Feb. 27, 1923. 1,447,160

E. S. THOMPSON

AIR CLEANING DEVICE

Filed Dec. 10, 1921

Fig. 1.

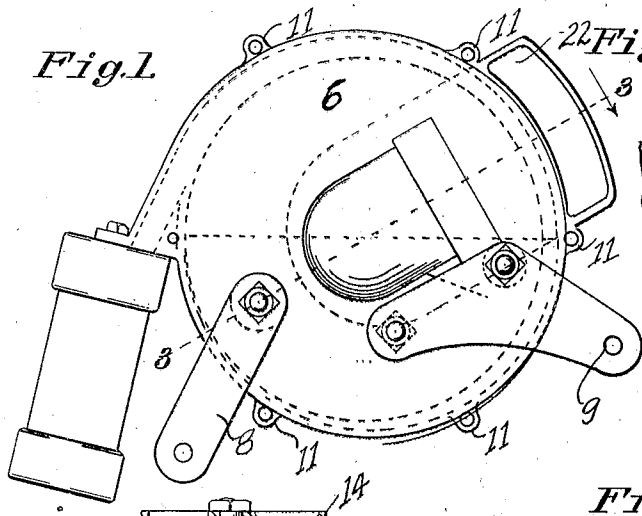


Fig. 2.

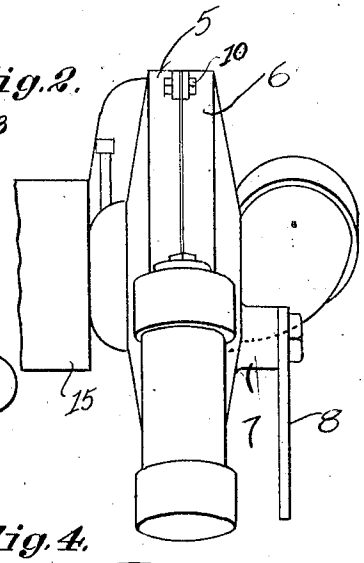


Fig. 3.

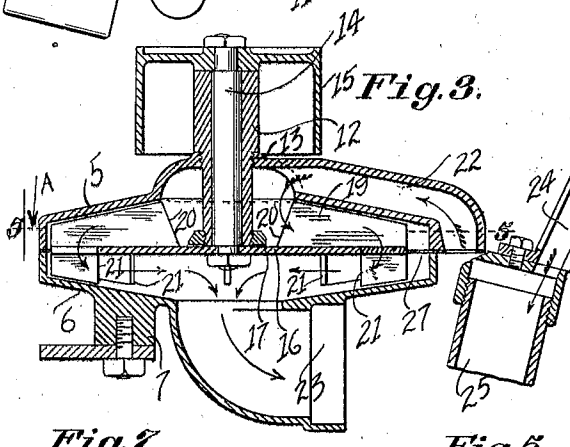


Fig. 4.

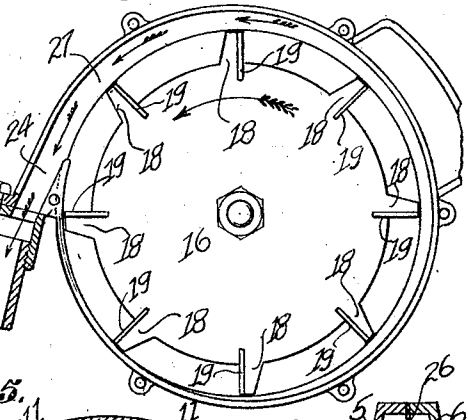


Fig. 7.

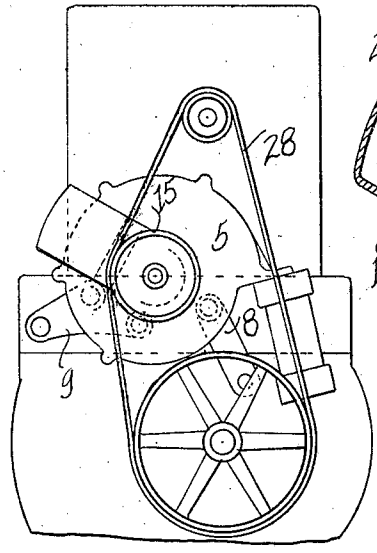


Fig. 5.

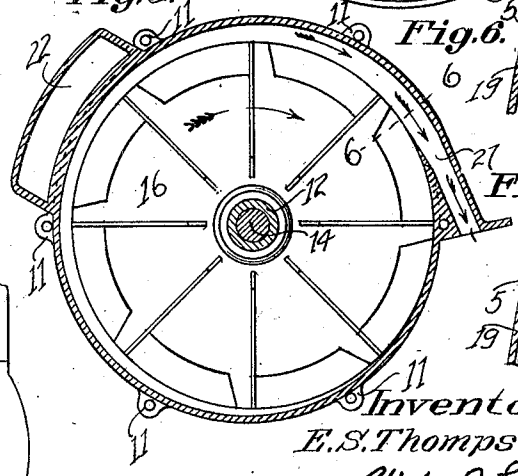


Fig. 6.

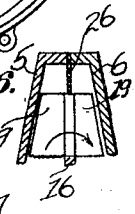
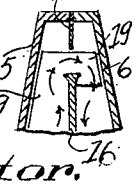


Fig. 8.



