



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number:

0 414 627 A1

12

EUROPEAN PATENT APPLICATION

21 Application number: 90500059.2

51 Int. Cl.⁵: B63H 11/08

22 Date of filing: 27.06.90

The title of the invention has been amended
(Guidelines for Examination in the EPO, A-III,
7.3).

30 Priority: 04.07.89 ES 8902357

43 Date of publication of application:
27.02.91 Bulletin 91/09

84 Designated Contracting States:

DE DK FR GB IT NL SE

71 Applicant: Munoz Saiz, Manuel
San Emilio, 16, 1, 3
E-28017 Madrid(ES)

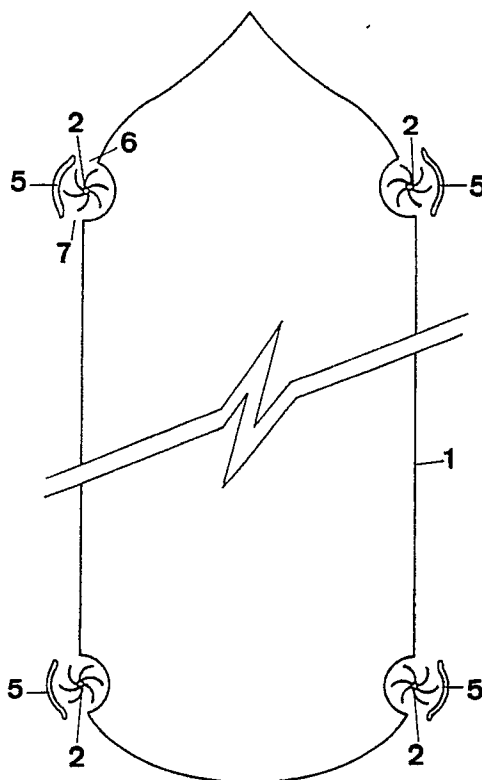
72 Inventor: Munoz Saiz, Manuel
San Emilio, 16, 1, 3
E-28017 Madrid(ES)

54 Jet propulsion system for ships.

57 Propulsion system for ships, comprising blade runner type centrifugal hydraulic pumps attached to the submerged periphery of the ship's hull, which may be propelled by hydraulic, pneumatic explosion or turbine engines, or a combination thereof, or as

well as by pedals, Proportioning the water drive tangentially to the surface of the hull or backwards, and creating the corresponding backward and forward movement of the ship.

FIG 2



EP 0 414 627 A1

PROPULSION SYSTEM FOR SHIPS

The present invention relates to a propulsion system for ships, of simple constitution, by means of which a higher efficiency is achieved.

The propulsion systems for ships most commonly used today are the propeller systems, which systems have serious disadvantages to be obviated by this invention.

The object of the present invention is to provide a novel propelling system which is of simple constitution, economical and of high efficiency.

This is attained by means of blade-runner type hydraulic pumps, generally having a small diameter, which are attached at different points of the submerged periphery of the ship's hull. These pumps are propelled by means of hydraulic, pneumatic, explosion or turbine engines, or a combination of these, and the corresponding transmission thereof.

The pumps are provided with a casing or deflector which allows the water to be sucked, through a tangential opening and along the runner, from the front zone. The water may also be sucked from the front zone, through the ends of the runners, by means of tubular elbows towards the inside of the drum or hollow shaft of the runner.

All the water is subsequently driven centrifugally backwards between the ship's wall and the casing.

The shafts of the runners of the pumps are disposed perpendicularly to the longitudinal axis of the ship and parallel to the hull wall.

The most important advantages thereof are: It is useful for all kinds of ships, including submarines.

A higher development of the propelling power.

It may be attached at different submerged points of the hull and, therefore, the size thereof does not necessarily have to be excessive.

It is easy to repair or replace a runner or blade without having to stop the ship, and it is more protected than the propeller.

The zones at which they adapt themselves are not eddy zones.

They may be incorporated to already constructed ships.

They hardly have leakages due to the transmission. Sealing gaskets are not so necessary.

The hydrodynamic spray moves parallel to the surface of the ship and to its longitudinal axis.

It operates easily, inverting the stream of water.

It is cheaper than the other systems.

It may reach higher speeds.

Eddies are not produced.

