W. T. BLANEY.

DUST COLLECTOR.

APPLICATION FILED APR. 10, 1922.

1,427,674. Patented Aug. 29, 1922.

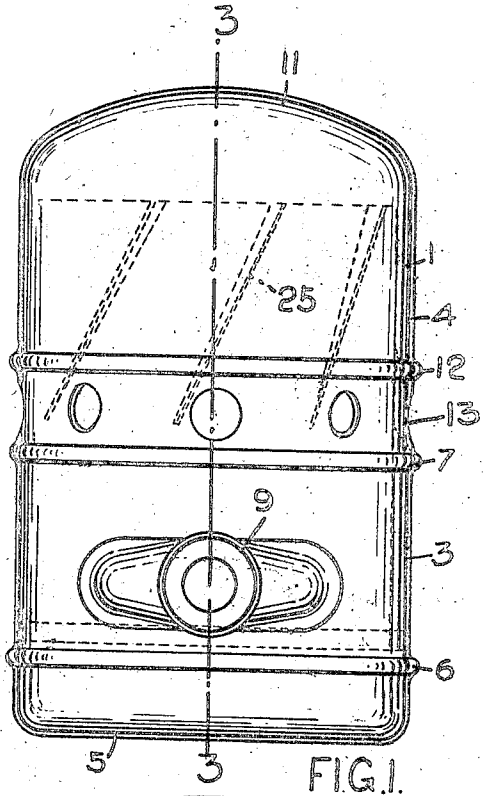


FIG. 1.

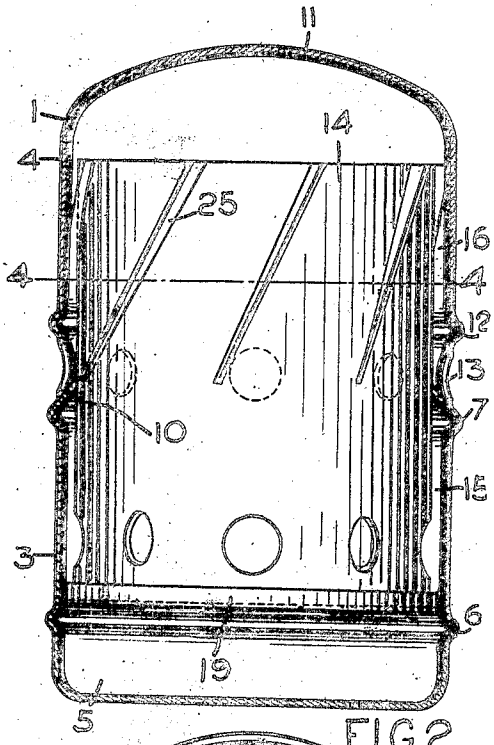


FIG. 2.

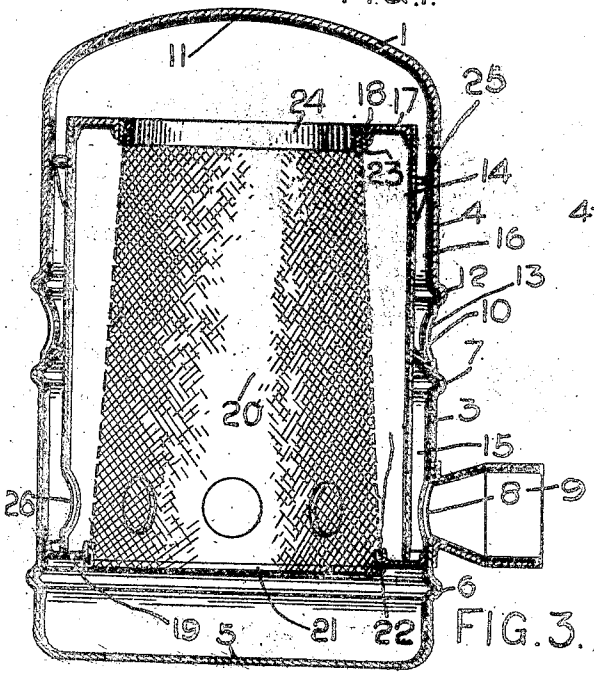


FIG. 3.

