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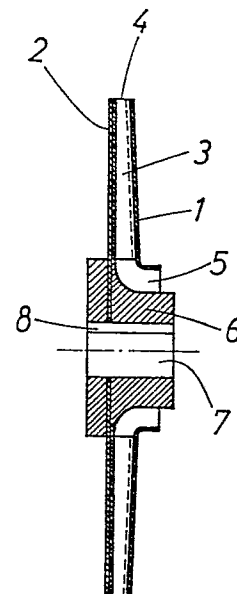
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54 **Bladed impellor for centrifugal pumps.**

57 Bladed impellor for centrifugal pumps, of the type formed by two coaxial superimposed discs (1, 2) of like diameter between which there is regularly disposed a plurality of blades (3), characterized in that one of the discs (1, 2) is provided with a large axial orifice (5) and bears the said blades (3) fixedly attached to the inner surface thereof, while the other disc is provided with a central injection moulded hub (6) of a substantially rigid material, provided with a central tubular orifice (7). The disc bearing the hub (6) is provided previously with a central orifice (9) and several smaller orifices (10) around the central one (9), the injection moulded material of the hub (6) passing through said smaller orifices (10) after being injected.

fig. 6



Description

"BLADED IMPELLOR FOR CENTRIFUGAL PUMPS".

This invention relates to a bladed impellor for centrifugal pumps, of the type formed by two coaxial superimposed discs of equal diameter, between which there is regularly arranged a plurality of blades, the liquid entering axially to said blades and then being discharged by centrifugal force between the edges of the discs.

Very many embodiments of bladed impellors for centrifugal pumps are already known, outstanding among which are those described in Spanish utility models No. 205.690 and 282.527, both in the name of the present applicant, with all of them having a serious drawback, consisting in that the central orifice of the impellor must carry a key for drive purposes, representing either an assembly operation or a machining operation, making the impellor substantially more expensive.

To cheapen the cost of the impellor and make its manufacture more profitable, the impellor of the invention is characterized in that one of the discs is provided with a large axial orifice and bears on the inner surface thereof fixedly attached blades, while the other disc is provided with a central injection moulded hub, of a substantially rigid material, having a central tubular orifice coaxial with that of the first disc but of smaller diameter and provided internally with a key adapted for engagement with a key slot of the drive shaft.

According to a further feature of the invention, the disc bearing the hub is provided previously with a central orifice and several smaller orifices around the centre one, the injection moulded material of the hub passing through said smaller orifices after injection.

The accompanying drawings illustrate one embodiment of the impellor of the present invention as a non-limitative example.

Figs. 1 and 2 are respective plan and sectional elevation views, respectively, of the first disc;

Figs. 3 and 4 are respective views also in plan and sectional elevation, respectively, of the second disc of the impellor according to the invention;

Figs. 5 and 6 illustrate two views also in plan and in sectional elevation, respectively, of the assembled impellor; and

Fig. 7 is a plan view of the second disc before injection moulding of the hub.

In the drawings, the impellor may be seen to comprise two coaxial superimposed discs 1 and 2 of like diameter, between which a plurality of blades 3 are regularly disposed.

The liquid flows in axially to said blades through a large orifice 5 in the disc 1 and is then discharged by centrifugal force between the edges of the discs 1 and 2, through the openings 4.

The disc 1, apart from the said central orifice 5, is provided with the blades 3, fixedly attached to the inner surface thereof.

In turn, the disc 2 is provided with a central injection moulded hub 6, of a substantially rigid

material, provided with a central tubular orifice 7 coaxial with the orifice 5 but having a smaller diameter than the latter.

The hub 6 is provided internally with a key 8 adapted to engage a key slot of the drive shaft, not shown.

The disc 2 is provided initially with a central orifice 9, corresponding to the orifice 7 of the hub 6 and several smaller orifices 10 around the central one 9, so that the injection moulded material of the hub 6 is disposed through said smaller orifices 10 after being injected, as may be seen in Fig. 6.

Claims

1.- Bladed impellor for centrifugal pumps, of the type formed by two coaxial superimposed discs of like diameter between which there is regularly disposed a plurality of blades, the liquid flowing in axially to said blades and being discharged thereafter by centrifugal force between the edges of the disc, characterized in that one of the discs is provided with a large axial orifice and bears the said blades fixedly attached to the inner surface thereof, while the other disc is provided with a central injection moulded hub of a substantially rigid material, provided with a central tubular orifice, coaxial with that of the first disc, but of smaller diameter and provided internally with a key adapted to engage a key slot of the drive shaft.

2.- Bladed impellor for centrifugal pumps, according to claim 1, characterized in that the disc bearing the hub is provided previously with a central orifice and several smaller orifices around the central one, the injection moulded material of the hub passing through said smaller orifices after being injected.

