April 29, 1924.

A. LARSEN

1,492,471

MEANS FOR DETERMINING THE CONDITION OF FUEL BURNERS AT A DISTANCE THEREFROM

Filed March 5, 1921

FIG. 1

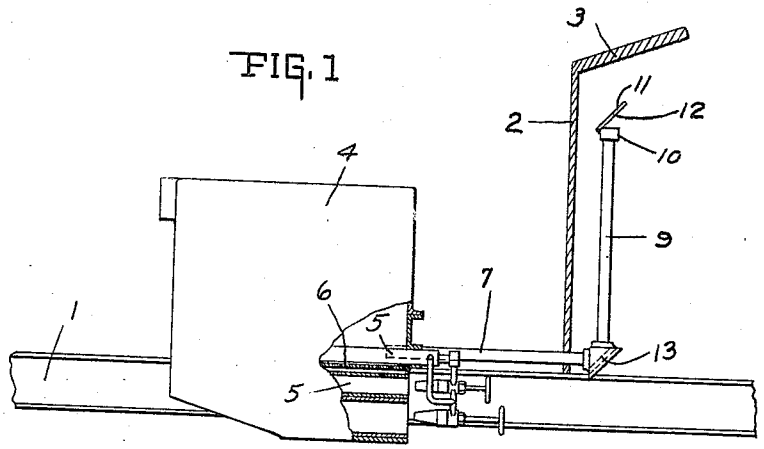


FIG. 2

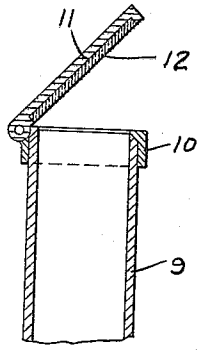


FIG. 4

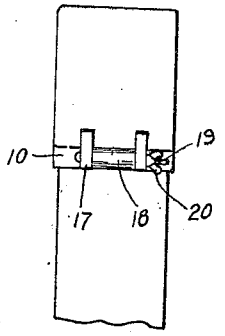
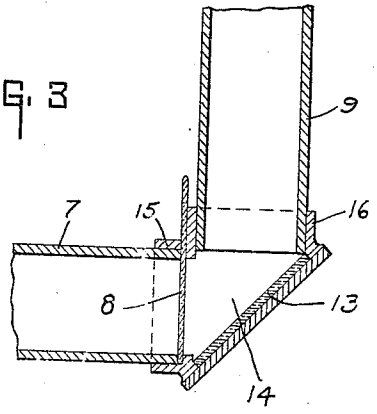


FIG. 3



INVENTOR.
ARNOLD LARSEN.
BY
Alex B. Ford
ATTORNEY.

Patented Apr. 29, 1924. 1,492,471

UNITED STATES PATENT OFFICE.

ARNOLD LARSEN, OF INDIANAPOLIS, INDIANA.

MEANS FOR DETERMINING THE CONDITION OF FUEL BURNERS AT A DISTANCE THEREFROM.

Application filed March 5, 1921. Serial No. 449,938.

To all whom it may concern:

Be it known that I, ARNOLD LARSEN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Means for Determining the Condition of Fuel Burners at a Distance Therefrom, of which the following is a specification.

This invention relates to means for determining the condition of fuel burners at a distance therefrom, and is designed primarily for use in connection with steam boilers, such as are used in generating steam for motor propelled vehicles, the prime feature of the invention being the provision of tube sections, one of which enters the fire box of the boiler and the other extending into the body of the vehicle, mirrors being arranged for imparting a vision of the burner in the firebox of the boiler to the driver of the vehicle.

A further feature of the invention is the provision of means for adjusting the upper mirror so as to adapt the same to readily come within the line of vision of the driver.

Other objects and advantages will be hereinafter more fully set forth and pointed out in the accompanying specification.

In the accompanying drawings,

Figure 1 is a detail elevation partly in section of a portion of an automobile and boiler showing the visual means attached thereto,

Figure 2 is an enlarged detail sectional view of the upper end of the visual means showing a mirror adjustably attached thereto,

Figure 3 is an enlarged detail sectional view through the lower mirror and pipe members connected therewith, and

Figure 4 is a rear elevation of the upper mirror and pipe section to which it is connected.