For a better understanding of the constitution and functioning of the device of the invention, a

more detailed description will be made with reference to the accompanying drawings which illustrate a possible mode of embodiment, given by way of a non-limiting example.

5 Figure 1 illustrates a sectional view of a ship incorporating the system of the invention.

Figure 2 schematically illustrates a plan view of a ship incorporating the said system.

10 Figures 3, 4 and 5 illustrate plan views of different forms of runners in section.

Figure 6 illustrates a profile view of a pump.

Figure 7 illustrates a plan view of the preceding pump.

15 Figure 8 illustrates a sectional view of the system adapted to a shallow-draught ship.

Figure 9 represents another variant in which the shaft is attached to only one end and there is a lateral runner.

20 Figure 10 illustrates a sectional plan view of an arrangement adaptable to the outside of already constructed ships.

Figures 11 and 12 are side views of two deflectors of the system of the invention.

25 Figure 13 illustrates a plan view of a pedal-driven boat incorporating the system of the invention.

Figure 14 illustrates a side view of the said pedal-driven boat.

30 Like numbers used in the figures refer to the same elements.

The system represented in figure 1 is comprised of a ship hull 1, runners 2, motor or motor pump 3, transmission 4 and casing or deflector 5.

35 Figure 2 illustrates the runners 2, deflectors 5, water inlet 6 and outlet nozzle 7.

Figure 3 represents a plan view of a runner 2, with straight-section blades.

40 Figure 4 illustrates a view similar to the preceding figure with flat wings mounted on a drum type runner.

Figure 5 illustrates a view similar to the two preceding figures with curved blades 9, the outer end thereof pointing towards the side opposite that of forward movement and mounted on a drum whose periphery has longitudinal slits to permit water to pass.

45 Figure 6 illustrates a variant in which the curved blades 9 start from the shaft 4 and there are two bent deflectors 10 which guide the water towards the ends of the runner and then towards the central zone thereof, from which it emerges centrifuged, as shown by the arrows.

50 Figure 7 illustrates a plan view of the system of figure 6, representing the ship hull 1, the runner

2, the blades 9, the deflecting casing 5, front water inlet 6 and outlet nozzle 7.

Figure 8 shows a sectional view of a shallow-draught ship comprising a hull 1, runners 2, motor 3, runner deflecting casing 5, runner gear 12, and power gear 13.

Figure 9 illustrates sectionally a pump system adapted to the side of the ship, which is comprised of a runner 2, motor 3, shaft 4, deflector 5 and bearings 14.

Figure 10 is a plan view of a pump system which is incorporated to already constructed ships and which is comprised of a hull 1, runner 2 and deflecting casing 15.

Figure 11 illustrates a view of a deflecting casing 5, of a pump of the peripheral sucking and forcing type by means of the runner 2.

Figure 12 shows the other type of casing 5 for a peripheral sucking system, bent deflectors 10 at the ends of the runner, and drive runner 2.

Figure 13 illustrates a plan arrangement of the system adapted to a pedal-driven boat which is comprised of a hull 1, blades 9, shaft 4, pinion 12, and bent water inlets 10.

Figure 14 illustrates a side view of the system of the invention of figure 13, which is comprised of a hull 1, tangential deflector 5, blades 9, pedals 17, drive pinions 11, bent deflector 10, tangential water inlet 6 and a general water outlet nozzle 7.

Figures 3, 4 and 5 show a prolongation or deflector 16, of the cylindrical casing embedded in the hull of the ship, which improves its efficiency.

The system of centrifugal blade runners enables materials, such as stainless steel and others, which are hardly affected by cavitation to be used.

Having described the invention as well as the practical mode of carrying it out in sufficient detail, it should be emphasised that the previously mentioned arrangement represented in the accompanying drawings could be modified without altering the principle of functioning thereof.

