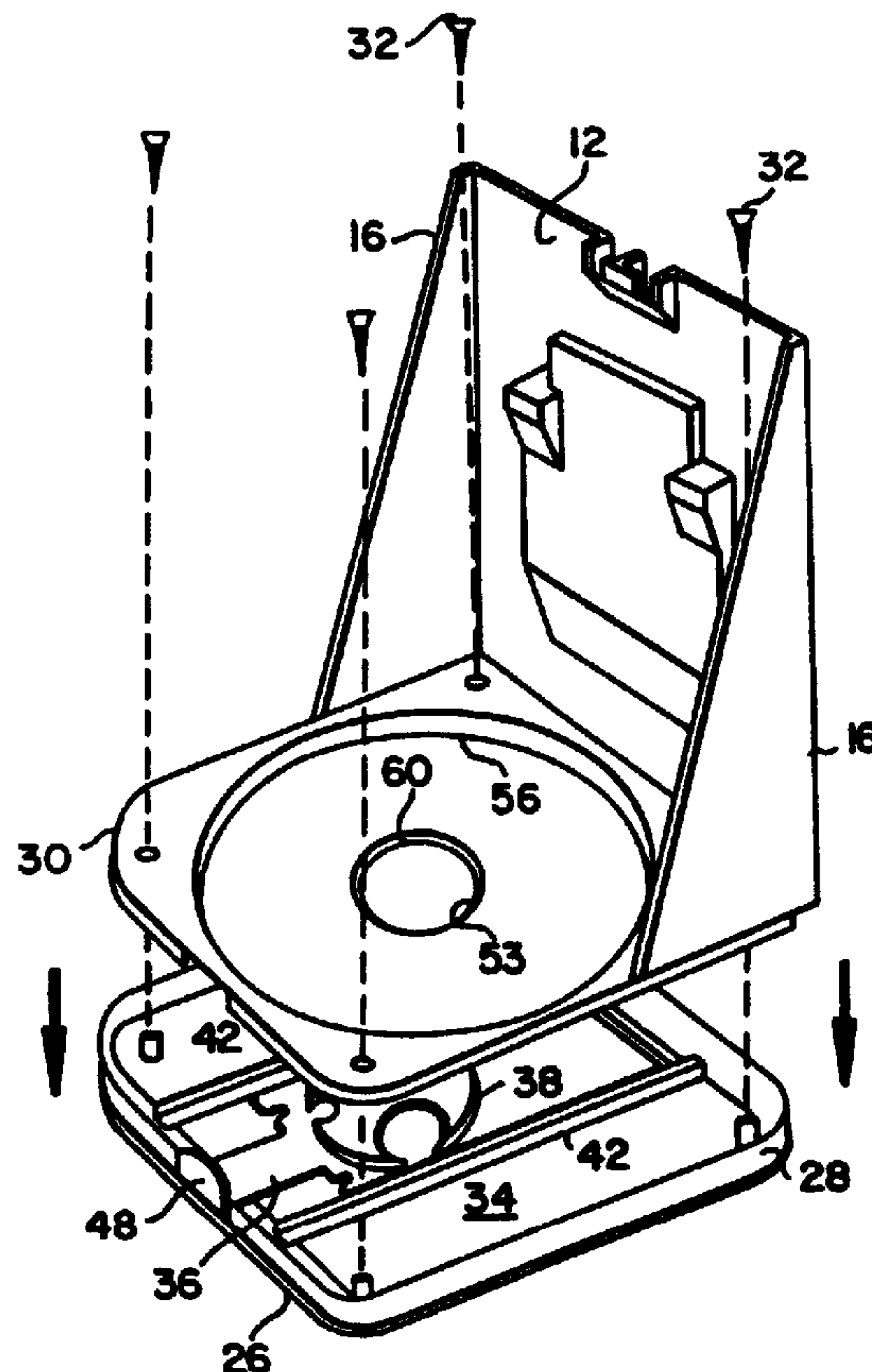
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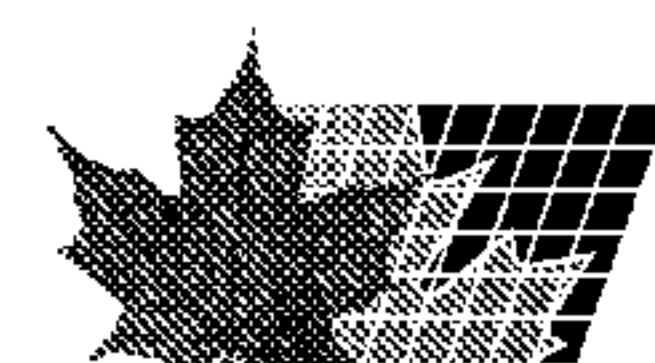
(54) Titre : DISTRIBUTEUR A ORIFICE D'EVACUATION CENTRAL DE DIAMETRE VARIABLE

(54) Title: VARIABLE ORIFICE CENTERFLOW DISPENSER



(57) Abrégé/Abstract:

Disclosed is a centerflow dispenser for dispensing a rolled paper product which includes means for varying the diameter of the dispensing orifice to accommodate rolled paper products of various weights, widths, bulks and tensile strengths. In a further embodiment, the rolled paper dispenser comprises an exit port and means for enlarging the exit port so that the lead end of the roll of paper may be readily inserted through the exit port.



ABSTRACT

Disclosed is a centerflow dispenser for dispensing a rolled paper product which includes means
5 for varying the diameter of the dispensing orifice to accommodate rolled paper products of various weights, widths, bulks and tensile strengths.

In a further embodiment, the rolled paper dispenser comprises an exit port and means for enlarging
10 the exit port so that the lead end of the roll of paper may be readily inserted through the exit port.

VARIABLE ORIFICE CENTERFLOW DISPENSER

BACKGROUND OF THE INVENTION

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1. Field of the Invention.

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This invention relates generally to dispensers for rolled paper webs and, more particularly, to centerflow dispensers for rolled paper webs in which the web is unrolled axially from the center of the roll.

2. Brief Description of the Prior Art.

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A variety of centerflow dispensing devices are known in the prior art. When such dispenser is taught in U.S. Patent No. 4,579,266 to Bunger, et al. The dispenser taught by Bunger, et al. includes a supporting surface on which a paper roll resides. Further, there is a hood which engages that supporting surface to enclose the paper roll. An orifice is provided through the supporting surface and teeth are provided at the periphery of the orifice to provide a ripping edge.

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U.S. Patent No. 4,760,970 to Larsson, et al. teaches a centerflow dispenser which includes a paper holder upon which a paper roll vertically rests. A cylindrical cover is provided to enclose the paper roll and the paper is dispensed through an orifice extending through the bottom of the holder.

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U.S. Patent No. 4,524,895 to Lunden teaches a centerflow dispenser which utilizes a supporting end wall on which a paper roll vertically rests. A cylindrical sleeve is provided which engages the end wall for enclosing the paper roll. Paper is dispensed through an orifice in the end wall. A tearing means is provided at the base of the orifice which includes protective projections having a substantially sine wave shaped free edges with a wave amplitude substantially greater than the length of the tearing teeth.

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U.S. Patent No. 4,756,460 to Ornros teaches a

rolled paper dispenser wherein paper is dispensed from the outside of the paper roll through a helical slot in the paper roll holder.

5 There is taught in U.S. Patent No. 3,923,223 to Larsson et al. a centerflow paper roll dispenser which includes a bearing plate on which a paper roll vertically rests. Extending downward from the bearing plate is a tubular-shaped tear-off mechanism providing an orifice through which the paper is dispensed.

10 U.S. Patent No. 3,627,216 to Ekuan teaches a rolled paper receptacle which has a cover shaped like an inverted funnel with an orifice at the top thereof. A coreless roll of paper may be pulled vertically up through the inverted funnel and orifice therein.

15 Nothing in the prior art teaches a centerflow dispensing device for use with coreless rolled paper products which includes a dispensing orifice which can be dimensionally varied to accommodate a variety of rolled paper products efficiently.

20 SUMMARY OF THE INVENTION

It is therefore an object of an aspect of the present invention to provide a dispenser for rolled paper webs wherein the diameter of the dispensing orifice can be varied to accommodate different rolled paper products.

25 It is a further object of an aspect of the present invention to provide a centerflow dispenser which is adaptable for use with rolled paper webs of different bulks, as well as different weights, widths and tensile strengths.

30 Another object of an aspect of the present invention is to provide a variable orifice centerflow dispenser through which a variety of paper webs can be dispensed from a bottom port therein.

35 It is a further object of an aspect of the present invention to provide a centerflow dispenser which incorporates

a large exit port through which the rolled paper product can be initially, easily inserted.

Still another object of an aspect of the present invention is to provide a centerflow dispenser wherein
5 the diameter of the dispensing orifice can be varied after the rolled paper product has been inserted through the exit port.

