L. O. PEARSON.

LIQUID FUEL BURNER.

APPLICATION FILED APR. 2, 1910.

989,038.

Patented Apr. 11, 1911.

2 SHEETS—SHEET 1.

Fig. 1

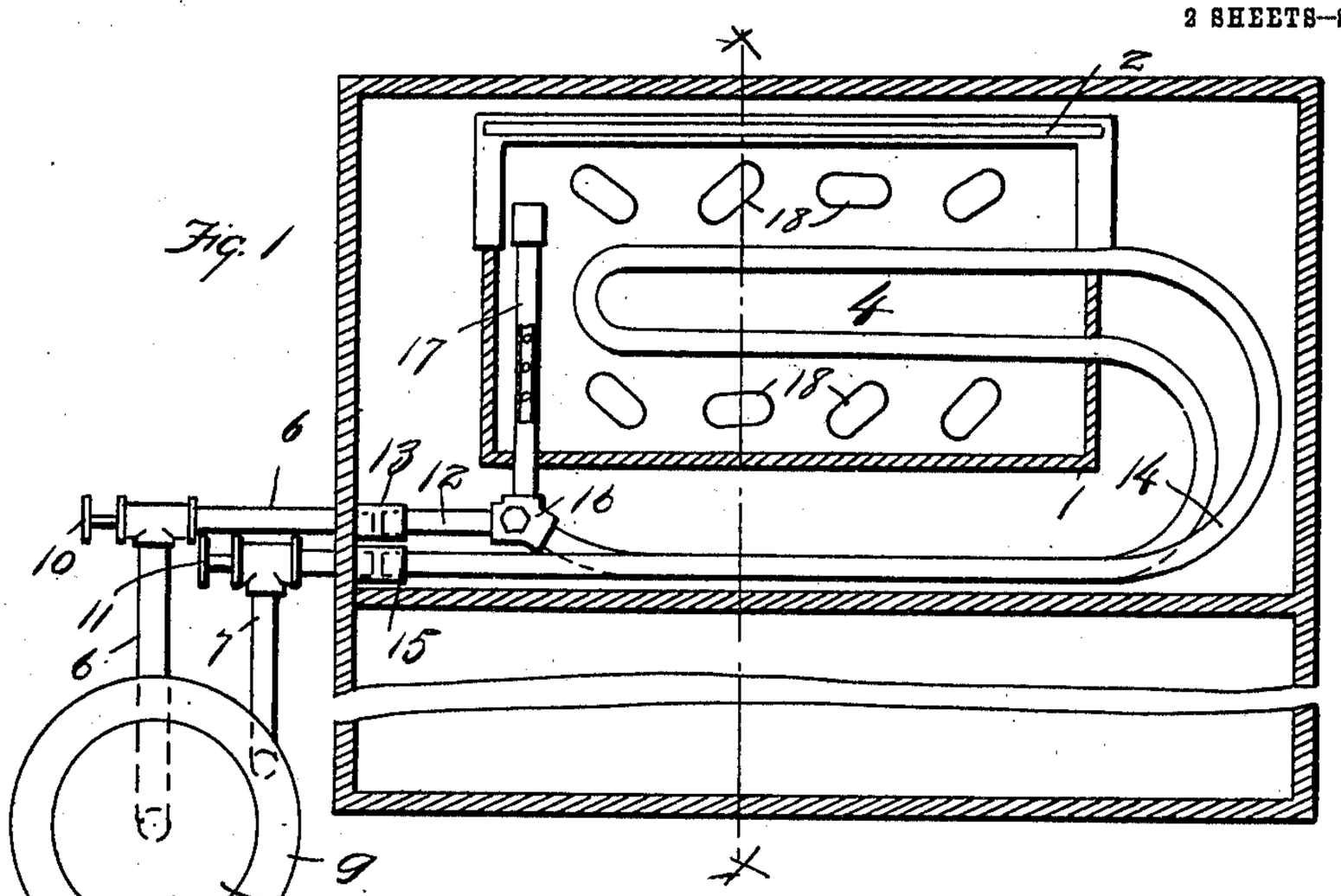
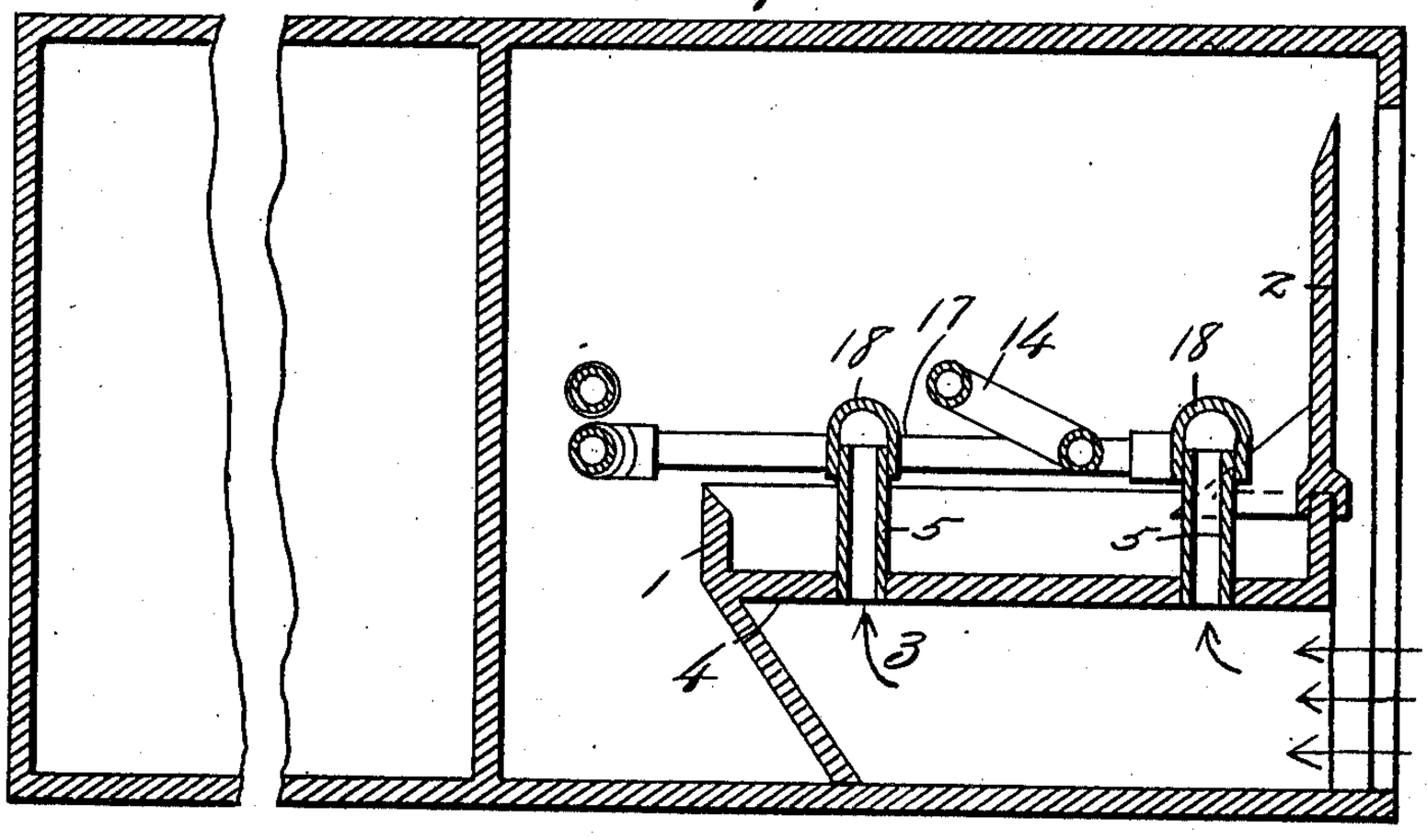