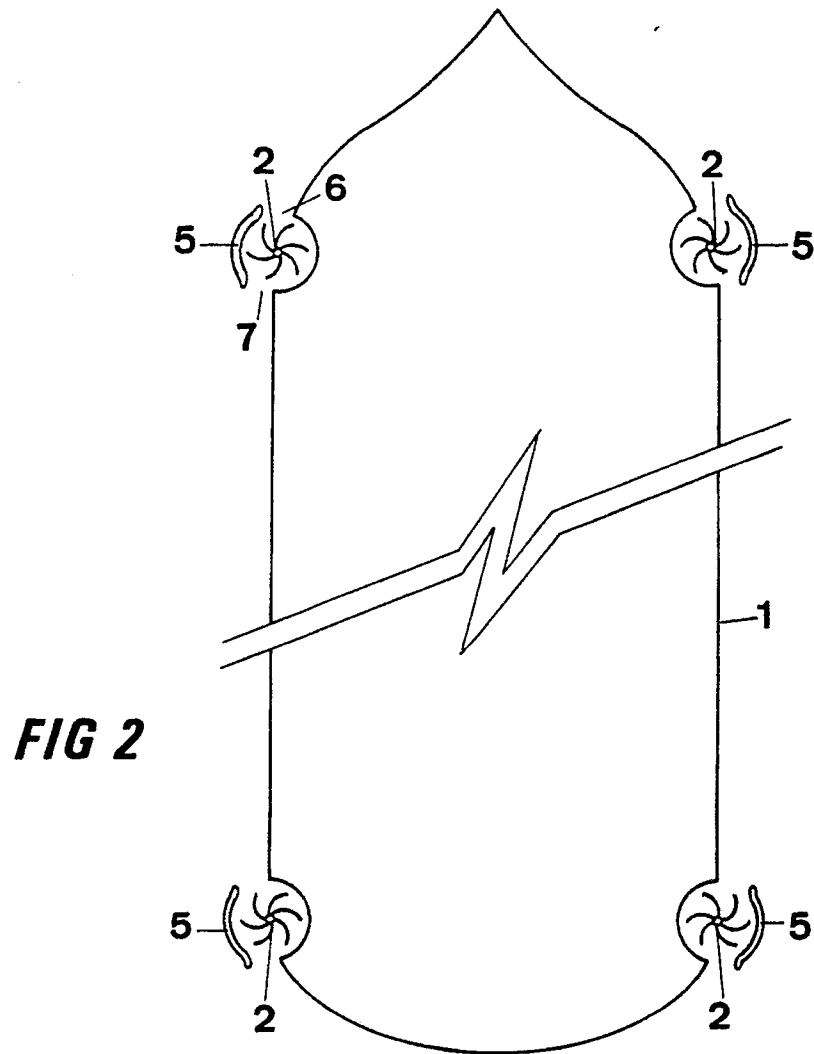
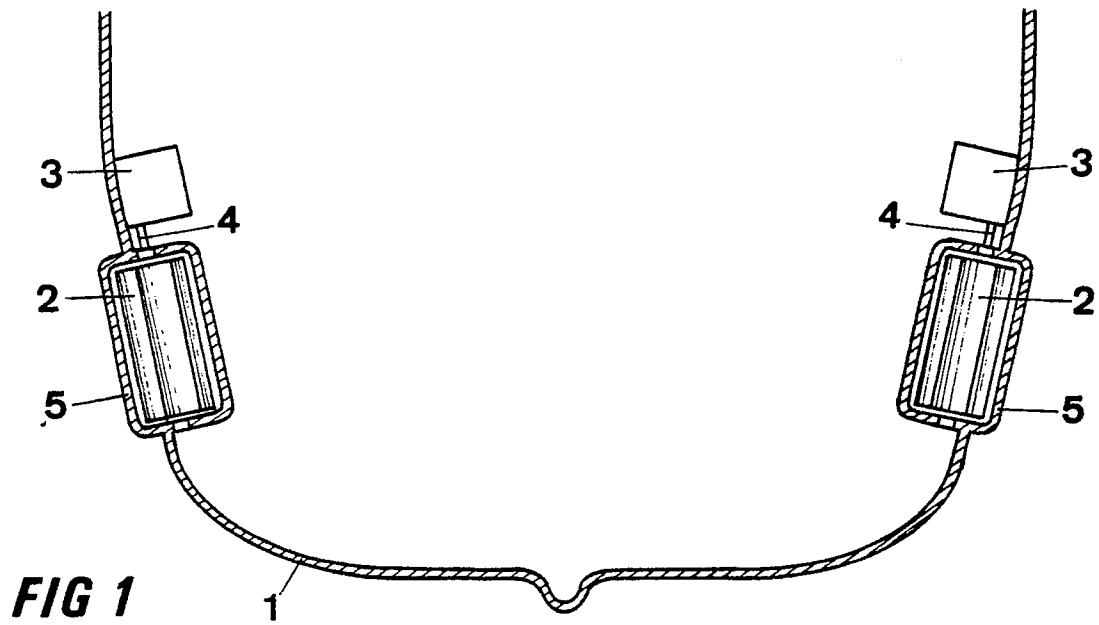
Claims

