



(22) Date de dépôt/Filing Date: 2000/05/04

(41) Mise à la disp. pub./Open to Public Insp.: 2001/04/28

(45) Date de délivrance/Issue Date: 2002/01/29

(51) Cl.Int.⁷/Int.Cl.⁷ B63H 20/36

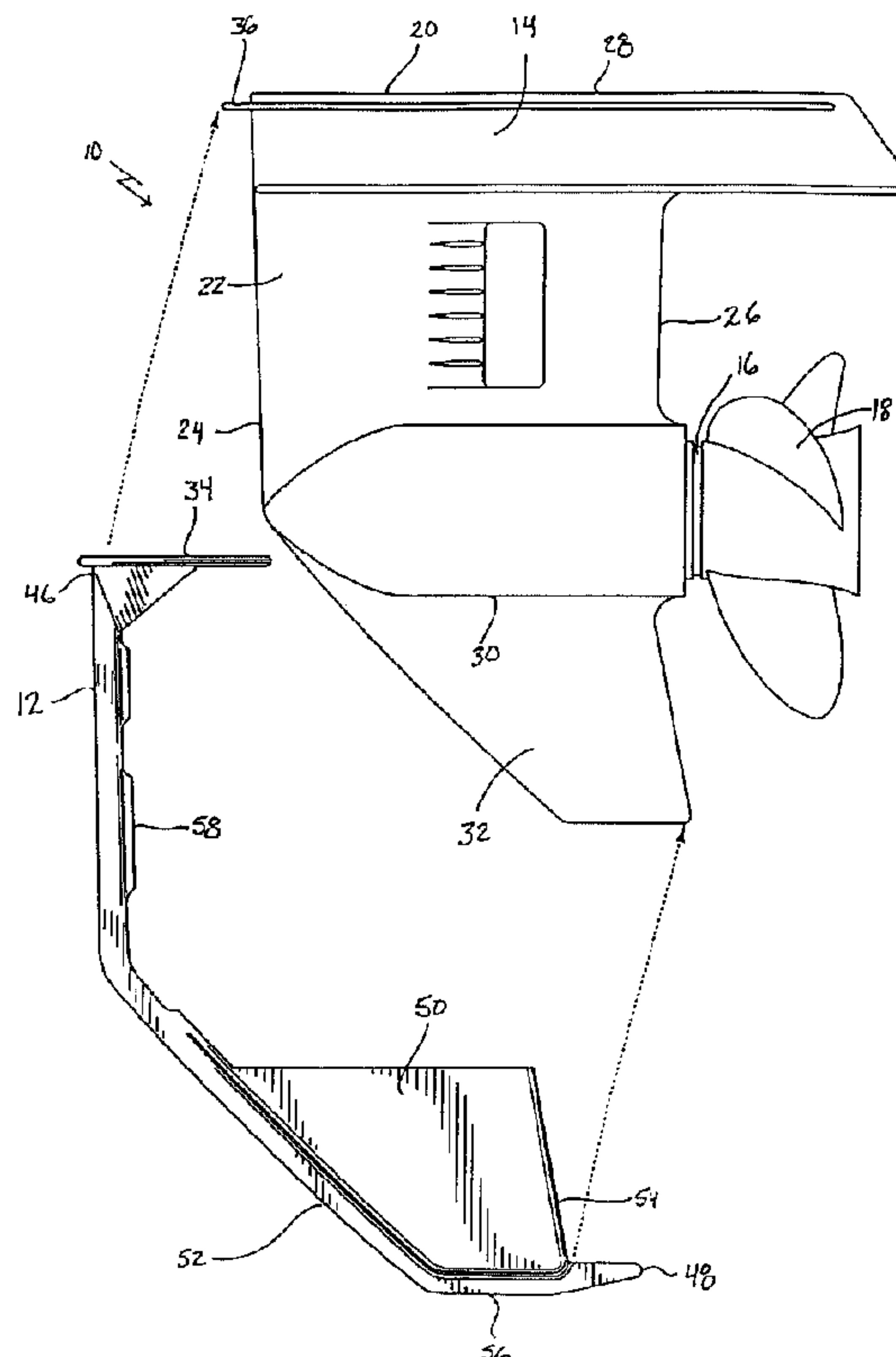
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(54) Titre : PROTECTEUR D'UNE UNITE INFERIEURE

(54) Title: LOWER UNIT GUARD



(57) Abrégé/Abstract:

A lower unit guard includes a mounting flange having a leading edge and a trailing edge. The mounting flange is adapted to be clamped onto a flange on a housing of a boat motor. A skeg pocket is provided which is adapted to receive a skeg of the boat motor. The skeg pocket has a leading edge and a trailing edge. The skeg pocket is adapted to accommodate in close fitting relation the skeg in its entirety. A connective reinforcement member is provided which is adapted to fit a leading edge of a lower unit of a boat motor. The connective reinforcement member extends from the leading edge of the mounting flange along the leading edge and bottom edge of the skeg pocket.

ABSTRACT OF THE DISCLOSURE

A lower unit guard includes a mounting flange having a leading edge and a trailing edge. The mounting flange is adapted to be clamped onto a flange on a housing of a boat motor. A skeg pocket is provided which is adapted to receive a skeg of the boat motor. The skeg pocket has a leading edge and a trailing edge. The skeg pocket is adapted to accommodate in close fitting relation the skeg in its entirety. A connective reinforcement member is provided which is adapted to fit a leading edge of a lower unit of a boat motor. The connective reinforcement member extends from the leading edge of the mounting flange along the leading edge and bottom edge of the skeg pocket.

TITLE OF THE INVENTION:

Lower Unit Guard

FIELD OF THE INVENTION

5 The present invention relates to a lower unit guard for a boat motor.

BACKGROUND OF THE INVENTION

10 United States Patent 5,839,929 discloses a lower unit guard for a boat motor. This lower unit guard has mounting plates that extend only partially across the skeg of the boat motor. The lower unit guard is secured to the boat motor by a bolt passing through the side mounting plates and the skeg. The problem with this type of mounting is that the bolt hole
15 weakens the Skeg. Upon a jarring force being exerted upon the lower unit guard, the bolt tends to tear right through the skeg. For this reason, dealers of boat motors are presently indicating to their customers that the manufacturer's warranty will be voided if any holes are placed in the skeg.

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 United States Patent 5,178,565 discloses a lower unit guard that has a skeg pocket in which a lower tip of the skeg is received. The problem with this type of mounting is that there is not much strength at the lower tip of the skeg. Upon
25 a jarring force being exerted upon the lower unit guard, the skeg tends to bend or break off.

SUMMARY OF THE INVENTION

30 What is required is an alternative form of lower unit guard.

 According to the present invention there is provided a lower unit guard which includes a mounting flange having a leading edge and a trailing edge. The mounting flange is
35 adapted to be clamped onto a flange on a housing of a boat motor. A skeg pocket is provided which is adapted to receive a skeg of the boat motor. The skeg pocket has a leading edge

and a trailing edge. The skeg pocket is adapted to accommodate in close fitting relation the skeg in its entirety. A connective reinforcement member is provided which is adapted to fit a leading edge of a lower unit of a boat motor. The
5 connective reinforcement member extends from the leading edge of the mounting flange along the leading edge and the bottom edge of the skeg pocket.

The lower unit guard, as described above, provides a more
10 secure installation that will not be as prone to damage the skeg when subjected to a jarring impact. This is accomplished by several factors. The first factor is having the skeg pocket fit the skeg in close fitting relation so there can be no movement of the skeg within the pocket. The second factor is
15 having the skeg pocket accommodate the skeg in its entirety, so that any force acting upon the skeg is spread over the entire skeg. The third and additional factor is having the connective reinforcement member extending along the leading edge and the bottom edge of the skeg pocket to provide
20 additional rigidity to the skeg pocket, so that, to the greatest extent possible, it is the lower guard unit and not the skeg itself that absorbs the impact.

Although beneficial results may be obtained through the
25 use of the lower unit guard, as described above, additional protection can be provided by securing an intermediate shielding member to the connective reinforcement member between the mounting flange and the skeg pocket. This intermediate shielding member wraps around the lower unit.