Briefly stated, the foregoing and numerous other features, objects of aspects and advantages of the
10 present invention will become readily apparent upon a reading of the detailed description, claims and drawings set forth hereinafter. These features, objects of aspects and advantages are accomplished by constructing a centerflow rolled paper dispenser which has a drawer
15 incorporated into the bottom wall of the dispenser. Rotatably attached to the drawer is a disk member having a plurality of orifices disposed in the periphery thereof such that the desired diameter orifice can be rotated into alignment with the exit port of the dispenser.
20 Alternatively, these features, objects of aspects, and advantages may be accomplished through the use of drawer member mounted in the bottom wall of the dispenser wherein the drawer includes a recess for receiving interchangeable plate members. Each of the individual
25 plate members includes an orifice at the lead edge thereof. With both embodiments, the drawer member can be moved outwardly from the dispenser to expose a large exit port through which the lead edge of the paper web can be easily fed. The desired orifice can be selected and the
30 drawer closed to provide the proper restriction orifice for the web from the dispenser.

A door is provided to the dispenser to fully enclose the rolled paper web within the dispenser. The door is hingedly connected to the support member of the dispenser
35 such that when it is closed, it covers the drawer member and therefor the drawer

member cannot be opened without first opening the door of the dispenser.

In accordance with one embodiment of the present invention, there is provided a centerflow rolled paper dispenser comprising:

- (a) a support member for supporting a roll of paper;
- (b) an exit port through the support member through which the roll of paper is dispensed; and
- (c) a variable diameter dispensing orifice abutting the support member and substantially overlapping the exit port.

In accordance with another embodiment of the present invention, there is provided a centerflow rolled paper dispenser comprising:

- (a) a lower housing for supporting a roll of paper;
- (b) an exit port through the lower housing through which the roll of paper is dispensed;
- (c) a dispensing orifice affixed to the lower housing substantially overlapping the exit port; and
- (d) means for varying the diameter of the dispensing orifice.

In accordance with another embodiment of the present invention, there is provided a centerflow rolled paper dispenser comprising:

- (a) a lower wall;
- (b) a cover means mounted to said lower wall, said cover means and said lower wall defining a chamber therebetween;
- (c) a disk rotatably residing within said chamber, said disk having a plurality of orifices disposed through the periphery thereof;
- (d) an upper exit port through said cover; and
- (e) a lower exit port through said lower wall in vertical alignment with said upper exit port,

wherein each of said orifices of said disk is capable of being positioned to overlap said exit ports by rotation of said disk.

In accordance with another embodiment of the present invention, there is provided a centerflow rolled paper dispenser comprising:

(a) a support member for supporting a roll of paper;

(b) a disk rotatably affixed to said support, said disk having a plurality of orifices through the periphery thereof; and

(c) an exit port through said support member, said disk residing in substantially overlapping relation with said exit port,

wherein each of said orifices of said disk is capable of being positioned to overlap said exit port by rotation of said disk so that the roll of paper can be dispensed through a selected one of said orifices.

In accordance with another embodiment of the present invention, there is provide a centerflow rolled paper dispenser comprising:

(a) a support member for supporting a roll of paper;

(b) an exit port through the support member;

(c) means for enlarging the exit port so that the lead end of the roll of paper may be readily inserted through the exit port.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an isometric view of the centerflow dispenser of the present invention.

Figure 2 is an isometric view of the centerflow dispenser of the present invention with the door removed and the rolled paper product exploded.

Figure 3 is an isometric view of the centerflow

dispenser of the present invention with the door removed with the lower wall exploded from the rear housing.

Figure 4 is an isometric view of the lower wall of the dispenser with the drawer exploded.

5 Figure 5 is an isometric detail of the exit port with the drawer fully inserted.

Figure 6 is a plan view of the drawer of the preferred embodiment with the disk removed therefrom.

10 Figure 7 is a partial plan view showing the drawer of an alternative embodiment of the present invention partially withdrawn from the lower housing.

Figure 8 is a plan view of one of the orifice members for use with the alternative embodiment drawer depicted in Figure 7.

15 Figure 9 is a side elevation of one of the orifice members for use with the alternative embodiment drawer depicted in Figure 7.

Figure 10 is a bottom plan view of the disk.

Figure 11 is an elevation of the inside of the door.

20 Figure 12 is a partial cross section taken along line 12-12 of Figure 11.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

25 Turning first to Figure 1, there is shown the centerflow dispenser 10 of the present invention. The

centerflow dispenser 10 includes a wall mounting plate 12 (shown in Fig. 2 and 3.) which has affixed thereto and extending 90 degrees out therefrom lower housing or support member 14. Providing additional structural integrity for lower housing or support member 14 are brackets 16 which extend outwardly from wall mounting plate 12.

The dispenser 10 of the present invention is provided with a door or front housing 18 which pivotally connects to lower housing 14 by means of pins 20. Door or front housing 18 includes a top or lid section 22 and the side sections 23. Thus when a rolled paper product 25 is placed on lower housing 14 and door or front housing 18 is closed, the rolled paper web 25 is substantially enclosed such that access to the web is only through the lower exit port 24 (see Fig. 4) in support member or lower housing 14.

Lower housing 14 is comprised of lower wall 26 having peripheral wall member 28 extending upwardly therefrom and cover or lid 30. Lower wall 26 is attached to cover or lid 30 by means of screws 32. Attachment of cover 30 to lower wall 26 creates a chamber 34 within lower housing 14. Contained within chamber 34 is drawer 36. There is a disk 38 rotatably attached to drawer 36 by means of pin 40. Disk 38 has a plurality of dispensing orifices 39 disposed in the periphery thereof. The dispensing orifices 39 vary in diameter.

As shown more clearly in Figure 4, lower wall 26 of lower housing 14 has guide members 42 extending upwardly therefrom. That area of chamber 34 between guide members 42 provide a residence for drawer 36. Drawer 36 includes a peripheral lip 44 extending upward from a planar surface 45. Peripheral lip 44 is greater in height than the thickness of disk 38. The width of lip 44 is substantially equal to the height of guide members 42. In such manner, it is assured

that when cover 30 is mounted to lower wall 26, cover 30 will not bind disk 38 to such extent that disk 38 cannot be easily, manually rotated. Also extending upward from lower wall 26 is stop member 46. Stop member 46 is preferably arcuate having a radius substantially similar to the radius of lower exit port 24.

Drawer 36 includes handle member 48 which extends through notch 50 in peripheral wall 28. Drawer 36 further includes hole 52 which has a diameter equal to or greater than the diameter of the largest of orifices 39 in disk 38. Extending from hole 52 in drawer 36 is V-shaped opening 54 such that the point of the "V" (or point of convergence), if projected would converge and terminate within hole 52. Although opening 54 is preferably V-shaped, the shape of opening 54 may be varied so long as the sides of opening 54 remain substantially divergent.

Cover 30 includes a circular recess 56 in which the rolled paper web 25 rests. The cylindrical diameter of the circular recess 56 should therefore, preferably, be equal to or greater than the diameter of the rolled paper web. Cover 30 includes an upper exit port 58 therethrough which is substantially concentric with circular recess 56. Extending downward from upper exit port 58 is tapered lip 60 making upper exit port 58 funnelled or frusto-conical in shape. Upper exit port 58 is in substantial vertical alignment with lower exit port 24 and is of like diameter. When drawer 36 is fully inserted into chamber 34 between guide members 42, hole 52 overlaps or aligns nonconcentricly with lower exit port 24 and upper exit port 58. Disk 38 can be rotated such that each of the orifices 39 can be rotated into a position to vertically overlap or align with hole 52. Tapered lip 60 extends down to contact disk 38. Thus, although disk 38 can be manually rotated, the contact

between disk 38 and lip 60 as well as between disk 38 and drawer 36 ensures that there is resistance to the free spinning of disk 38. Drawer 36 and disk 38 are also provided with a detent arrangement to prevent unintentional rotation of disk 38. As shown in Figure 10, the bottom surface of disk 38 includes a series of indentations 86. Each indentation 86 is spaced 180° from a particular orifice 39. As disk 38 is rotated to select an orifice 39, the indentation 86 opposite the selected orifice 39 will engage protuberance 88 on drawer 36 (see Figure 6). Therefore, once the desired orifice is selected, the action of pulling the paper web 25 through exit ports 24 and 58 will not impart rotational movement to disk 38.

