



(22) Date de dépôt/Filing Date: 1993/04/26

(41) Mise à la disp. pub./Open to Public Insp.: 1994/06/05

(45) Date de délivrance/Issue Date: 2003/07/08

(30) Priorité/Priority: 1992/12/04 (4-83741) JP

(51) Cl.Int.⁵/Int.Cl.⁵ A22C 25/14, A22C 25/18

(72) Inventeurs/Inventors:

KUDO, NOBUO, JP;
HIKIO, TADASHI, JP

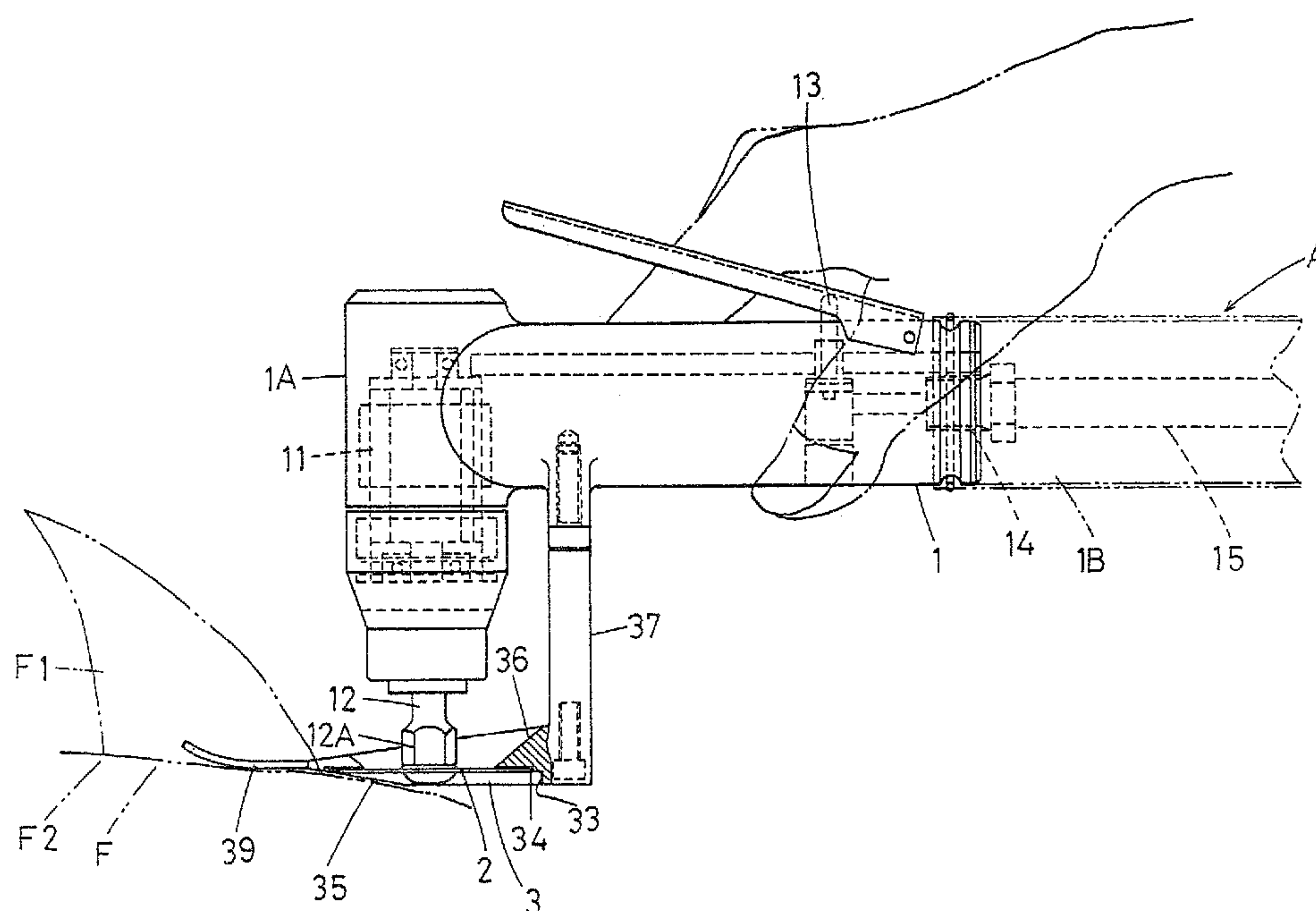
(73) Propriétaire/Owner:

MARUCHO SHOKUHIN KAKO KABUSHIKI KAISHA, JP

(74) Agent: MACRAE & CO.

