(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 472 832 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **91109623.8**

(51) Int. Cl.5: **B63H 11/02**

(22) Date of filing: **12.06.91**

(30) Priority: **30.07.90 JP 203614/90**

(43) Date of publication of application:
04.03.92 Bulletin 92/10

(84) Designated Contracting States:
BE DE DK FR GB IT NL SE

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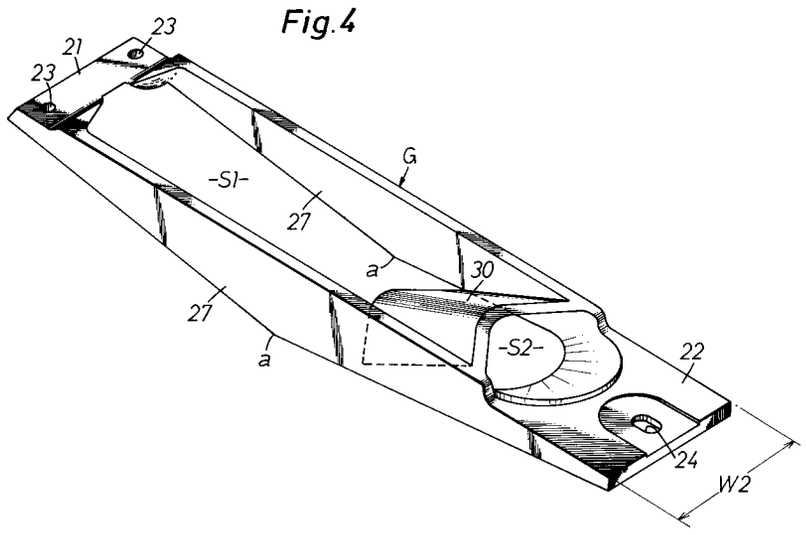
(54) Intake grating for water-jet propelled boats.

(57) The present invention relates to a device used in jet-propelled gliding boats for preventing floating obstacles from being drawn in, wherein a scope gate in lattice form is composed of a pair of attaching seats (21, 22) associated with the bottom surface of the boat body and a single longitudinal partition wall extending along the travel center line of the boat body or a pair of longitudinal partition walls (27) extending parallel with the travel center line of the boat body, interconnecting the attaching seats,

substantially the latter half or halves of the longitudinal partition wall or walls project downward by a fixed amount beyond the bottom surface of the boat body, while a transverse partition wall (30) is disposed in the intermediate portion or portions of the projecting latter half or halves to assume an inclined state sloping rearwardly upward at a fixed angle, whereby a larger space (S1) for water intake is defined between the transverse partition wall (30) and the front attaching seat (21) and a smaller space (S2) or water intake is defined between the transverse partition wall and the rear attaching seat (22).

Fig.4



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BACKGROUND OF THE INVENTION

Small-sized gliding boats of the jet-propelled type arranged for a single person to ride in a standing posture or some persons to ride in a seated posture have incorporated therein a jet-propelling device (or water jet pump) adapted to be driven for rotation by an engine mounted on the boat.

Such jet propelling device is designed to draw water through a water intake port formed in the bottom surface of the boat body, accelerating said water by an impeller installed in a water intake duct (or pump case) to spout it rearwardly of the boat body, the reaction force serving as the propelling force for the boat body. Thus, the jet propelling device has the danger of drawing not only water but also garbage, seaweed, fishing lines and other various floating obstacles. To prevent such obstacles from being drawn in, as found in Japanese Patent Publication No. 58356/1986, and Japanese Utility Model Publication Nos. 28640/1980 and 31759/1979, a lattice called scope gate or grate is attached to the bottom surface of the boat body to cover said water intake port.

To prevent floating obstacles from being drawn in, the number of partition bars could be increased to partition the interior of the lattice more finely; it may be said that the more finely it is partitioned, the greater the effect attained. In that case, however, the amount of water that can be drawn in through the water intake port would also decrease, and the water flow would be bubbled or agitated.

Such phenomenon becomes particularly noticeable when the boat body is turning. The reason is that during the turning of the boat body, the natural flow of water from the water intake port toward a water intake duct is held back or dashes hard against the partition bars. As a result, a cavitation phenomenon takes place in the water intake duct (pump case), corroding the impeller or causing the loss of propelling energy.

Further, the more finely the interior of the lattice of the scope gate is partitioned, the greater the weight of the scope gate itself. Furthermore, finer partitioning makes it less easy to visually inspect the interior of the water intake duct from the water intake port. More particularly, if a floating obstacle enters the water intake duct and twines itself around the impeller or the impeller shaft, the operation for removal thereof cannot be performed easily and efficiently.

If the scope gate is made of an opaque metallic material, this drawback is particularly noticeable. And before the aforesaid visual inspection can be made, the boat body must be turned over to direct its bottom surface upward; this operation requires heavy labor.

SUMMARY OF THE INVENTION

The present invention has been accomplished to solve these problems, and an object thereof is to provide an arrangement wherein to partition the water intake port formed in the bottom surface of the boat body, the scope gate for preventing floating obstacles from being drawn in is made in lattice form, comprising a pair of attaching seats by which it is attached to the boat body and a pair of longitudinal partition walls extending parallel with the travel center line of the boat body to bridge the space between said seats, the latter halves of said longitudinal partition walls extending downward by a fixed amount beyond the bottom surface of the boat body, a transverse partition wall disposed in said extending portions in an inclined state sloping rearwardly upward at a fixed angle, the lower surface of said transverse partition wall extending downward beyond the lower surface of the boat body, thereby arresting floating obstacles to prevent them from entering the water intake port in the boat body.

Another object is to provide an arrangement wherein the transverse partition wall bridges the space between longitudinal partition walls in such a manner as to define a larger space between it and the front attaching seat and a smaller space between it and the rear attaching seat and is disposed in an inclined state sloping rearwardly upward at a fixed angle, whereby water is drawn in with no resistance through the water intake port such that the flow lines of water taken from the front larger space into the water intake port is dense and the flow rate is high while the flow lines of water taken from the rear smaller space into the water intake port is sparse and the flow rate is low, and the pressure in the smaller space is negative relative to that in the larger space, with the result that floating obstacles once arrested by the lower surface of the transverse partition wall are hardly drawn from the smaller space located therebehind into the water intake port and instead they are moved rearwardly of the boat body by the action of water flowing along the bottom surface of the boat body.

That is, the lattice of the scope gate is not of finely partitioned construction, so that water is smoothly guided from the water intake port in the boat body into the water intake duct without being excessively held back or being caused to bubble or being agitated, thus eliminating the possibility of cavitation taking place in the water intake duct, while allowing visual inspection of the interior of the water intake duct easily from outside and preventing garbage, seaweed, fishing lines and other various floating obstacles from being drawn in together with water.

Such object can be attained by providing an arrangement wherein the longitudinal partition walls of the scope gate extending along the travel center line of the boat body are reduced in number to unity, substantially the latter half of such single longitudinal partition wall extending downward by a fixed amount beyond the bottom surface of the boat body, the extending latter half being bifurcated and sloping rearwardly upward at a fixed angle to provide a transverse partition wall, the front ends of the branches being continuous with the rear attaching seat, with the result that a pair of larger water intake spaces are defined between the transverse partition wall and the front attaching seat and a smaller water intake space is defined between the transverse partition wall and the rear attaching seat.

The smaller water intake space is positioned rearwardly of the lower surface of the transverse partition wall where floating obstacles are once arrested, and the same as the above may be said about the interrelationship between the flow lines and flow rate of water drawn therefrom into the water intake port and those of water drawn from the larger spaces into the water intake port; thus, floating obstacles once arrested are positively pushed away rearwardly of the boat body along the bottom surface of the boat body by the water energy. According to such arrangement, the normal water drawing action at the water intake port of the boat body can be made further smooth and the scope gate itself can be further simplified.

Another object of the invention is to provide an arrangement wherein the transverse partition wall is V- or U-shaped as seen in a bottom view such that it gradually extends forward as its center located on the travel center line of the boat body is approached, whereby floating obstacles once arrested by the lower surface of said transverse partition wall are efficiently pushed away rearwardly in two diverging directions so that they are prevented from entering the water intake port.