To load the centerflow dispenser 10 of the present invention, door 18 is unlocked and pivoted downwardly thereby exposing handle 48 of drawer 36. Handle 48 can thus be grasped and pulled outwardly from peripheral wall 28 thereby bringing V-shaped opening 54 in vertical alignment with lower exit port 24 and upper exit port 58. Arcuate extension 56 serves as a travel stop for drawer 36 when handle 48 is pulled outwardly thus insuring that all or at least a portion of selected orifice 39 will still reside in vertical alignment with lower exit port 24 and upper exit port 58. In such manner, a large opening is provided through which the lead end of the rolled paper web 25 can be easily inserted. Before the lead end of the paper web 25 is inserted, disk 38 is rotated to a position aligning the desired orifice 39 with hole 52. After the lead end of rolled paper web 25 has been pulled through, the user need only push handle 48 thereby driving drawer 36 back into fully inserted position in chamber 34. Therefore, the combination of drawer 36 and V-shaped opening 54 form a means for enlarging the opening through which the lead end of rolled paper web 25 is inserted when the

dispenser of the present invention is loaded. This means for enlarging is a significant advantage when initially feeding the lead end of rolled paper web 25 through such opening when it is understood that the diameter of a dispensing orifice 39 may be on the order of $\frac{3}{8}$ of an inch. The rolled paper web 25 can then be placed on cover 30 and door 18 closed. As drawer 36 is being closed, it may be necessary for the person loading the dispenser to bunch that portion of the lead end of paper web 25 which is in close proximity to the exit ports 24 and 58 toward hole 52 and selected orifice 39. This will aid in preventing a portion of the web 25 from being caught outside of selected orifice 39. However, it should be recognized that the V-shaped opening 54 automatically promotes the bunching of the web 25 into hole 52 as drawer 36 is inserted.

Handle 48 and cover 30 are provided with a locking detent mechanism (not shown). The detent mechanism prevents the force exerted on drawer 36 during dispensing from urging drawer 36 against door 18 which, in turn, prevents V-shaped opening 54 from moving into overlapping vertical alignment with exit ports 24 and 58. Such movement of V-shaped opening 54 during dispensing could result in snagging of the web.

In the alternative, rather than providing handle 48 and cover 30 with a detent mechanism, drawer 36 can be spring biased to be urged into the closed position unless held in the open position by the operator. Further, door 18 can be closely toleranced to reside in abutting relation with handle 48 upon the closing of both door 18 and drawer 36 thus eliminating the need for the detent mechanism. In such manner, drawer 36 will be provided no room for lateral movement during dispensing. If door 18 is so closely toleranced to reside in abutting position with handle 48, then it may be desirable to spring bias drawer 36

such that it automatically opens upon the opening of door 38.

5 In the preferred embodiment, door 18 is provided with a closing rib 90 on the inside surface thereof. (See Figures 11 & 12). If the operator attempts to close door 18 without first closing drawer 36, closing rib 90 will contact handle 48 and as door 18 is rotated to a closed position, closing rib 90 will urge handle 48 and drawer 36 to a closed position.

10 In an alternative embodiment an alternative drawer 60 can be used as shown in Figure 7. In such embodiment, drawer 60 includes a recessed lip 70, a hole 72 and a U-shaped opening 74. Recessed lip 70 is adapted to receive U-shaped orifice member 76. There are a plurality of U-shaped orifice members 76 each having a different diameter restriction orifice 78 therethrough. U-Shaped orifice member 76 has extending downward therefrom key members 80 which insert into notches 82 in recessed lip 70 thus preventing movement of U-shaped member 76 relative to drawer 36.

15 Although the figures depict dispensing orifices 39 and 78 as being substantially circular, it should be recognized that dispensing orifices 39 and 78 could be any of a variety of geometric shapes such as, for example, elliptical or polygonal. Therefore, as used herein, the term diameter is defined as a chord passing through the center of a figure.

20 To accommodate the use of U-shaped orifice members 76 with drawer 60, cover 30 must include an opening 84 large enough such that U-shaped member 76 can be inserted therethrough to reside on recessed lip 70. Once the U-shaped member 76 containing the desired orifice is selected, it is inserted through opening 84 and onto recessed lip 70 such that keys 80 engage with notches 82. Handle 48 can then be withdrawn aligning V-shaped opening 74 with lower exit

port 24 and opening 84. As with the first embodiment discussed above, this second embodiment allows for easy placement of the lead edge of the rolled paper web 25 through an enlarged opening. The drawer 60 can then be pushed inward such that the paper web becomes enclosed within the orifice of the selected U-shaped orifice member 76.

From the foregoing, it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth together with other advantages which are apparent and which are inherent to the apparatus.

It will be understood that certain features and subcombinations are of utility and may be employed with reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A centerflow rolled paper dispenser comprising:

5 (a) a support member for supporting a roll of paper;

(b) an exit port through said support member through which the roll of paper is dispensed; and

10 (c) a variable diameter dispensing orifice abutting said support member and substantially overlapping said exit port.

2. A centerflow rolled paper dispenser comprising:

15 (a) a lower housing for supporting a roll of paper;

(b) an exit port through said lower housing through which the roll of paper is dispensed;

20 (c) a dispensing orifice affixed to said lower housing substantially overlapping said exit port; and

(d) means for varying the diameter of said dispensing orifice.

25 3. A centerflow rolled paper dispenser as recited in claim 2 further comprising:

a drawer member slidably engaged with said lower housing, said means for varying the diameter of said dispensing orifice rotatably affixed to said drawer member.

30 4. A centerflow rolled paper dispenser as recited in claim 1 wherein:

said variable diameter dispensing orifice is a disk with a plurality of orifices in the periphery thereof.

35 5. A centerflow rolled paper dispenser as recited in claim 3 wherein:

said drawer member includes a planar base having

an opening therein, said opening having substantially diverging sides where the point of convergence of said diverging sides terminates in a hole.

- 5 6. A centerflow rolled paper dispenser comprising:
 - (a) a lower wall;
 - (b) a cover means mounted to said lower wall, said cover means and said lower wall defining a chamber therebetween;
 - (c) a disk rotatably residing within said chamber, said disk having a
 10 plurality of orifices disposed through the periphery thereof;
 - (d) an upper exit port through said cover; and
 - (e) a lower exit port through said lower wall in vertical alignment with said upper exit port,

wherein each of said orifices of said disk is capable of being positioned to

15 overlap said exit ports by rotation of said disk.
7. A centerflow rolled paper dispenser comprising:
 - (a) a support member for supporting a roll of paper;
 - (b) a disk rotatably affixed to said support, said disk having a
 20 plurality of orifices through the periphery thereof; and
 - (c) an exit port through said support member, said disk residing in substantially overlapping relation with said exit port,

wherein each of said orifices of said disk is capable of being positioned to overlap said exit port by rotation of said disk so that the roll of paper can be

25 dispensed through a selected one of said orifices.
8. A centerflow rolled paper dispenser as recited in claim 7 wherein each of said plurality of orifices is of different diameter.
- 30 9. A centerflow rolled paper dispenser as recited in claim 7 wherein each of said plurality of orifices is of different area.
10. A centerflow rolled paper dispenser as recited in claim 7 further comprising:

(a) a rear housing affixed to said support member; and

(b) front housing means pivotally connected to said support member for enclosing the roll of paper within said rear housing and said front housing.

11. A centerflow dispenser as recited in claim 3 further comprising:

means for automatically closing said drawer.

12. A centerflow dispenser as recited in claim 3 further comprising:

(a) a front housing pivotally connected to said lower housing;

(b) means for simultaneously urging said drawer to a closed position when said front housing is closed.

13. A centerflow dispenser as recited in claim 3 further comprising:

(a) a front housing pivotally connected to said lower housing;

(b) a closing rib projecting from the inside surface of said front housing.

14. A centerflow rolled paper dispenser comprising:

(a) a support member for supporting a roll of paper;

(b) an exit port through said support member;

(c) means for enlarging said exit port so that the lead end of the roll of paper may be readily inserted through said exit port.

15. A centerflow rolled paper dispenser as recited in claim 14 wherein said means for enlarging said exit port comprises:

a drawer member slideably attached to said support member, said drawing member including an opening therethrough having

substantially divergent sides.

16. A centerflow rolled paper dispenser as recited in claim 14 further comprising:

5 (a) a dispensing orifice residing adjacent to and in substantially vertical alignment with said exit port;

(b) means for varying the diameter of said dispensing orifice.