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BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings, the drawings are for the purpose
35 of illustration only and are not intended to in any way limit the scope of the invention to the particular embodiment or embodiments shown, wherein:

FIGURE 1 is a side elevation view of a first embodiment of lower unit guard constructed in accordance with the teachings of the present invention in a first stage of being placed onto a boat motor.

5 **FIGURE 2** is a side elevation view of the first embodiment of lower unit guard illustrated in **FIGURE 1**, in a second stage of being placed on a boat motor.

10 **FIGURE 3** is a side elevation view of the first embodiment of lower unit guard illustrated in **FIGURE 1**, in a third stage of being placed on a boat motor.

FIGURE 4 is a side elevation view of the first embodiment of lower unit guard illustrated in **FIGURE 1**, in place on a boat motor.

15 **FIGURE 5** is a top plan view, in section, of the first embodiment of lower unit guard illustrated in **FIGURE 1**, taken along section lines V-V of **FIGURE 5**.

FIGURE 6 is a perspective view of the first embodiment of lower unit guard illustrated in **FIGURE 1**.

20 **FIGURE 7** is a side elevation view of a second embodiment of lower unit guard constructed in accordance with the teachings of the present invention in a first stage of being placed onto a boat motor.

25 **FIGURE 8** is a side elevation view of the second embodiment of lower unit guard illustrated in **FIGURE 7**, in place on a boat motor.

FIGURE 9 is a top plan view, in section, of the second embodiment of lower unit guard illustrated in **FIGURE 7**, taken along section lines III-III of **FIGURE 8**.

30 **FIGURE 10** is a top plan view, in section, of the second embodiment of lower unit guard illustrated in **FIGURE 7**, taken along section lines IV-IV of **FIGURE 8**.

FIGURE 11 is a top plan view, in section, of the second embodiment of lower unit guard illustrated in **FIGURE 7**, taken along section lines V-V of **FIGURE 8**.

35 **FIGURE 12** is a top plan view, in section, of the second embodiment of lower unit guard illustrated in **FIGURE 7** and **11**, in the process of being placed onto a boat motor.

FIGURE 13 is a perspective view of the second embodiment of lower unit guard illustrated in **FIGURE 7**.

FIGURE 14 is an exploded perspective view of the second embodiment of lower unit guard illustrated in **FIGURE 7**.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Two embodiments of lower unit guard will now be described. A first embodiment, a lower unit guard generally identified by reference numeral 10, will be described with reference to **FIGURES 1** through **6**. A second embodiment, a lower unit guard generally identified by reference numeral 100 will be described with reference to **FIGURES 7** through **14**.

Structure and Relationship of Parts:

Referring to **FIGURE 1**, there is provided a lower unit guard 12 and a boat motor housing 14 that houses a rotary shaft 16 onto which a propeller 18 is mounted. Boat motor housing 14 has an upper housing unit 20 and a lower housing unit 22. Lower housing unit 22 has a leading edge 24, a trailing edge 26, a top 28 and a bottom 30. A skeg 32 is located a bottom 30 of lower housing unit 22. Lower unit guard 12 is comprised of a mounting flange 34 adapted to be clamped onto a flange 36 that located at top 28 of lower housing unit 22 of a boat motor.

Referring to **FIGURE 5**, mounting flange 34 has a leading edge 38 and a trailing edge 40. Bolt holes 42 extend through mounting flange at trailing end.

Referring to **FIGURE 4**, mounting flange 34 is mounted to lower unit housing 22 by means of bolts 44. Bolts 44 also attach lower unit housing 22 to upper unit housing 20.

Referring to **FIGURE 1**, lower unit guard 12 has a first end 46 and a remote end 48. First end 46 of lower unit guard 12 is secured substantially perpendicularly to leading end 38 of mounting flange 34. A skeg pocket 50 is located at remote end 48 of lower unit guard 12.

Referring to **FIGURE 6**, skeg pocket 50 is adapted to receive skeg 32 of lower unit housing 22. Skeg pocket 50 is

adapted to accommodate in close fitting relation skeg 32 in its entirety. Skeg pocket 50 has a leading edge 52, a trailing edge 54 and a bottom edge 56. Preferred embodiment 10, includes a connective reinforcement member 58 that is adapted to fit the contours of lower unit housing 22. Connective reinforcement member 58 extends from leading edge 38 of mounting flange 34 along leading edge 52 and bottom edge 56 of skeg pocket 50.

Operation:

10 The use and operation of first embodiment of guard 10 shall now be described with reference to **FIGURES 1** through **6**. Referring to **FIGURE 2**, in order to mount lower unit guard 12 to an outboard motor, skeg pocket 50 of lower unit guard 12 is positioned so as to receive skeg 32 of lower unit housing 22.

15 Skeg is partially placed in skeg pocket while first end 46 of lower unit guard 12 is tilted away from lower unit housing 22.

Referring to **FIGURE 3**, when skeg 32 is substantially positioned in skeg pocket 50, lower unit guard 12 is pushed toward leading edge 24 of lower unit housing 22 so that

20 connective reinforcement member 58 engages contours of lower unit housing 22.

Referring to **FIGURE 4**, when skeg 32 is fully positioned within skeg pocket 50 and connective reinforcing member 58 is securely engaged to contours of leading edge 24 of lower unit housing 22, then mounting flange 34 is used to secure lower unit guard 12 to flange 36 on upper unit housing 20 by means of bolts 44. Bolts 44 are the same bolts that are used to secure lower unit housing 22 to upper unit housing 22.

30 A second embodiment of a lower guard unit generally identified by reference numeral 100 will now be described with referenced to **FIGURES 7** through **14**.

Referring to **FIGURE 7**, there is provided a lower unit guard 112 and a boat motor housing 114 that houses a rotary shaft 116 onto which a propeller 118 is mounted. Boat motor housing 114 has an upper housing unit 120 and a lower housing unit 122. Lower housing unit 122 has a leading edge 124, a

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trailing edge 126, a top 128 and a bottom 130. A skeg 132 is located a bottom end 130 of lower housing unit 122.

Lower unit guard 112 is comprised of a mounting flange 134 adapted to be clamped onto a flange 136 that located at top 128
5 of lower housing unit 122 of a boat motor.

Referring to **FIGURE 9**, mounting flange 134 has a leading edge 138 and a trailing edge 140. Bolt holes 142 extend through mounting flange 134 at trailing end 140.

Referring to **FIGURE 8**, mounting flange 134 is mounted to
10 lower unit housing 122 by means of bolts 144. Bolts 144 also attached lower unit housing 122 to upper unit housing 120.

Referring to **FIGURE 1**, lower unit guard 112 has a first end 146 and a remote end 148. First end 146 of lower unit guard 112 is secured substantially perpendicularly to leading
15 end 138 of mounting flange 134.

Referring to **FIGURE 13**, a skeg pocket 150 is located at remote end 148 of lower unit guard 112. Skeg pocket 150 is adapted to receive skeg 132 of boat motor housing 114. Skeg pocket 150 is adapted to accommodate in close fitting relation
20 skeg 132 in its entirety. Skeg pocket 150 has a leading edge 152, a trailing edge 154 and a bottom edge 156. A plurality of bolt holes 157 are aligned along trailing edge 154 of skeg pocket 150 so that trailing edges 154 of skeg pocket 150 on either side of skeg 132 can be bolted together so as to
25 envelope skeg 132 as illustrated in **FIGURE 11**.

A connective reinforcement member 158 is adapted to fit the contours of lower unit housing 122. Connective reinforcement member 158 extends from leading edge 138 of mounting flange 134 along leading edge 152 and bottom edge 156
30 of skeg pocket 150. An intermediate shielding member 160 is secured to connective reinforcement member 158 between mounting flange 134 and skeg pocket 150. Intermediate shielding member 160 has a leading edge 162 and a trailing edge 164.

Referring to **FIGURE 14**, intermediate shielding member 160
35 is comprised of a first portion 166 and a second portion 168.

Referring to **FIGURE 7**, first portion 166 and second portion 168 are joined in connective reinforcement member 158

along leading edge 162 to lower unit guard 112.

Referring to **FIGURES 10** and, **11**, intermediate shielding member 160 is adapted to accommodate the contours of a substantial portion of lower housing unit 122.

