No. 874,962. PATENTED DEC. 31, 1907.

S. HUGHES.

DUST PROTECTOR FOR TRACTION ENGINES.

APPLICATION FILED MAR. 25, 1907.

2 SHEETS—SHEET 1.

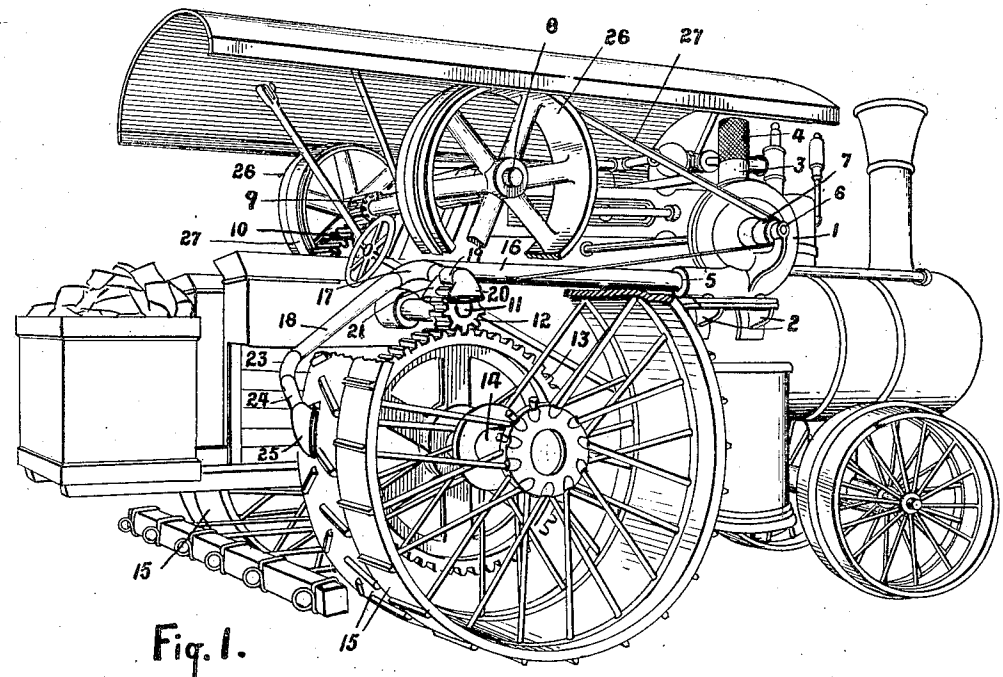


Fig. 1.

