Feb. 26, 1957 H. A. CHUBBUCK 2,782,722

PLASTIC IMPELLER

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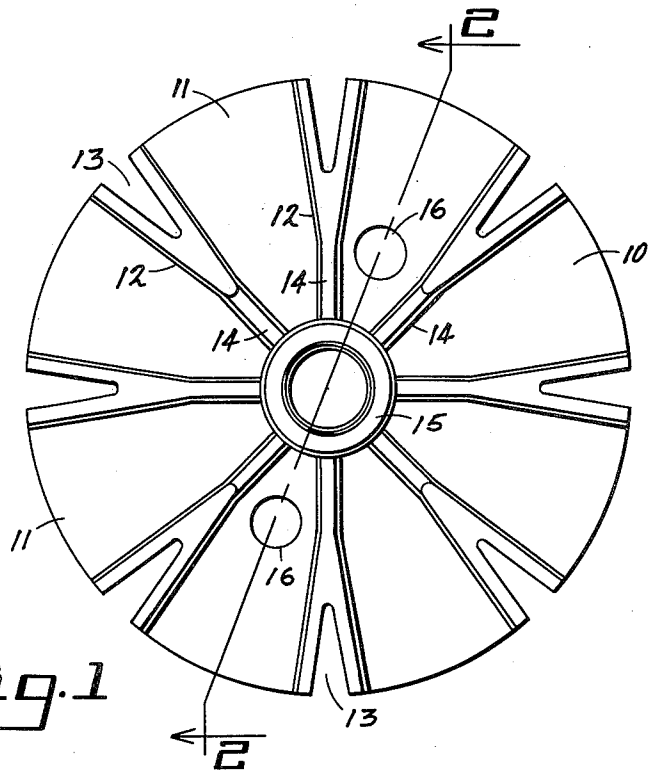


Fig. 1

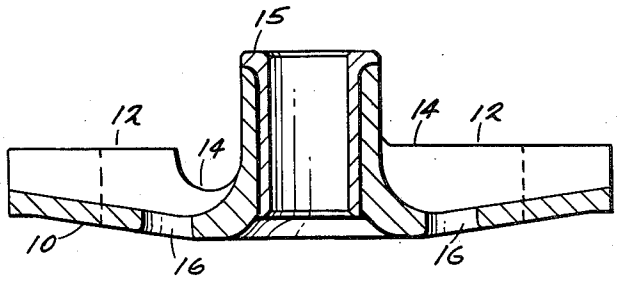


Fig. 2

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PLASTIC IMPELLER

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2 Claims. (Cl. 103—115)

This invention is concerned with a pumping apparatus and more specifically with an impeller usable in centrifugal pumps. This invention has been particularly developed for use in the coolant pump of internal combustion engines, although its utility is by no means so limited.

This structure is best understood by a study of the figures in the drawing of which:

Figure 1 is the elevation of a pump impeller, and

Figure 2 is a cross section of this impeller taken along the line 2—2 in Figure 1.

In an effort to produce a durable, inexpensive and efficient pump impeller, resort has been had to the use of a plastic impeller body mounted upon a central metal shank. Any suitable plastic may be used for the body, although for reasons of economy and durability the conventional phenol formaldehyde type of thermo setting plastic may well be used. Similarly, any convenient metal may be employed for the hub. Actual practice has settled upon a sintered powdered iron hub.

As shown in Figure 1, this impeller comprises an impeller body **10** of any suitable plastic mounted upon metal impeller hub **15**. Impeller body **10** is divided into a plurality of and preferably eight radial channels **11** by radial blades **12** which are molded integrally into plastic impeller body **10**. The radial blades **12** terminate peripherally in bifurcated notches **13**. The bifurcated notches **13** extend inwardly from the periphery of the blade. Blades **12** are connected with the central hub portion of the impeller by radial sections **14**. While the radial sections may be of uniform height, it is preferred to alternate between radial sections **14** having a height substantially equal the height of blades **12** and those having a much lesser height.

The provision of at least two holes **16** through the body of the impeller has been found to substantially improve the pumping characteristics of this impeller. While more than two holes are helpful, this number is usually adequate to give the desired results.

Figure 2 is a cross section of the structure shown in Figure 1 and demonstrates the shape of the side of the impeller body remote from blades **12**. It will be noted that this side of the impeller slopes toward the face containing the blade as one proceeds from the hub to the periphery.

While plastic has been disclosed as the preferred material for the impeller body, this member may be fabricated from any material suitable for the contemplated service.

It will be understood that the invention is not to be limited to the exact construction shown and described, but that various changes and modifications may be made without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim as my invention:

1. A pump impeller comprising an impeller hub supporting an impeller body, said pump impeller body being provided with a series of radial channels separated by bifurcated radial blades and being further provided with a plurality of holes through the impeller body at locations intermediate the impeller body periphery and the impeller hub, alternate bifurcated blades being of substantially uniform thickness in an axial direction, the blades intermediate said alternate blades being substantially reduced in axial thickness near the impeller hub.

2. A pump impeller comprising an impeller hub supporting an impeller body, said pump impeller body being provided with a series of radial channels separated by bifurcated radial blades and being further provided with a plurality of holes through the impeller body at locations intermediate the impeller body periphery and the impeller hub, alternate bifurcated blades being of substantially uniform thickness in an axial direction, the blades intermediate said alternate blades being substantially reduced in axial thickness near the impeller hub, the face of the impeller body remote from the bifurcated blades being inclined to the radii of the impeller.

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