5 As illustrated in **FIGURE 13**, trailing edge 154 of first portion 166 and second portion 168 of intermediate shielding member 160 comprise an opening 165 that is adapted to accommodate lower unit housing 122. Opening 165 is slender toward first end 146 of lower unit guard 112 and then expands
10 to a bulb shape where intermediate shielding member 160 meets with skeg pocket 50.

Referring to **FIGURE 12**, skeg 132 is inserted into skeg pocket 150. When properly inserted skeg pocket 150 will clamp around skeg as illustrated in **FIGURE 11**, and trailing end 154
15 of skeg pocket 150 can be bolted together with bolts 170.

Referring to **FIGURE 10**, when lower unit housing 122 is properly inserted into intermediate shielding member 160, sides 166 and 168 of intermediate shielding member 160 will fit closely against lower unit housing 122 so that there can be no
20 movement of lower unit housing 122 within intermediate shielding member 160.

The use and operation of second embodiment 100 will now be described with reference to **FIGURES 7** through **14**.

25 Referring to **FIGURE 12**, in order to install lower guard unit 112, skeg 132 is slotted into position in skeg pocket 150.

Referring to **FIGURE 11**, once securely positioned in skeg pocket 150, trailing edges 54 of skeg pocket 150 are bolted together by means of bolts 170. When trailing edges of skeg
30 pocket 150 are securely bolted, there can be no movement of skeg 132 within skeg pocket 150.

Referring to **FIGURE 10**, when lower unit housing 122 is properly inserted into intermediate shielding member 160, sides 166 and 168 of intermediate shielding member 160 will fit
35 closely against lower unit housing 122 so that there can be no movement of lower unit housing 122 within intermediate shielding member 160.

Referring to **FIGURE 8**, when skeg 132 is fully positioned within skeg pocket 150 and lower unit housing 122 is fully positioned with intermediate shielding member 160, then connective reinforcing member 158 is securely engaged to
5 contours of leading edge 124 of lower unit housing 122. Mounting flange 134 is used to secure lower unit guard 112 to flange 136 on upper unit housing 120 by means of bolts 144. Bolts 144 are the same bolts that are used to secure lower unit housing 122 to upper unit housing 122.

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In this patent document, the word "comprising" is used in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article
15 "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be one and only one of the elements.

It will be apparent to one skilled in the art that
20 modifications may be made to the illustrated embodiment without departing from the spirit and scope of the invention as hereinafter defined in the Claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

- 5 1. A lower unit guard, comprising:
- a mounting flange adapted to be clamped onto a flange on a housing of a boat motor, the mounting flange having a leading edge and a trailing edge;
- a skeg pocket adapted to receive a skeg of the boat motor,
- 10 the skeg pocket being adapted to accommodate in close fitting relation the skeg in its entirety, the skeg pocket having a leading edge, a trailing edge and a bottom edge;
- a connective reinforcement member adapted to fit the contours of a lower unit of a boat motor, the connective
- 15 reinforcement member extending from the leading edge of the mounting flange along the leading edge of the skeg pocket.
2. The lower unit guard as defined in Claim 1, the connective reinforcement member extending along the bottom edge of the
- 20 skeg pocket.
3. The lower unit guard as defined in Claim 1, wherein an intermediate shielding member is secured to the connective reinforcement member between the mounting flange and the skeg
- 25 pocket.

4. In combination:

a boat motor, including:

an upper unit and a lower unit;

5 the upper unit being housed in a housing having an attachment flange;

the lower unit having a leading edge, a trailing edge and a depending skeg;

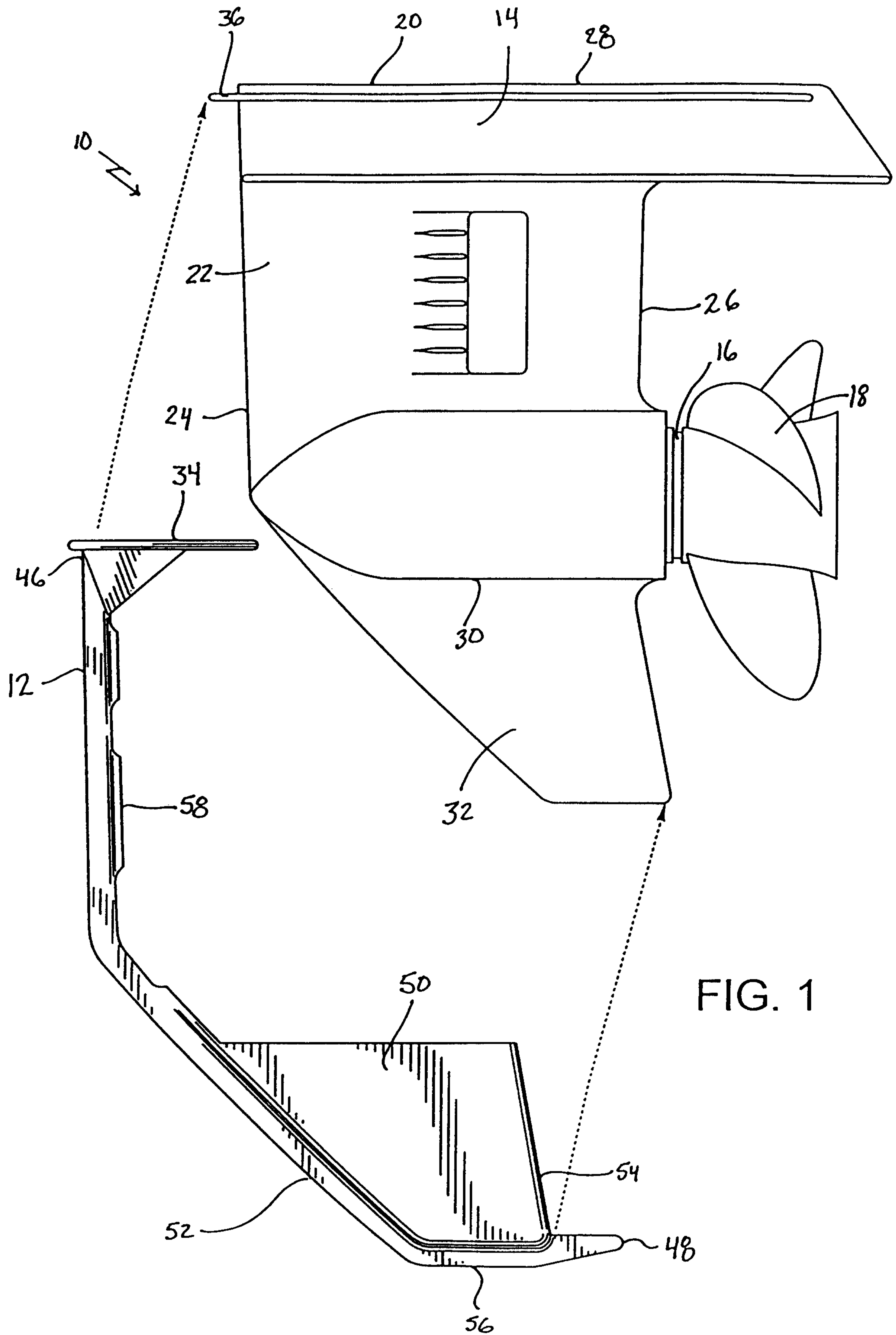
a lower unit guard, including:

10 a mounting flange clamped onto at least one of the attachment flange of the housing of the boat motor, the mounting flange having a leading edge and a trailing edge;

a skeg pocket adapted to receive the skeg of the boat motor, the skeg pocket accommodating in close fitting relation
15 the skeg in its entirety, the skeg pocket having a leading edge and a trailing edge;

a connective reinforcement member adapted to fit a contour of the leading edge of the lower unit of the boat motor, the connective reinforcement member extending from the
20 leading edge of the mounting flange along the leading edge and bottom edge of the skeg pocket.

5. The combination as defined in Claim 4, wherein an intermediate shielding member is secured to the connective
25 reinforcement member between the mounting flange and the skeg pocket.