Fig 2



Witnesses

J. W. Stitt.

Inventor,

L. O. Pearson.

By A. D. Jackson.

Attorney

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Fig. 3

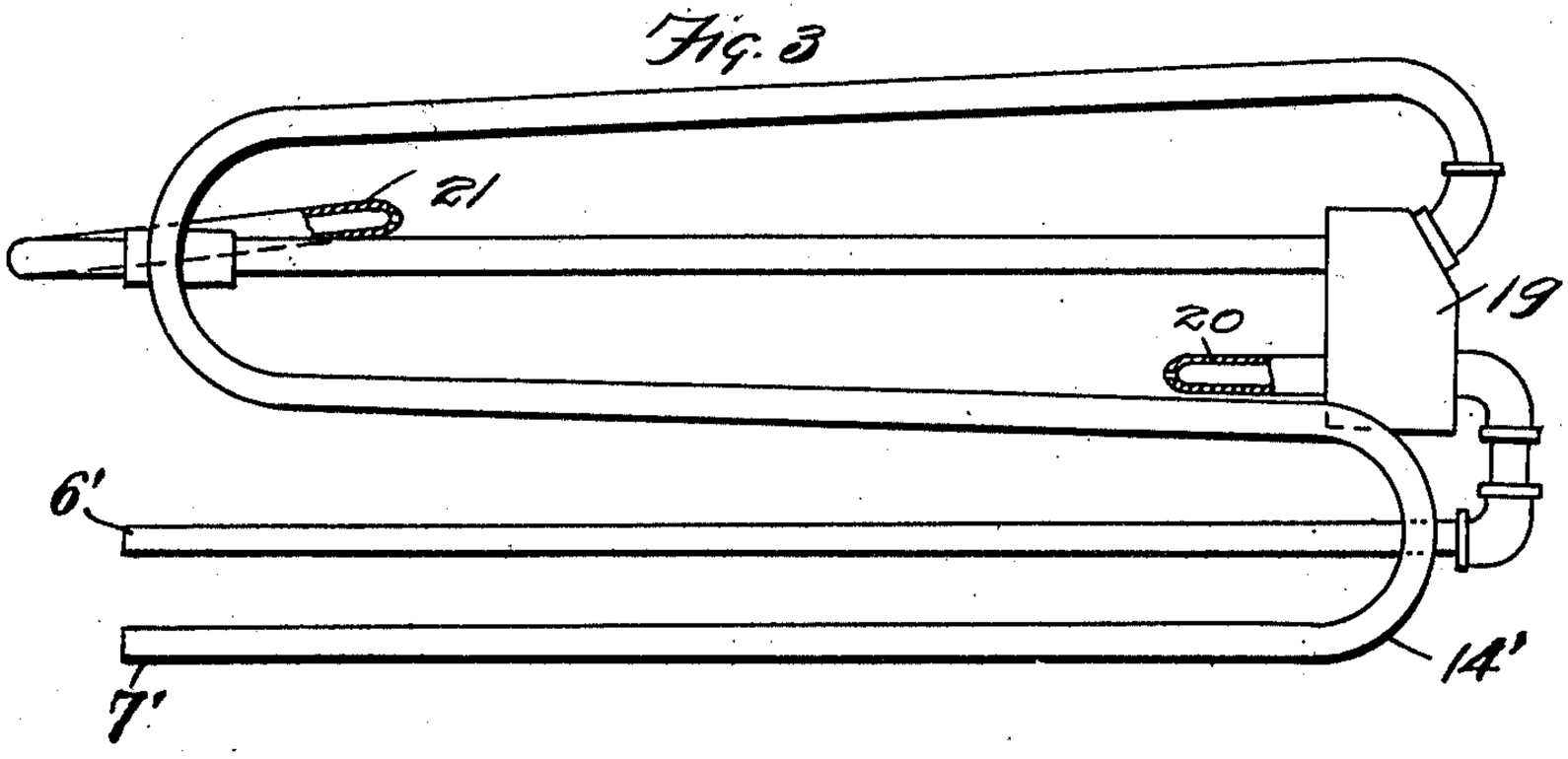
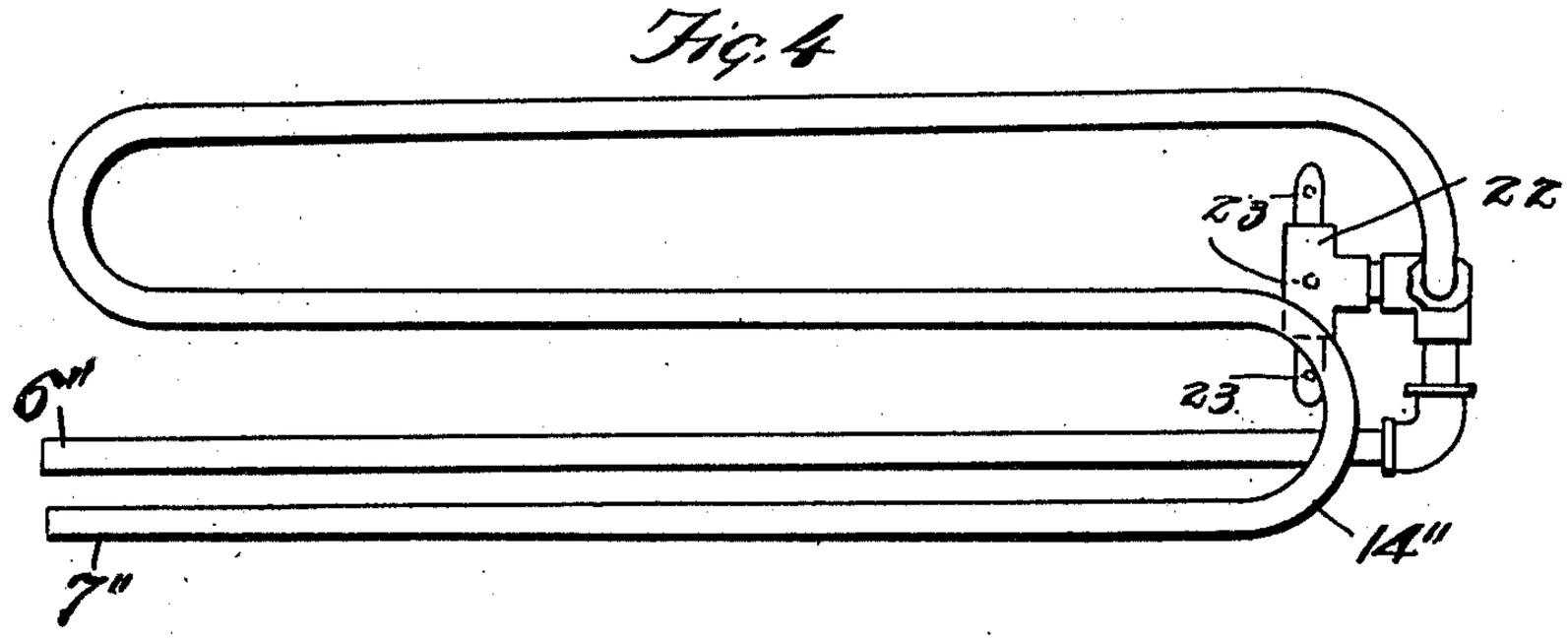


