Jan. 10, 1950 C. R. TAYLOR 2,494,016

EXHAUST PIPE END COVER

Filed March 29, 1945

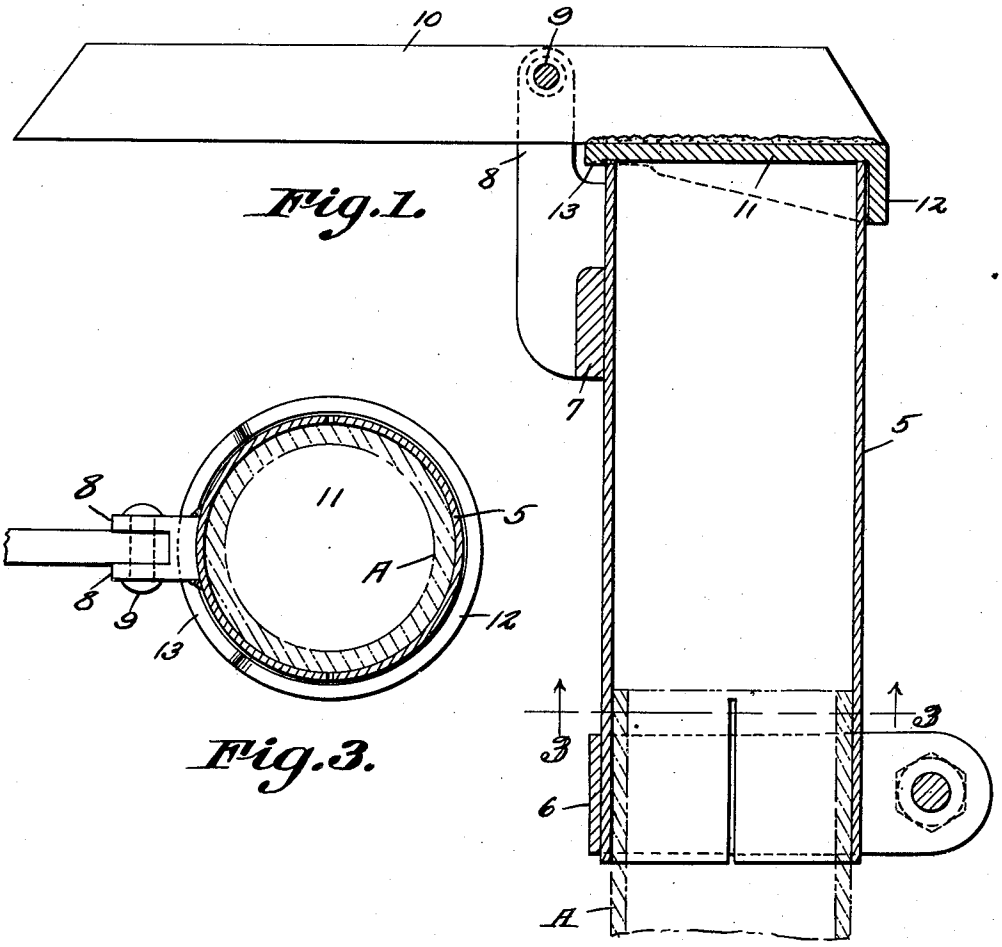


Fig. 1.

Fig. 3.

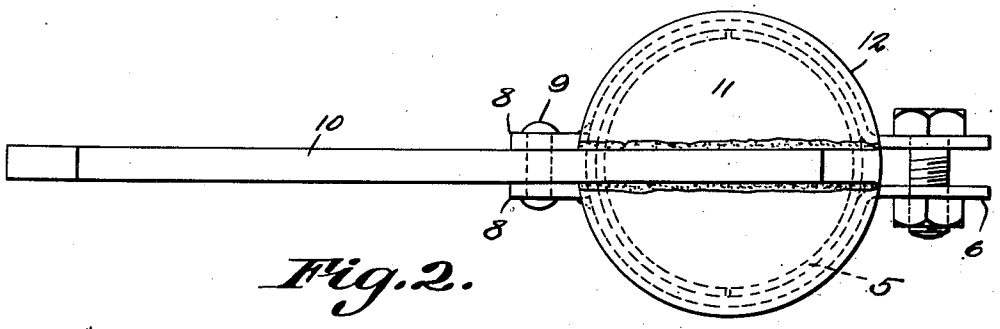


Fig. 2.

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EXHAUST PIPE END COVER

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3 Claims. (Cl. 98—59)

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This invention relates to a protecting device in the form of a cover to be mounted on the open end of a vertical exhaust pipe of a tractor or stationary engine, to exclude the elements and insects which otherwise would enter the cylinders of an engine through the open end of the exhaust pipe, when the engine is idle, or in storage.

An important object of the invention is to provide a protecting cover of this character which is so mounted with respect to balance, that it is exceptionally sensitive in operation, and will open automatically under the influence of the exhaust gases passing from the engine, and will remain open during the period of operation of the engine, but will close immediately with the stopping of the engine.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing:

Figure 1 is a vertical sectional view through the attachment forming the essence of the present invention, showing the attachment as positioned on the discharge end of an exhaust pipe.

Figure 2 is a plan view thereof.

Figure 3 is a sectional view taken on line 3—3 of Fig. 1.