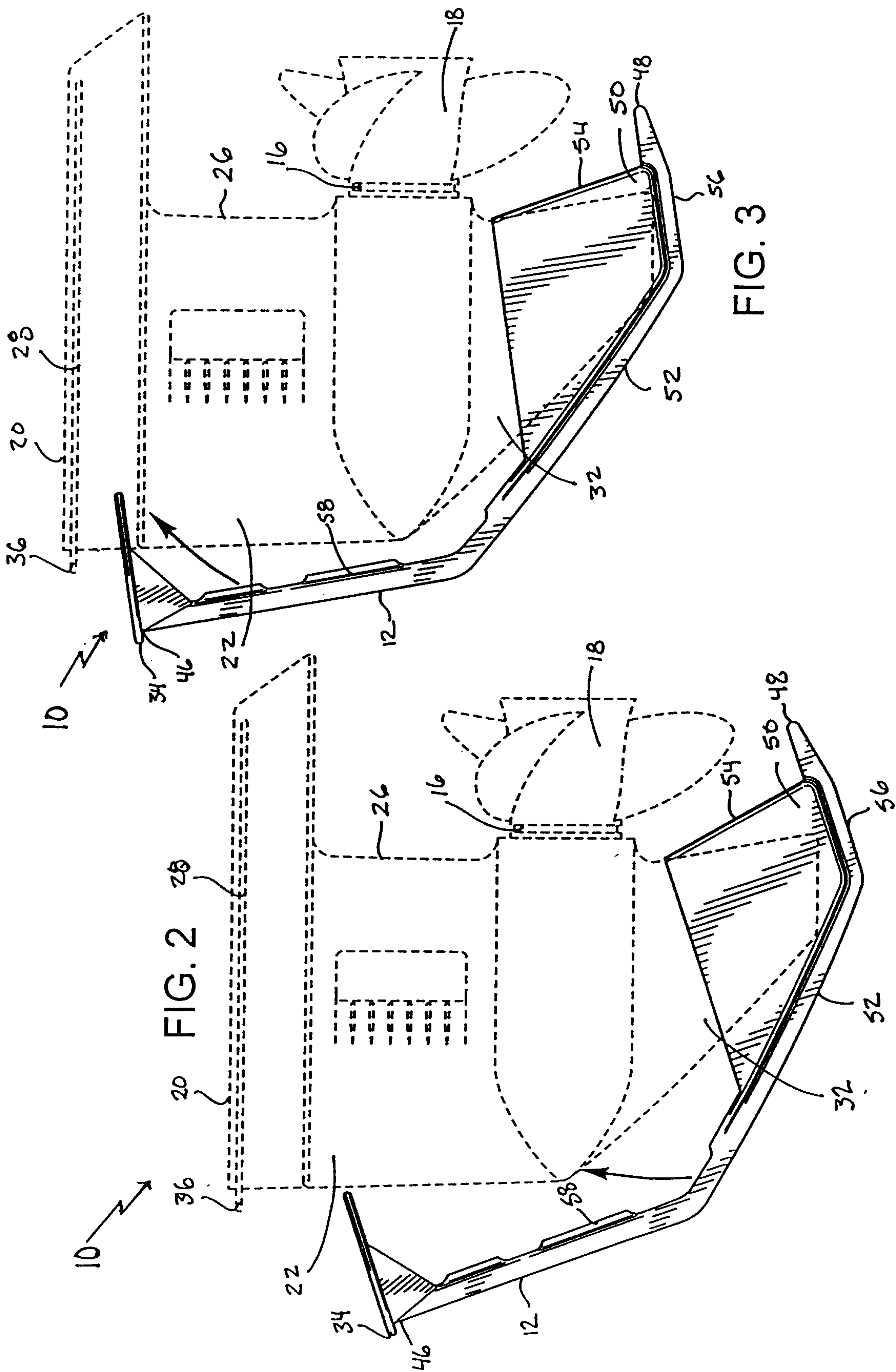


FIG. 2

FIG. 3

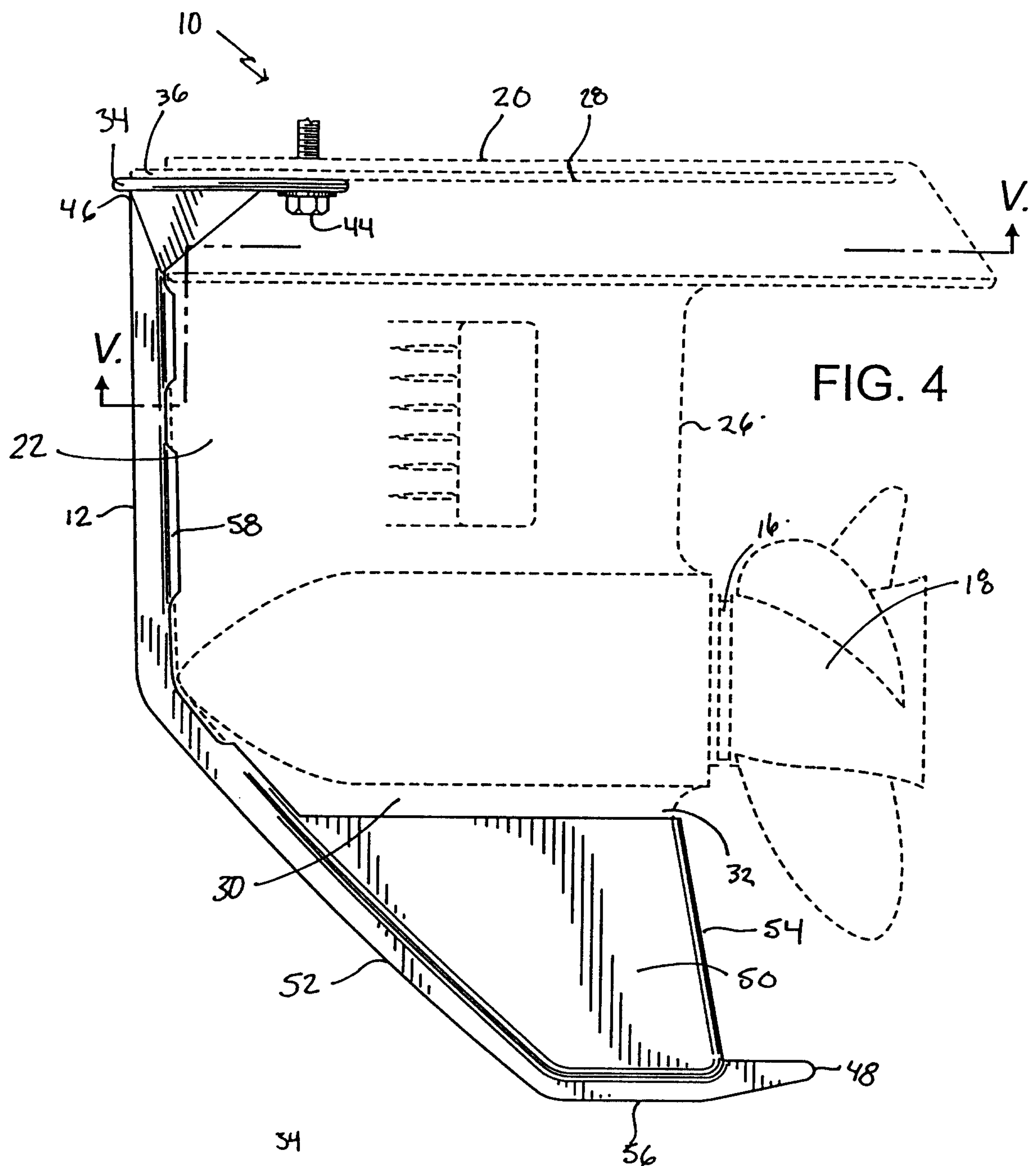