Referring to the drawings, 1 indicates a frame, such as is commonly used in connection with automobiles, 2 the dash portion of the body of the vehicle and 3 the usual form of hood or shield extending inwardly from the upper end of the dash portion 2, these parts being of the usual or any preferred construction. Mounted in any suitable manner upon the frame 1 is a boiler construction 4 having a burner 5 in the lower portion thereof, which in the present instance is designed as an oil burner although it will be understood that a gas burner or burner for other fuel may be used, if desired. In burners of this class it is necessary to provide a pilot burner 6 which is used for heating a portion of the burner so as to readily generate gas when oil is being used as a fuel, and is used to ignite the fuel when gas is used. It frequently occurs that the pilot portion of the burner becomes extinguished and when oil is used as a fuel permits a certain amount of the raw fuel to enter the fire box, consequently causing a dense smoke as well as interfering with the proper combustion of the remainder of the burner. In order to readily detect when the pilot is extinguished and to make observation of the pilot and burner without necessitating the stopping of the car or opening up the fire box, a pipe section 7 has one of its ends entered through the wall of the fire box of the boiler adjacent the pilot burner while the opposite end of the pipe section is extended through the dash 2 into the interior of the body of the vehicle, said pipe section preferably resting in a horizontal position and to prevent heat or fumes from passing through the pipe a plate of mica 8, or like transparent substance is introduced over the outer end of the pipe.

Co-operating with the pipe section 7 and extending vertically thereof is a pipe section 9 which extends upwardly to a point adjacent the hood portion 3, the upper end of said pipe section 9 having a collar 10 attached thereto, to which is pivotally and adjustably attached a frame 11 having a mirror 12 on the inner face thereof. Co-operating with the mirror 12 is a mirror 13 which is positioned at the meeting ends of the pipe sections 7 and 9, said mirror resting at an angle of substantially 45 degrees so that the image of the pilot burner 6 will be reflected by the mirror 13 onto the mirror 12. The mirror 13 is mounted in a housing 14, said housing having tubular extensions 15 and 16 into which the ends of the pipes 7 and 9 enter, respectively, and by means of which the two pipe sections are connected together.

As drivers of the vehicle vary in height the frame 11 is made adjustable so as to accommodate the reflection thereof for drivers of any height. The collar 10 has ears 17

thereon between which extends a hinged portion 18 of the frame 11, a bolt 19 passing through the ears 17 and part 18 for forming a pivot, the frame being clamped in adjusted position by means of a nut 20 which turns onto the bolt 19. The extension 15 is provided with a slot so that the plate of mica 8 may be readily removed for cleaning or renewal.

By arranging the pipe sections and mirrors in the manner shown, frequent observations of the burner within the fire box of the boiler may be had so that the driver may always know the condition of the burner, and especially the pilot associated therewith, and without necessitating the driver leaving his seat. While the invention is shown and described as used in connection with a steam boiler employed in connection with a motor propelled vehicle, it will be understood that it may be used in connection with similar boilers used for different purposes where it is difficult to gain access to the fire box of the boiler to ascertain the condition of the burner therein.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

The combination with a motor vehicle having a boiler and burner therefor, of a pipe section having one of its ends extended into proximity to said burner and having its other end extended rearwardly through the dash and into the interior of the body of the vehicle, an additional pipe section secured to the first said pipe section and extending upwardly and at an angle thereto, a reflecting surface arranged to transmit light from one pipe section through the other and a second reflecting surface adjustably hinged to the upper end of the second said pipe adjacent the said dash whereby the free end of the reflecting surface may be adjusted to transmit light to accommodate the height of the driver of the vehicle to enable the driver to ascertain the condition of the burner without having to change his natural driving position, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Indianapolis, Indiana, this 26th day of February, A. D. nineteen hundred and twenty-one.

ARNOLD LARSEN. [L. S.]

Witnesses:
CAREY S. FRYE,
M. L. SHULER.