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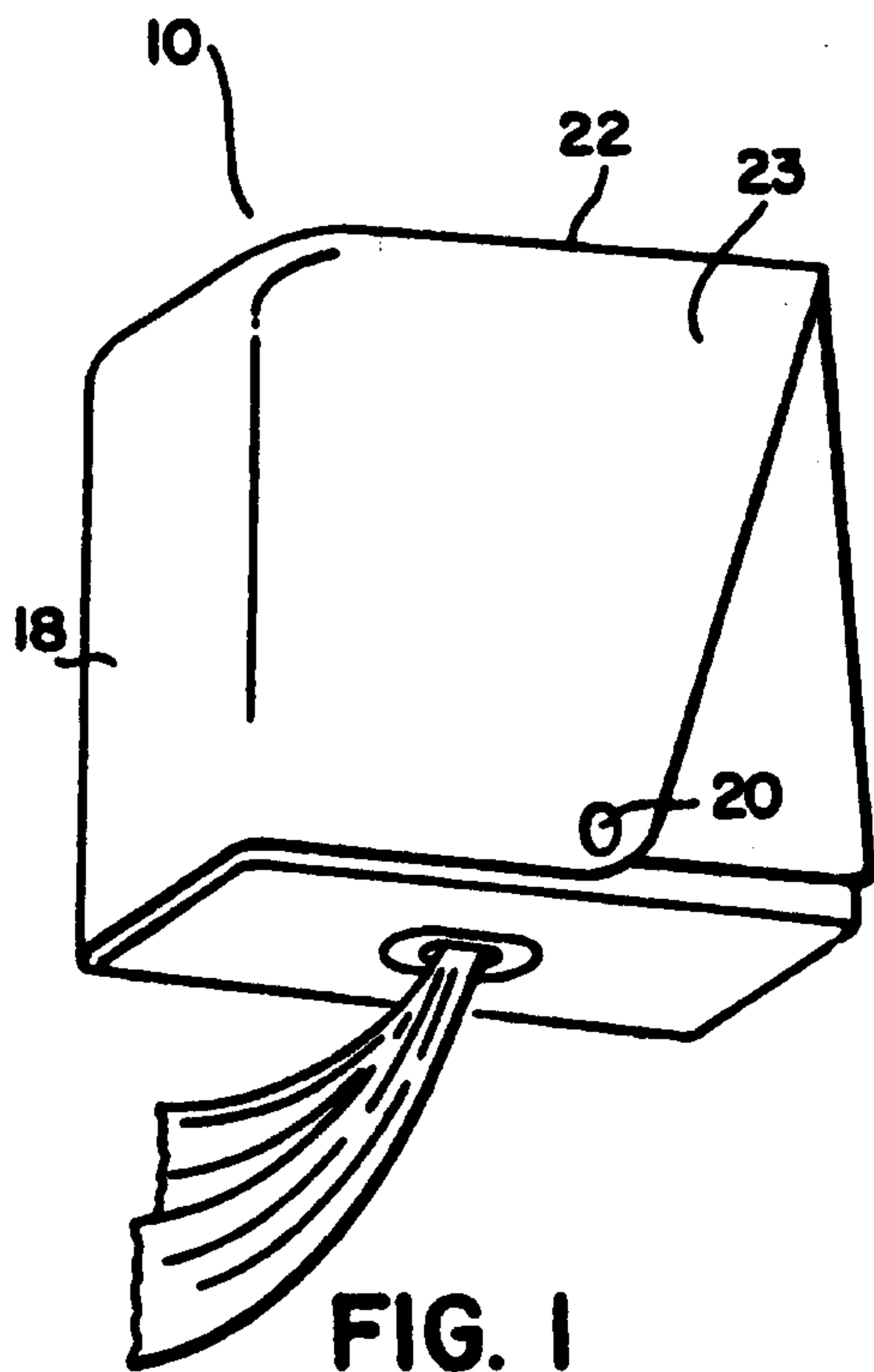


FIG. 2

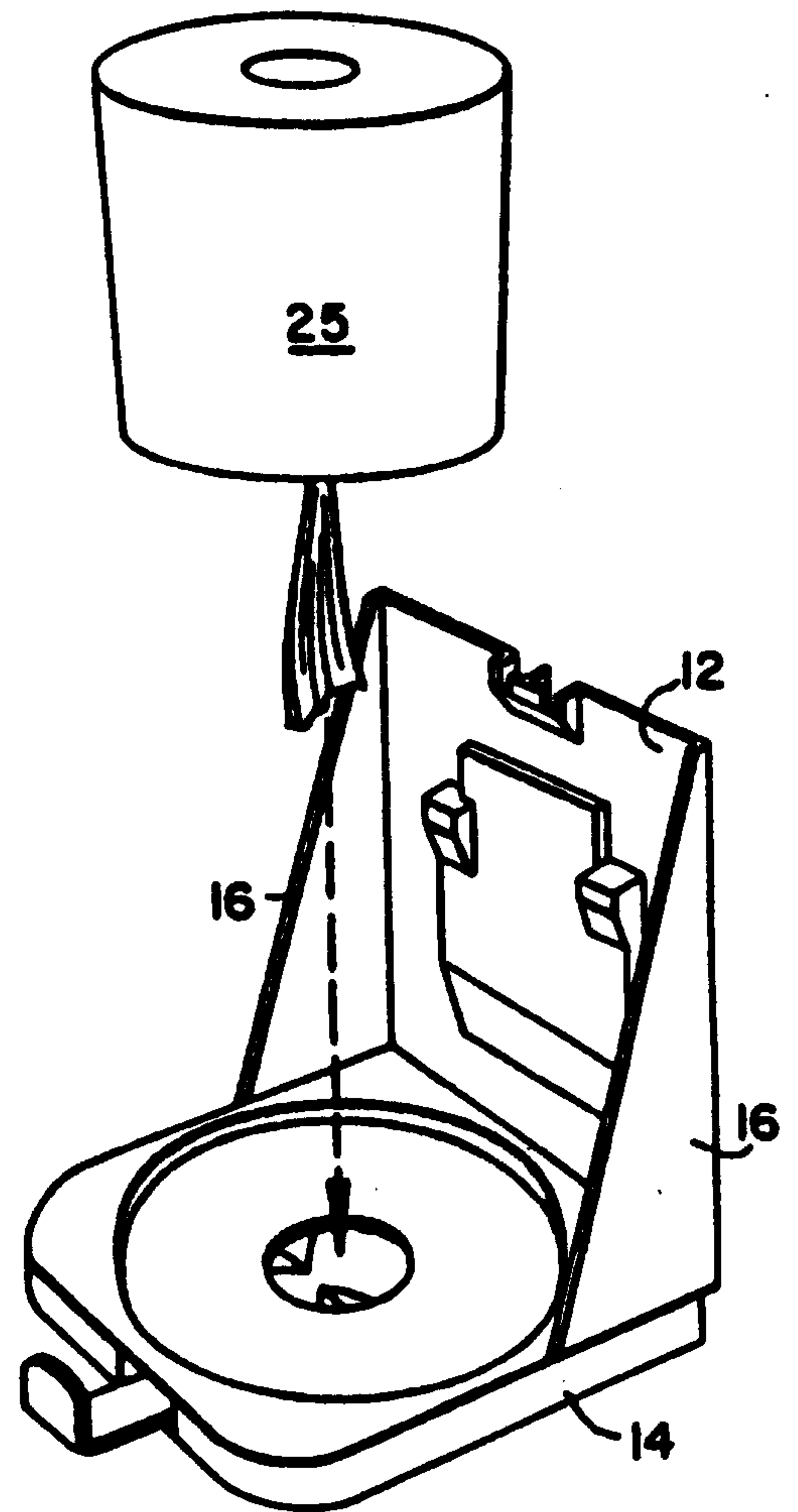
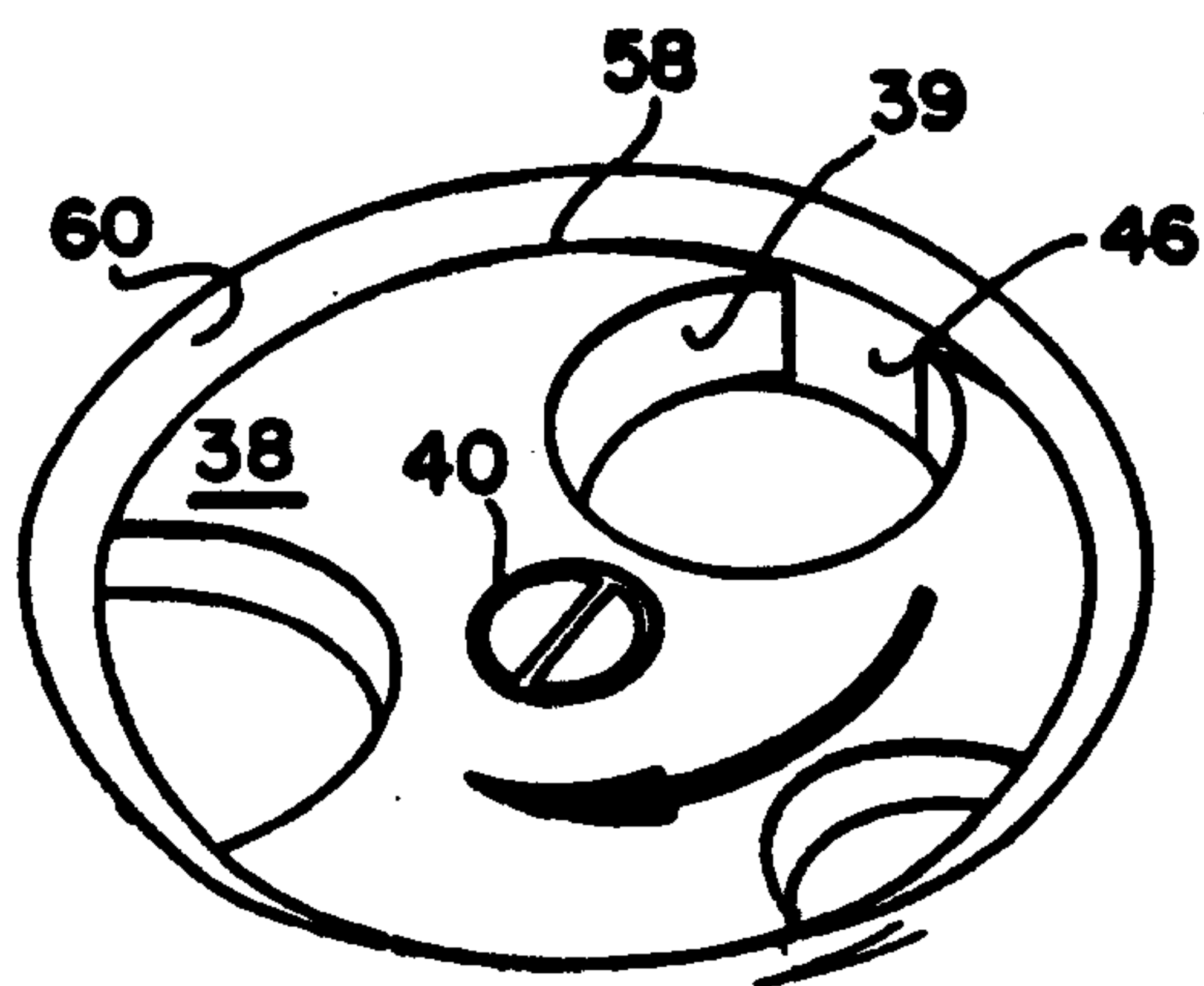