(54) Titre : OUTIL POUR ENLEVER LES ARETES D'UN POISSON

(54) Title: FISH FIN REMOVER



(57) Abrégé/Abstract:

A fish fin remover according to the present invention is capable of guiding a fish fin to be removed to the rotary blade thereof without difficulty and of cutting it with the same at its root accurately. In this fish fin remover, a guide frame has a step to allow the circumferential edge of the rotary blade to be accommodated so that the bottom of the guide frame across a fin pass area of the guide frame is substantially coplanar with the lower surface of the rotary blade.



ABSTRACT

A fish fin remover according to the present invention is capable of guiding a fish fin to be removed to the rotary blade thereof without difficulty and of cutting it with the same at its root accurately. In this fish fin remover, a guide frame has a step to allow the circumferential edge of the rotary blade to be accommodated so that the bottom of the guide frame across a fin pass area of the guide frame is substantially coplanar with the lower surface of the rotary blade.

Fish Fin Remover

Background of the Invention

The present invention relates to a fish fin remover for cutting off a fin of a fish.

5 Commonly in the fish food industry, each fin of a fish is removed by lifting it up with one hand by the operator and cutting it with a knife held in the other hand.

This procedure is troublesome. The location of the cut is unpredictable and not always the same. Hence, it will be very difficult to have a
10 clean cut at the root of the fin.

In view of the foregoing, it is an object of the present invention to provide a fish fin remover capable of guiding a fish fin to a rotary blade without difficulty and cutting the fin precisely at the root.

Summary of the Invention

15 A fish fin remover according to the present invention comprises a main structure containing a rotary driving means and a rotary shaft which extends outward from the main structure and is driven by the rotary driving means, a rotary blade mounted to the rotary shaft of the main structure, and a guide frame extending throughout the circumferential edge of the rotary blade so as to cover
20 the same from above and having an open area for accepting a fish fin. In particular, the guide frame has a step provided in the inside wall thereof for

allowing the circumferential edge of the rotary blade to be accommodated inside the guide frame so that the lower surface of the rotary blade is substantially coplanar with the bottom of the guide frame at least on both sides of the fin pass area.

5 Also as depicted in the disclosure, the fish fin remover according to the present invention is characterized by the guide frame having an outwardly extending guide plate provided on one end thereof adjoining the fin pass area.

 With the present invention the fin of a fish to be removed can be cut with a front portion of the rotary blade located in the fin pass area as it moves
10 into the fin pass area. The fish fin will be completely cut off when it has passed the fin pass area.

 As mentioned above the guide frame of the fish fin remover has a step provided in the inside wall thereof for allowing the circumferential edge of the rotary blade to be accommodated inside the guide frame, so that the lower
15 surface of the rotary blade is substantially coplanar with the bottom of the guide frame at least on both sides of the fin pass area. As the guide frame is advanced with its bottom resting on the back of a fish, the front portion of the rotary blade located in the fin pass area meets the root of the fin to be removed.
Accordingly, the fin can accurately be cut off at the root.

20 In addition, the rotary blade remains no lower than the bottom of the guide frame during cutting. This prevents the rotary blade from cutting into the back of the fish when the guide frame runs directly along the back of the fish. Hence, the fish itself will be free from injury while its fin is

cut off appropriately.

The guide frame has an outwardly extending guide plate provided on one end thereof adjoining the fin pass area. In action, the fish fin to be removed is positively guided by the guide plate to the rotary blade before being cut off.

5 As a result, the feeding of the fish fin into the fin pass area will easily be accomplished without requiring a precise guiding control.

Brief Description of the Drawings

Fig. 1 is a partially cut off front view of a fish fin remover showing an embodiment of the present invention;

10 Fig. 2 is a perspective view of a guide frame, seen from above, of the fish fin remover of the present invention;

Fig. 3 is a perspective view of the guide frame, seen from below, of the fish fin remover of the present invention;

15 Fig. 4 is a partially cut off front view illustrating the action of the fish fin remover of the present invention; and

Fig. 5 is a plan view showing another action of the fish fin remover of the present invention.