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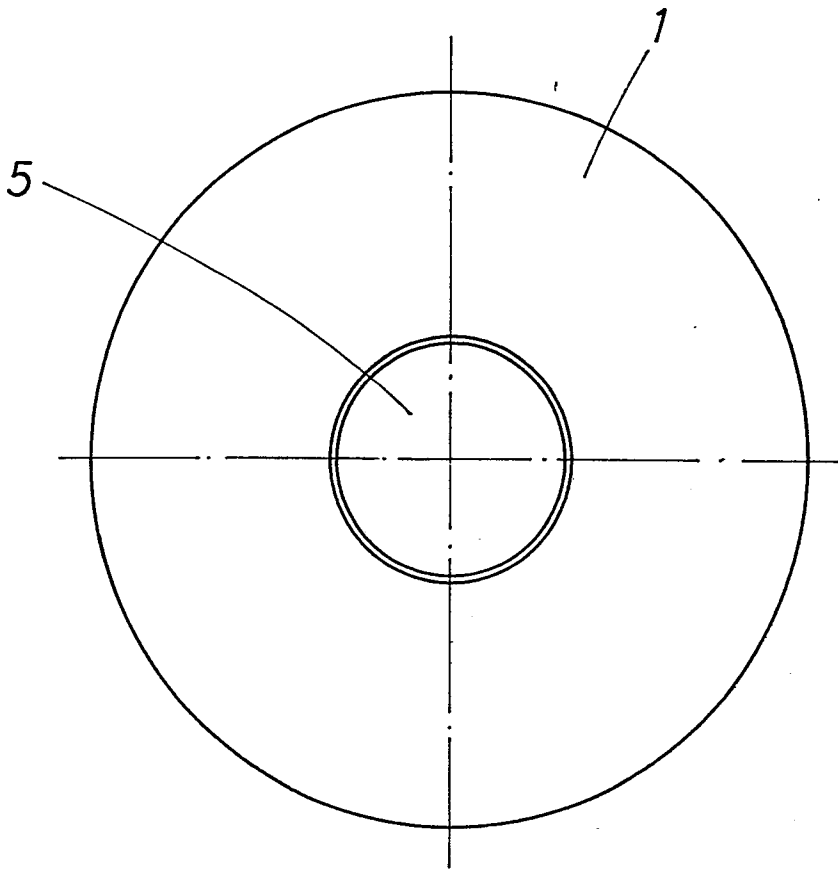


