

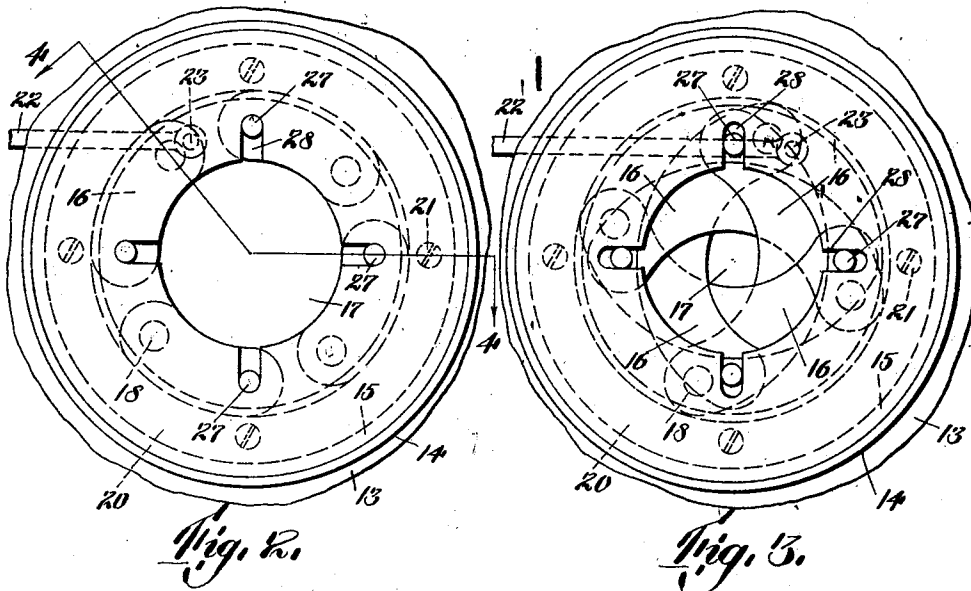
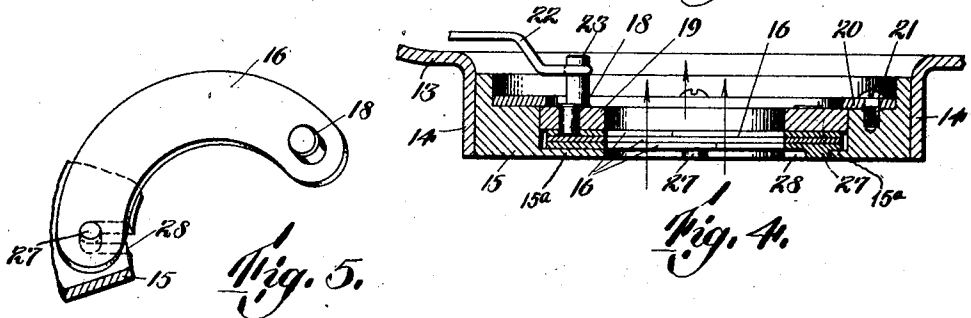
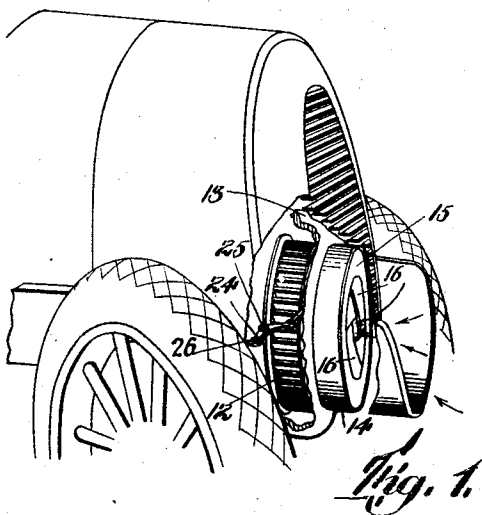
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VARIABLE AIR INLET FOR PRESSURE AIR COOLING SYSTEMS

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VARIABLE AIR INLET FOR PRESSURE AIR-COOLING SYSTEMS.

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This invention relates to the conduit of an air-cooling system, such as that employed in the Franklin motor car for conducting cooling air to the external surfaces of the cylinders and jackets of an internal combustion engine, the system including a housing which contains a rotary blower fan and is provided with an air inlet substantially coaxial with the fan.

The object of the invention is to provide an air inlet, the bore of which is variable to regulate the quantity of air drawn into the system by the fan, without varying the coaxial relation between the bore and the fan.

I attain this object by the improved air inlet construction hereinafter described and claimed.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a perspective view, showing a variable inlet embodying the invention, incorporated in the conduit of the pressure air-cooling system of a motor vehicle.

Figure 2 is a front elevation of the variable inlet, showing a maximum diameter of the bore thereof.

