March 25, 1930. J. S. JACOBSEN 1,751,739

DUST ELIMINATING AIRDUCT FOR RADIATORS

Filed March 22, 1927

Fig. 1

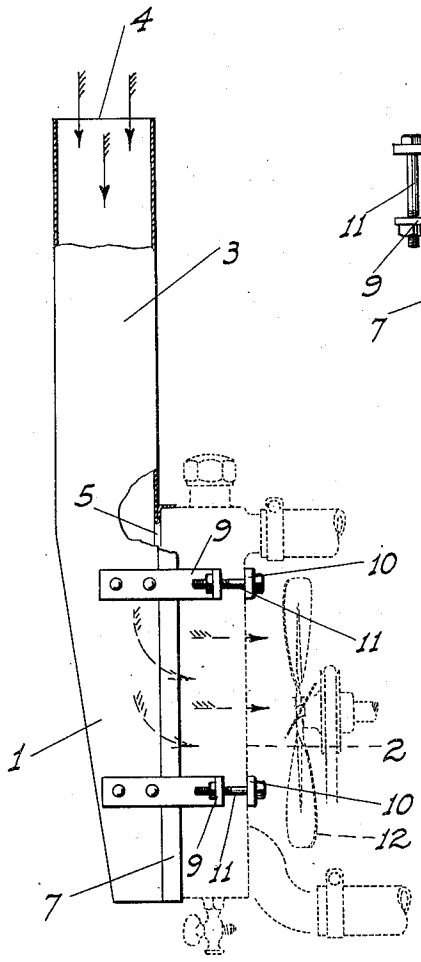
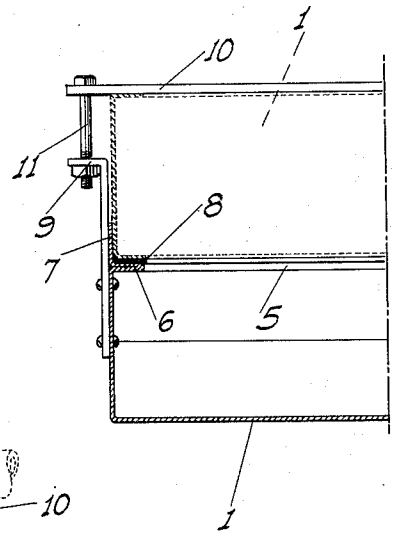


Fig. 2



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DUST-ELIMINATING AIR DUCT FOR RADIATORS

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This invention relates to devices for use in connection with internal combustion engines and especially those mounted on tractors, harvesters and similar agricultural machinery.

The principal object of my invention is to provide an efficient device for eliminating or greatly diminishing the passage of dust through the radiators of such engines. During harvesting and similar operations, a great amount of dust is created from the grain as worked as well as from the passage of the machine or the draft animals over the ground. Such dust laden air is usually in strata fairly close to the ground, and the radiators of the gas engines which run the various mechanisms are generally also for the sake of necessity or convenience placed very low, so that the engines and their radiators are within the zone of this dust filled air. The cooling fan of the radiator will therefore suck a great amount of dust through the radiator which clogs the air passage thereof and renders the cooling fan as well as the radiating surfaces of the radiator ineffective. This results in overheating the engine which renders it inefficient as well as causing injuries to the running parts. This of course necessitates costly and annoying delays every time operations have to be stopped to clean the radiator, or repair the engine or to fill the radiator with water,—an operation which under certain conditions, has to be repeated several times every day.

With my improved device applied to a radiator the above troubles are overcome and actual tests have demonstrated that after said device has been attached to the radiator of a harvester, the radiator was kept clean from dust and would not require to be cleaned even once during a whole season's operations. Further this elimination of dust of course enabled the engine to be kept in a cleaner condition, resulting in improved operation thereof. In connection with the dust, in harvesting operations a certain amount of chaff is usually suspended in the air. A certain amount of this chaff is drawn through the radiator and adjacent the engine, making a fire hazard which my invention eliminates.

A further object of the invention is to provide a device for the purpose which may be put out as an attachment to be easily and readily applied to any standard radiator.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side outline of a radiator showing my improved air-duct applied thereto.

Fig. 2 is a fragmentary enlarged sectional plan through the radiator and air-duct.

Referring now more particularly to the characters of reference on the drawings, the air-duct structure comprises essentially a casing preferably of rectangular form which consists of a lower portion 1 adapted to abut against and cover the entire front of a radiator 2, and an upper chimney-like portion 3 projecting a certain distance above the lower casing portion and the radiator. The upper portion 3 is freely open at the top in a horizontal plane as at 4, while the lower portion has a vertical opening 5 in the back the same size as the air passage area of the radiator, and registers therewith. The rear face of the casing portion 1 all around the opening 5 is provided with an inwardly projecting flange 6 which bears against the front face of the radiator frame, and also has longitudinal side flanges 7 which overlap the sides of the radiator frame somewhat as shown in Fig. 2. These side flanges properly locate the structure on the radiator, while the flange 6 provides a firm bearing surface against the radiator and permits a gasket 8 being placed and secured between said flange and the radiator frame, so as to provide a dust proof connection.

The attachment may be mounted in place in various ways as for instance by means of

outwardly projecting side lugs 9 on the casing member 1, longitudinally alined with transverse bars 10 mounted across the rear face of the radiator; the bars and lugs being drawn together by clamping bolts 11 passed therebetween so that the air-duct structure, the radiator and the bars are firmly secured to each other against movement in any direction.

The height of the portion 3 of the structure is such that it is above the strata of dust laden air. When the cooling fan 12 of the engine operates air for the radiator must therefore pass down from the top of the air-duct and above the dust laden strata, and such air as passes into the radiator will therefore be practically free from dust. The height of the air-duct of course determines the amount of dust drawn in, if any, and such height may be made to suit the particular conditions under which the machine to which the device is applied is to operate.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. An airduct attachment for a gas-engine radiator, comprising a casing to abut against and cover the front of the radiator and having an opening to register with the air passage of the radiator; and another opening freely open to the atmosphere in a plane above that of the radiator, means on the casing for positively locating the same relative to the radiator, and means for clamping the casing against the radiator.

2. An airduct attachment for a gas-engine radiator, comprising a casing to abut against and cover the front of the radiator and having an opening to register with the air passage of the radiator; and another opening to the atmosphere in a plane above that of the radiator, a flange around first named casing opening to overlap the sides of the radiator to prevent lateral and vertical displacement of the casing, and means for detachably clamping the casing against the front of the radiator.

3. An airduct attachment for a gas-engine radiator, comprising a casing to abut against and cover the front of the radiator and having an opening to register with the air passage of the radiator; and another opening to the atmosphere in a plane above that of the radiator, lugs projecting outwardly from the sides of the casing to extend beyond the sides of the radiator, transverse bars to abut against the rear face of the radiator, and clamping bolts to extend between and be engaged with said lugs and bars.

In testimony whereof I affix my signature.

JOHAN S. JACOBSEN.