1. Propulsion system for ships, characterised in that it is comprised of one or more blade runner centrifugal pumps which are peripherally attached to the submerged surface of the hull of the ship, the shafts of the pumps being parallel to the surface of the hull and perpendicular to the longitudinal axis thereof; the outer face of the said runners bearing a deflector which tangentially directs and determines the inlet and outlet of water and the ends of the runners incorporating bent deflectors which guide the water, the said pumps being propelled by hydraulic, pneumatic, explosion or turbine

engines, a combination of these, or by means of pedals.

2. Propulsion system for ships according to claim 1, characterised in that the outer end of the blades of the runner is curved, pointing in the direction opposite that of turn or advance of the runner and in that the blades are mounted on a drum having a large diameter.

3. Propulsion system for ships according to claim 1, characterised in that the runners are embedded in any submerged zone of the hull of the ship, allowing only the blades of the outer side of the runner to protrude.



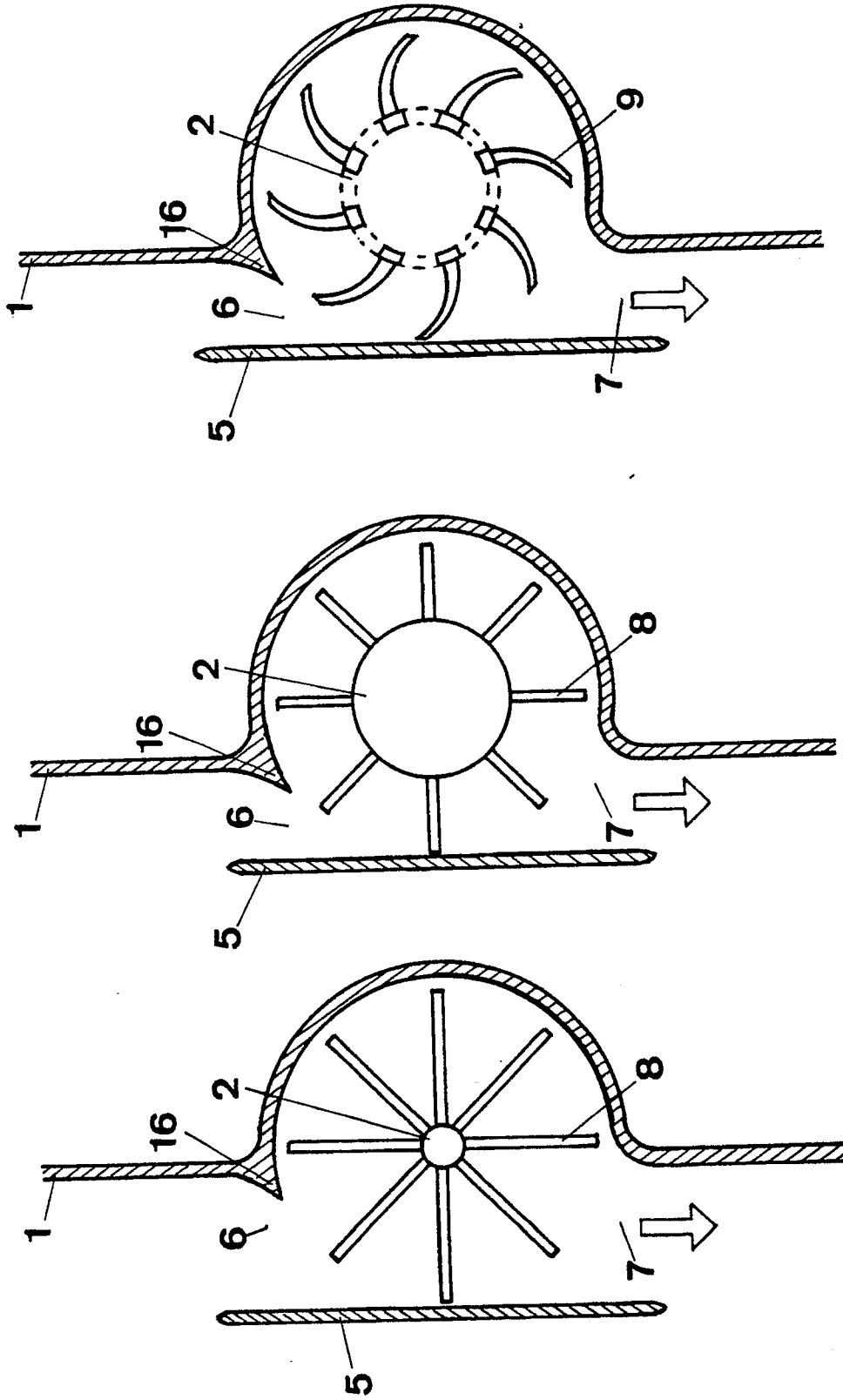