Figure 3 is a view similar to Figure 2, showing a reduced diameter of the bore.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a fragmentary perspective view.

The same reference characters indicate the same parts in all of the figures.

In the drawings, 12 designates a blower fan encased in a housing 13, which forms a part of a conduit through which air is forced by the fan to the cylinders and jackets of a motor vehicle engine, not shown. The air inlet of the conduit in which the invention is embodied, is located in front of the fan, and is substantially coaxial therewith.

Said inlet comprises a fixed annular outer wall, substantially concentric with the fan 12, and preferably composed of an annular forwardly projecting sleeve 14, integral with the housing 13, and an annular reinforcing bushing 15, within and fixed to the sleeve. The inlet also comprises a plurality of flat-sided arcuate diaphragm plates 16, and means movably confining said plates to form a variable bore 17, which is always substantially coaxial with the fan, said confining means including a movable annular adjuster 19, adapted to be turned in the outer wall, and connections between the plates 16, the

adjuster, and the outer wall, the arrangement being such that when the adjuster is turned, the diameter of the bore 17 is varied, its center being always maintained substantially coaxial with the fan.

The bushing 15, as here shown, has an inwardly projecting annular flange 15^a provided with radial slots 28, said slotted flange forming an element of means for movably confining the diaphragm plates 16 to form a variable bore. Detachably secured by screws 21 to the bushing is an annular confining flange 20, which is spaced from the slotted flange 15^a, as shown by Figure 4. The annular adjuster 19 is confined by the flange 20 in the space between the flanges 15^a and 20, and is provided with a projecting stud 23, whereby the adjuster may be turned in the bushing, as hereinafter described.

The internal diameter of the confining flange 20 is greater than that of the adjuster, as shown by Figure 4, so that the portion of the adjuster from which the stud 23 projects, is exposed, and the stud is freely movable to turn the adjuster.

The diaphragm plates 16, are confined side-by-side between the adjuster and the slotted flange 15^a, each plate being provided at its inner end with a pivot stud 18 (Figure 5) journaled in a bearing in the adjuster, and at its outer end with a stud 27, which is movable in one of the radial slots 25. The pivot studs 18 and the bearings in the adjuster constitute other elements of means for movably confining the diaphragm plates to form a variable bore.

Any suitable means may be provided for turning the adjuster 19, said means, in this instance, including a rod 22, pivoted to the stud 23, on the adjuster, and connections between said rod and an operating member, not shown on the dash of the vehicle. Said connections may comprise a bell-crank lever 24 (Figure 1), pivoted at 25 to a fixed support, and a rod 26, pivoted to the lever 25, and extending to the dash.

When the adjuster is in the position shown by Figure 2, the studs 27 are in the outer portions of the radial slots, and the plates 16 are swung outward. A movement of the adjuster to the position shown by Figure 3, causes the studs 27 to move inward in the slots, the plates being thus swung inward. The diaphragm plates, therefore, collectively form a variable air inlet bore 17, which is contractible and expansible by

swinging movements of the plates, said bore being at all times concentric with the blower fan, so that whatever may be the diameter of the bore, it admits air to the center of the fan, and permits a radial outward movement of air between the blades of the fan, an unbroken stream of air being admitted by the bore to the central portion of the fan.

Any desired number of plates may be employed, four being shown in this embodiment of the invention.

It will be seen that the air inlet of a conduit pertaining to a pressure air-cooling system may be conveniently varied by the means described, so that in mild weather, a maximum volume of air may be admitted, and in cold weather, the volume may be reduced, to prevent too low a temperature of the engine cylinders and jackets. It is feasible to operate the diaphragm plates automatically, instead of manually, a thermostatic operating means being provided, adapted to increase and decrease the area of the bore 17, in accordance with the temperature of the admitted air.

I claim:—

A variable air inlet for a pressure air-cooling system which includes a housing containing a rotary blower fan, said inlet

comprising a fixed housing wall including a forwardly projecting sleeve in substantial coaxial alignment with the fan, a reinforcing bushing within said sleeve provided at its outer end with an inwardly projecting annular flange, having a plurality of radial slots formed therein, a plurality of flat-sided arcuate diaphragm plates arranged within the bore of the bushing and each having at one end a stud that extends into one of the radial slots in the flange at the outer end of the bushing, an annular adjuster within the bore of the bushing in rear of and pivotally connected to each of said plates, an annular confining flange detachably secured to the bushing and projecting partially across the portion of the bore thereof containing the diaphragm and the inner face of said adjuster to confine the latter and the diaphragm plates within said bore, an operating stud projecting rearward from the adjuster, and means engaging said stud and extending to the outside of the fan housing for effecting movement of the adjuster and diaphragm plates to vary the diameter of the air inlet.

In testimony whereof I have affixed my signature.

PATRICK J. HALLORAN.