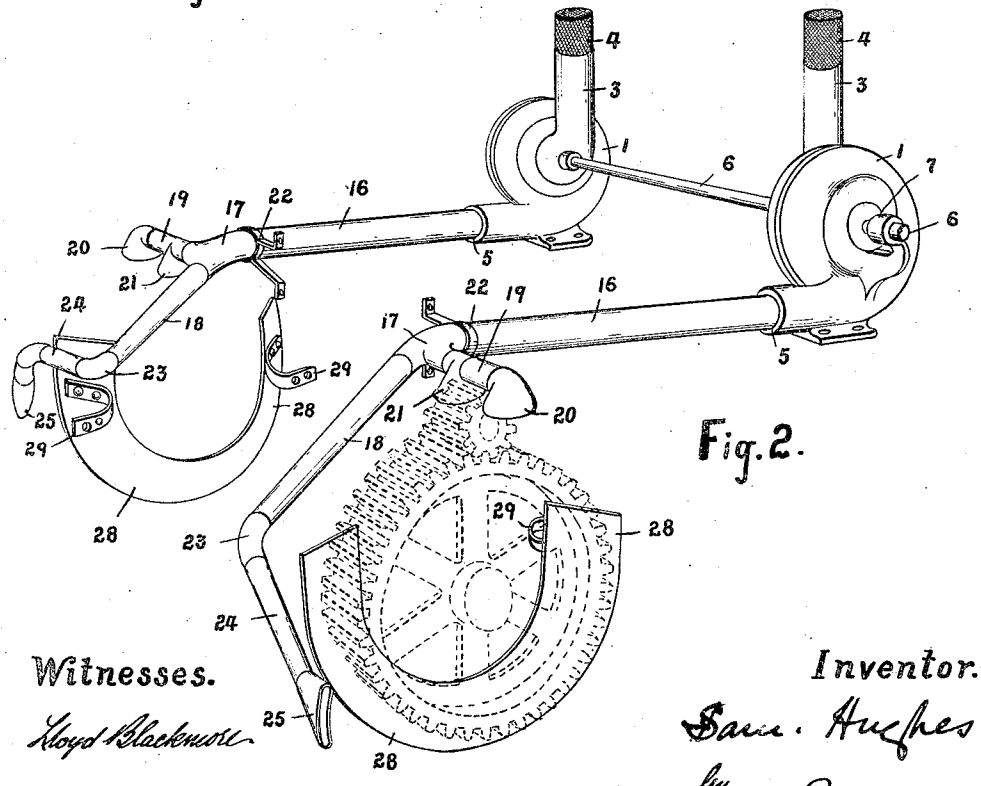


Fig. 2.

Witnesses.

Lloyd Blackmore

D. W. Colton.

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by E. J. Fetherstonhaugh Atty.

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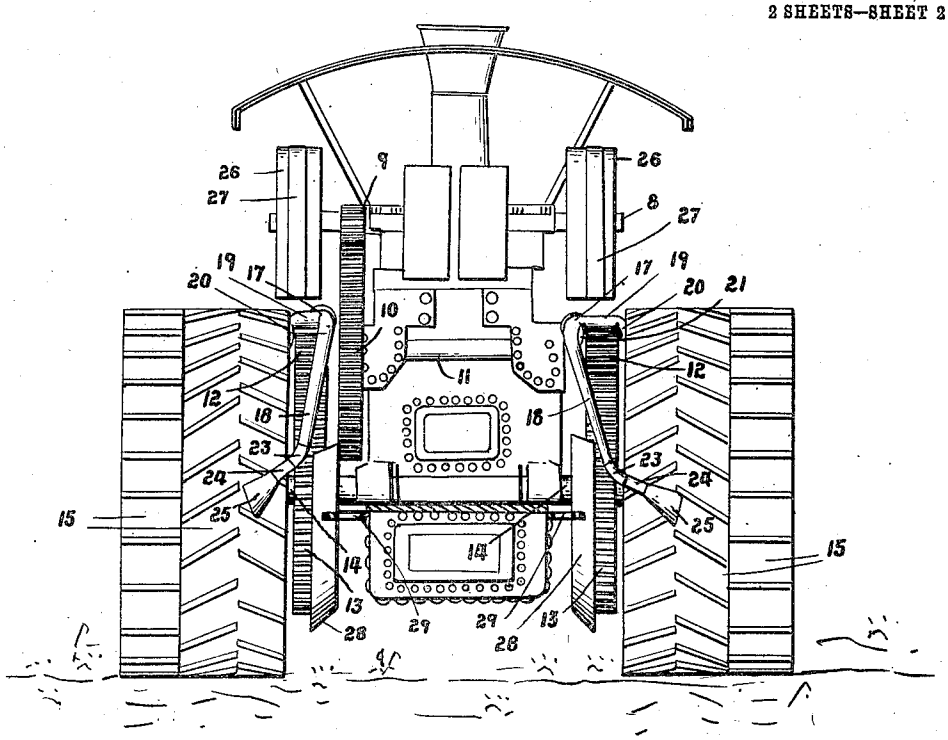


Fig. 3.

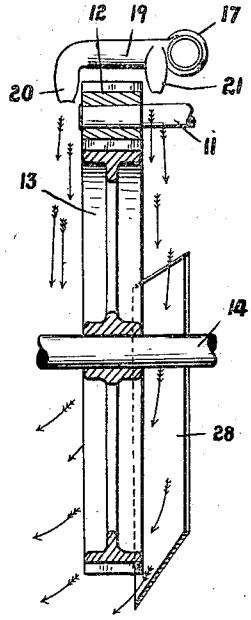


Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL HUGHES, OF LINDSAY, ONTARIO, CANADA.

DUST-PROTECTOR FOR TRACTION-ENGINES.