FIG. 4

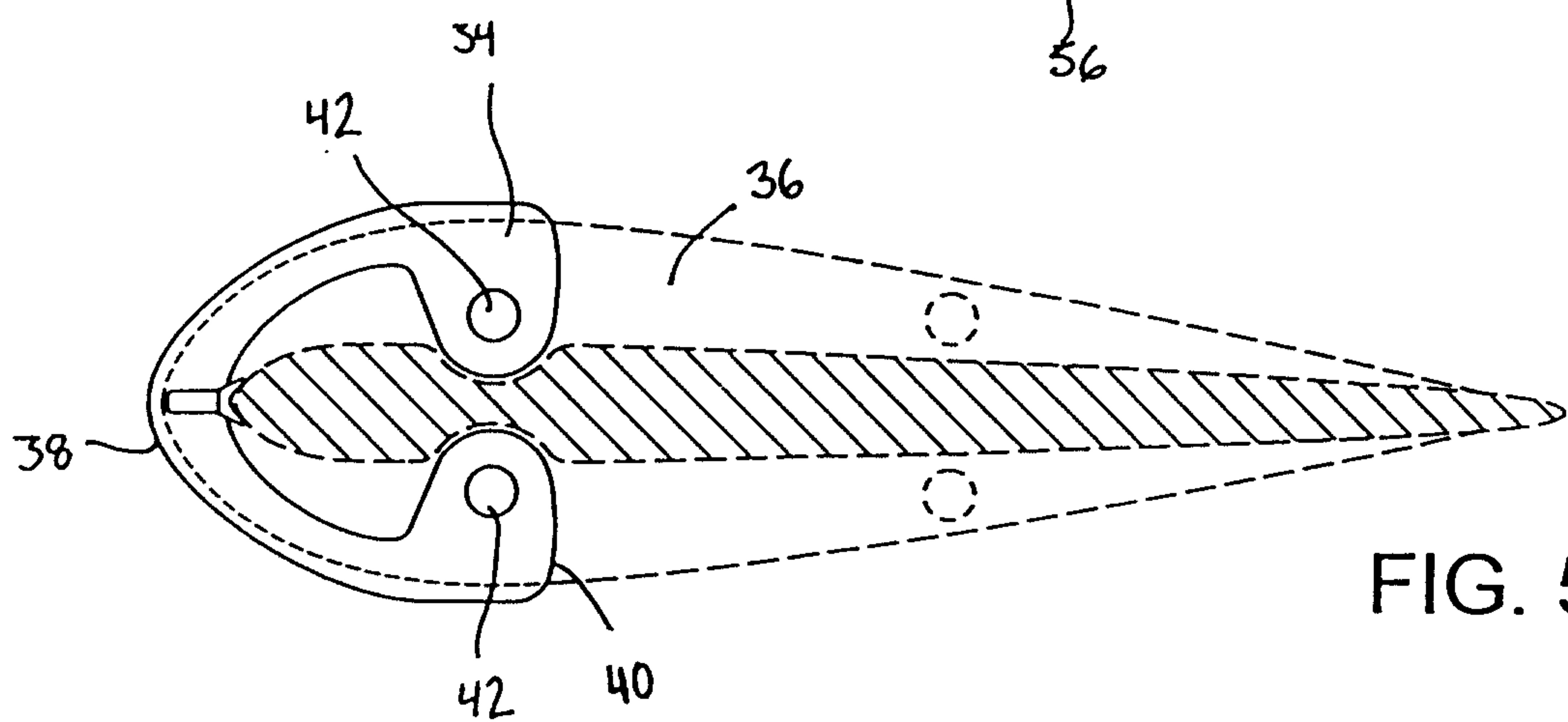
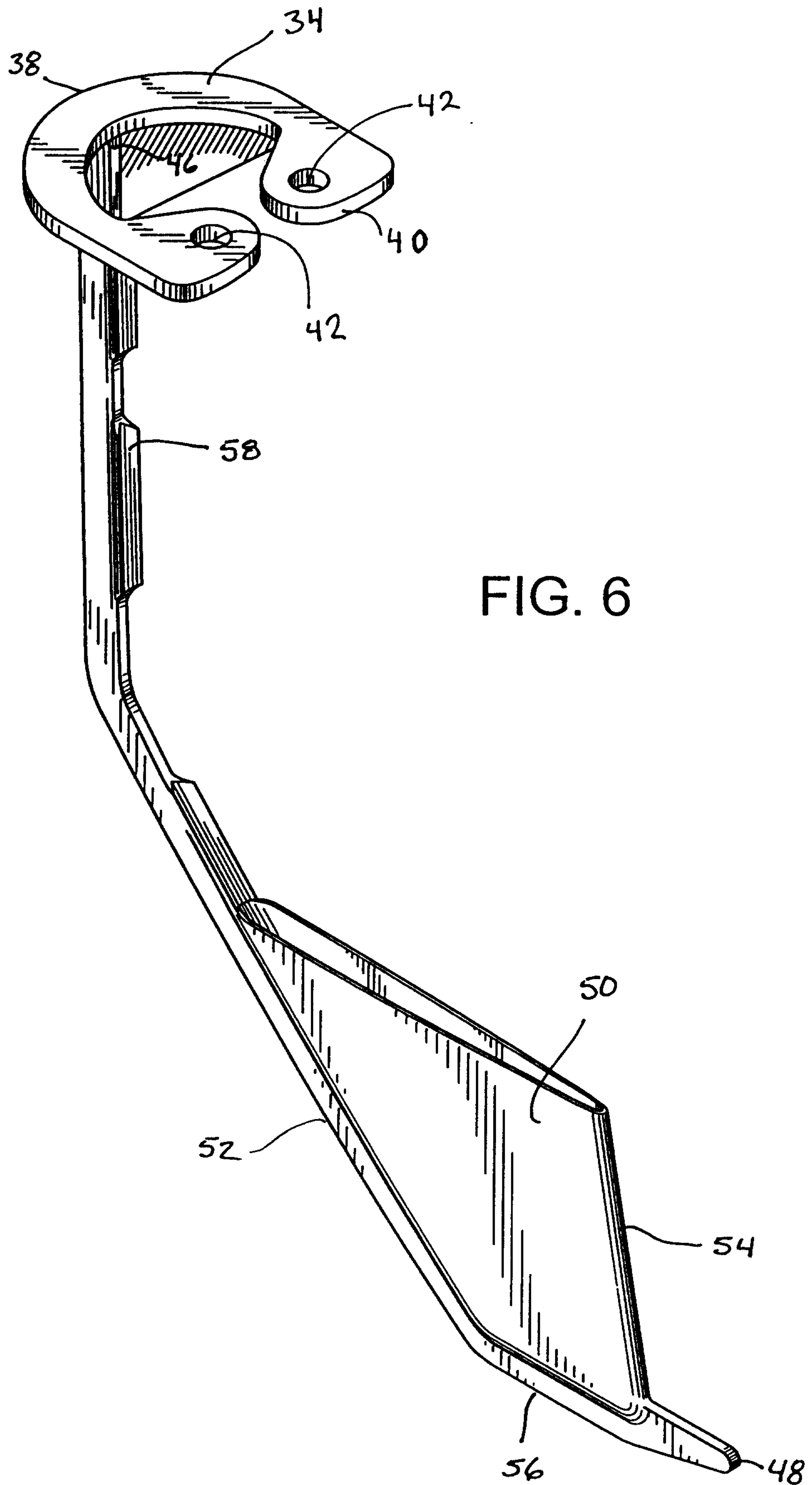


