Feb. 21, 1933. M. HEDGLON 1,898,126

FIRE TRAP FOR INTERNAL COMBUSTION ENGINES

Filed Dec. 21, 1928

Fig. 1.

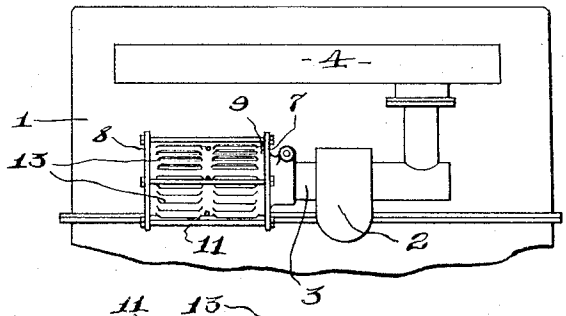


Fig. 2.

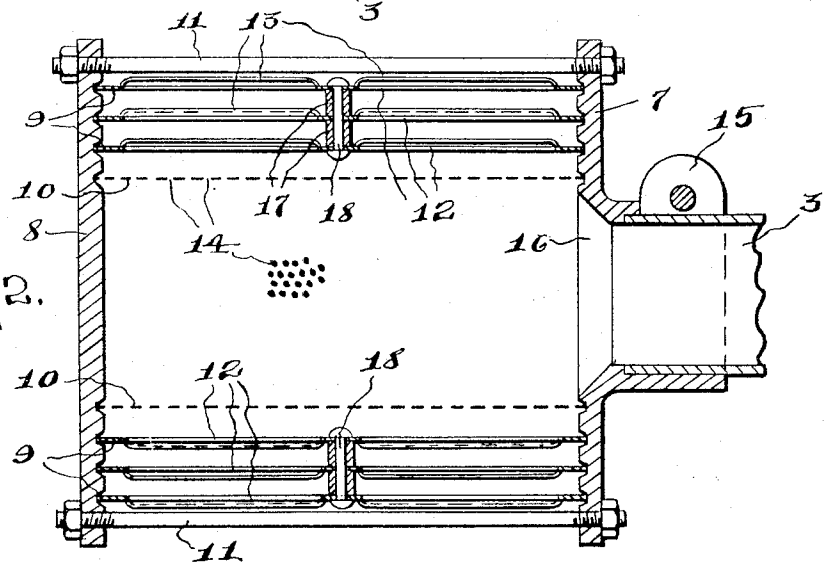
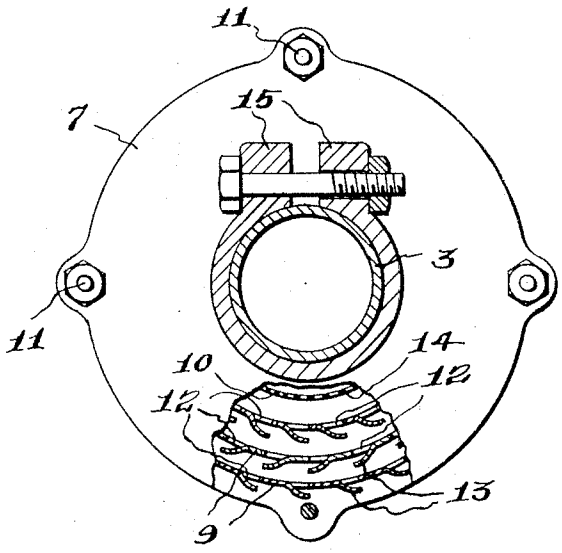


Fig. 3.



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UNITED STATES PATENT OFFICE

MEAD HEDGLON, OF SYRACUSE, NEW YORK, ASSIGNOR TO M. L. OBERDORFER BRASS COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK

FIRE TRAP FOR INTERNAL COMBUSTION ENGINES

Application filed December 21, 1928. Serial No. 327,722.

This invention has for its object, a fire trap or arrester for internal combustion engines which is particularly simple in construction, highly efficient in use and readily applied to the carburetor of the engine and which acts to confine the back fire to the trap and hence, prevent the escape of back fire or of hot or burning gases into the outer air, particularly in locations such as in the pits of boats and other places where oil and grease accumulates and volatile gases are likely to hover.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a diagrammatic view illustrating an internal combustion engine provided with my invention in side elevation.