A further object of the invention is to provide an arrangement wherein the scope gate is made by injection molding of a transparent or translucent engineering plastic material so that this injection molding, coupled with the employment of a construction in which the interior of the lattice is not finely partitioned, allows the interior thereof to be seen easily from outside, while even if floating obstacles should twine themselves around the impeller or the propeller shaft in the water intake duct, they can be efficiently removed, the scope gate being light in weight and adapted for mass production.

Other objects as well as the arrangement of the invention will become apparent from the following detailed description of preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic side view of a jet-propelled gliding boat with the present invention applied thereto;

Fig. 2 is an enlarged bottom view showing the rear portion of the boat body;

Fig. 3 is a sectional view taken along the line 3-3 in Fig. 2;

Figs. 4 and 5 are a perspective view and a bottom view of a scope gate;

Fig. 6 is an enlarged sectional view taken along the line 6-6 in Fig. 5;

Fig. 7 is an enlarged sectional view taken along the line 7-7 in Fig. 5;

Fig. 8 is a perspective view of a spacer;

Figs. 9 and 10 are a perspective view and a bottom view showing a first modified embodiment of a scope gate;

Fig. 11 is an enlarged sectional view taken along the line 11-11 in Fig. 10;

Figs. 12 and 13 are a perspective view and a bottom view showing a second modified embodiment of a scope gate;

Fig. 14 is a sectional view taken along the line 14-14 in Fig. 13; and

Fig. 15 is an enlarged sectional view taken along the line 15-15 in Fig. 13.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The concrete arrangement of the invention will now be described in detail with reference to the drawings. In Fig. 1 schematically showing a jet-propelled small-sized gliding boat in its entirety, the character A generally denotes a boat body made of fiber-reinforced plastic (FRP), said boat body being of hollow sealed construction including a front region defined as an engine room 10 and a rear region with its upper surface defined as a floor deck 11 for a driver to ride in a standing posture. In some cases, the middle area of the floor deck 11 will be provided with a seat for a driver. The numeral 12 denotes an engine contained in the engine room 10 for driving a jet-propelling device (water jet pump) B through a propeller shaft 13 to impart a propelling force to the boat body A.

The propeller shaft 13 extends along the travel center line O-O of the boat body A to a position below the floor deck 11 and is connected at its front end to the crank shaft (not shown) of the engine 12 through a clutch 14. Integrally rotatably connected to the rear end of the propeller shaft 13 are an impeller 15 and guide vanes 16. The numeral 17 denotes a water intake duct serving as a pump case for receiving the impeller 15 and guide vanes 16, said water intake duct being disposed

below the floor deck 11, with its front side providing a water intake port 18 which opens in the middle of the bottom surface of the boat body A.

When the impeller shaft 13 is driven for rotation, its impeller 15 draws water through the water intake port 18. in the water intake duct 17, the water drawn is accelerated and forced rearward by the impeller 15 and its flow is regulated by the guide vanes 16, thereupon it is spouted out through a steering nozzle 19 which opens in the stern of the boat body A; the reaction to the spouting force advances the boat body A.

The steering nozzle 19 is manually controlled from the floor deck 11 to change its direction, whereby the boat body A can be steered. In addition, the numeral 20 denotes a pump case cover attached to the middle region of the bottom surface of the boat body A.

Since there is a danger of garbage, seaweed, fishing lines and other various floating obstacles being drawn in together with water through the water intake port 18, a scope gate G for preventing entry thereof is attached to the middle region of the bottom surface of the boat body A to cover the water intake port 18, as shown in Figs. 2 and 3. In the present invention, the scope gate G is made of a light alloy or transparent or translucent polycarbonate resin, polyacetal resin or other thermoplastic engineering plastic material preferably having high bending elasticity into the form of an elongated lattice.

In Figs. 4 through 7 showing a basic embodiment of a scope gate G, the numerals 21 and 22 denote a pair of attaching seats having a width w2 smaller than the width w1 of said water intake port 18. The front attaching seat 21 has a pair of bolt receiving holes 23 on opposite sides, while the rear attaching seat 22 is centrally formed with a bolt receiving hole 24 which preferably is elongated in the longitudinal direction. The number and disposition of bolt receiving holes 23 and 24 may be freely changed in connection with the boat body A.

The attaching seats 21 and 22 are applied at their flat surfaces to the bottom surface of the boat body A and then, as shown in Figs. 2 and 3, fixed thereto by a plurality of stud bolts 25 and 26 so that the scope gate G can be removed or exchanged.

The open edges of the attaching seats 21 and 22 of the scope gate G opposed to the interior of the lattice are formed as slope surfaces rearwardly ascending at given angles α and β with respect to the horizontal surface. Thus, water can be smoothly drawn from the water intake port 18 of the boat A into the water intake duct without disturbing water.

The numeral 27 denotes a pair of flow regulating longitudinal walls spanning the space between the attaching seat 21 and 22 and extending parallel with the travel center line O-O of the boat body A to partition the water intake port 18 of the boat body A with the lateral surfaces thereof being approximately orthogonal to the attaching surfaces of said seats 21 and 22.

In this sense, the walls have been referred to as the "longitudinal partition walls". By making the entire scope gate G by injection molding of the aforesaid plastic material having high bending elasticity, the longitudinal partition walls 27 can be transversely deformed as if they were plate springs during the turning of the boat body A.

Thus, during the turning of the boat body A, the longitudinal partition walls 27 of the scope gate G are subjected to the water pressure acting thereon and are thereby elastically deformed transversely to and fro, thus allowing water to flow without being held back or disturbed; thus, water is smoothly drawn in through the water intake port 18. For this reason, the cavitation in the water intake duct 17 is effectively suppressed.

Further, the cross-sections of the longitudinal partition walls 27 are preferably in the form of a basic triangle or trapezoid with its thickness gradually decreasing upward, as suggested in Fig. 7. That is, the surfaces of the longitudinal partition walls 27 are formed as slope surfaces with the thickness gradually decreasing upward.

With the arrangement thus made, even if the boat body A is tilted during turning, the longitudinal partition walls (27) of the scope gate G integral therewith are also tilted such that the wall surfaces are orthogonal to the water surface, with the result that the holding back and disturbance of water are effectively suppressed, and substantially the same amount of water as during straight travel of the boat body A is smoothly drawn from the water intake port 18 into the water intake duct 17.

When the longitudinal partition walls 27 are seen laterally of the boat body A, as is clear from Figs. 4 and 6, their upper surfaces are flat, whereas their lower surfaces are V-shaped gradually downwardly projecting as the approximately intermediate regions a are reached.

That is, the lower surfaces of the approximately front halves of the longitudinal partition walls 27 are forwardly upward slope surfaces connected flush to the lower surface of the front attaching seat 21, while the lower surfaces of the remaining rear halves are rearwardly upward slope surfaces connected flush to the lower surface of the rear attaching seat 22; thus, each intermediate region a where the slope surfaces cross each other projects downward by the greatest amount. The character γ suggests the crossing angle between the forwardly and rearwardly upward slope surfaces.

Thus, in the case where the scope gate G itself is integrally made of said plastic material, the inter-

mediate regions a remotest from the pair of attaching seats 21 and 22 can be physically reinforced to be free from damage thereto. Further, the front halves of the longitudinal partition walls 27 have their lower surfaces designed to define forwardly upward slope surfaces; therefore, the boat body A can be given lift by water acting on said surfaces.

At any rate, as is clear from Fig. 3, the scope gate G of the present invention is adapted to be fixed at said attaching seats 21 and 22 to the bottom surface of the boat body A such that the rear portions of the longitudinal partition walls 27 project by a fixed amount h downward beyond the lower surface of the boat body A.

In that case, a spacer 28 shown in Fig. 8 is preferably interposed between the rear attaching seat 22 and the bottom surface of the boat body A so as to adjust said amount of projection h.

That is, the spacer 28 is shaped to correctly fit on the rear attaching seat 22 of the scope gate G; thus, it is applied to the rear attaching seat 22 for attachment to the bottom surface of the boat body A by said stud bolt 26 through a communication hole 29 aligned with a bolt receiving hole 24, thereby increasing the amount of projection h. It is possible to decrease the amount of projection h by removing the spacer 28.