Fig. 4



Witnesses
B. J. Lordowski.
J. O. Stitt.

Inventor,
L O Pearson.

By A. O. Jackson

Attorney

UNITED STATES PATENT OFFICE.

LEMUEL O. PEARSON, OF FORT WORTH, TEXAS.

LIQUID-FUEL BURNER.

989,038. Specification of Letters Patent. Patented Apr. 11, 1911.

Application filed April 2, 1910. Serial No. 553,028.

To all whom it may concern:

Be it known that I, LEMUEL O. PEARSON, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Liquid-Fuel Burners, of which the following is a specification.

My invention relates to fuel burners for stoves and heaters and more particularly to burners for cook stoves, and the object is to provide burners which can be placed in any stove of ordinary construction.

One of the objects of this invention is to provide burners for burning steam and gas combined and burners which will act automatically to convert oil into gas and to convert water into steam and which burners will mix the gas and steam. The consumption of oil will be greatly reduced by the proper mixture of steam and gas and by arranging the water feed and oil feed pipes so that they will be heated by the combustion of the gas and steam.

Another object is to mix air with the gas and steam. The use of air and steam with the gas will cause a complete combustion of the fuel and leave no soot to clog the stove and prevent heat.

Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application and specification.

Figure 1 is a plan view of the burner as it is mounted in a fire box of a stove, the fire box being shown in horizontal section. Fig. 2 is a vertical section of the burner, taken on the line *x*—*x* of Fig. 1. Fig. 3 is a plan view of a variation in the fuel and steam feed pipes. Fig. 4 is a plan view, showing a variation in fuel and steam feed pipes.

Similar characters of reference are used to indicate the same parts throughout the several views.