FIG. 5



Simon H. Bennett

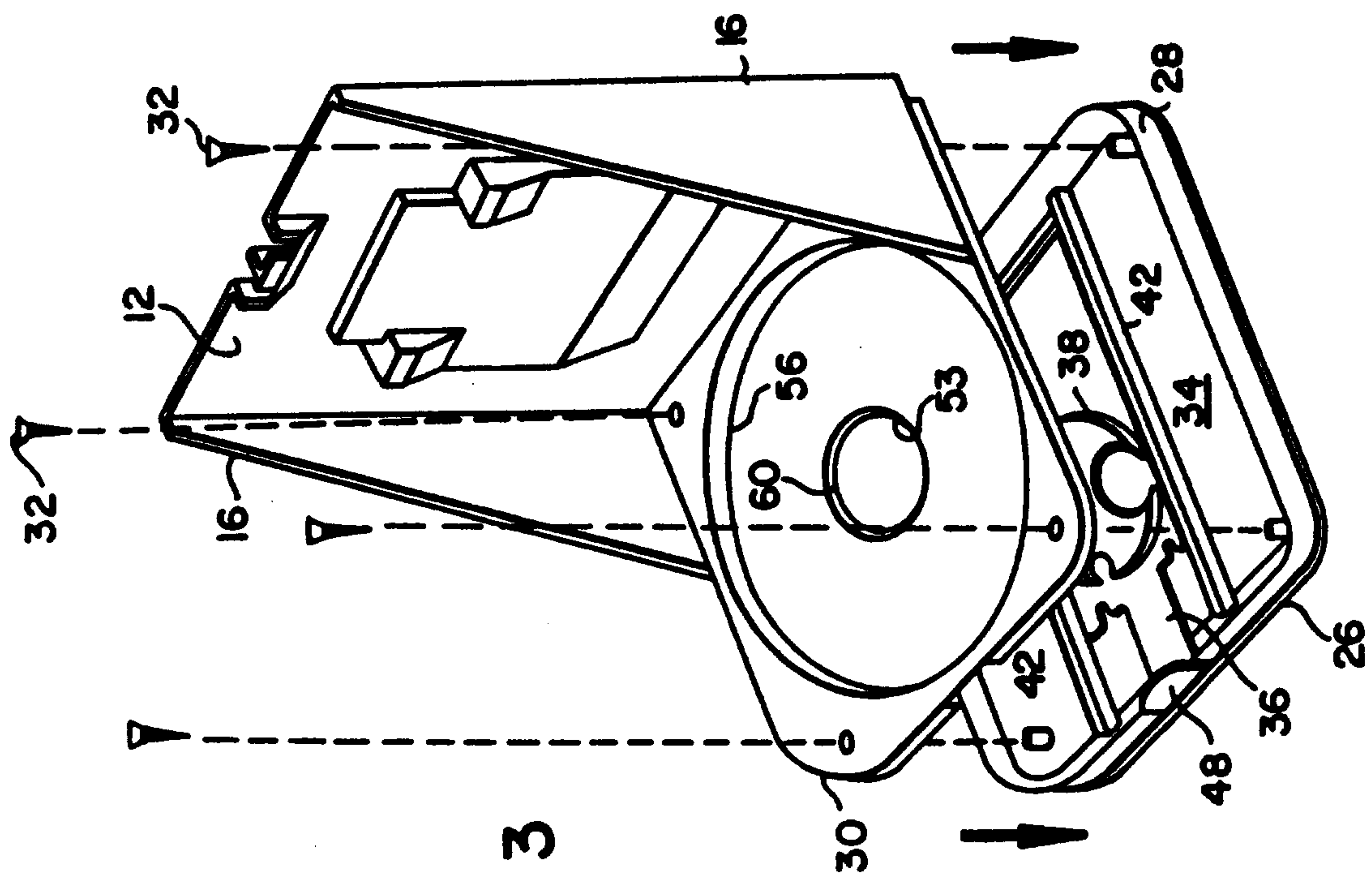


FIG. 3

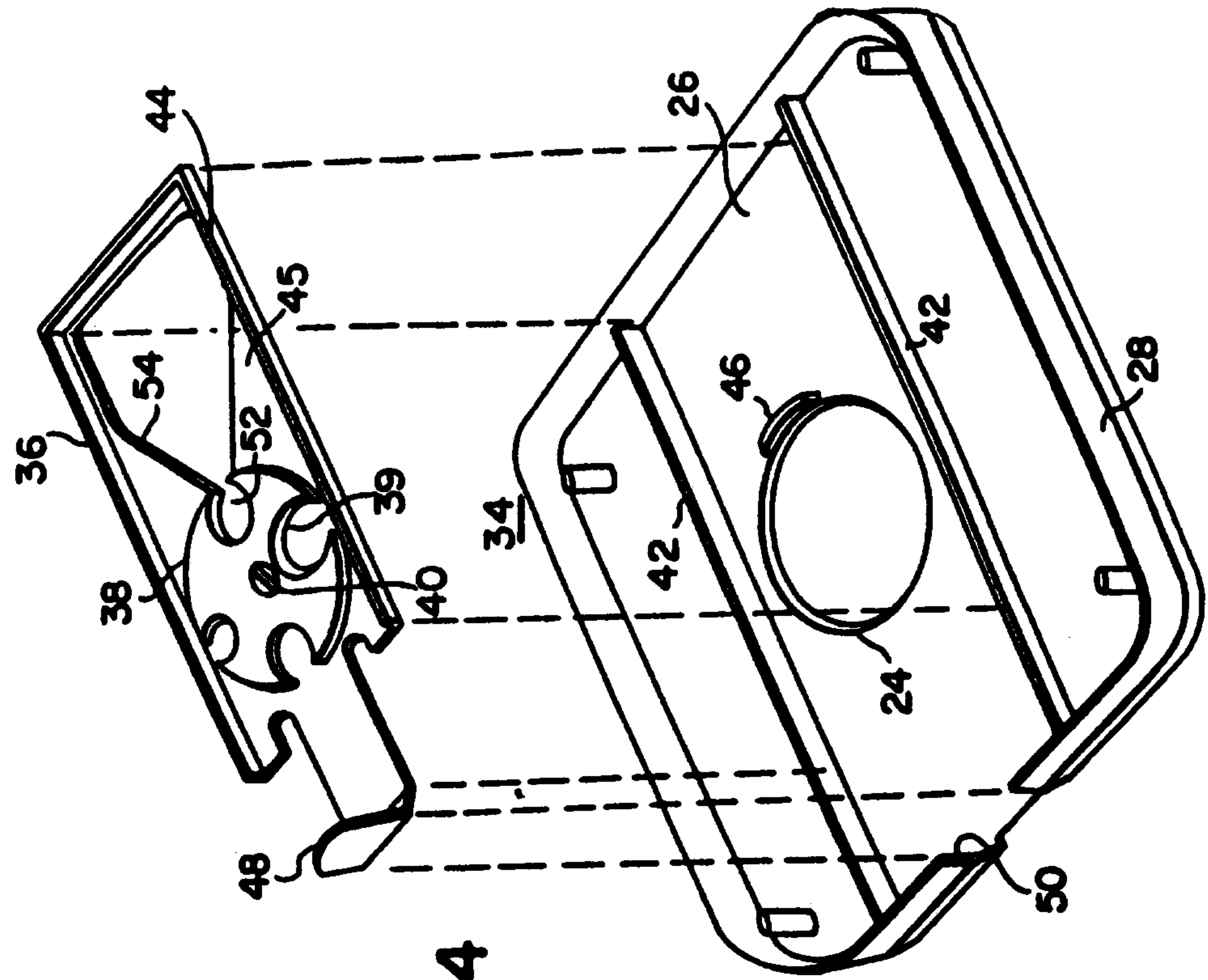


FIG. 4