The numeral 30 denotes a transverse partition wall transversely extending between the intermediate portions of the longitudinal partition walls 27, thereby dividing the interior of the lattice of the scope gate G into a front, larger water intake space S1 and a rear, smaller water intake space S2. That is, the larger space S1 is located between the front attaching seat 21 and the transverse partition wall 30, while the smaller space S2 is located between the transverse partition wall 30 and the rear attaching seat 22.

In this case, since the rear halves of the longitudinal partition walls 27 project downward by a fixed amount h beyond the bottom surface of the boat body A, the lower surface b of the transverse partition wall 30 is connected flush to the lower surfaces of the longitudinal partition walls 27; thus, as is clear from Fig. 3, it also projects downward beyond the bottom surface of the boat body A.

The surface of the transverse partition wall 30 is formed as a rearwardly upward slope surface crossing the horizontal surface at a fixed angle θ to be substantially parallel with the edges of the openings in the attaching seats 21 and 22, so that water is smoothly guided from the water intake port 18 of the boat body A into the water intake duct 17.

In the case of the basic embodiment shown in Figs. 4 through 7, when the transverse partition wall 30 is seen from the bottom surface of the boat body A, the scope gate G is curved in V- or U-shape gradually extending forward as the center c positioned on the travel center line O-O is approached. Partly because the lower surface b of the transverse partition wall 30 projects downward beyond the bottom surface of the boat body A as described above, floating obstacles, while being arrested, are moved in two diverging directions laterally of the boat body A; thus, their accidental entry into the water intake port 18 is effectively prevented.

So long as the surface of the transverse partition wall 30 is an inclined surface sloping rearwardly upward at a fixed angle θ with its lower surface b projecting downward beyond the bottom surface of the boat body A to be exposed, use may be made of a scope gate G shown in Figs. 9 through 11, which is a first modified embodiment, having a transverse partition wall 30a which is straight as seen in a bottom view and which is orthogonal to its longitudinal partition walls 27a.

In addition, the rest of the arrangement in the first modified embodiment shown in Figs. 9 through 11 is substantially the same as the embodiment shown in Figs. 4 through 7; thus, the corresponding parts are denoted by like reference numerals with the letter "a" added thereto, and a detailed description thereof is omitted.

Figs. 12 through 15 show a second modified embodiment of a scope gate G according to the present invention, wherein a single longitudinal partition wall 27b is positioned on the travel center line O-O of the boat body A and extends between the attaching seats 21b and 22b, and the rear end of said longitudinal partition wall 27b is bifurcated to provide a transverse partition wall 30b, the front ends of the resulting branches being connected to the opposite sides of the rear attaching seat 22b, whereby a smaller space S2 for water intake is defined between the transverse partition wall 30b and the rear attaching seat 22b.

According to this second modified embodiment, the larger space S1 for water intake defined between the front attaching seat 21b and the transverse partition wall 30b is bisected by the single longitudinal partition wall 27b. However, regardless of this bisection, it still opens wider than the smaller space S2.

In addition, the rest of the arrangement in the second modified embodiment shown in Figs. 12 through 15 is substantially the same as the embodiment shown in Figs. 4 through 7; thus, the corresponding parts are denoted by like reference numerals with the letter "b" added thereto, and a detailed description thereof is omitted.

The functions of the scope gate G will now be described on the basis of the basic embodiment shown in Figs. 4 through 7. The scope gate G is fixed to the bottom surface of the boat body A to partition the water intake port 18 of the boat body

such that substantially the latter halves of the pair of longitudinal partition walls 27 project downward by a fixed amount h beyond the bottom surface of the boat body A; therefore, a sideslip preventing effect (so-called edging effect) can be attained during the turning of the boat body A. Further, if the boat body runs on shallows or on drifting wood, its bottom surface will not hit the same and hence damage thereto is avoided.

Particularly, in the intermediate portions of the latter halves of the longitudinal partition walls 27 projecting downward beyond the bottom surface of the boat body A, the transverse partition wall 30 is disposed to assume an inclined state sloping rearwardly upward at a fixed angle θ, whereby the smaller space S2 for water intake is defined between the transverse partition wall 30 and the rear attaching seat 22; therefore, without having to finely partition the scope gate G itself, it can be physically reinforced by the transverse partition wall 30 and the entry of garbage, seaweed and other various floating obstacles through the water intake port 18 is prevented.

That is, during the use of the boat body A, water flows along the bottom surface of the boat body A in two directions: a direction x toward the water intake port 18 and a rearward direction y. Particularly, as the rear end edge of the water intake port 18 is approached, the water force in the direction y increases, so that floating obstacles tend to be gathered at said rear end edge.

In that case, in the present invention the latter halves of the longitudinal partition walls 27 project downward by a fixed amount h and the lower surface b of the transverse partition wall 30 disposed in the intermediate portions of said longitudinal partition walls also projects downward beyond the bottom surface of the boat body A. As a result, floating obstacles once arrested thereat are pushed away rearwardly of the boat body A by water flowing in the direction y without entering the water intake port 18.

Further, the transverse partition wall 30 disposed in an inclined state sloping rearwardly upward at the fixed angle θ divides the interior of the lattice of the scope gate G into the front larger space S1 for water intake and the rear smaller space S2 for water intake; therefore, whereas the flow lines of water moving in the direction x from the front larger space S1 are dense and the flow rate is high, so that the water is drawn into the water intake port 18 without any resistance, the flow line of water moving in the dotted-line direction x from the rear smaller space S2 are sparse and the flow rate is low and the pressure is negative relative to that in the larger space S1, with the result that floating obstacles once arrested by the lower surface b of the transverse partition wall 30 are hardly drawn from the smaller space S2 located therebehind into the water intake port 18 and instead they are reliably moved rearwardly of the boat body A by the action of water flowing in the direction y.

Such function can also be attained in exactly the same manner by the first and second modified embodiments described above. Particularly, as is clear from the basic embodiment shown in Figs. 4 through 7 and the second modified embodiment shown in Figs. 12 through 15, if the transverse partition wall 30 or 30b are V- or U-shaped as seen from the bottom surface of the boat body A gradually extending forward toward the center c located on the travel center line O-O of the boat body A and are curved in transversely bifurcated skirt form, then said floating obstacles will be pushed away along such curved surface in two diverging directions obliquely rearwardly of the boat body A, so that the entry of said floating obstacles through the water intake port 18 can be prevented.

At any rate, the interior of the scope gate G of the present invention does not have to be finely partitioned and hence the sufficient amount of water to be drawn in can be obtained also during the turning of the boat body A without disturbing the water flow, and yet the entry of floating obstacles can be reliably prevented. Furthermore, the required arrangement is very simple. The technical significance and value of the invention lie in these points.

Thus, the invention provides a device used in jet-propelled gliding boats for preventing floating obstacles from being drawn in, wherein a scope gate G for preventing entry of floating obstacles is attached to a water intake port 18 formed in the bottom surface of the boat body, and the water drawn from the water intake port 18 is accelerated by an impeller 15 housed in a water intake duct 17 and spouted rearwardly of the boat body A, said device being characterized in that as shown in the basic embodiment of Figs. 4 through 7 and the first modified embodiment of Figs. 9 through 11, said scope gate G is in lattice form composed of a pair of attaching seats 21, 21a or 22, 22a associated with the bottom surface of the boat body A and a pair of longitudinal partition walls 27 and 27a extending parallel with the travel center line O-O of the boat body A to interconnect said attaching seats,

substantially the latter halves of said longitudinal partition walls 27 and 27a project downward by a fixed amount h beyond the bottom surface of the boat body A, while a transverse partition wall 30 or 30a is disposed in the intermediate portions of the projecting latter halves to assume an inclined state sloping rearwardly upward at a fixed angle θ, whereby a larger space S1 for water intake is

defined between the transverse partition wall 30 or 30a and the front attaching seat 21 or 21a and a smaller space S2 for water intake is defined between the transverse partition wall 30 or 30a and the rear attaching seat 22 or 22a. Therefore, as described with reference to Fig. 3, garbage, seaweed and other floating obstacles can be reliably prevented from entering through the water intake port 18 of the boat body A; thus, the intended object can be attained without disturbing the flow of water to be drawn in.

Such function and effect can also be attained in exactly the same manner by the arrangement described in Claim 2 corresponding to the second modified embodiment shown in Figs. 12 through 15. If the arrangement of Claim 2 is employed, since the single longitudinal partition wall 27b extending along the travel center line O-O of the boat body A is sufficient, the normal water drawing action can be further enhanced while preventing the entry of floating obstacles; besides this, the required arrangement is simple, a fact which is advantageous for mass production.

