

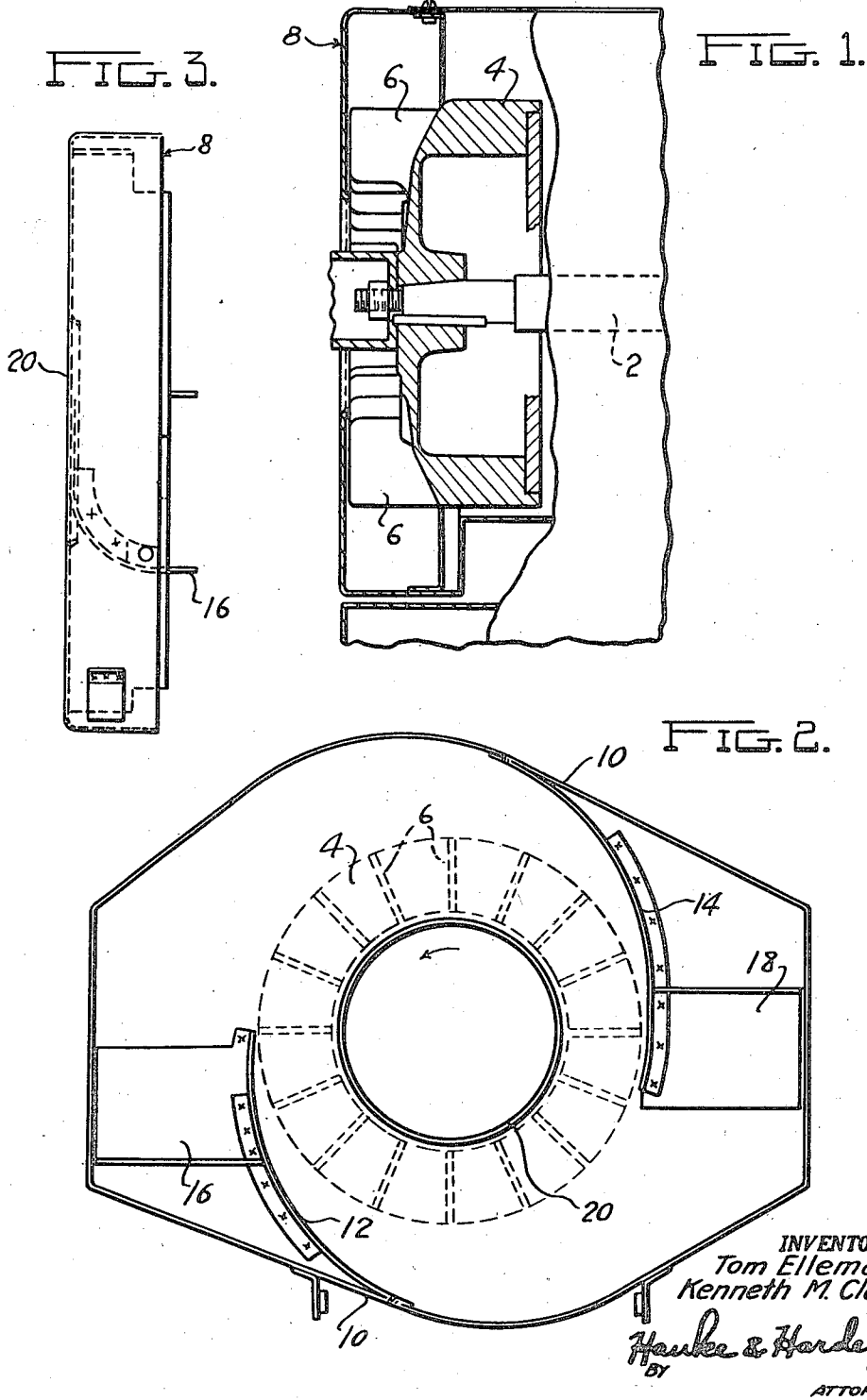
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FLUID PUMP

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# UNITED STATES PATENT OFFICE

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## FLUID PUMP

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2 Claims. (Cl. 230-47)

**1**  
This invention relates to a centrifugal pump for fluids, such as a blower used to provide cooling air. Specifically, the air blower of this invention is intended to be used on an internal combustion engine of the type shown in patent application Serial Number 601,985, filed June 28, 1945, and assigned to the assignee of this invention, although its application is not limited to that use.