The improved burner includes a box 1 which may be made of cast iron. The box has a deflector 2 which will prevent the heat from going out at the front of the stove, but the principal object of the deflector is to cause a proper entry of the air draft to the burner. This deflector 2 can be used to form the front of a heating stove. The box 1 has a cavity 3 underneath thereof which leads from the front of the stove for air draft purposes. The bottom 4 of the box is perforated for the passage of air and a number of nipples 5 are connected with the bottom and through which the passages through the bottom are continued. Oil is brought to the stove through a pipe 6 and water is brought to the stove through a pipe 7. A double tank consisting of a compartment 8 for oil or other liquid fuel and an outer compartment 9 for water. With such arrangement of the tanks, the oil is protected from excessive heat. Valves 10 and 11 are provided for regulating the flow of water and oil into the fire box. The pipe 6 is connected to an interior pipe 12 by a coupling 13 so that the pipe can be readily attached and detached when necessary. The pipe 7 is connected to an interior pipe 14 by a similar coupling 15. The pipe 14 circulates in the fire box of the stove and over the burner box so that the water will be converted into steam. After the pipe 14 circulates through the stove the other end is united with the pipe 12 by a coupling 16 and these pipes discharge through a burner 17 which consists of a perforated pipe. The atomized oil or gas and steam are discharged into the burner box and when the gas and steam have been started through the pipes, they will continue to flow until the gas and steam are cut off by the valves 10 and 11. The steam and gas are mixed with air in the burner box 1 by means of the draft nipples 5 and by the spreaders 18 which are screwed on the nipples 5 and turned downwardly. The mixing of the steam and air with the gas greatly reduces the consumption of oil and causes a complete consumption of the fuel, leaving no soot on the walls of the burner or on the stove.

The arrangement of the pipes with the couplings 13 and 15 makes the assembling of the burner easily and quickly done. The deflector 2 is made detachable for convenience in assembling the burner.

There are three forms of generator pipes shown in the drawings. The form shown in Figs. 1 and 2 is for use with the heavier and coarser grades of crude petroleum. The forms shown in Fig. 3 is for use with higher grades and better qualities of petroleum. The gas and steam are mixed in a small block 19 and discharged through two burner nozzles 20 and 21. These burner nozzles scatter the atomized oil or oil and steam

throughout the burner box. The burner shown in Fig. 3 is provided with an oil feed or supply pipe 6′ and a water feed or supply pipe 7′, the pipe 14′ which is coiled being a continuation of the pipe 7′. The form of pipes shown in Fig. 4 may be used for kerosene oil. The steam and gas are mixed and discharged through the burner 22 which has three discharge openings indicated by the dotted outlines 23. The burner shown in Fig. 4 is provided with an oil supply pipe 6″ and a water supply pipe 7″, the pipe 7″ being continued to form a coil of pipe 14″. All three forms of burners have the same provision for being mounted in the fire box of a stove and held in place by the couplings 13 and 15.

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

1. The combination with a fire box of a stove, of a crude oil burner consisting of a pan mounted in said fire box and having a perforated bottom, a deflector detachably mounted on the front part of said pan, draft nipples mounted in said perforations and projecting upwardly from the bottom of said pan, draft distributers mounted on said nipples and turned toward the bottom of said pan, said pan having a cavity formed thereunder for draft purposes, an oil feed pipe projecting into said firebox, a water feed pipe projecting into said fire box and having a connection with the oil feed pipe, and an extension projecting from the connection over said pan and having perforations in its lower side.

2. The combination with a fire box of a stove of a crude oil burner mounted in said fire box, said crude oil burner consisting of a burner box having a perforated bottom, a deflector mounted on the front of said burner box and forming part of the front wall of said fire box, draft nipples mounted in said perforations, distributers screwed on said nipples and turned downwardly toward the bottom of said burner, said burner box having a draft cavity formed thereunder, an oil feed pipe projecting into said fire box, a water feed pipe projecting into said fire box and having a connection with the oil feed pipe, and an extension projecting from the connection over the said burner box and having perforations in its lower side.

In testimony whereof, I set my hand in the presence of two witnesses, this 12th day of March, 1910.

L. O. PEARSON.

Witnesses:
A. L. JACKSON,
J. W. STITT.