Further, if the basic embodiment shown in Figs. 4 through 7 and the arrangement described in Claim 3 corresponding to the second modified embodiment shown in Figs. 12 through 15 are employed, since the transverse partition wall 30 or 30b is V- or U-shaped as seen in a bottom view gradually projecting forward toward the center c located on the travel center line O-O of the boat body A and is curved in transversely bifurcated skirt form, floating obstacles can be pushed away more efficiently along the curved surface obliquely rearwardly of the boat body A; thus, their entry through the water intake port 18 can be prevented, while normal water can be guided into the water intake port 18 without any resistance.

In each of the embodiments described above if the entire scope gate G is integrally made by injection molding of a transparent or translucent thermoplastic engineering plastic material, as described in Claim 4, then this arrangement, coupled with the construction in which the interior of the scope gate G is not finely partitioned, allows easily visual inspection of the interior of the water intake duct 17 from the water intake port 18. If floating obstacles should enter the water intake ducts 17 and twine themselves around the impeller or the propeller shaft, they can be easily and efficiently removed. Further, the scope gate is suitable for mass production and is light in weight.

Claims

1. A device used in jet-propelled gliding boats for preventing floating obstacles from being drawn in, wherein a scope gate for preventing entry of floating obstacles is attached to a water intake port formed in the bottom surface of the boat body, and

the water drawn from the water intake port is accelerated by an impeller housed in a water intake duct and spouted rearwardly of the boat body,

said device being characterized in that said scope gate is in lattice form composed of a pair of attaching seats associated with the bottom surface of the boat body and a pair of longitudinal partition walls extending parallel with the travel center line of the boat body to interconnect said attaching seats,

substantially the latter halves of said longitudinal partition walls project downward by a fixed amount beyond the bottom surface of the boat body, while a transverse partition wall is disposed in the intermediate portions of the projecting latter halves to assume an inclined state sloping rearwardly upward at a fixed angle, whereby a larger space for water intake is defined between the transverse partition wall and the front attaching seat and a smaller space for water intake is defined between the transverse partition wall and the rear attaching seat.

2. A device used in jet-propelled gliding boats for preventing floating obstacles from being drawn in, wherein a scope gate for preventing entry of floating obstacles is attached to a water intake port formed in the bottom surface of the boat body, and

the water drawn from the water intake port is accelerated by an impeller housed in a water intake duct and spouted rearwardly of the boat body,

said device being characterized in that said scope gate is composed of a pair of attaching seats associated with the bottom surface of the boat body and a single longitudinal partition wall extending along the travel center line of the boat body to interconnect said attaching seats,

substantially the latter half of said longitudinal partition wall projects downward by a fixed amount beyond the bottom surface of the boat body,

a transverse partition wall is disposed in the intermediate portion of the projecting latter half and is in transversely bifurcated skirt form assuming an inclined state sloping rearwardly upward, the front ends of the resulting skirt-like branches being connected to the rear attaching seat, whereby a larger space for water intake is defined between the transverse partition wall and the front attaching seat and a smaller

space for water intake is defined between the transverse partition wall and the rear attaching seat.

3. A device used in jet-propelled gliding boats for preventing floating obstacles from being drawn in as set forth in Claim 1 or 2, wherein the transverse partition wall is V- or U-shaped gradually projecting forward as the center located on the travel center line of the boat body is approached.

4. A device used in jet-propelled gliding boats for preventing floating obstacles from being drawn in as set forth in Claim 1 or 2, wherein the scope gate is integrally made by injection molding of a transparent or translucent thermoplastic engineering plastic material.