fig. 1

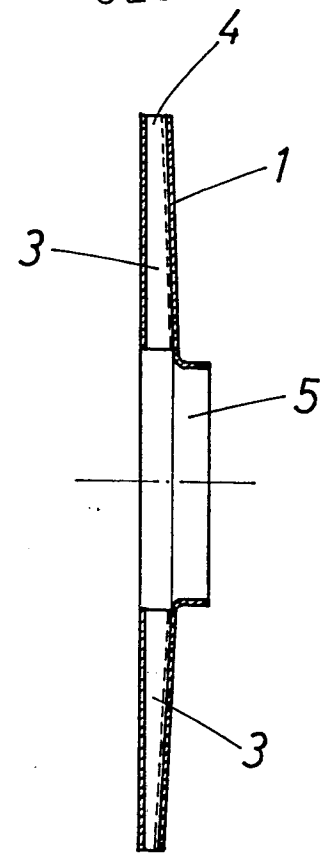


fig. 2

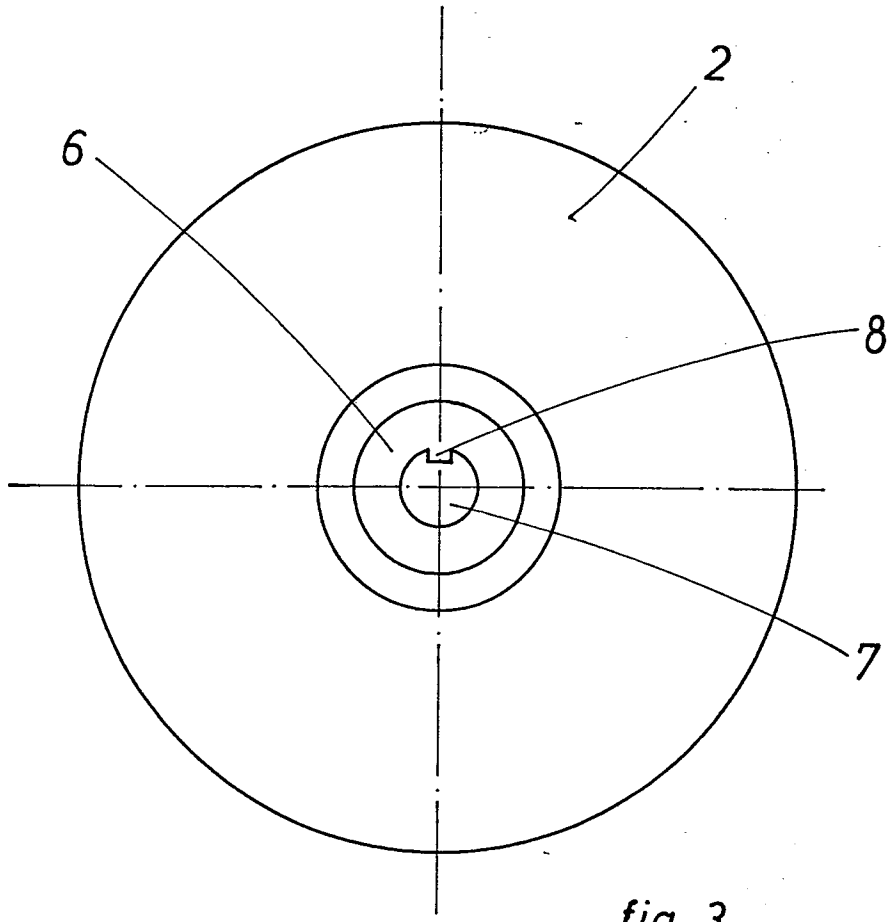


fig. 3

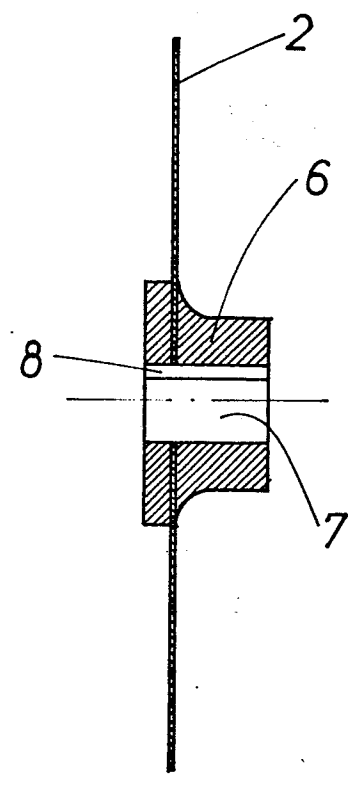


fig. 4

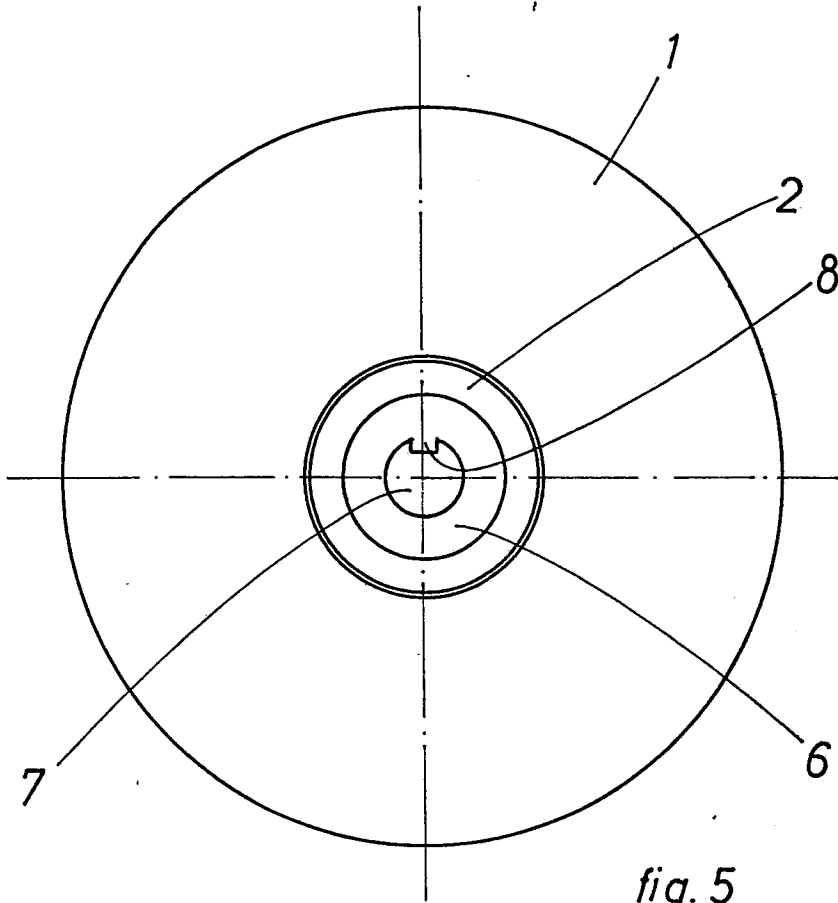


fig. 5

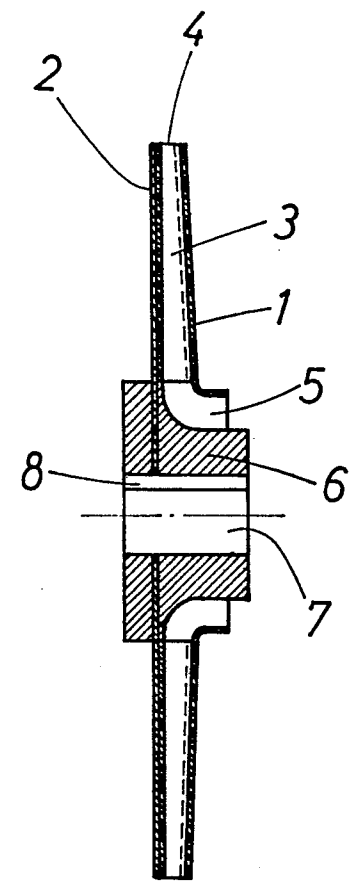


fig. 6

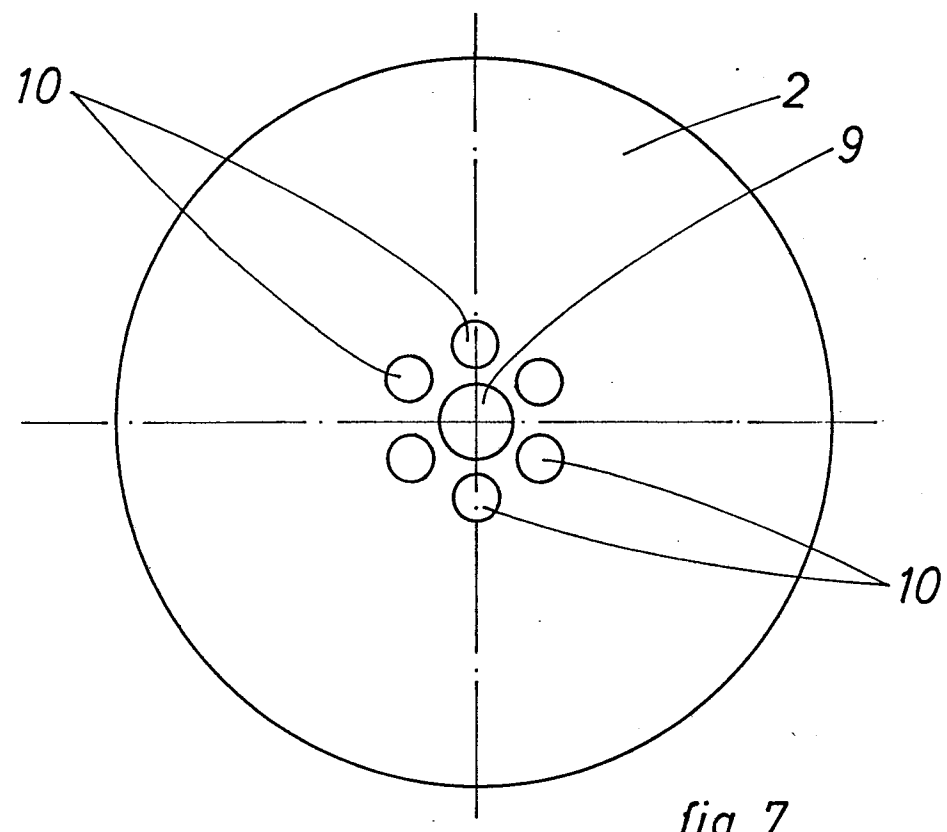


fig. 7



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.4)
A	US-A-2 844 100 (HEINICKE) * Column 1, lines 18-22; column 2, line 64 - column 3, line 6; figure 3 *	1	F 04 D 29/22 F 04 D 29/20
A	NL-A-6 710 533 (PHILIPS) * Page 1, lines 1-5; page 2, lines 19-26; figures 1,2 *	1,2	
A	US-A-3 070 026 (TAIT) * Column 1, lines 28-35; column 2, lines 56-62; figures 1-3 *	1	
A	CH-A- 538 053 (ENGELBRECHT) * Column 1, lines 25-39; figures 1,3 *	1	
A	CH-A- 416 921 (PATEGE) * Claim; figure 2 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			F 04 D F 16 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-09-1988	Examiner WALVOORT B.W.
CATEGORY OF CITED DOCUMENTS		T : 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	
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			