

May 19, 1959

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2,887,033

CLOSURE ATTACHMENT FOR EXHAUST PIPES

Filed Feb. 24, 1958

Fig. 1.

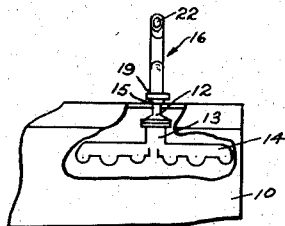


Fig. 2.

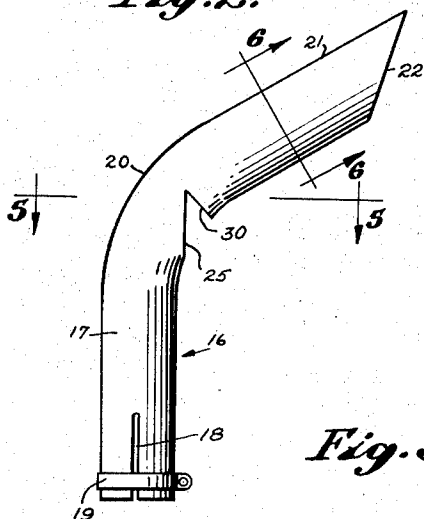


Fig. 4.

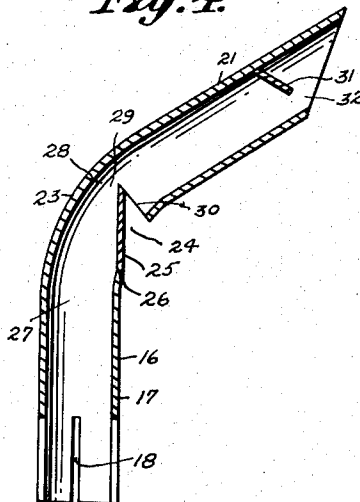


Fig. 3.

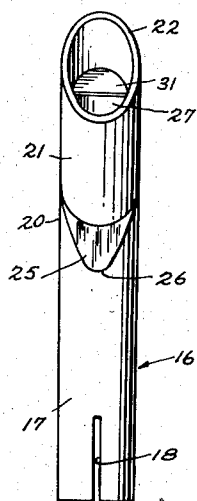


Fig. 5.

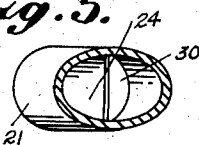
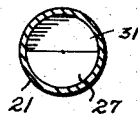


Fig. 6.



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CLOSURE ATTACHMENT FOR EXHAUST PIPES

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Application February 24, 1958, Serial No. 717,240

2 Claims. (Cl. 98—60)

The present invention relates to a protective cover attachment for upright exhaust pipes of internal combustion engines, such as the engines of tractors and the like, for the purpose of preventing foreign matter from entering the exhaust pipe and the engine cylinders.

An important object is to provide a simple, efficient and compact tubular cover or cap attachment for an engine exhaust pipe. This attachment includes an elongated tubular member having a substantially straight lower portion arranged to be detachably connected to an upright exhaust pipe, also an upper inclined or angularly disposed portion through which the exhaust gas is discharged to the atmosphere, and an intermediate laterally offset portion or elbow which communicates the upper portion with the lower portion.

The elbow portion on one side thereof has a drain opening for withdrawing foreign matter entering the tubular member through the upper portion, in order to prevent the same from falling into the exhaust pipe and the engine. Additionally, the elbow portion is cut out so as to be formed with a flat side or bottom which extends upwardly into the tubular member but terminates short of the opposite wall thereof so as to provide a transversely disposed flow passage therebetween. The flat side is preferably formed by removing or cutting out a portion of the elbow and then welding a substantially triangular-shape piece of metal to the sides of the cut-out portion. The flat side of the elbow portion is preferably tapered and diverges upwardly from adjacent the lower portion of the attachment and is so positioned, that the outlet discharge opening communicates directly with the atmosphere and is disposed outwardly of the flat side. The inclined or angularly disposed upper portion of the attachment adjacent the outer end thereof has baffle means disposed on the side opposite to that of the drain opening so as to direct any particles of foreign matter entering the attachment through the outer end portion thereof, to be deflected downwardly and be discharged through the drain opening and thus be prevented from entering the exhaust pipe of the engine.

Other objects and advantages of the invention will become apparent from the following description when taken in conjunction with the accompanying claims and drawing.

Referring to the drawing, in which is shown a preferred embodiment of the invention,

Fig. 1 is a detail side view of the hood of a tractor with parts in section showing the cover attachment connected to the exhaust pipe of a tractor engine;

Fig. 2 is a detail side elevational view of the cover attachment;

Fig. 3 is an end view of Fig. 2;

Fig. 4 is a longitudinal sectional view of Fig. 2;

Fig. 5 is a sectional view taken substantially along the line 5—5 of Fig. 2; and

Fig. 6 is a sectional view taken substantially along the line 6—6 of Fig. 2.