Simon H. Burnett

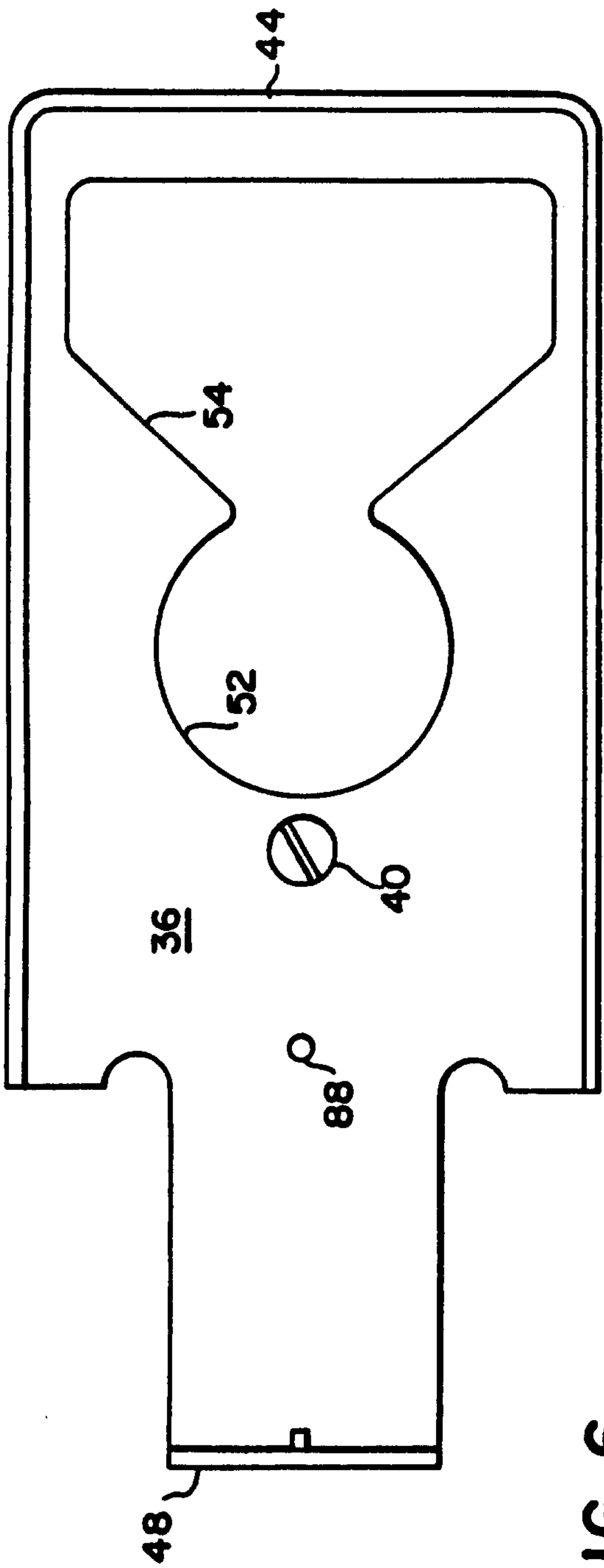


FIG. 6

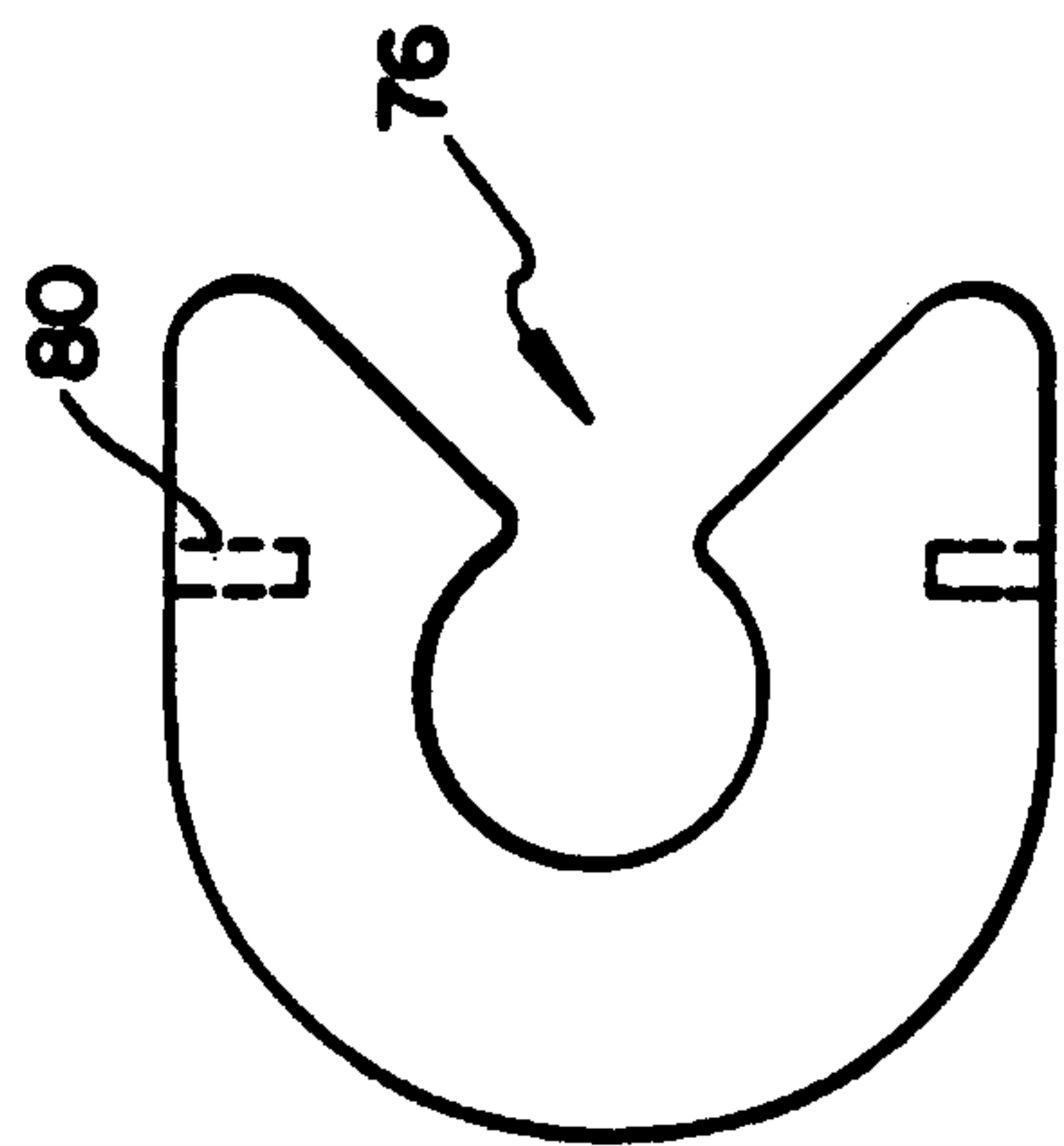


FIG. 8