Fig.1

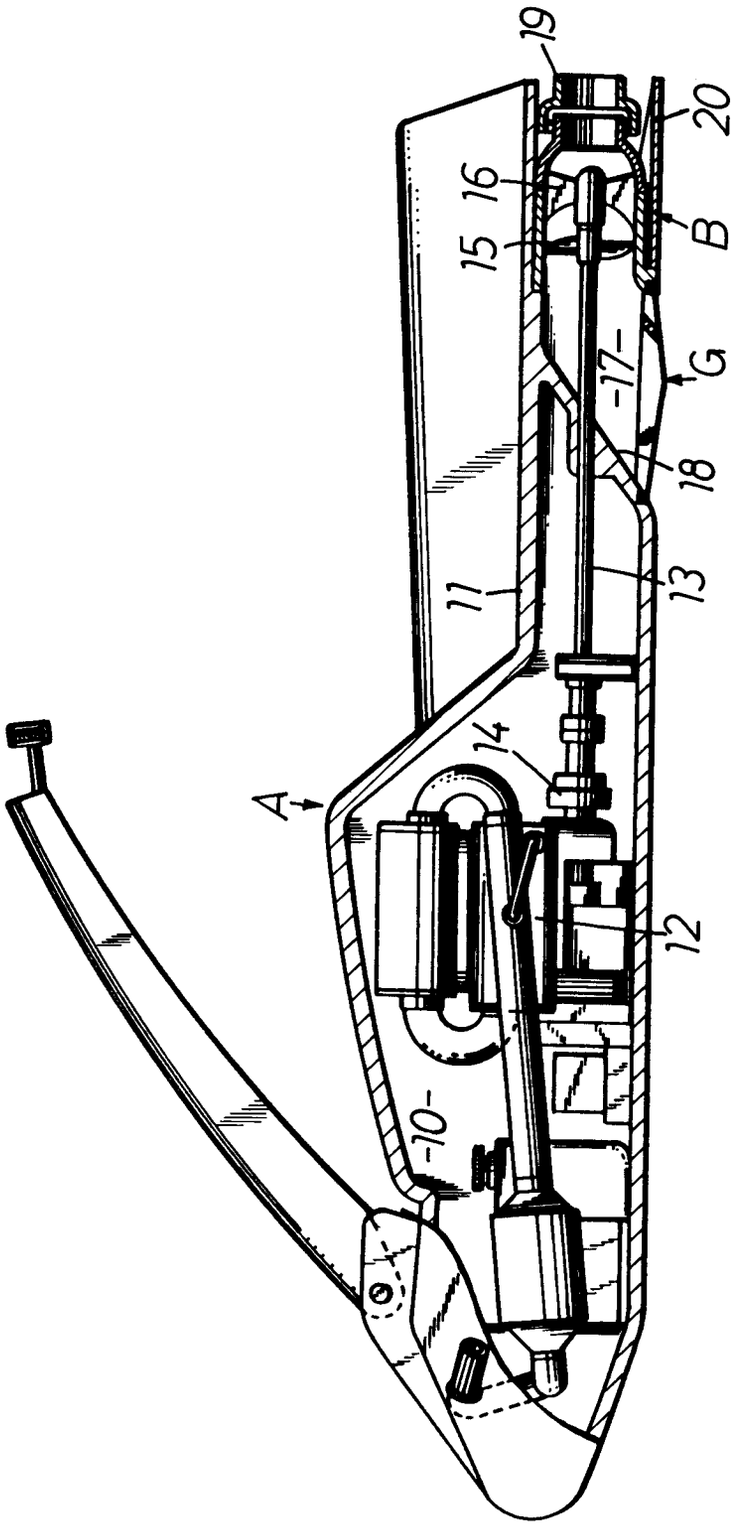

Fig.2

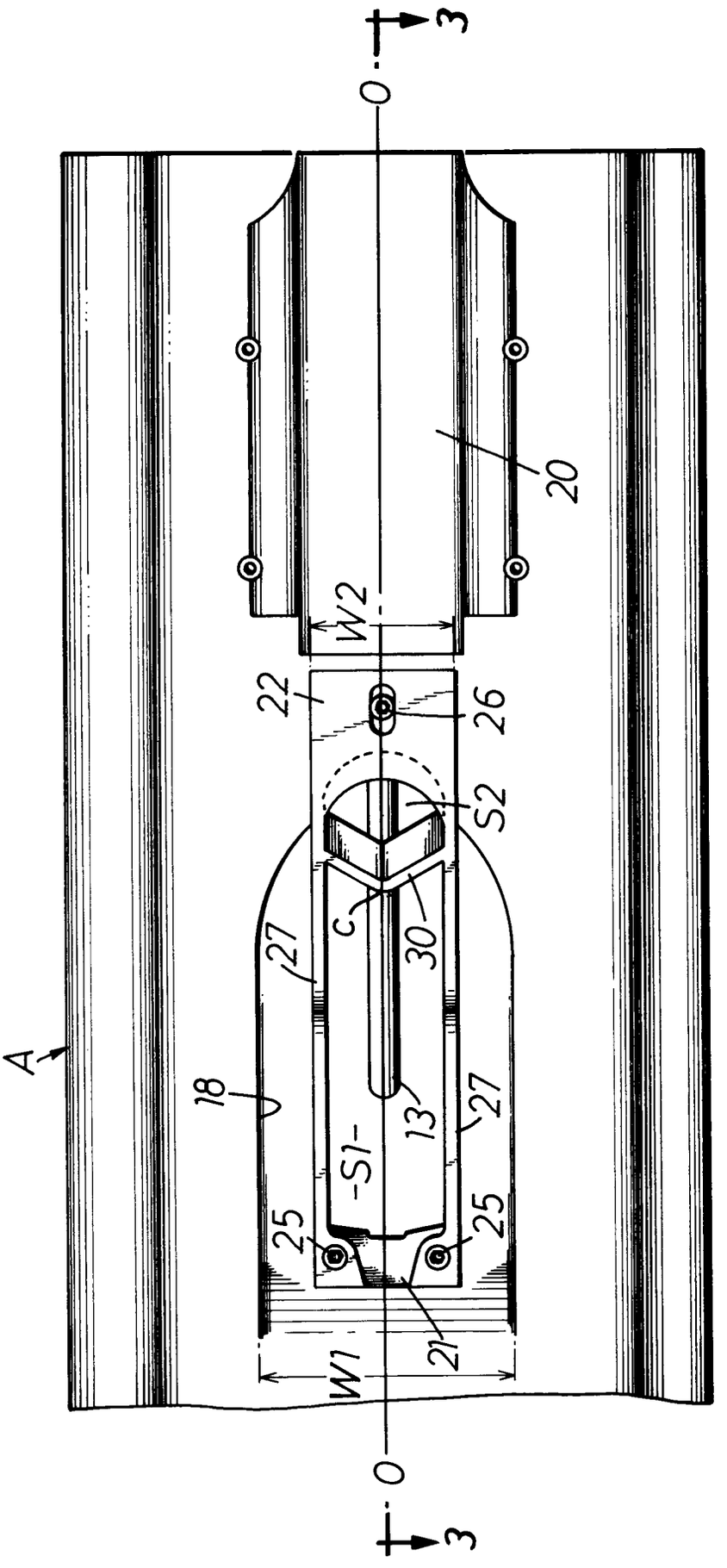

Fig.3

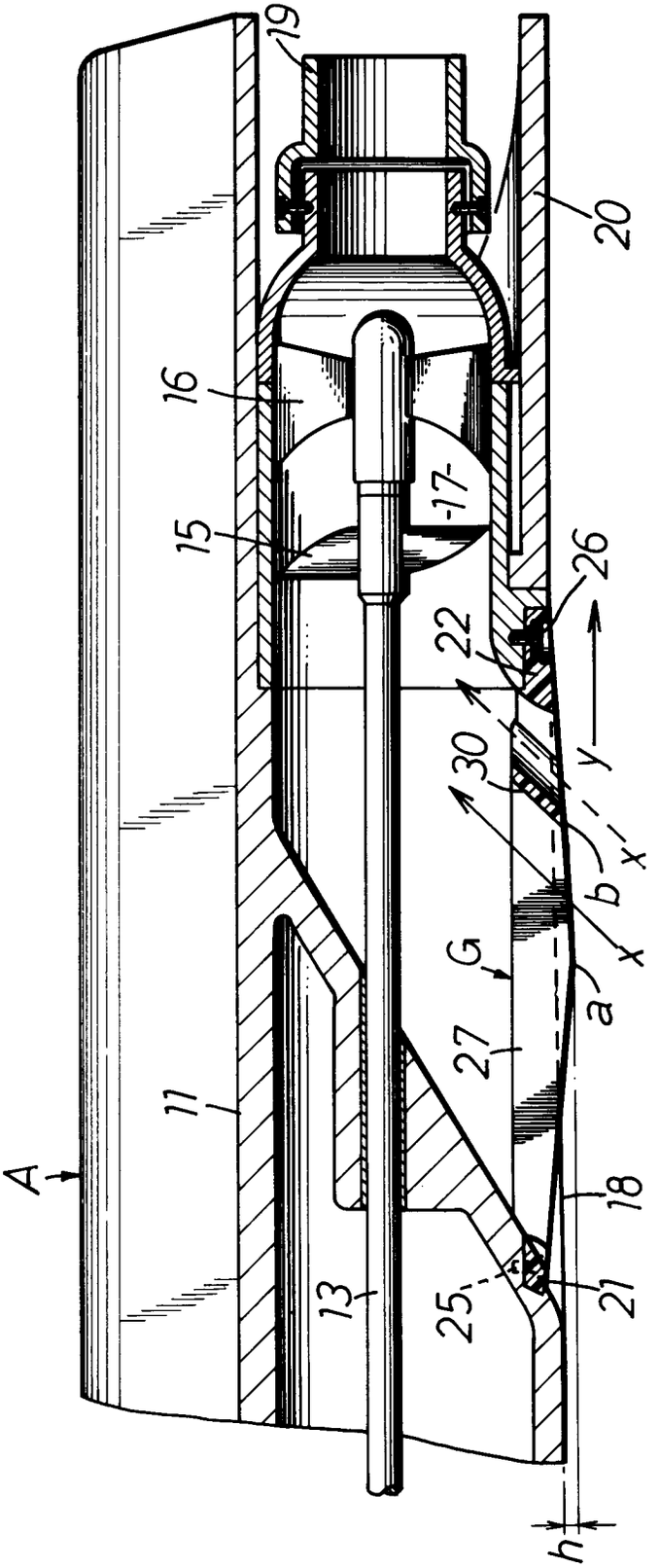

Fig.4

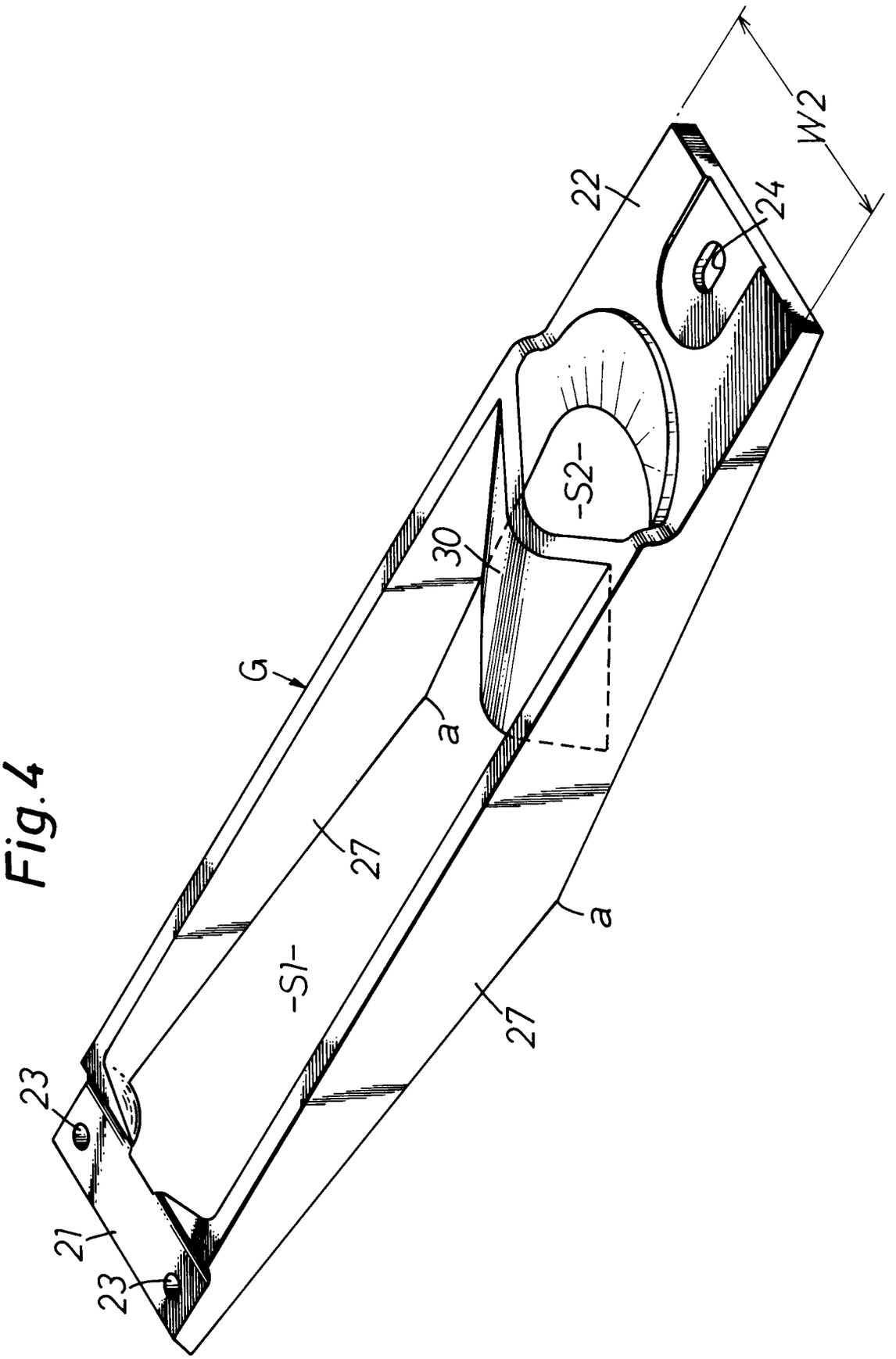