Figure 2 is a longitudinal vertical sectional view of this fire trap.

Figure 3 is an end elevation, partly broken away.

This fire trap is particularly adaptable for boat engines where the escape of back fire or hot gases is likely to ignite gases, greases and gasoline in the engine pit.

1 designates the internal combustion engine and 2 any conventional type of carburetor having the usual main air intake 3, the carburetor having the usual outlet connected to the intake yoke 4 of the engine.

This fire trap comprises a plurality of sleeves or screens arranged one within the other and in spaced apart and preferably concentric relation, each screen having lengthwise slots and inclined deflectors overhanging the slots, the slots of the different screens being arranged preferably out of radial alinement and the deflectors of adjacent screens inclining in opposite directions and also preferably an additional innermost screen formed with perforations throughout its area.

As here illustrated, the trap comprises opposing heads 7 and 8 for supporting the sleeves or screens 9, 10, the heads being clamped against the ends of the screens or sleeves by tie rods 11. Preferably, these screens 9 are employed and these are provided with lengthwise slots 12 and overhanging deflectors 13. The slots 12 of the different sleeves are arranged out of radial alinement and the deflectors 13 of each sleeve inclining oppositely to those of the next sleeve. The innermost sleeve 10 is formed with perforations 14.

The head 7 is provided with a suitable hub or collar for clamping it on the intake pipe and is usually split and formed with lugs 15 on opposite sides of the split for receiving a clamping screw. Also, the passage of the hub where it opens into the innermost screen 9 is conical at 16 in order to give a Venturi effect to the incoming air.

The screens 9 are spaced apart by spacing sleeves 17 interposed between them and surrounding a fastening member 18 as a screw or rivet 18. Any desired number of members 18 may be used.

The holes in the innermost screen are for the purpose of breaking up the flame and distributing it so that it will start through the slots in the outer sleeves more evenly.

In operation, when back fire occurs, the gas is blown back through the carburetor into the fire trap and there burns usually within the innermost screen 10. As the burning gases expand, they are forced out through the holes in the innermost screen 10 into the annular space between it and the next outer sleeve or screen 9 where they pass through the slots therein. The gases are deflected by the deflectors and before the heated gases can pass through the slots in the next outer sleeve 9, the direction given them by the deflectors on the innermost screen 9 must be reversed.

The tortuous path that the gases thus are compelled to take, gives the gases time to cool below the ignition point of the gasoline vapor, grease, oil etc., before the gases are finally passed through the outermost sleeve 9.

What I claim is:

1. In an internal combustion engine having a carburetor provided with the usual air intake, the combination of a fire trap comprising a plurality of screens mounted on the

air intake one within the other forming compartments between them, the screens being formed with slots and inclined deflectors overhanging the slots, the deflectors of each screen inclining oppositely to those of the next screen.

2. In an internal combustion engine having a carburetor provided with the usual air intake, the combination of a fire trap comprising a plurality of screens mounted on the air intake one within the other forming compartments between them, the screens being formed with slots and inclined deflectors overhanging the slots, the slots of the screens being arranged out of radial alinement and the deflectors of each screen inclining oppositely to those of the next screen.

3. In an internal combustion engine having a carburetor provided with an air intake, the combination of a fire trap comprising a plurality of screens mounted on the air intake one within the other forming compartments between them, the screens being formed with slots and inclined deflectors overhanging the slots, the slots of the screens being arranged out of radial alinement and the deflectors of each screen inclining oppositely to those of the next screen, and an innermost central screen formed with perforations throughout its area.

4. In an internal combustion engine having a carburetor provided with an air intake, the combination of a fire trap comprising opposing heads, one of said heads being formed with a collar for attachment to the intake pipe and with an outwardly flaring bore leading through the inner face of said head to the interior of the trap, an inner cylindrical screen between the heads formed with perforations throughout its area and a plurality of screens arranged one within the other and spaced apart from each other and from the first screen, each of the additional screens being formed with slots and outwardly extending inclined deflectors overhanging the slots, the slots of the adjacent screens being out of radial alinement and the deflectors of each screen inclining oppositely to those of the next screen.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 13th day of December, 1928.

MEAD HEDGLON.