Referring to the figures of the drawing, 10 indicates the

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hood of a tractor of any well-known and conventional type in which is mounted the engine 11. An exhaust pipe 12 is suitably connected to the outlet 13 of the manifold 14 of the engine and extends upwardly through an opening 15 in the hood 10 so as to provide an exposed upper end portion to which is suitably connected a tubular cover or rain cap attachment, generally indicated by the numeral 16.

The tubular cover attachment 16 is preferably formed of any suitable, durable light metal and has a lower straight portion 17 which may be provided with one or more vertical slits 18 so as to yieldably fit over the exposed upper end portion of the upright exhaust pipe 12, and be firmly secured thereto by a flexible strap or band 19 (Fig. 2). The lower end portion 17 of the tubular member communicates with the laterally offset portion or elbow 20, which in turn communicates with the upper angularly disposed or inclined portion 21 that has an inclined discharge opening or port 22 in one side thereof, so as to form an undercut bevel to provide an overhang for the tubular member. The elbow 20 has an outer curved portion 23 and an inner removed or cutaway portion 24 (Fig. 4) of substantially triangular shape. The open cutaway portion is closed by a similarly shaped flat piece of metal 25 which is welded thereto around the marginal edges, as at 26 (Fig. 3), so as to form a flat side or bottom. The flat side 25 extends upwardly from the lower end portion 16 into the passage 27 of the tubular attachment and terminates short of the opposite inner wall 28 thereof so as to form a transverse opening or mouth 29 for communicating the lower portion 17 with the upper angularly disposed or inclined portion 21 of the attachment, in order to allow the free discharge of the exhaust gases upwardly from the exhaust pipe and the engine.

The lower end of the upper portion 21 adjacent the cut-out portion 24 and the flat side 25 (Fig. 4), has a curve or substantially semi-circular drain opening 30 that is positioned so as to discharge foreign matter passing through the upper portion 21 of the attachment outwardly and against the adjacent flat side 24 of the elbow. The outer or gas discharge end of the inclined portion 21 of the tubular member 16 has an inclined baffle plate or flange 31 which extends inwardly from the wall thereof and on the side opposite to the discharge opening 30, for the purpose of providing means for causing any foreign matter entering the tubular member through the outlet opening 32 (Fig. 4) to be deflected downwardly so as to be discharged or escape therefrom through the drain opening 30 and thus be prevented from passing through the opening 29 into the exhaust pipe 15 of the engine 11.

It will be noted that in operation, the flat triangular side wall or plate 25 of the elbow constitutes an extension of the lower portion 17 of the attachment and extends transversely across the passage 27 to provide the wide narrow mouth 29. The discharge opening 30, which is positioned on the outer side of the flat wall 25, not only constitutes an entrance for the admission of outside air into the upper portion of the attachment, so as to mix with the exhaust gases as they are discharged through the outlet 32, but also provides an efficient drain opening with which the flat wall 25 coacts, in order to prevent particles of foreign matter entering the attachment through the outlet opening 32 from escaping through the passage 29 and into the exhaust pipe when the engine is not in operation.

In certain types of power-driven farm implements or the like, the engine may be located along one side or near the operator. Accordingly, the tubular attachment 16 may be of such length and so positioned, that the heat and fumes issuing from the engine and the exhaust pipe will not be too close to the operator. The lower

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end portion 17 is releasably connected to the exhaust by the clamp 19 so that the cover attachment may be rotated or turned in any direction so as to prevent heat and the exhaust fumes issuing from the port 22 from being directed towards the body or face of the tractor operator.

It will be understood that the form of the invention shown is merely illustrative of a preferred embodiment, and that such changes may be made as come within the purview of the following claims:

I claim:

1. A cover attachment for an upright engine exhaust including a tubular member having a lower portion, an upper portion angularly offset relative to said lower portion, said upper portion having a lateral port in the end thereof, an intermediate curved elbow portion communicating the upper portion with the lower portion, said elbow portion having an outer curved side and an opposite inner side cut out to provide for and including a flat upright portion extending upwardly and vertically into the tubular member and terminating short of the opposite curved wall thereof to provide a restricted flow passage, said upper portion having a drain opening positioned externally of and adjacent to said flat portion, for

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withdrawing by gravity foreign matter entering the tubular member through said port and for preventing the foreign matter from discharging into the lower end portion of the tubular member, and baffle means on the inner side of the upper portion of the tubular member adjacent the outer end thereof, said baffle means being disposed on the side opposite to that of the drain opening so as to direct foreign matter entering the upper end portion of the tubular member through said port, to be deflected downwardly and through said drain opening.

2. A cover attachment as called for in claim 1 in which the flat portion of said elbow is of substantially triangular shape, and the lateral port on the upper portion of said tubular member having a downwardly inclined edge forming an undercut baffle so as to provide an overhang.

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