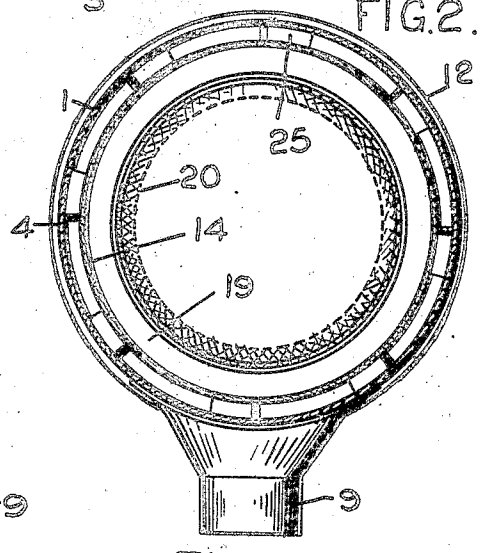


FIG. 4.

INVENTOR

WILLIAM T. BLANEY.

BY Fitzgerald & Co ATTYS.

UNITED STATES PATENT OFFICE.

WILLIAM THOMAS BLANEY, OF PETERBOROUGH, ONTARIO, CANADA.

DUST COLLECTOR.

1,427,674. Specification of Letters Patent. Patented Aug. 29, 1922.

Application filed April 10, 1922. Serial No. 551,175.

To all whom it may concern:

Be it known that I, WILLIAM THOMAS BLANEY, a subject of the King of Great Britain, and a resident of the city of Peterborough, in the county of Peterborough, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Dust Collectors, of which the following is the specification.

My invention relates to improvements in dust collectors and the object of the invention is to devise a simple device for removing dust from the air passing to and through the carburetor of a gasoline engine and thereby preventing it mixing with the lubricating oil within the cylinder to form a cutting medium so that the packing rings and cylinders become quickly worn out and it consists essentially of the arrangement and construction of parts hereinafter more particularly explained.

Fig. 1 is a side elevation of my device.

Fig. 2 is a sectional view through the outer casing showing the inner casing in full.

Fig. 3 is a sectional view through Fig. 1 on line 3—3.

Fig. 4 is a plan view through Fig. 2 on line 4—4.

In the drawings like letters of reference indicate corresponding parts in each figure.

1 indicates the outer casing which is preferably formed by two cylindrical portions 3 and 4, the portion 3 being preferably formed with a flat end 5, reinforcing annular beads 6 and 7 and the outlet orifice 8 from which a pipe 9 leads to the carburetor. The upper edge of the casing portion 3 is bent inward at an incline at 10 for a purpose which will hereinafter appear.

The upper end of the casing portion 4 is preferably domed as indicated at 11 and is also provided with a reinforcing bead 12 adjacent to its lower edge. In proximity to the lower edge of the casing portion 4 are formed a series of inlet orifices 13. 14 is an inner cylindrical casing, the exterior surface of which is spaced apart from the interior surface of the casing 1 so as to form intervening annular ducts 15 and 16 separated apart by the inwardly inclined portion 10 of the outer casing portion 3, which incline portion fits around the exterior of the inner casing 14. 17 is an annular channel ring which fits within the upper end of the cylindrical body of the casing 14 forming a central opening 18 in the upper end of the inner casing.