In a utility internal combustion engine power plant of the type set forth in the above identified application, it is desirable to make the entire unit as compact and efficient as may be consistent with performance requirements. It is an object of this invention to provide an air compressor which will furnish air for a plurality of requirements. This object is accomplished in a centrifugal blower having a fluid casing provided with two strippers.

In the drawings:

Figure 1 is a view partly in section of the blower end of the utility power plant referred to above.

Figure 2 is an inside end elevation view of the blower casing, and

Figure 3 is an elevation view of the casing from the left end as seen in Figure 2.

Referring now to the drawings in detail, the crank shaft 2 of the utility internal combustion engine power plant referred to above is shown as having mounted on it for rotation therewith a centrifugal impeller 4 provided with impeller vanes 6. A casing 8 is provided for the impeller. Casing 8 is seen to have walls 10 spaced from the periphery of the impeller. An auxiliary wall 12 extends from a spaced wall 10 to a point adjacent the impeller periphery and serves as a "stripper" to take compressed air off the impeller 4. A second stripper 14 extends from the other spaced wall 10 to another point adjacent the periphery of the impeller. Thus the strippers 12 and 14 serve to form a volute casing having two fluid take-offs.

Auxiliary wall 12 has associated with it a deflector 16 which is positioned to direct fluid out of the plane of centrifugal impeller 4. A similar deflector 18 is associated with auxiliary wall 14. As can be seen in Figure 2 strippers 12 and 14, and their associated deflectors 16 and 18, are substantially diametrically opposed to each other. A substantially central opening 20 in the end wall of casing 8 serves to admit atmospheric air into the impeller.

### Operation

In operation air enters through the substantially central opening 20 and passes radially outward past impeller vanes 6. The air thus compressed is taken off by means of the strippers

**2**  
and their associated deflectors in a direction out of the plane of the impeller vanes. Thus a single centrifugal impeller serves to supply air under pressure for a plurality of uses.

We claim:

1. A centrifugal pump comprising a rotatable shaft, an impeller mounted on the shaft for rotation therewith, a casing for the impeller having walls spaced from the impeller periphery, an auxiliary wall extending from a spaced wall to a point adjacent the impeller periphery and providing an involute air passage encircling half of said impeller, a second auxiliary wall extending from a spaced wall to another point adjacent the impeller periphery and providing a second involute air passage encircling the other half of said impeller, and a deflector associated with each auxiliary wall to cause fluid to flow out of the plane of the impeller, said casing enclosing said impeller, said involute air passages and said deflectors.

2. A centrifugal pump comprising a rotatable shaft, an impeller mounted on the shaft for rotation therewith, a casing for the impeller having walls spaced from the impeller periphery, an auxiliary wall extending from a spaced wall to a point adjacent the impeller periphery, and providing an involute air passage encircling half of said impeller, a second auxiliary wall extending from a spaced wall to another point adjacent the impeller periphery and providing a second involute air passage encircling the other half of said impeller, and a deflector associated with each auxiliary wall to cause fluid to flow out of the plane of the impeller, said casing enclosing said impeller, said involute air passages and said deflectors, each of said deflectors comprising an arcuate plate secured to said casing end wall and terminating in parallel edges diametrically opposite to each other and entirely confined with the casing enclosing said impeller, said edges lying substantially in a plane extending normal to the impeller axis and substantially aligned with the inner edges of said impeller blades.

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