Fig.5

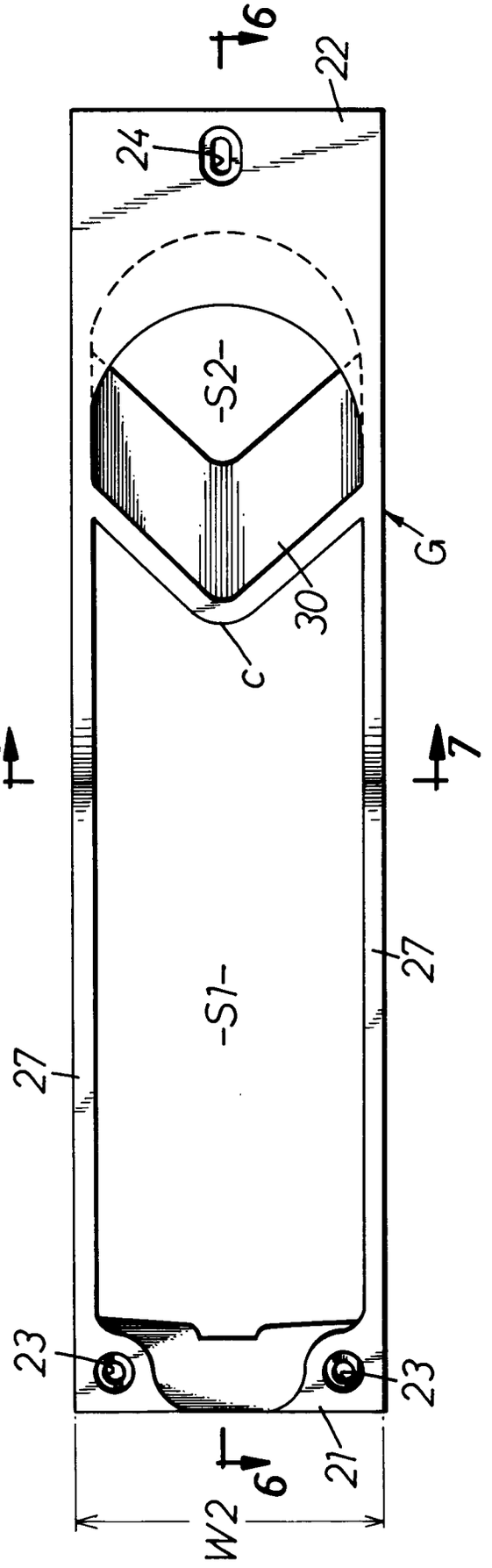

Fig.6

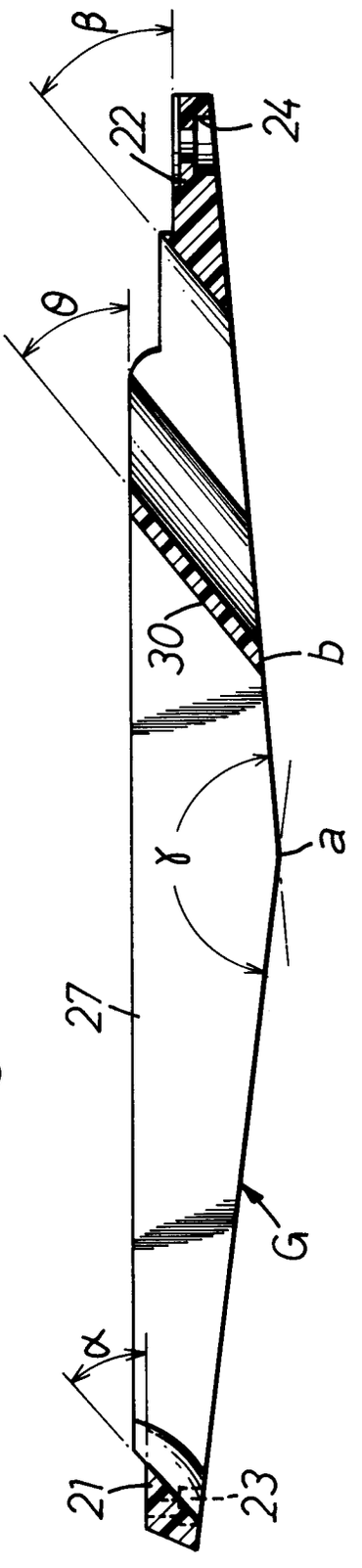

Fig.7

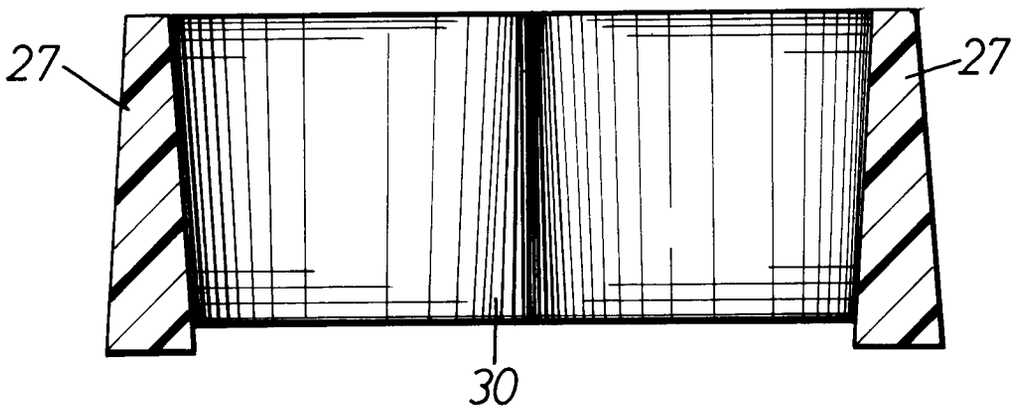

Fig.8