FIG. 5

FIG. 4

FIG. 3

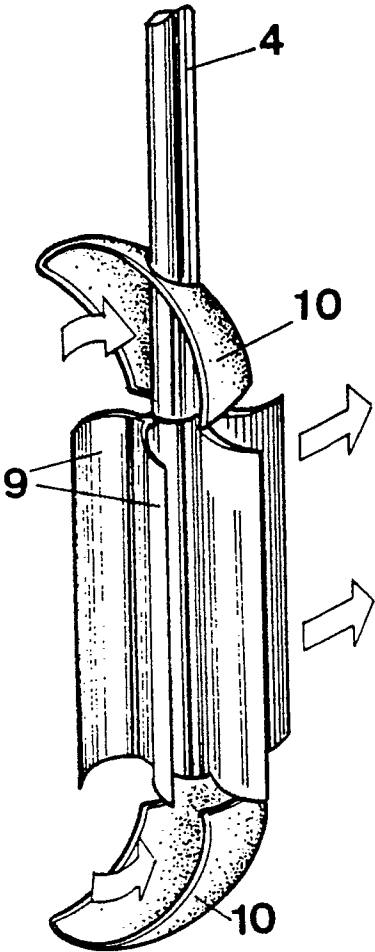


FIG. 6

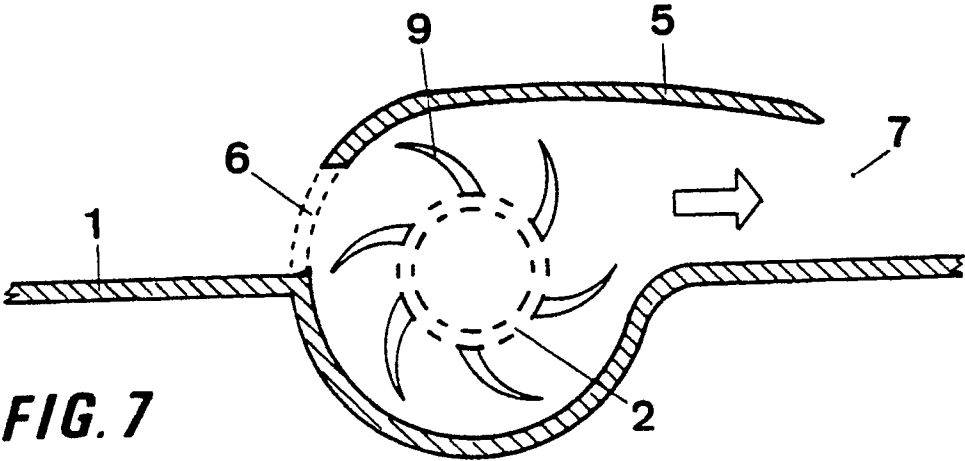


FIG. 7

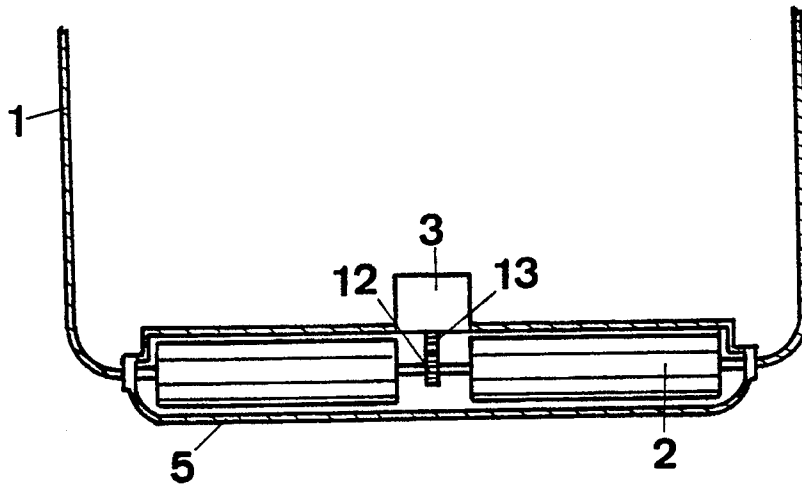


FIG. 8

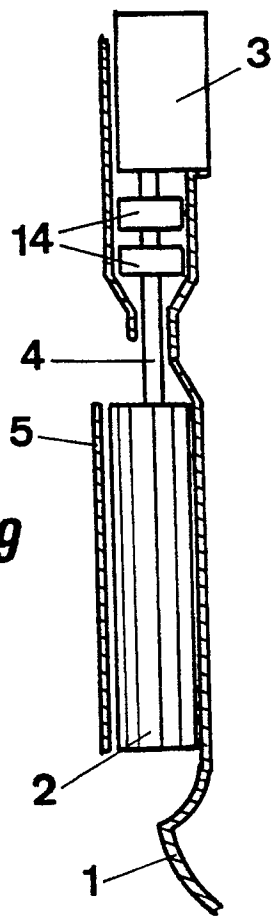


FIG. 9

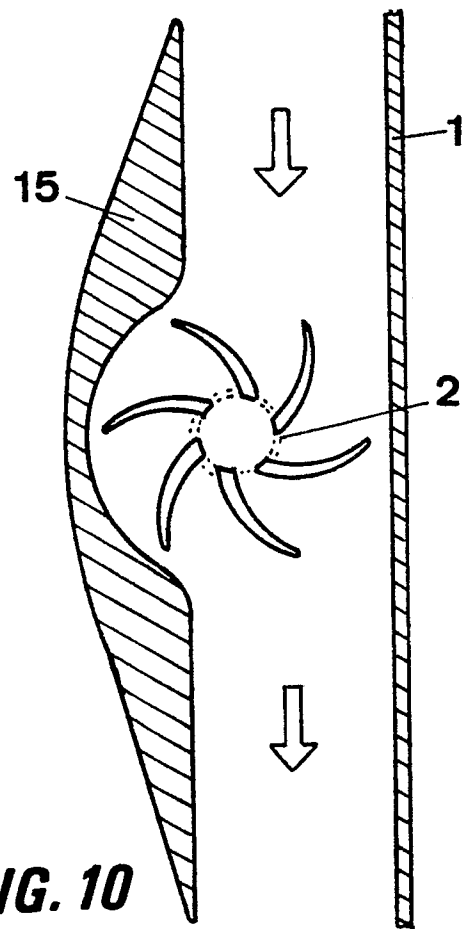


FIG. 10

FIG. 11

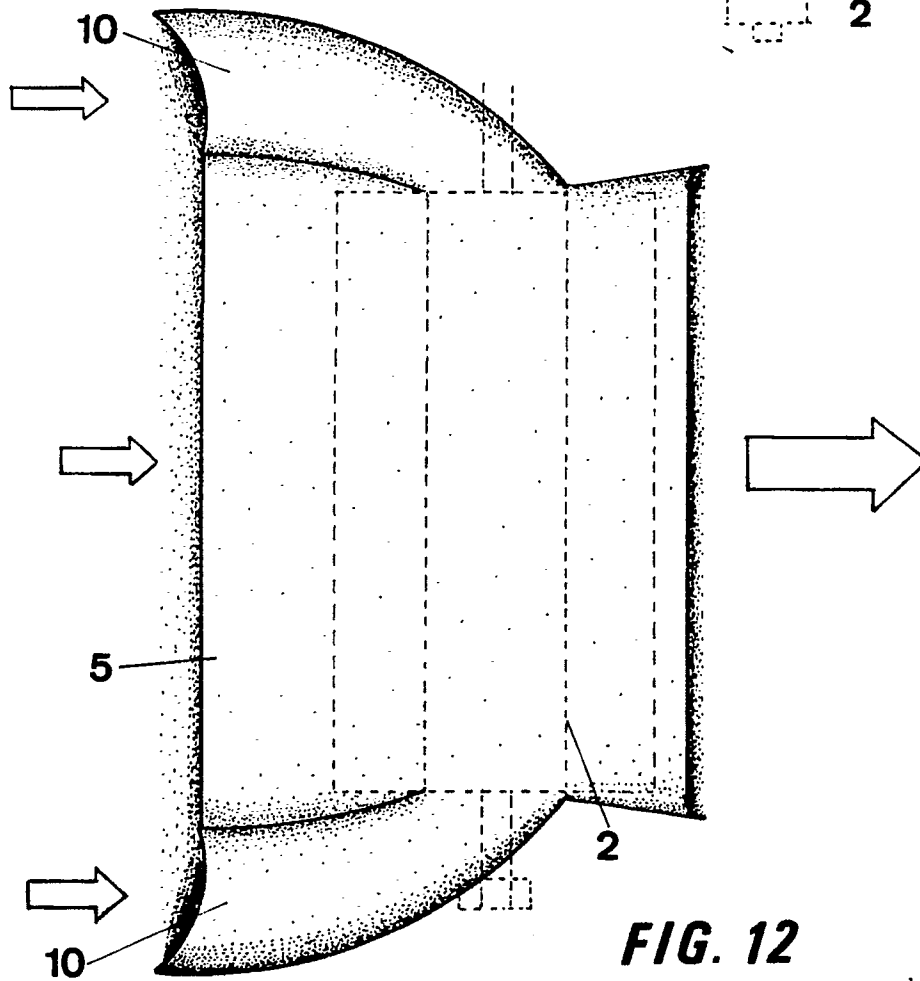
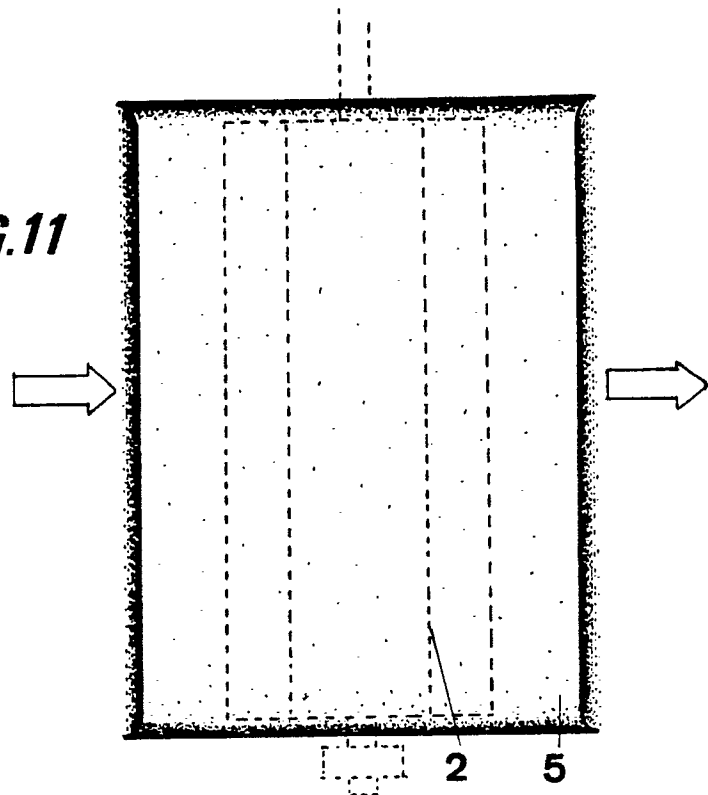