No. 874,962. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed March 25, 1907. Serial No. 364,478.

To all whom it may concern:

Be it known that I, SAMUEL HUGHES, a subject of the King of Great Britain, residing at Lindsay, Victoria county, Province of Ontario, and Dominion of Canada, have invented certain new and useful Improvements in a Dust-Protector for Traction-Engines and the Like, of which the following is a specification.

This invention relates to improvements in dust protectors for traction engines and the like, as set forth in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel construction and arrangement of parts whereby a fan impels a current of air at a sufficient velocity to blanket certain moving parts of the machinery of the vehicle.

The objects of the invention are to prevent the inroads of the dust on the important moving parts of the machinery and the consequent eating away of said parts, while in operation, and to furnish a dust protector in which the operation will be coincident with the movement of the traction engine.

In the drawings, Figure 1 is a perspective view of a traction engine, showing the dust protector as part of the mechanism thereof. Fig. 2 is a perspective detail of the dust protector apart from the vehicle. Fig. 3 is a rear elevation of the machine having several parts removed to show the invention. Fig. 4 is a cross sectional view through one of the gear wheels on the main axle of the vehicle and the dust protector.

Like letters of reference indicate corresponding parts in each figure.

It is well known in the operation of traction engines, particularly in prairie country that the alkali dust will penetrate into a casing through the smallest crack or crevice, and it has been found impossible to protect the driving gear wheels of a traction engine during its progress on dusty land, and further the dust storms so frequent in many parts fill up the gear wheels and the teeth thereof with this dust and frequently a good gear wheel will be eaten away in the space of a day. It is therefore desirable to have some means of protecting such vital parts as the operating gear mechanism during the operation of the traction engine and at the same time to add as little mechanism to the present machinery of such vehicles as possible and also comparatively little weight, and it is with a view of accomplishing this purpose that this invention has to do.

Referring to the drawings, 1 are rotary fans of any suitable pattern and mounted on the brackets 2 projecting from the frame or the boiler shell at each side of the vehicle, the said fans having the intake pipes 3 capped by the screens 4, and extending upwardly from the fan casings, and the outlets 5 from the lower end of said fan casings and extending rearwardly. 6 is the shaft, on which said rotary fans are mounted, and turning in suitable bearings in the casings of said fans and extending across the vehicle and serving also as a tie-rod to steady said fan casings.

7 are pulleys mounted on the ends of the shaft 6 projecting beyond the outer sides of the casings of the rotary fans 1.

8 is the main driving shaft of the engine, suitably journaled, and rotating the gear wheel 9, which in turn rotates the gear wheel 10 mounted on the shaft 11, journaled in suitable bearings supported by the frame of the vehicle.

12 are pinions mounted on the shaft 11 and rotating therewith and 13 are gear wheels fixedly secured on the main axle 14 of the vehicle and co-acting with the pinions 12 thus completing the chain of gears from the main driving shaft of the engine for the propulsion of said vehicle.

This construction is but briefly described herein as it is all part of a well known type of traction engine and only is concerned with this invention in so far as parts are protected thereby and the power is supplied necessary for operation.

15 are the main driving wheels of the vehicle fixedly mounted on the main axle 14 and forming part of the running gear as customary in this class of vehicle.

16 are pipes or tubes secured to the exhaust openings 5 of the fan casings and communicating therewith and extending rearwardly.

17 are reducing joints connecting the pipes 16 with the pipes 18, the latter being of smaller diameter than the pipes 16 and extending rearwardly and downwardly.

19 are pipes extending laterally and outwardly from the reducing joints 17 and preferably forming part therewith and having at

their outer ends, the downwardly extending and flaring mouth openings 20, and intermediate of their length the downwardly extending and flaring mouth openings 21.

The pipes 16 extend along each side of the vehicle, respectively, and are secured to the frame thereof by the bands 22.

The pipes 19, extending outwardly from the joints 17, project over the pinions 12, so that the mouth openings 20 and 21 are to each side of said pinion and flare sufficiently to completely cover the said area of the gear wheels 13 in their discharge.

23 are elbow-joints connecting the pipes 18 to the pipes 24 and directing the said pipes 24 outwardly.