Detailed Description of the Preferred Embodiment

20 A fish fin remover denoted by the letter A comprises a main structure 1, a circular saw blade 2 (rotary blade), and a guide frame 3.

The main structure 1 contains a water-powered turbine 11 (rotating

means) which has a rotary shaft 12 extending downward from a head 1A of the main structure 1.

The water-powered turbine 11 which acts as a rotating means in the main structure 1 may be replaced with any other turbine device, an electric
5 motor, or the like.

The main structure 1 has a body 1B carrying a switch 13, and a water inlet 14 provided in the rear end thereof for supply of turbine driving water. The water inlet 14 is coupled to a water supply conduit 15.

The circular saw blade 2 is detachably mounted to the rotary shaft
10 12 of the main structure 1.

The rotary shaft 12 has a front end 12A of hexagonal shape in cross section.

The guide frame 3 has an annular shape which is greater in outer diameter than the circular saw blade 2 so that it can cover the circumferential
15 edge of the circular saw blade 2 from above. The guide frame 3 is hence provided at the center with a rotary shaft opening 31.

Also, the guide frame 3 has a fin pass clearance 32 provided at the front end thereof.

The guide frame 3 has two steps 33, 34 arranged in the lower
20 surface thereof so as to extend annularly throughout the guide frame 3 (See Figs. 1, 3, and 4).

The second step 34, from the bottom of the guide frame 3, is arranged to allow the circular saw blade 2 to be accommodated therein.

The frontward bottom edge of the guide frame 3 is sloped as at 35 towards the fin pass area 32. The sloping edge 35 causes the first step 33 to become shallower towards both ends adjoining the fin pass area 32 so that there is no step adjacent to the fin pass area 32.

5 As the sloping edge 35 terminates at the second step 34 on both ends of the fin pass area 32, the lower surface or bottom of the guide frame 3 at the fin pass area 32 becomes substantially coplanar with the circular saw blade 2 (Fig. 1).

10 A guide plate 39 extends outward from one end, adjoining the fin pass area, of the annular guide frame 3 and has a distal end 39A thereof which tilts upwardly.

The inside wall 36 of the guide frame 3 is sloped downwardly towards the center opening 31.

15 The proximal end of the guide frame 3 is mounted by a vertically extending mounting member 37 to the body 1B of the main structure 1.

The action of the fish fin remover having the foregoing arrangement will now be explained.

First, the switch 13 on the main structure 1 is turned on to start rotation of the circular saw blade 2.

20 Then, the guide plate 39 is applied at its side edge to the fin F1 of a fish F to be removed. Simultaneously, the sloping edge 35 of the guide frame 3 is held in direct contact with the back F2 of the fish F so that a front portion 2A of the circular saw blade 2 across the fin pass area 32 faces the root of the fin F1

(Fig. 1).

While the fish F remains stationary, the fish fin remover A is advances directly along the back F2 of the fish F with the side edge of the guide plate 39 of its guide frame 3 travelling along the fin F1 until the fin F1 is cut off
5 at the root.

Although the guide frame 3 of the fish fin remover A is slightly pressed down against the back F2 of the fish F for ease of movement during the cutting of the fin F1, the circular saw blade 2 never cuts into the back F2 of the fish F. This action is assured by the fact that the circular saw blade 2 remains no
10 lower than the bottom of the guide frame 3 and more specifically, its lower side is on substantially a level with the same.

Accordingly, the fish fin remover A will never threaten the back F2 of the fish F during fin cutting even if the fish F has a planar back, e.g. a cod.

The fin F1 removed by cutting is then beaten by a corner edge of
15 the hexagonal front end 12A of the rotary shaft 12 and discharged smoothly to the outside, moving diagonally along the sloped inside wall 36 of the guide frame 3. This prevents the cut off fin F1 from remaining in the guide frame 3, thus increasing the efficiency of the cutting.

Also, splashing of water from the fish F associated with the rotation
20 of the circular saw blade 2 will be prevented by means of the step 33.

In case of breakage of the circular saw blade 2, the wall of the step 33 will prevent the escape of broken pieces of the same, thus ensuring greater safety during cutting.