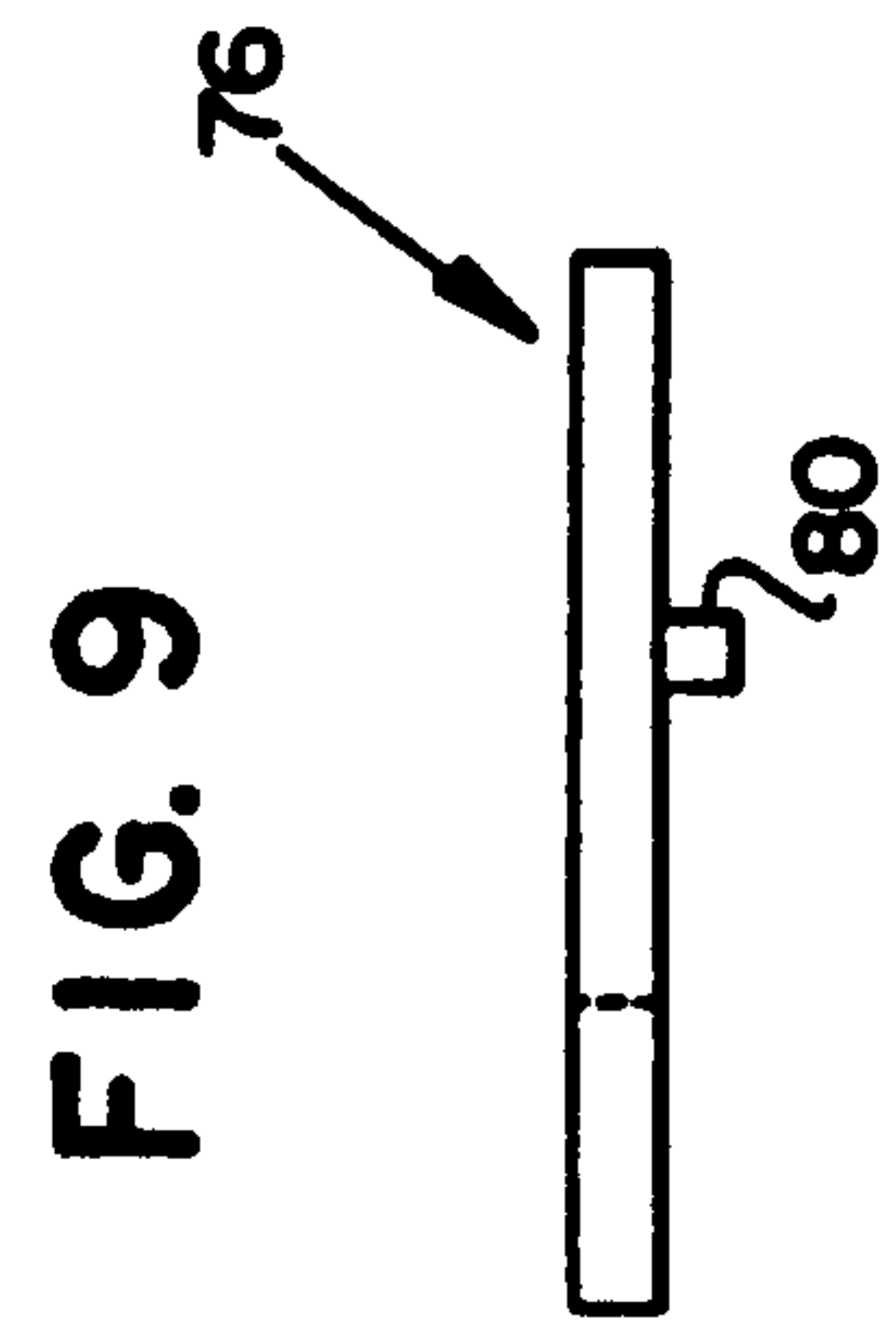


FIG. 9

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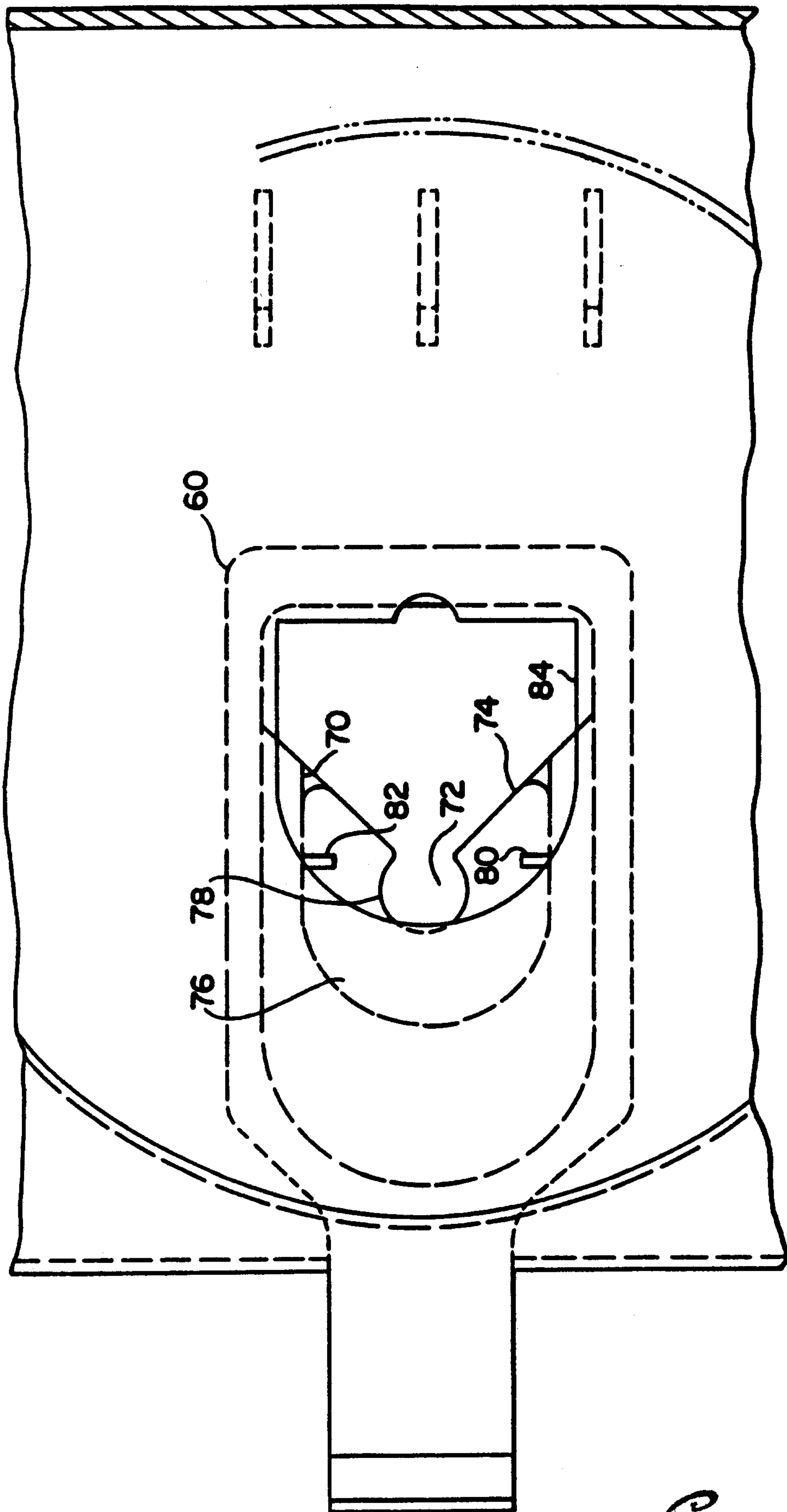