FIG. 5



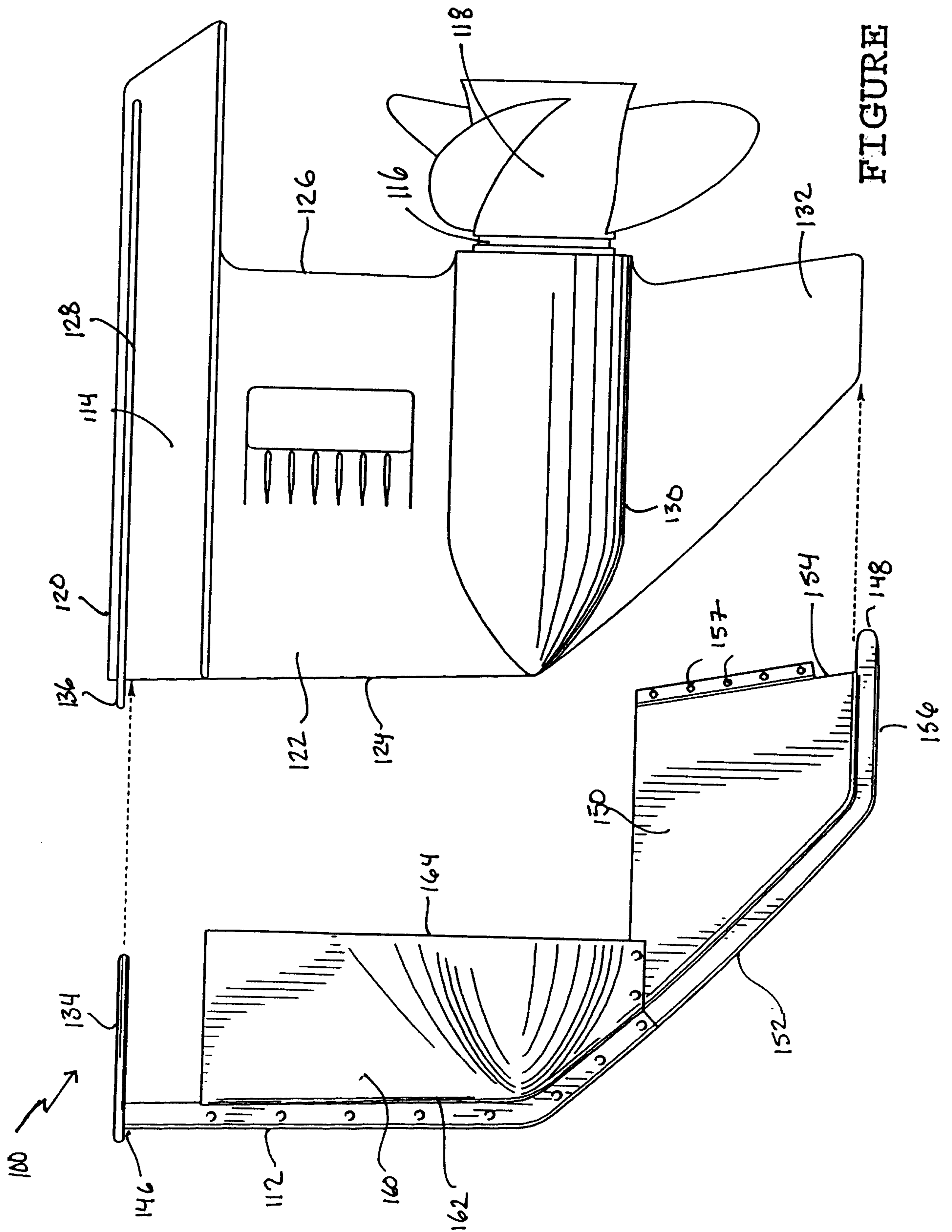


FIGURE 7

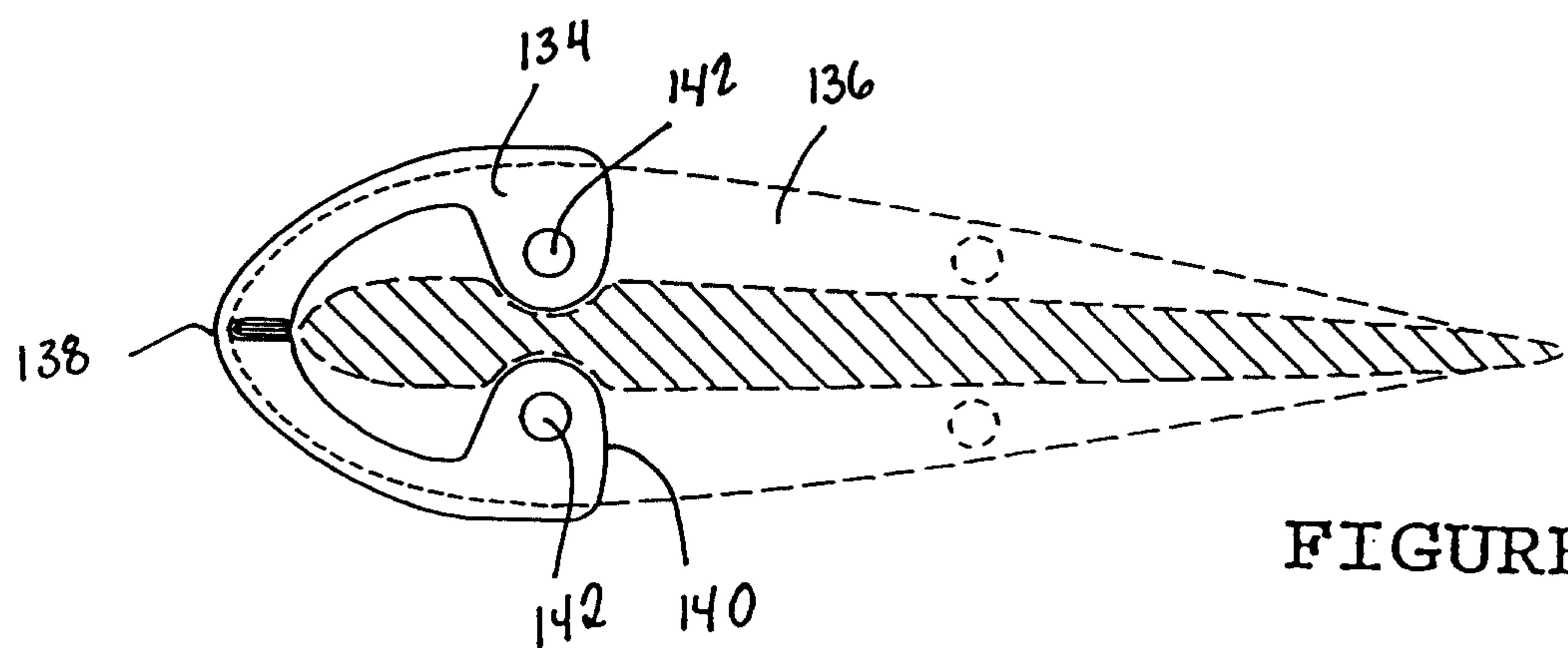
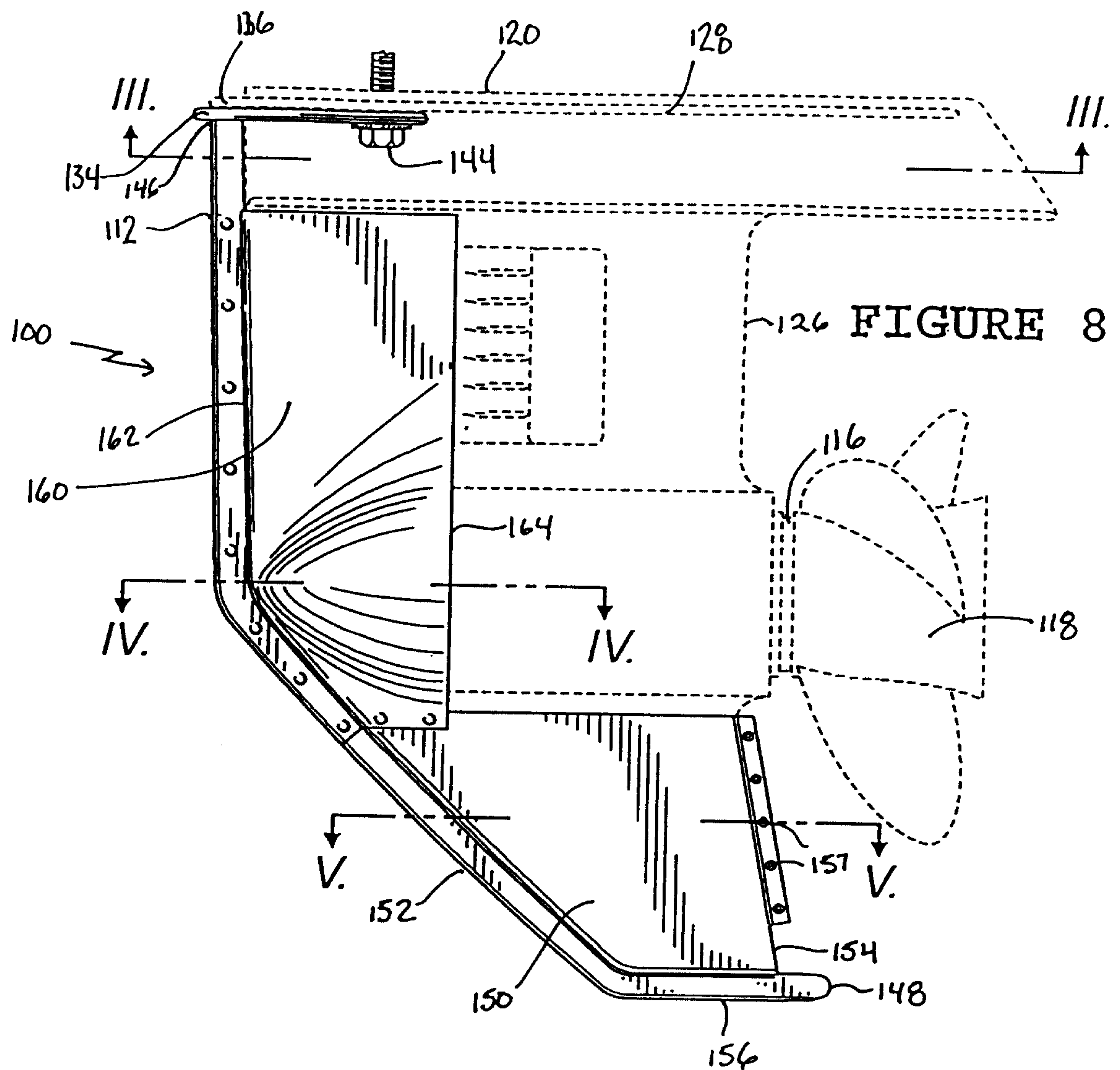