25 are bell-shaped nozzles secured at the ends of the pipes 24 and directing the current of air downwardly over the rims of the wheels 15.

It will thus be seen that there is a clear passage for the flow of air from the exhaust openings of the casings of the rotary fans 1 through to the mouth openings 20, 21 and 25.

The reduced pipes 18 form sufficient obstruction to the flow of the air coming from the fans through the pipes 16 to direct a certain percentage of said air into the pipes 19 and out through the mouth openings 20 and 21, thus as long as the fan is in operation there will be a constant current of air at a good velocity passing through the pipes 16 and 19 and the mouth openings 20, 21, and the pipes 16, 18 and 24 and the nozzles 25.

26 are pulleys mounted on the main driving shaft 8 and here shown as forming flywheels, though it must be understood that the fly-wheel may be entirely apart from said pulleys.

27 are belts connecting the pulleys 26 with the pulleys 7, and 28 are deflectors arranged around the lower half of the gear wheel 13 and secured to the frame of the vehicle by the brackets 29, the said brackets holding the deflectors 28 obliquely in relation to the face of said gear wheel.

On the rotation of the main driving shaft, the rotary fans 1 will be set in operation, with the result that the air will be taken in through the intake pipes 3, which project upwardly towards the front of the vehicle, and this air will be forced through the action of the fans into the pipes 16 and on through the pipes 19 out of the mouth openings 20 and 21, and as the said mouth openings flare considerably, as pointed out in the present description, a continuous blanket of swiftly moving air will pass down the sides of the pinions 12 and the gear wheels 13 and will be deflected by the deflectors 28, therefore any dust will be precluded from coming into contact with said pinions and gear wheels. The air in passing out of the mouth openings 20 and 21 will flow on at a considerable velocity through the reduced pipes 18 and on into the pipes 24 and out through the bell-shaped nozzles 25, blowing away and outwardly the dust picked up by the main driving wheels 15 and forming the wake of said wheels.

It has already been explained that the rotary fans are driven from the main driving shaft of the engine, and this is certainly the preferable manner of operating the dust protector mechanism, but it may in some machines be advisable to operate the fans in some other way, and this can be done without in any way departing from the spirit of my invention. Further the arrangement of pipes connected with the fans may be somewhat different and constructed to suit various motor machines, the salient feature being blanketing several parts of the machine with a current of air.

As stated the application of this dust protector to other forms of vehicles will require modification in the design, therefore it will be understood that I do not confine the use of the device to vehicles known as traction engines.

What I claim as my invention is:

1. In a dust protector for traction engines and the like, the combination with the body and the driving mechanism, of a rotary fan suitably incased and supported from said body and having a screened in-take pipe and suitable outlet, a pipe extending rearwardly from said outlet and terminating in a bell-shaped nozzle in proximity to a main driving wheel, a branch pipe extending from said pipe and communicating therewith and having flaring mouths extending downwardly therefrom and directing a flow of air over certain driving parts, deflectors in connection with said driving parts and coacting with said blanket of air, and means for operating said fan, substantially as described.

2. In a dust protector for traction engines and the like, the combination with the body, the main driving wheels and the gear mechanism operating said wheels, of a rotary fan suitably incased and having a screened intake pipe and an outlet and supported from said body, pipes extending from said outlet rearwardly, pipes of smaller diameter connected to said pipes and terminating in outwardly extending lengths having bell-shaped nozzles in proximity to said main driving wheels, branch pipes extending from the joints connecting said larger and smaller pipes and having flaring mouths arranged to the outer and inner sides of said gear mechanism and directing a flow of air downwardly completely covering the gear wheels of said mechanism, deflectors arranged in proximity to said gear mechanism and coacting with the flow of air, and means for operating said fan, substantially as described.

3. In a device of the class described, in combination, a power driven fan having a suitable in-take and outlet, and a pipe leading from the outlet opening of said fan and having flaring mouth openings therein arranged and blanketing parts of the machine, substantially as described.

Signed at the city of Ottawa, in the county of Carleton this 13th day of March 1907

SAM. HUGHES.

Witnesses:
WILLIAM T. CUFFE-QUIN,
CORNELIA BENNETT.