19 is an annular channel ring which fits within the outer casing 1 and upon which, intermediately of its width, rests the lower edge of the inner casing 14. 20 is a cylindrical screen formed of fine mesh and at its lower end with a hem 21 with which is inserted a wire ring 22 which is slightly greater in diameter than the interior diameter of the annular ring 19. In placing the screen 20 in position it is drawn up through the orifice formed by the annular ring 19 until the wire ring 22 bears against the lower edge of the ring 19. 23 is a ring which fits within the annular ring 17. 24 is a similar ring of slightly smaller diameter than the ring 23 and adapted to fit within the upper end of the cylindrical screen 20. In placing the upper end of the screen in position the outer ring 23 is placed within the ring 17 and the inner ring is inserted within the upper end of the cylindrical screen. The upper end of the cylindrical screen is then drawn into the ring 23 and the ring 24 forced upward into the ring 23 so as to grip the upper edge of the screen between itself and the ring 23.

It will be noted that the cylindrical screen 20 tapers slightly upward, therefore providing inclined sides for a purpose which will hereinafter appear. 25 is a series of deflecting plate strips which are located in the interspace 16 in an inclined position as will be clearly seen on referring to Figs. 2 and 4.

Having described the principal parts involved in my invention I will briefly describe the operation of the same.

The air is drawn by the suction action of the pistons of the engine through the orifice 13 and passes upwardly through the interspace 16 into contact with the face strips 25 and is deflected thereby so as to have a whirling motion as it passes up over the top of the inner casing 14 and is directed downward by the dome top 11 so as to pass into the centre of the cylindrical and tapered screen 20 and is drawn through the screen into the outermost portion of the casing 14 passing from thence through the orifice 26 into the interspace 15 passing around the exterior of the inner casing 14 to the outlet orifice 8 from which the air is conducted to the carburetor. As the air follows this course and passes through the screen 20, the dust is separated from the air and tends to cling to

the inner surface of the screen, the purified air passing from the screen to the outlet 8. A certain amount of dust remains upon the surface of the screen but as it gathers it gradually drops off, due to the vibration of the engine falling down into the lower end of the casing 1 thus automatically cleaning the screen. It may also be pointed out that a certain amount of back air pressure is exerted around the exterior of the screen thereby preventing any danger of the dust being drawn through the screen, also by means of the inclined portion 10 any danger of moisture due to rain is prevented from entering into the interior of the device and thereby detrimentally effecting the operation of the device due to the air becoming moisture laden. It will also be seen that I have devised a device which is entirely enclosed and therefore cannot be tampered with.

What I claim as my invention is:

1. A dust collector comprising an outer casing, having an outlet orifice adapted to be connected to a suction source and an inlet orifice through which the outer air is adapted to pass, an inner casing spaced apart from the outer casing to form an interspace, an annular dividing wall extending across such interspace between the outlet and inlet orifices, a cylindrical screen supported within the inner casing and into one end of which the air from the inlet orifice is adapted to be drawn so as to pass through the walls thereof to the outlet orifice at the opposite side of the aforesaid dividing wall.

2. A dust collector comprising an outer casing, having an outlet orifice adapted to be connected to a suction source and an inlet orifice through which the outer air is adapted to pass, an inner casing spaced apart from the outer casing to form an interspace, a dividing wall extending across such interspace between the outlet and inlet orifices, a cylindrical screen supported within the inner casing and into one end of which the air from the inlet orifice is adapted to be drawn so as to pass through the walls thereof to the outlet orifice at the opposite side of the aforesaid dividing wall, and a series of inclined deflecting face strips located in the interspace above the dividing wall and the inlet orifice.

3. A dust collector comprising an outward enclosed casing, having an outlet orifice adapted to be connected to a suction source and an inlet orifice for the passage of exterior air, an annular supporting member secured within the inner casing below the outlet orifice, a cylindrical casing body supported thereon and spaced apart from the wall of the outer casing and having orifices in proximity to its lower end, an annular dividing wall extending between the inner and outer casings intermediately of their height, an annular member secured within the upper end of the inner casing to form an orifice of smaller diameter than the orifice formed by the aforesaid annular member, and a cylindrical upwardly tapered screen secured at its ends within the aforesaid orifice.

WILLIAM THOMAS BLANEY.