FIGURE 9

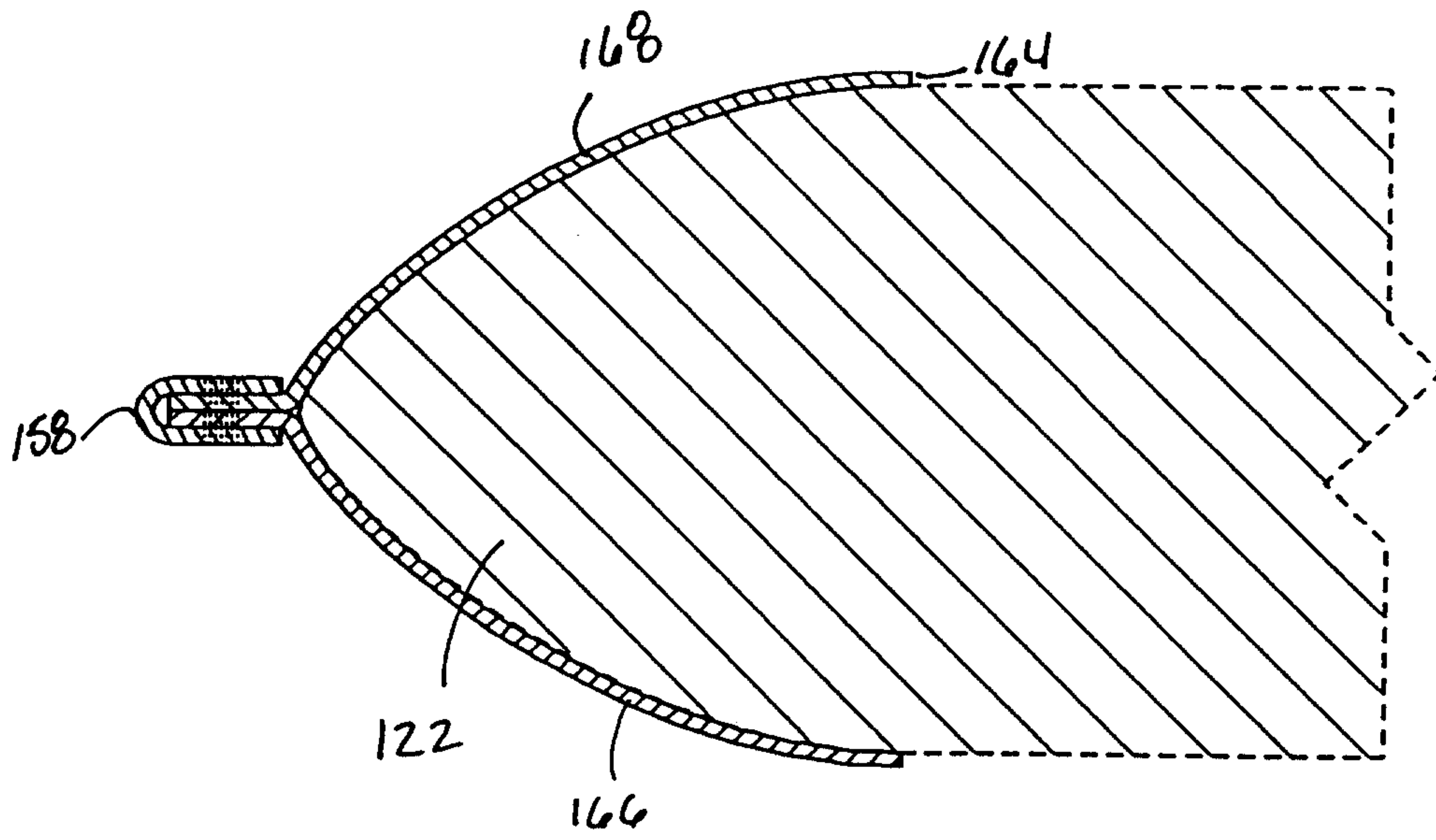


FIGURE 10

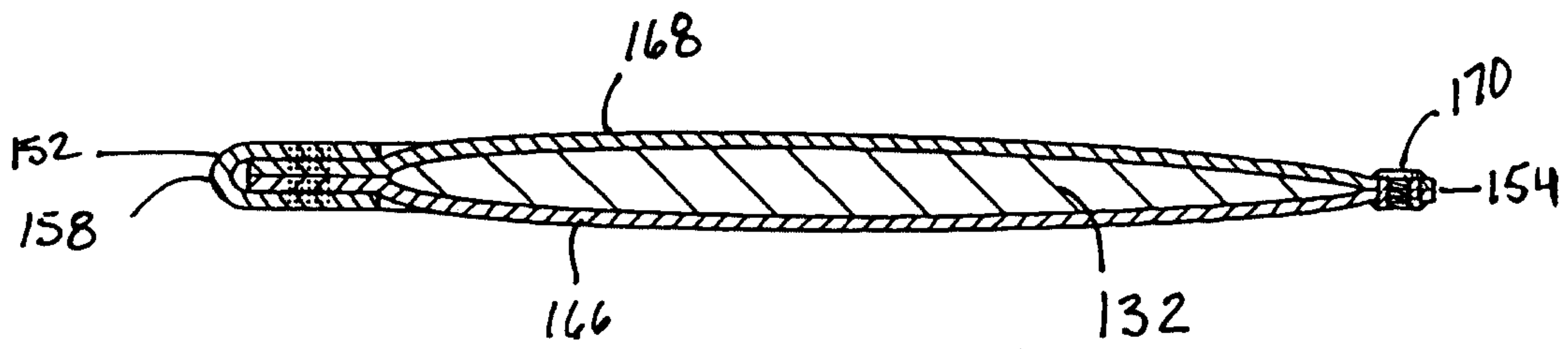


FIGURE 11