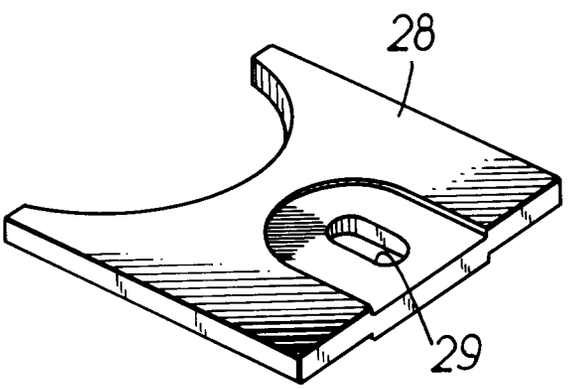

Fig.9

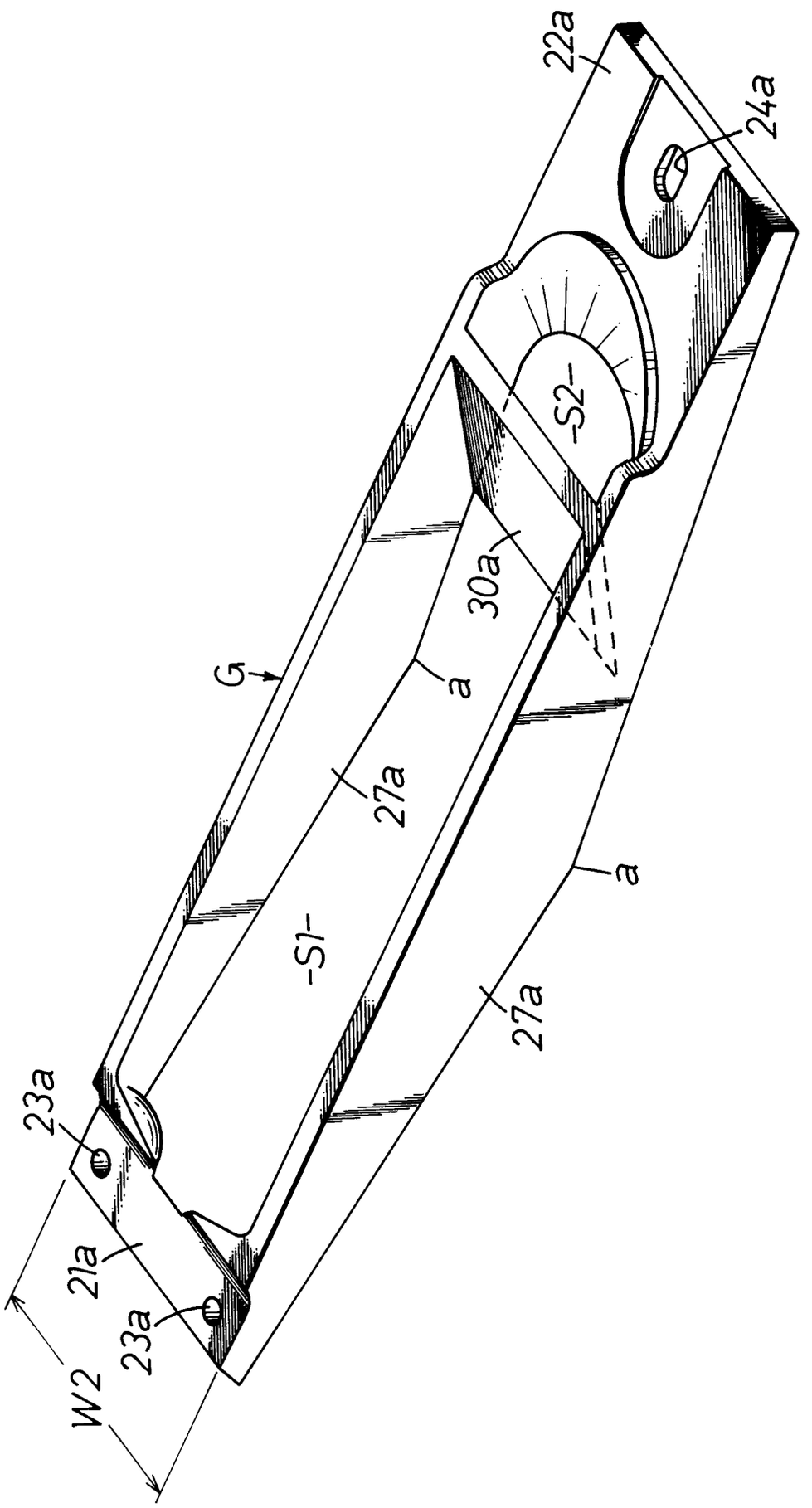

Fig.10

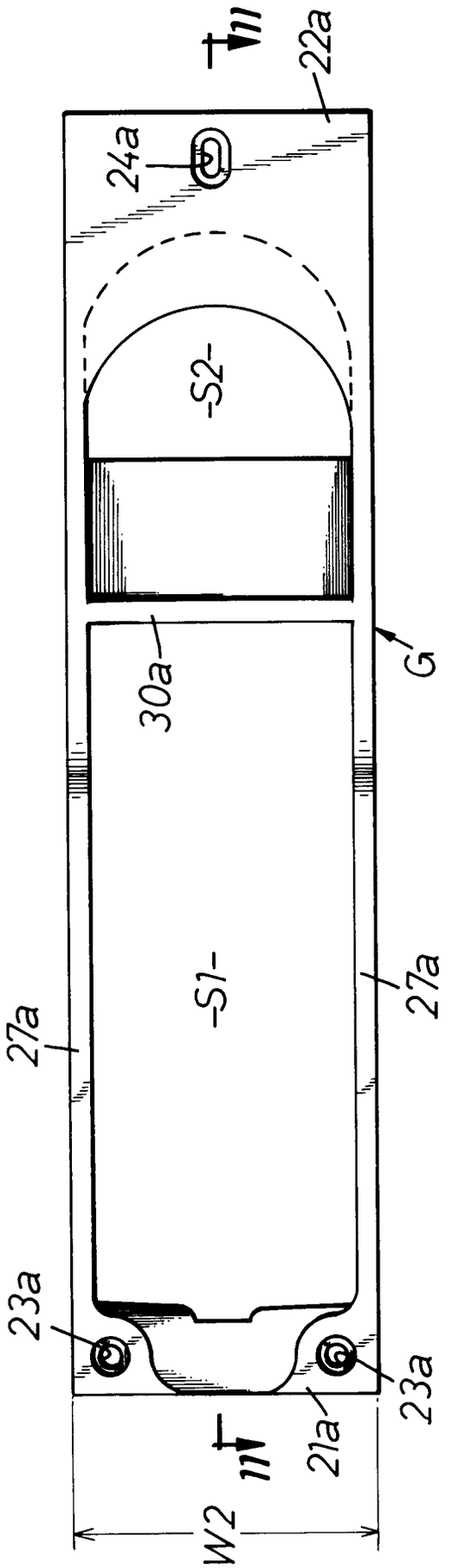
II
22a
24a
-S2-
30a
G
-S1-
27a
27a
23a
23a
21a
II
W2