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UNITED STATES PATENT OFFICE.

ERNEST S. THOMPSON, OF PORTERVILLE, CALIFORNIA.

AIR-CLEANING DEVICE.

Application filed December 10, 1921. Serial No. 521,559.

To all whom it may concern:

Be it known that I, ERNEST S. THOMPSON, a citizen of the United States, residing at Porterville, in the county of Tulare and State of California, have invented new and useful Improvements in Air-Cleaning Devices, of which the following is a specification.

This invention relates to improvements in air cleaning devices, the principal object of which is to employ centrifugal force for the cleaning of air.

Another object of this invention is to produce a device of this character, which is simple in construction, highly efficient in use, and which may be applied to an internal combustion engine, for the cleaning of air which is to be used thereby.

A further object of this invention is to produce a device of this character, which will utilize the minimum amount of power in accomplishing its purpose.

A still further object is to produce a device of this character which is cheap to manufacture and one which cannot become clogged as is common with devices using a screen.

Other object and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a front elevation of my device,

Fig. 2 is a side elevation thereof,

Fig. 3 is a cross-section taken on the line 3—3 of Figure 1,

Fig. 4 is a front elevation of my device similar to Figure 1, but with the front blade removed,

Fig. 5 is a cross-section taken on the line 5—5 of Figure 3,

Fig. 6 is a fragmentary detail view taken on the line 6—6 of Figure 5,

Fig. 7 is a side elevation of an engine having my device applied thereto, and

Fig. 8 is a modified form of the disc-construction.

In devices such as tractors and like implements, operating under conditions where the air is more or less filled with dirt, it is essential that an air cleaning device be attached to the motor furnishing the power, to clean the air, thereby keeping the grit out of the working parts of the engine.

I propose to do this by employing a device attached to the engine and operated thereby, which device, through centrifugal action, will throw the heavier particles of foreign matter out of the way, thereby allowing only the clean air to enter the engine through the usual carburetor.

In accomplishing this result I provide castings 5 and 6. The casting 6 is provided with suitable lugs, as shown at 7 whereby the device as a whole may be secured to the engine as by clamps 8 and 9.

The above referred to castings 5 and 6 are held together as by bolts 10, passing through the lugs 11 integral with each of the castings. A bushing 12, preferably of bronze, is screw-threaded, as shown at 13. into the casting 5 and is adapted to have journaled therein a shaft 14. This shaft 14 carries at one end a pulley 15 and at the opposite end a disc 16.

The numeral 17 designates a thrust collar which is screw-threaded upon the bushing 12, while the disc 16 is provided with outwardly extending portions 18, which are adapted to abut blades 19 as is best shown in Figure 4 and help in the delivery of the dirt which comes in contact with the blades 19. These blades 19 extend to a point in close proximity to the center of the disc, as shown at 20 in Figure 3 on the inlet side, but extend but a short distance toward the center of the outlet side, as shown at 21.

An inlet passage 22 is provided, which has its opening extending toward the rear of the device, so as to receive clean air, or to be attached to a hot air pipe and is adapted to discharge its air at a point adjacent the bushing 20.

The numeral 23 designates an outlet which is provided on the opposite side of the disc 16 from that of the inlet 22 and in axial alignment therewith.

By now referring to Figure 4, it will be noted that the disc 16 is eccentrically mounted in the castings 5 and 6, which provide a space at one side of the disc. This space or chamber 27 is continued on a tangent as shown at 24 and is adapted to empty into a receptacle 25, which receptacle may be of

any well known construction, capable of receiving and holding collected material.

A divider 26 is provided and is held between the castings 5 and 6, as shown in Figure 6. This divider is adapted to extend from a point adjacent the periphery of the disc 16 to the casting, thereby dividing the space 24.

In operatiton, my device is applied to an engine, as shown in Figure 7, the result being that as the fan belt 28 moves, power is transmitted to the pulley 15, which revolves the disc 16, the peripheral speed of which causes air to be drawn through the inlet 22 where it comes in contact with the sides of the blades 19 and is thrown outwardly thereby. This action tends to discharge any heavy particles toward the exterior of the castings and in a direction tangent to the rotation of the disc, with the result that the heavy particles pass through the space 27 and into the receptacle 25, the divider 26 serving to prevent cross currents within the space 27, which air is moving only in the direction of rotation.

It is to be understood that the form of my invention, herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a device of the character described, the combination of a casing, a disc adapted to be rotated therein extensions formed on said disc, blades mounted on the opposite sides of said rotating disc, the blades on one side thereof being longer than on the other side thereof, the outer margin of said blades being flush with the extremity of said disc extensions, a divider mounted within said casing and having its inner edge in close proximity to said rotating disc.

2. In an air cleaner, the combination of a casing, a member adapted to be rotated therein, blades carried on opposite sides of said rotating member, the blades on one side thereof being of greater area than those on the opposite side thereof, said rotating member being eccentrically mounted within said casing, a passage formed on a tangent with the interior of said casting, a receptacle adapted to receive material discharged through said tangent passage, and a divider mounted within said casing and having its inner edge in close proximity to said rotating member.

In testimony whereof I affix my signature.

ERNEST S. THOMPSON.