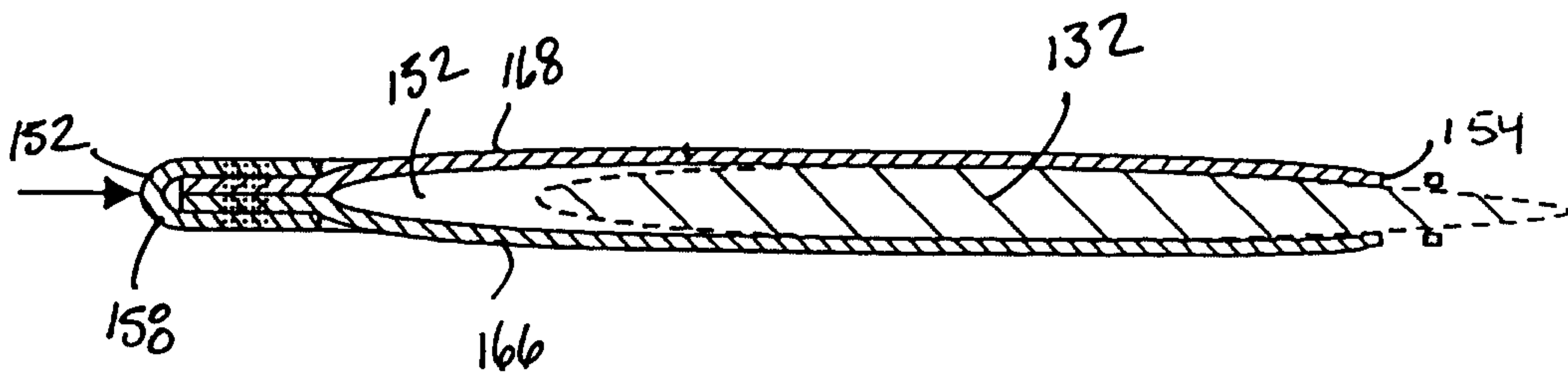
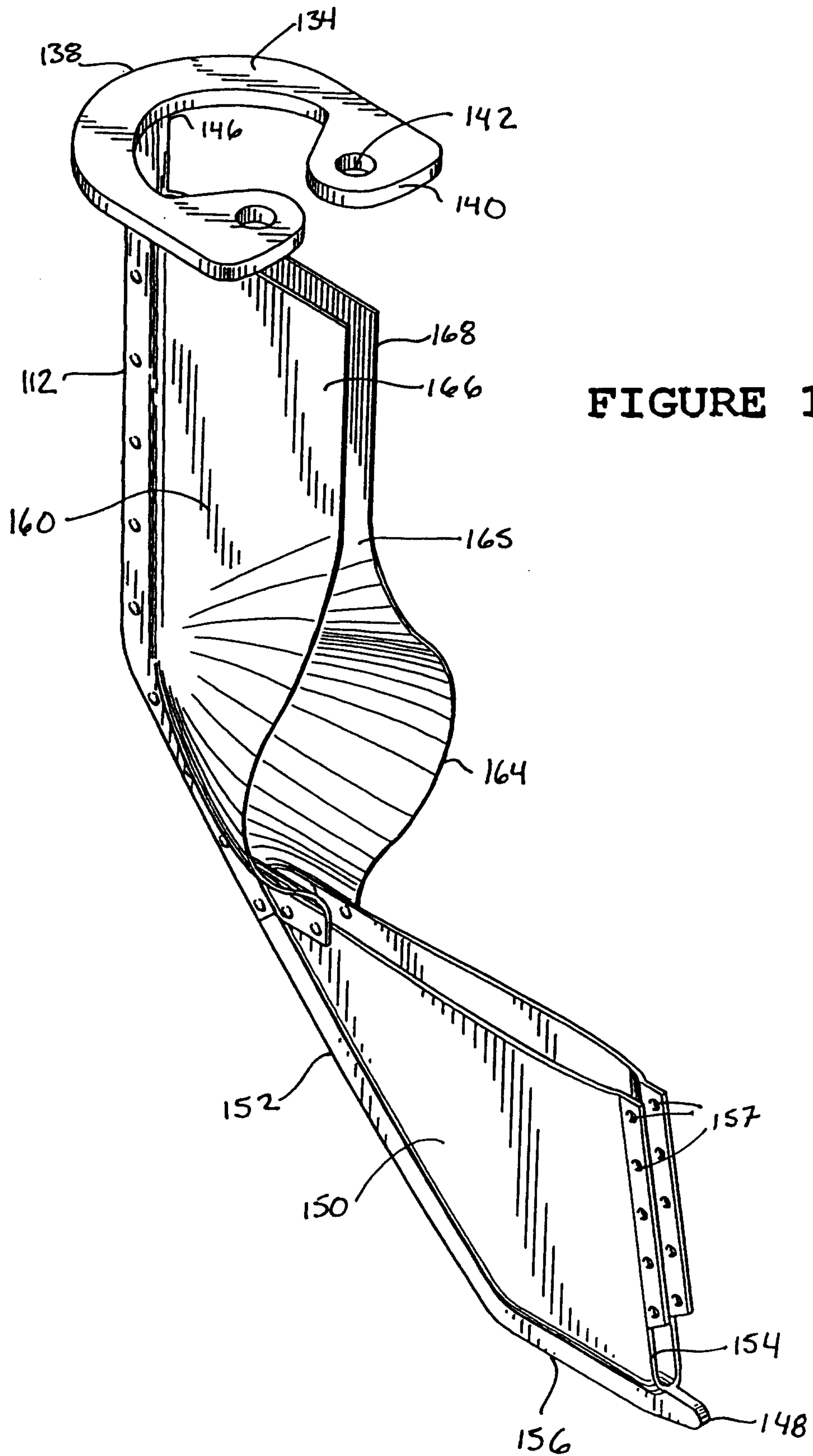
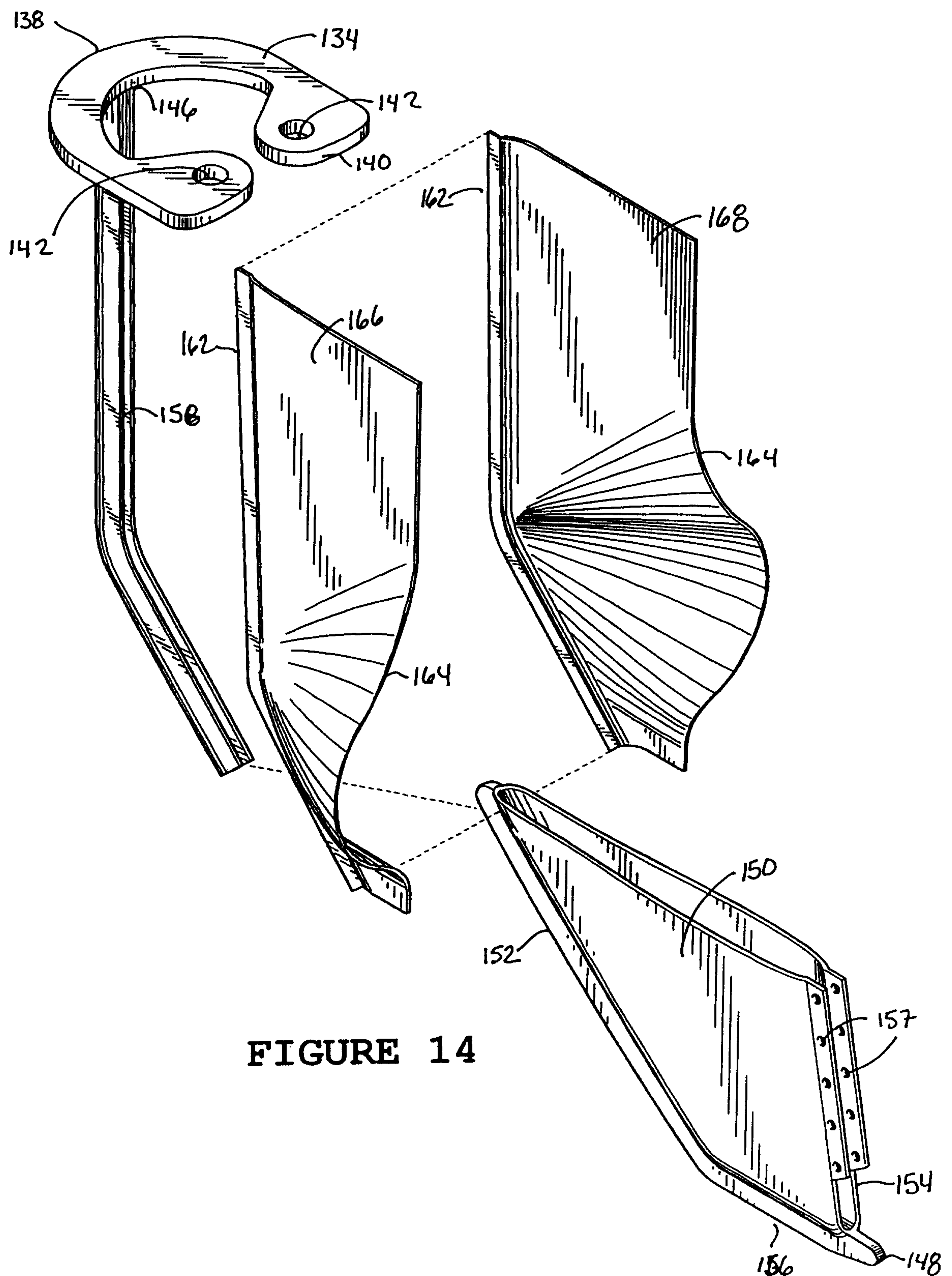


FIGURE 12



**FIGURE 14**