Fig.11

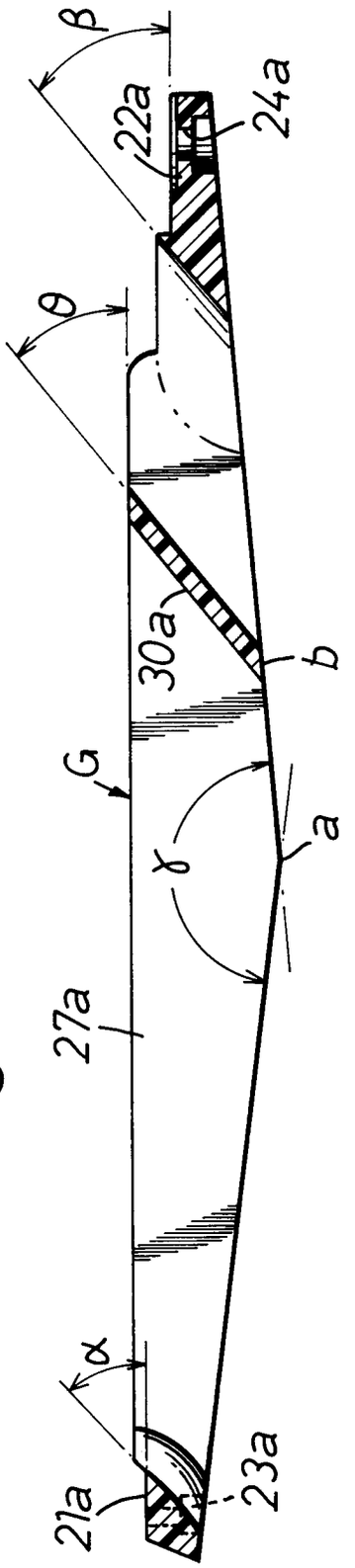
β
22a
24a
θ
30a
b
G
γ
a
27a
α
21a
23a

Fig.12

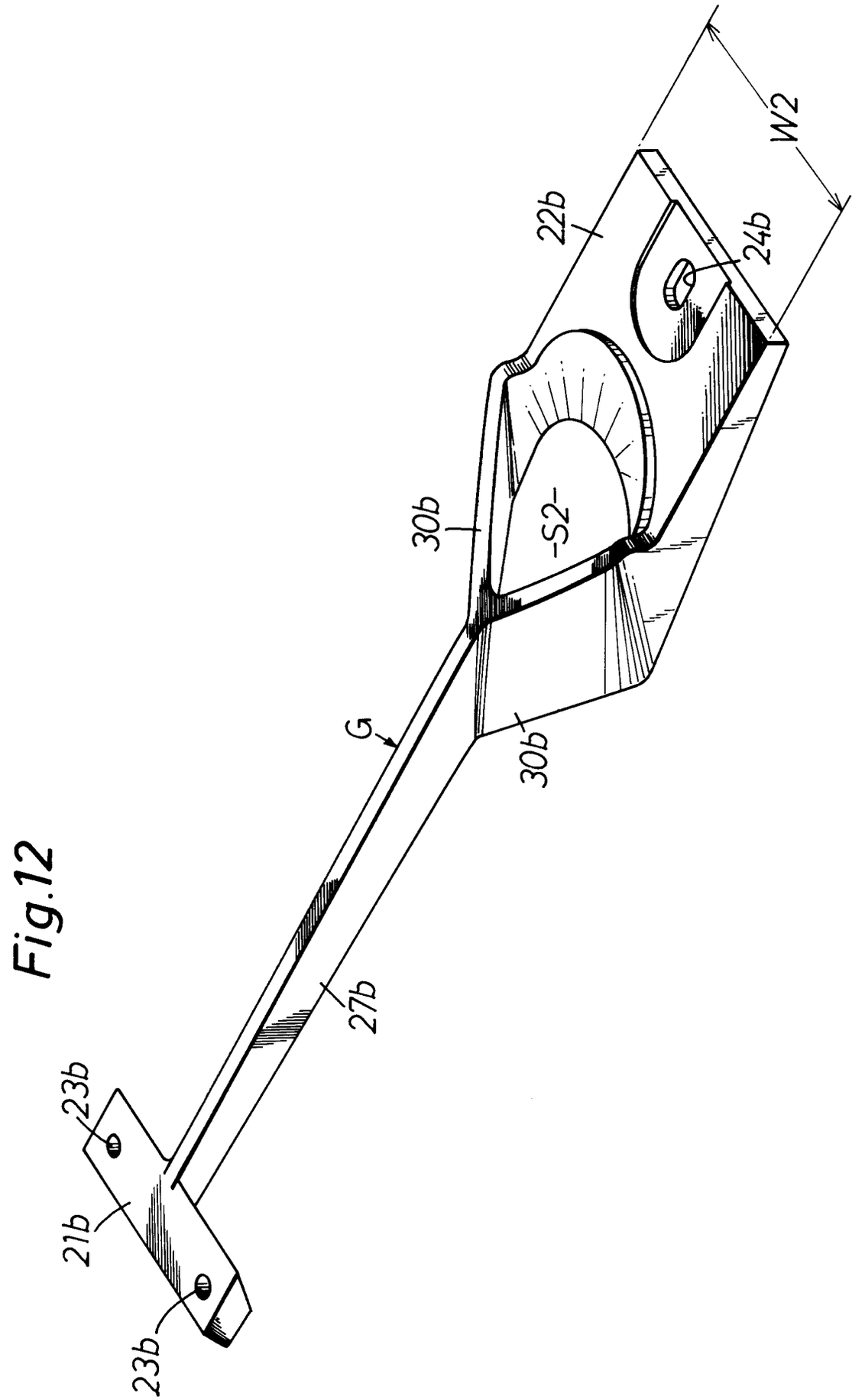

Fig.13

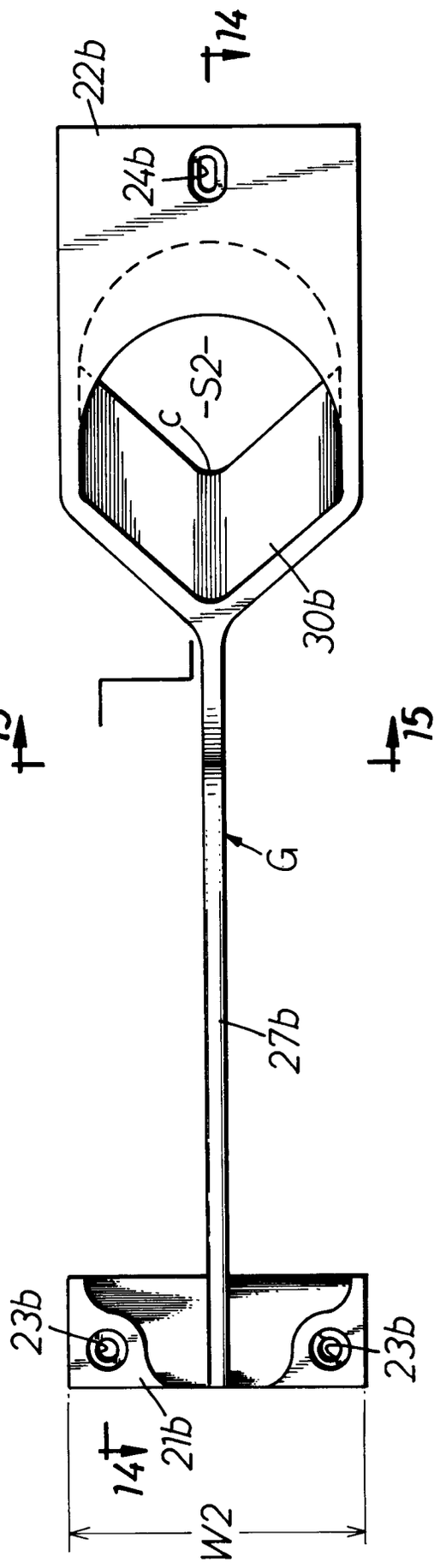
22b
14
24b
-S2-
C
30b
15
15
G
27b
23b
23b
14
21b
W2

Fig.14

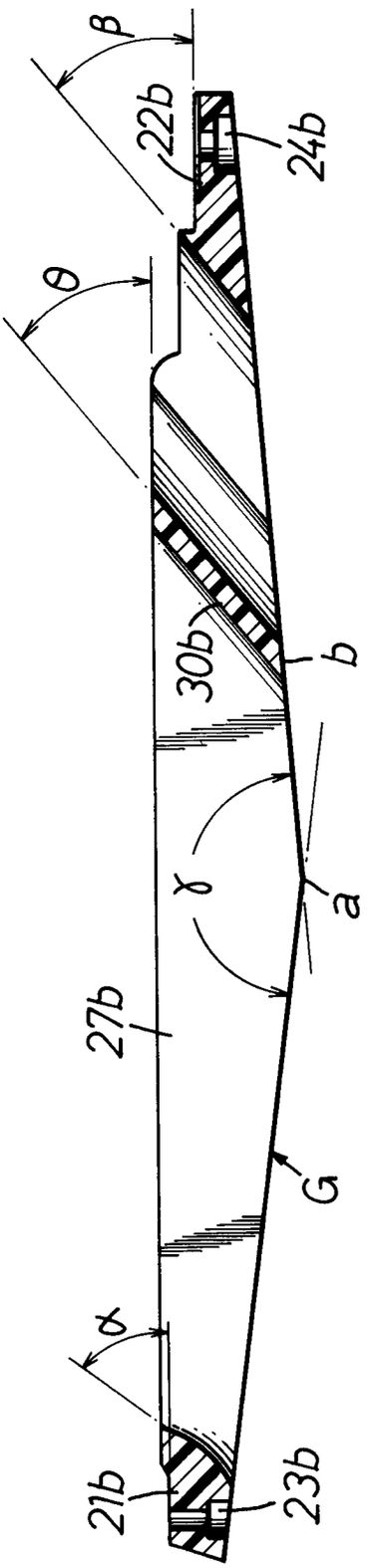
β
22b
24b
θ
30b
b
γ
a
27b
G
α
21b
23b

Fig.15