Although the guide frame 3 in the above embodiment of the present invention has the two steps 33, 34 and the guide plate 39, it may be provided without the two steps 33, 34 or guide plate 39.

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

1. A fish fin remover comprising:

a main structure containing a rotary driving means and a rotary shaft
which extends outward from the main structure and is driven by the rotary
driving means;

a rotary blade mounted to the rotary shaft of the main structure; and
a guide frame extending throughout substantially the circumferential
edge of the rotary blade so as to cover the same from above and having a
clearance area for accepting a fish fin, said guide frame having a step provided in
the inside wall thereof for allowing the circumferential edge of the rotary blade to
be accommodated inside the guide frame so that the lower surface of the rotary
blade is substantially coplanar with the bottom of the guide frame at least on both
sides of the fin pass area.

2. A fish fin remover comprising:

a main structure containing a rotary driving means and a rotary shaft
which extends outward from the main structure and is driven by the rotary
driving means;

a rotary blade mounted to the rotary shaft of the main structure; and
a guide frame extending throughout substantially the circumferential
edge of the rotary blade so as to cover the same from above and having an open
area for accepting a fish fin, said guide frame having an outwardly extending
guide plate provided on one end thereof adjoining the fin pass area.

Fig.1

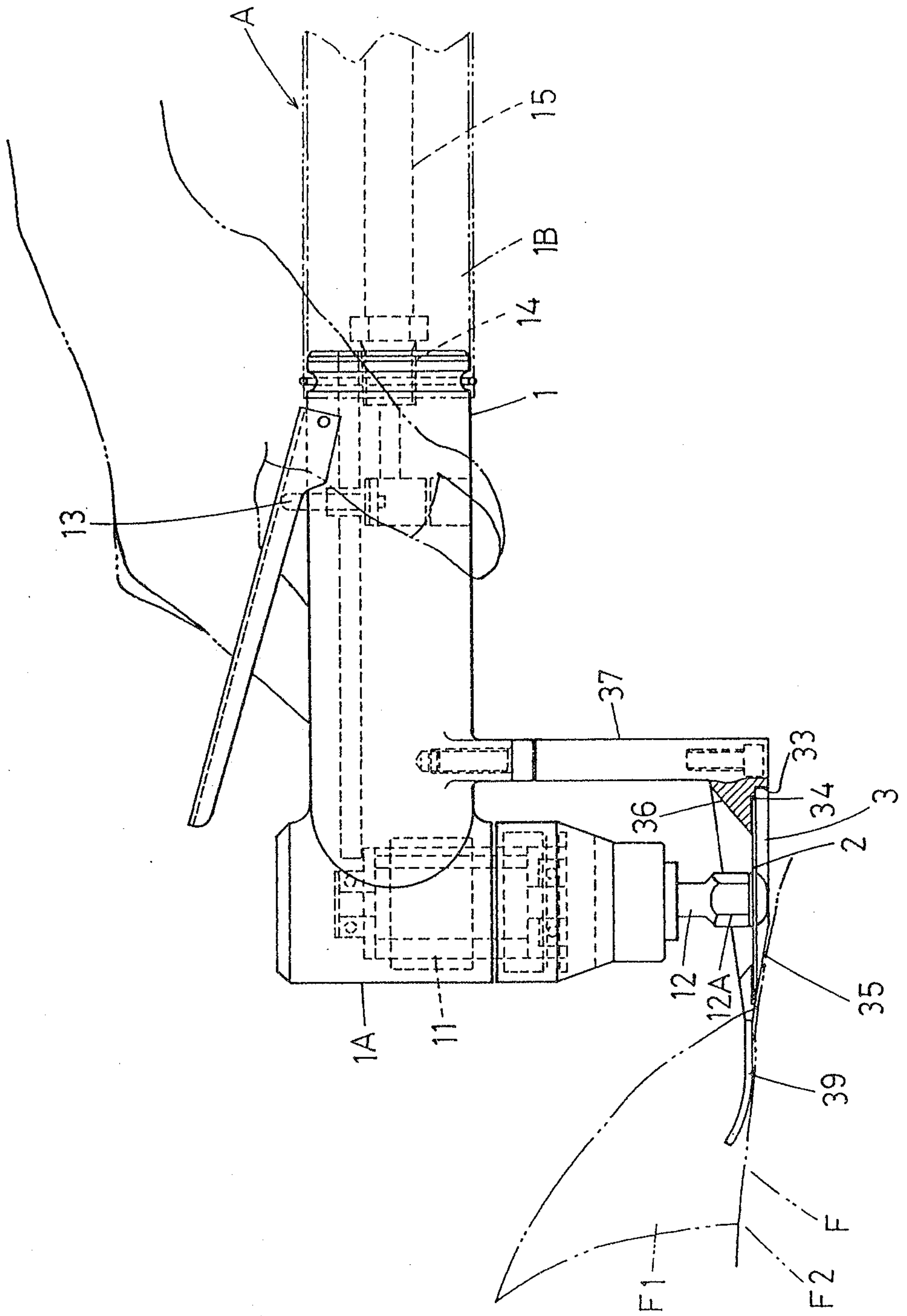


Fig. 2

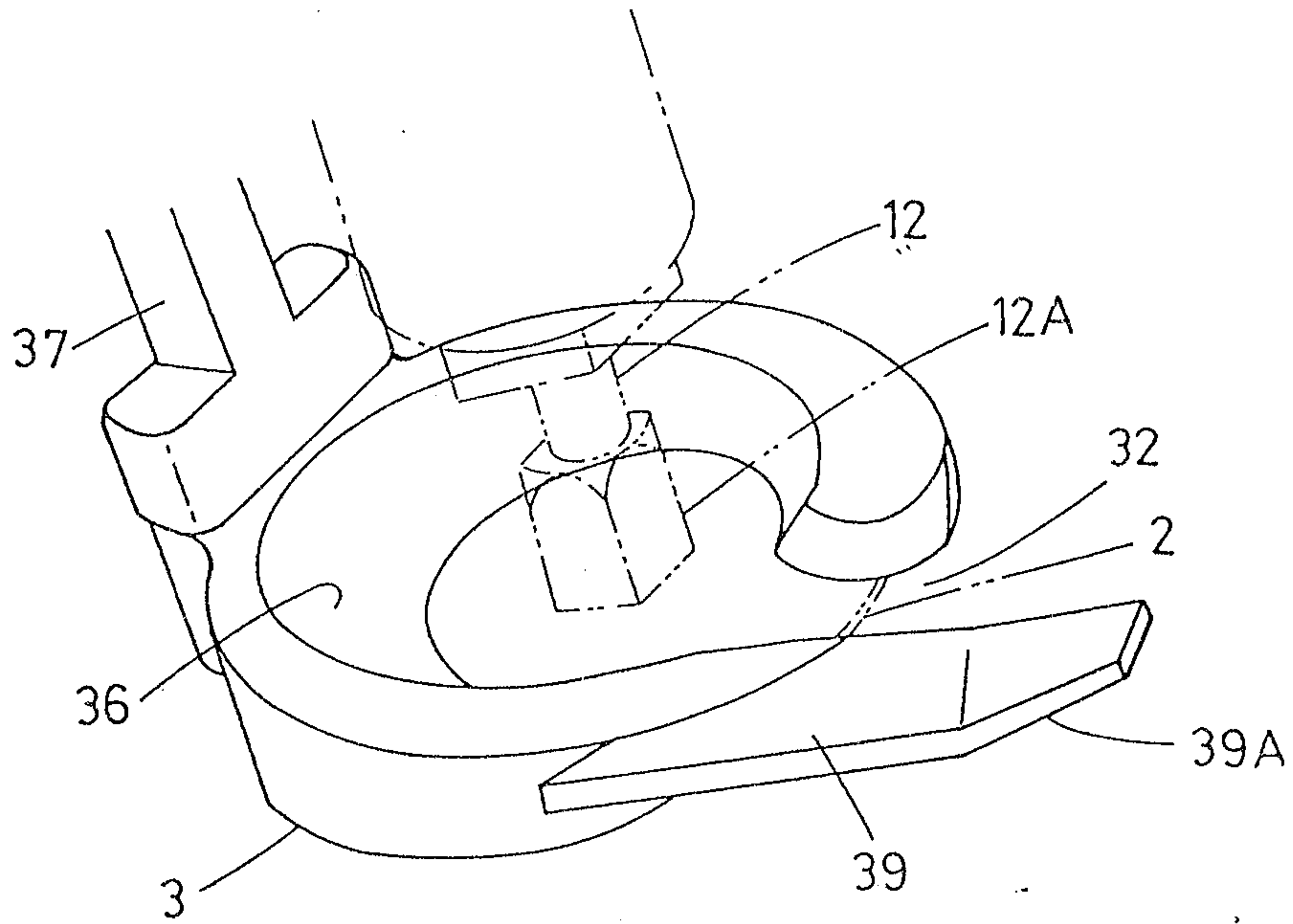


Fig. 3

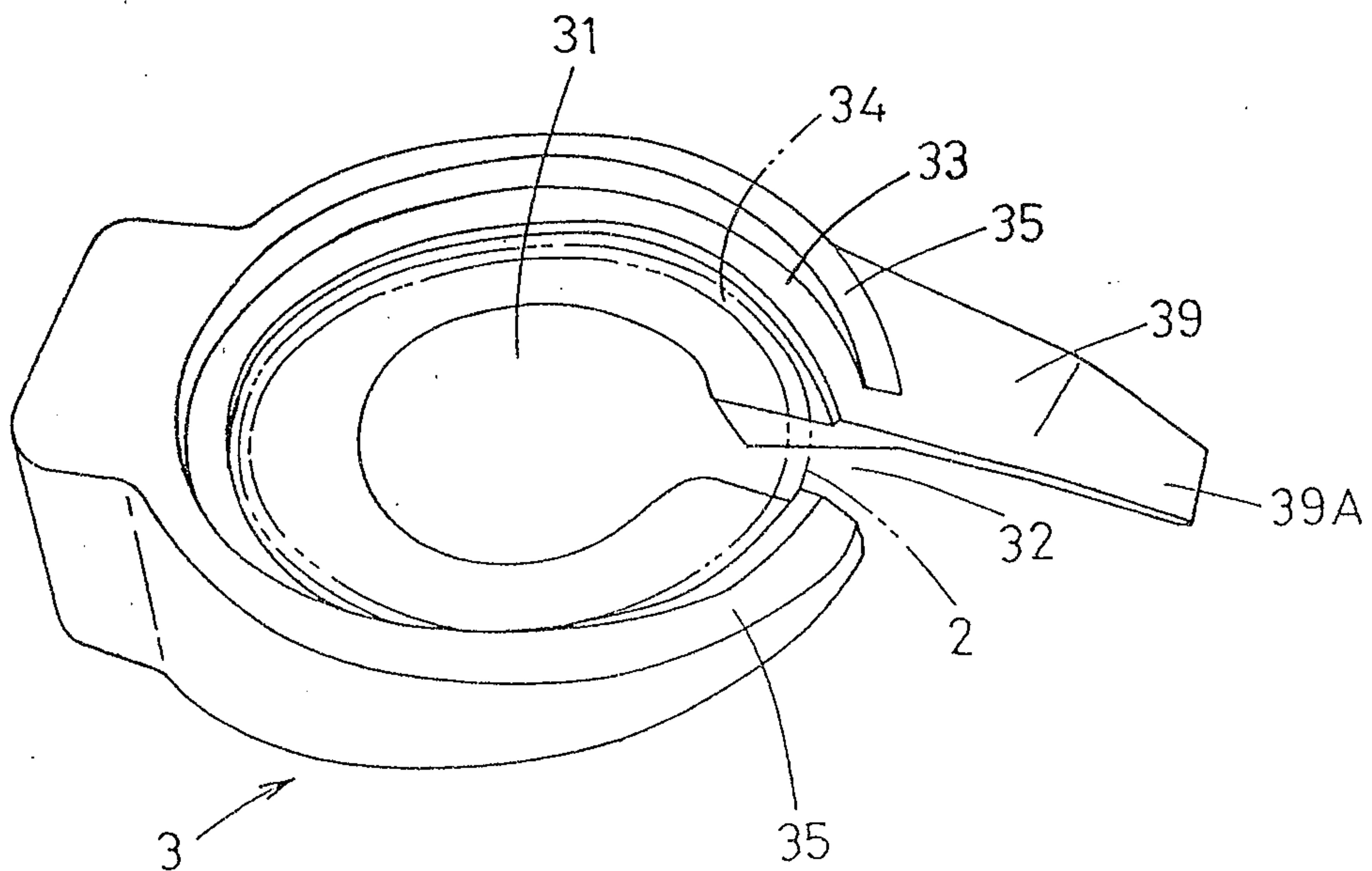


Fig. 4

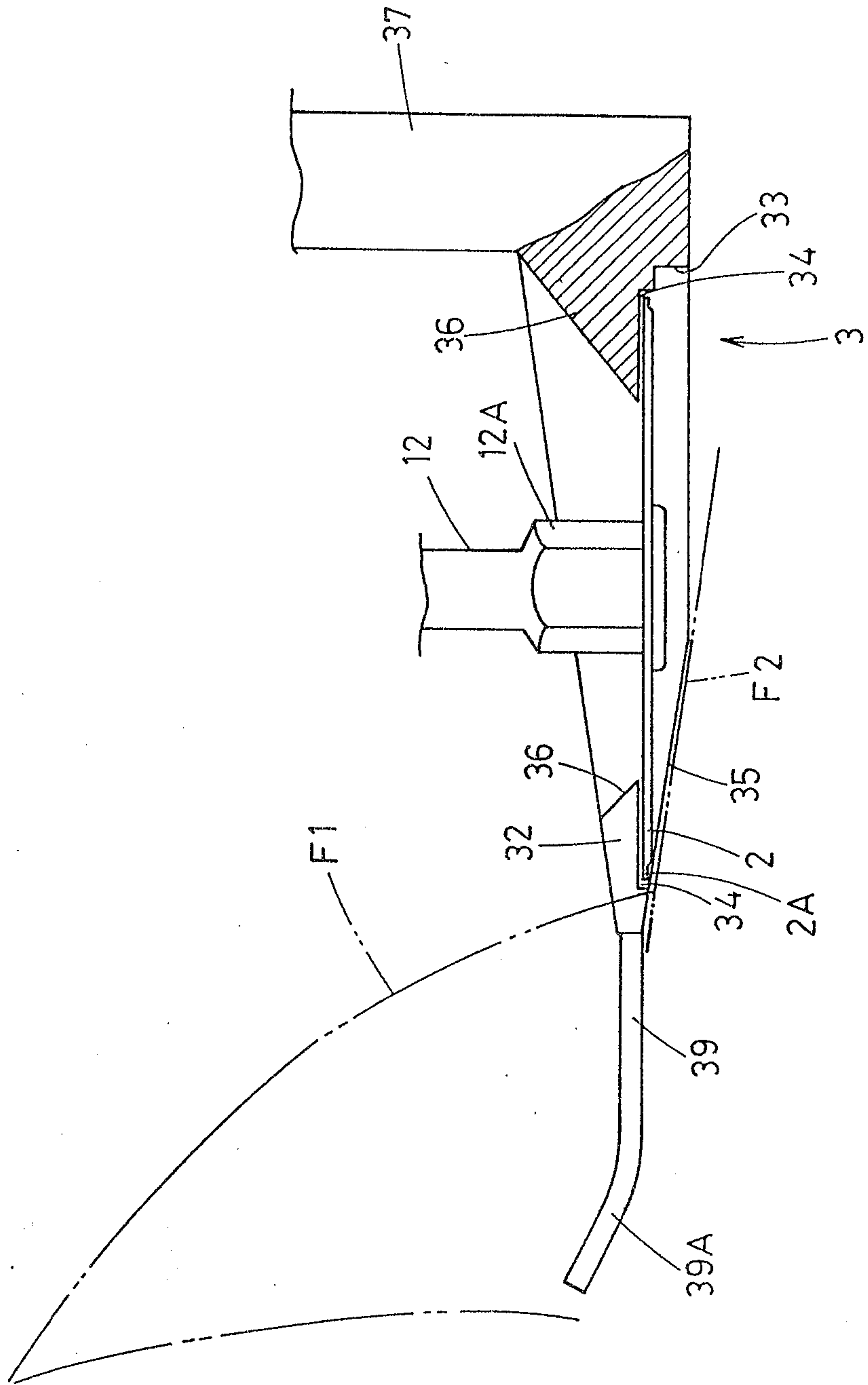


Fig. 5