FIG. 7

Sim: M. Bureau

FIG. 10

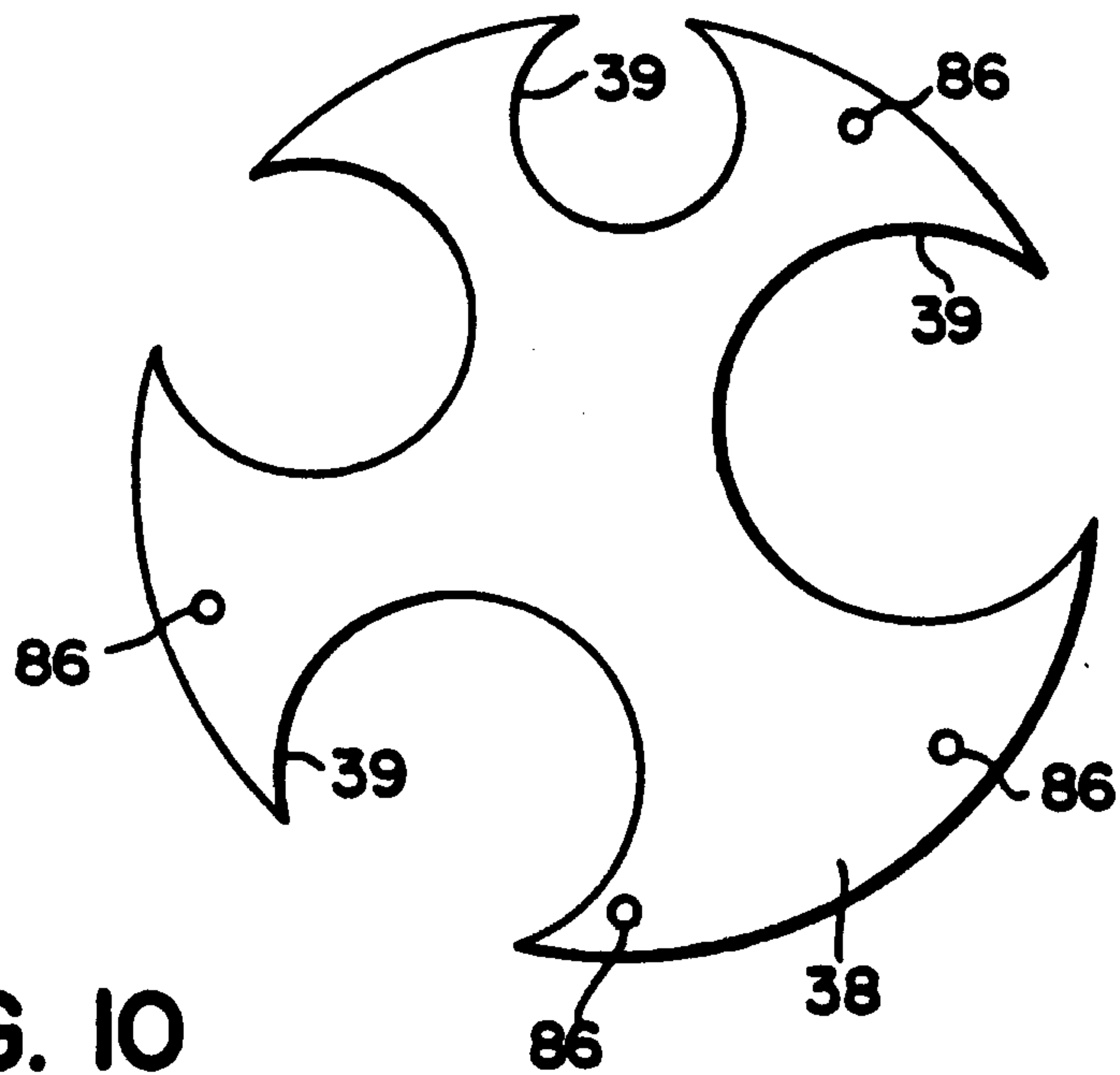


FIG. 11

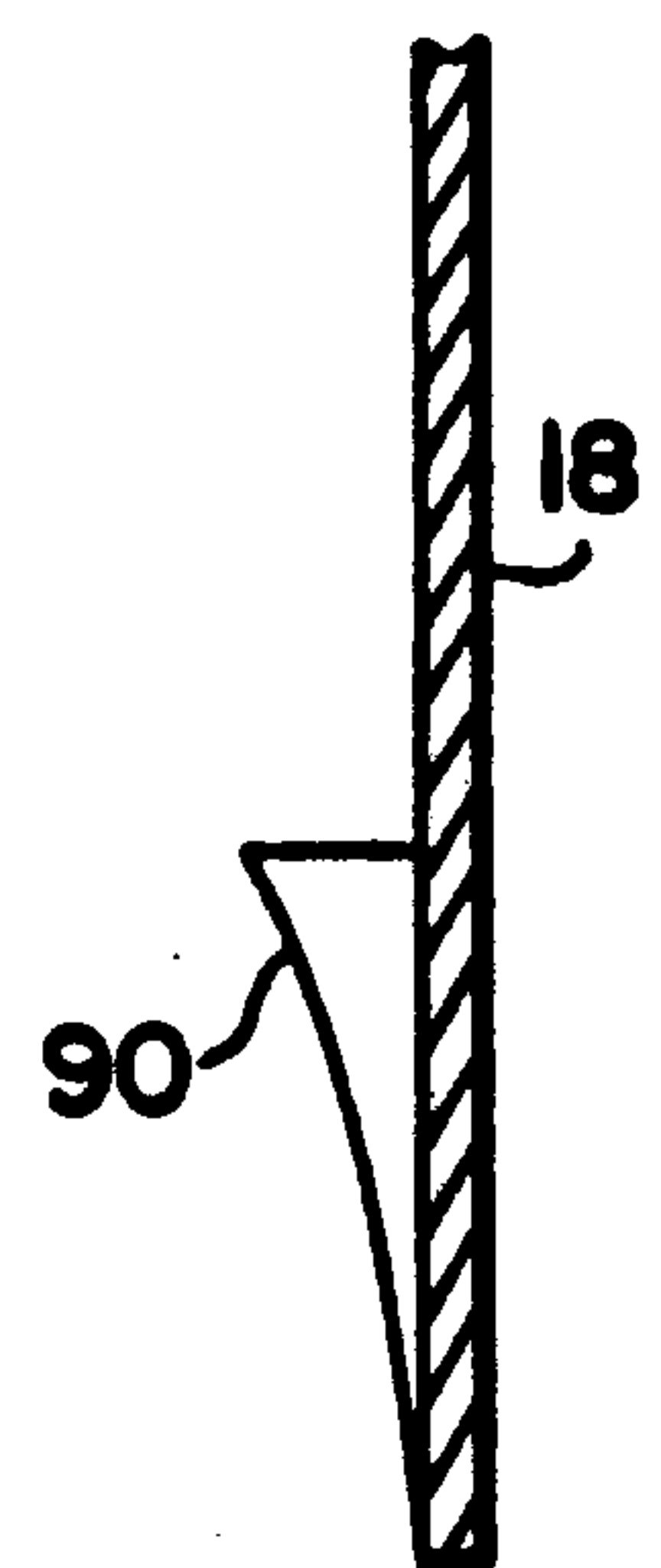
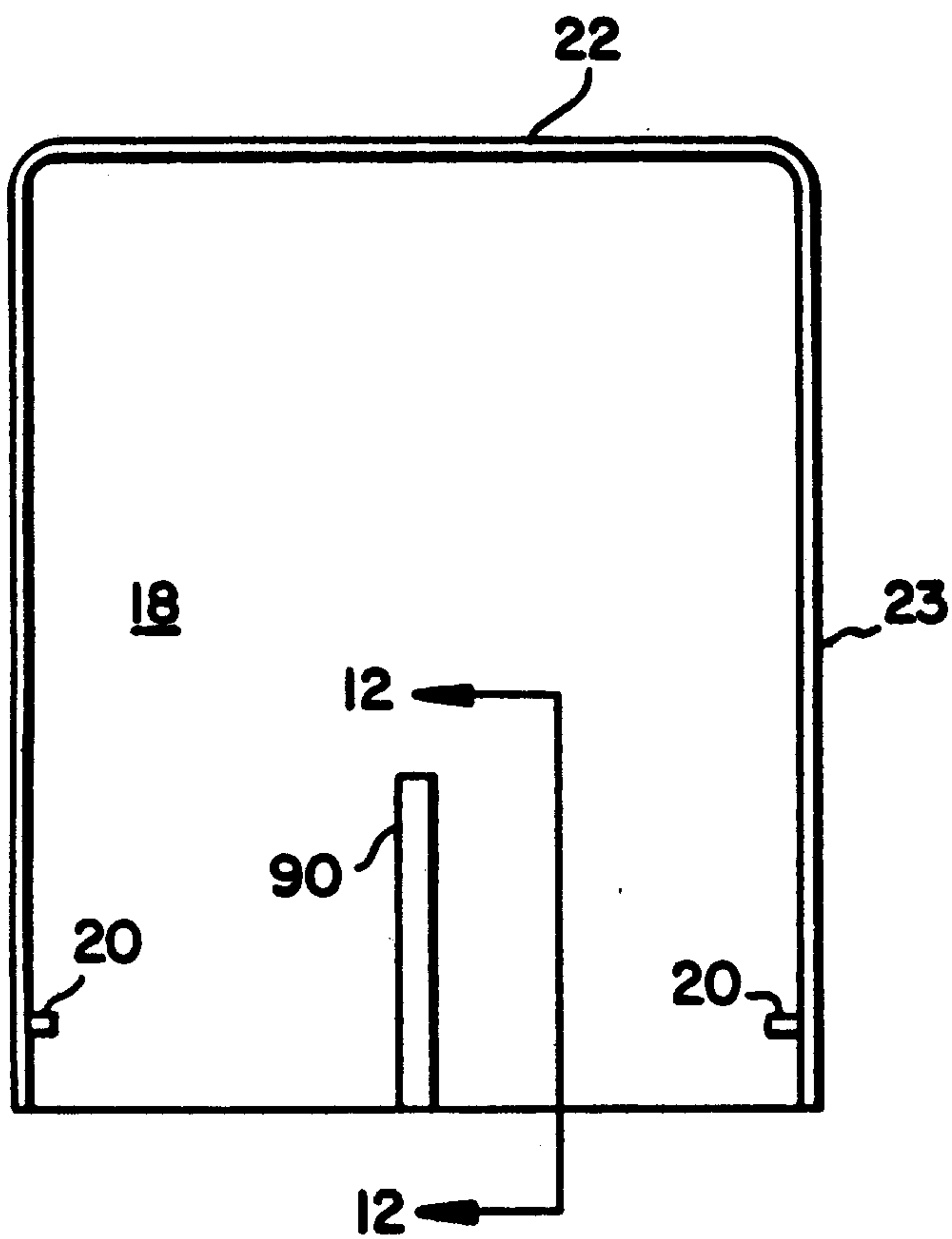


FIG. 12

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