Referring to the drawing in detail, the attachment comprises a tubular body portion 5 which is formed with slots extending inwardly from the lower end thereof to lend resiliency to the body portion and permit of ready positioning of the body portion over an exhaust pipe. The clamp indicated by the reference character 6 is used to secure the body portion in position after it has been properly located on the discharge end of the exhaust pipe, which in the present showing is indicated by the reference character A.

Secured to the body portion 5, at a point adjacent to the discharge upper end thereof, is a bracket 7 having a lower transverse portion and a pair of spaced upwardly extending arms 8 which form a bifurcated end disposed above the cover and which are provided with openings to receive the pivot pin 9 on which the balance arm 10 is pivotally mounted. The balance arm 10 is preferably of relatively thin cross section, such as a rectangular cross section having major and minor axes, and the vertical disposition of the

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arm on the cover operates to minimize wind effects in unsheltered areas. The pivot point between the arms 8 and balance arm 10 is located close to an imaginary upward extension of the adjacent peripheral surface of the exhaust pipe and is preferably above a longitudinal line drawn centrally through the balance arm 10. In the embodiment shown I have disclosed the balance arm 10 in an upright position. This is especially desirable where the device is exposed to winds and its operation therefore might be affected. However, it is to be understood that I do not limit myself to such an arrangement of parts.

The cover is indicated by the reference character 11, and is of a diameter to completely close the discharge end of the body portion 5 and at the same time provide a portion which extends beyond the outer surface of the body portion 5.

Forming a part of the cover 11 is a depending flange 12 which is annular in formation, the flange being wide and tapered off at its ends to a substantially narrow flange 13. Due to the construction of this flange, a pocket is formed on the cover so that the exhaust gases contacting the cover will collect during the initial movement of the cover to its open position, to insure the opening of the cover under the slightest pressure directed thereto. It might be further stated that the length of the balance arm is such that the weight of the cover which is attached to one end of the balance arm, will be sufficient to overbalance the arm to a slight degree, causing the cover to seat and close the discharge end of the attachment when the pressure against the cover has been relieved due to the stopping of the engine. Likewise, it is to be noted that the disposition of the pivot pin 9 immediately adjacent the surface of the exhaust pipe and above the cover a distance sufficient to pass through the upper edge of the vertically disposed arm will permit the bottom free edge of the arm to strike the body portion of the bracket and prevent the cover from swinging open to a position beyond a vertical position so as to assure automatic closing of the cover.

From the foregoing it will be seen that due to the construction shown and described, the discharge end of an exhaust pipe of a tractor or stationary engine, which is usually vertical, will be completely closed to exclude the elements and prevent insects from collecting in the exhaust pipe or finding their way into the cylinders of the engine damaging the engine.

What is claimed is:

1. An automatic protective cover assembly for

the discharge end of the upstanding exhaust pipe of an internal combustion engine, and comprising a cover member for closing the open end of the exhaust pipe, bracket means adapted to be secured to the exhaust pipe and including an upstanding portion disposed above said cover member in closed position and close to a vertical projection of the adjacent peripheral surface of the exhaust pipe, an arm of relatively thin cross section having major and minor transverse axes and secured to said cover member with the major axis disposed vertically with respect to said cover member and with a portion of said arm extending laterally of the cover member to form a balance arm therefor, and a pivot hingedly connecting the arm to the upstanding portion on said bracket means, said pivot being located intermediate the ends of said arm and adjacent the upper edge thereof at a position wherein said arm only partially counterbalances said cover member whereby to facilitate opening of the cover member under the influence of exhaust gases in the exhaust pipe, and wherein the lower edge of said arm can abut against said bracket means whereby to prevent movement of the cover member beyond a vertical plane through said pivot to thus assure automatic closing of the cover member when no gases are emitted from the exhaust pipe.

2. An automatic protective cover assembly as claimed in claim 1, wherein said cover member is provided with a depending flange snugly surrounding the end of the exhaust pipe and having opposite the pivotal connection for the cover a relatively wide depending portion tapering to a narrow portion adjacent the said pivotal connection whereby to provide a pocket at the discharge end of the exhaust pipe facilitating the pressure lifting of the cover member therefrom under influence of the exhaust gases.

3. An automatic protective cover assembly for the discharge end of the upstanding exhaust pipe of an internal combustion engine, and comprising a tubular support adapted to be connected to the exhaust pipe, a cover member for closing the open end of the tubular support, means providing a

pair of upstanding lugs secured to the tubular support and disposed above said cover member in closed position and close to a vertical projection of the adjacent peripheral surface of the tubular support and defining therebetween an abutment surface, an arm of relatively thin cross section having major and minor transverse axes and secured to said cover member with the major axis disposed vertically with respect to said cover member and with a portion of said arm extending laterally of the cover member to form a balance arm therefor, and a pivot hingedly connecting the arm to the upstanding lugs, said pivot being located intermediate the ends of said arm and adjacent the upper edge thereof at a position wherein said arm only partially counterbalances said cover member whereby to facilitate opening of the cover member under the influence of exhaust gases in the exhaust pipe, and wherein the lower edge of said arm can strike the abutment surface between said lugs whereby to prevent movement of the cover member beyond a vertical plane through said pivot to thus assure automatic closing of the cover member when no gases are emitted from the exhaust pipe.

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