FIG. 12

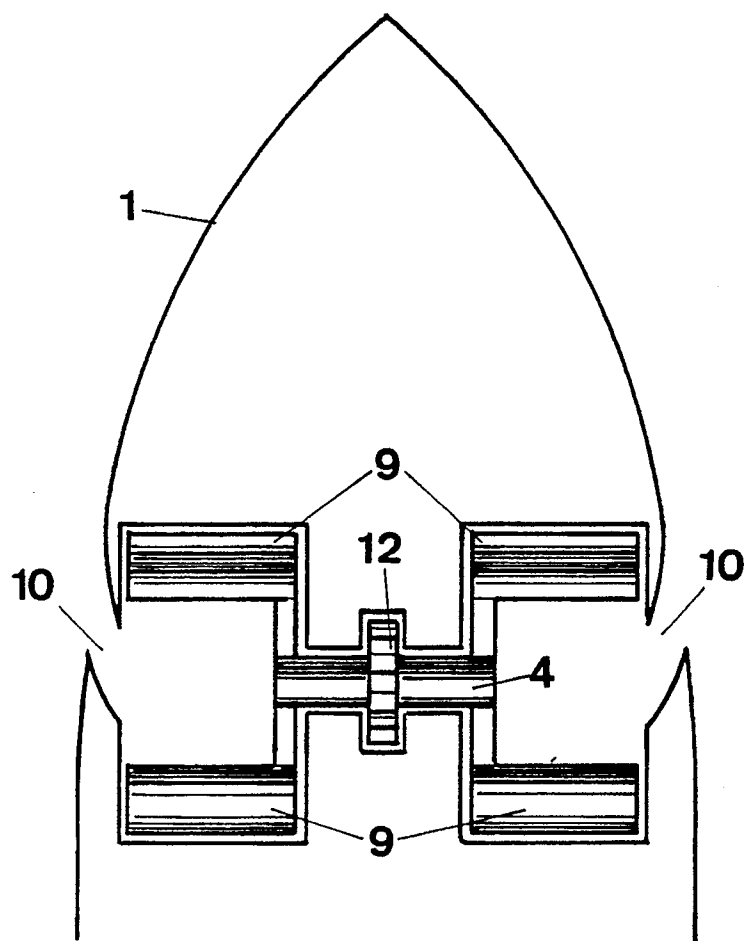


FIG. 13

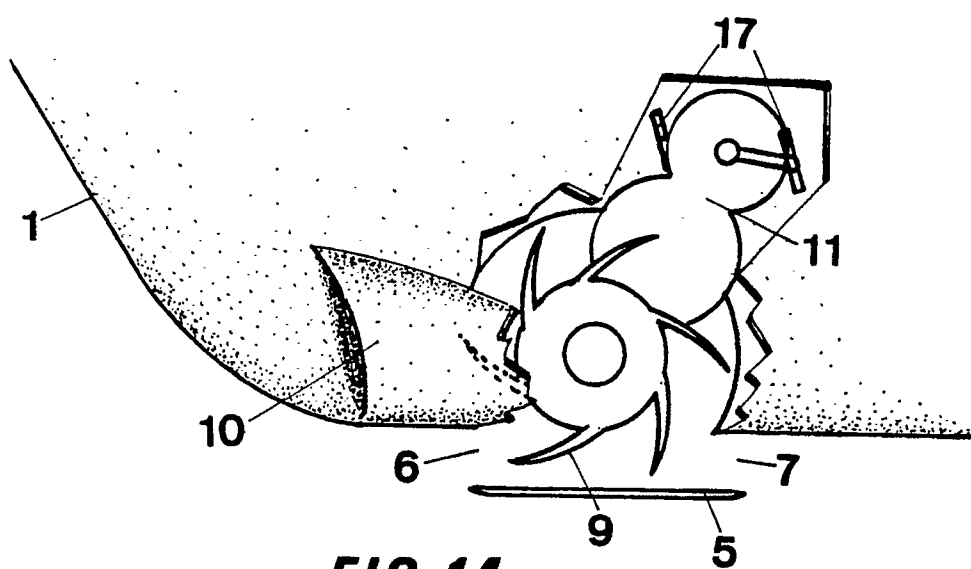


FIG. 14



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 90 50 0059

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	GB-A-1089651 (KRISHNA RAO) * page 2, line 15 - page 3, line 47; figures 1-9 *	1-3	B63H11/08
Y	FR-A-521018 (HOTCHKISS) * page 4, line 14 - page 6, line 34; claim B; figures 1-7 *	1-3	
A	GB-A-24499(A01909) (TOMPKINS) * the whole document *	1-3	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B63H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05 OCTOBER 1990	Examiner DESENA Y HERNANDOREN
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document I : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			