J. M. MILLER.

HYDROCARBON BURNER.

APPLICATION FILED SEPT. 6, 1918.

1,302,826. Patented May 6, 1919.

FIG. 1.

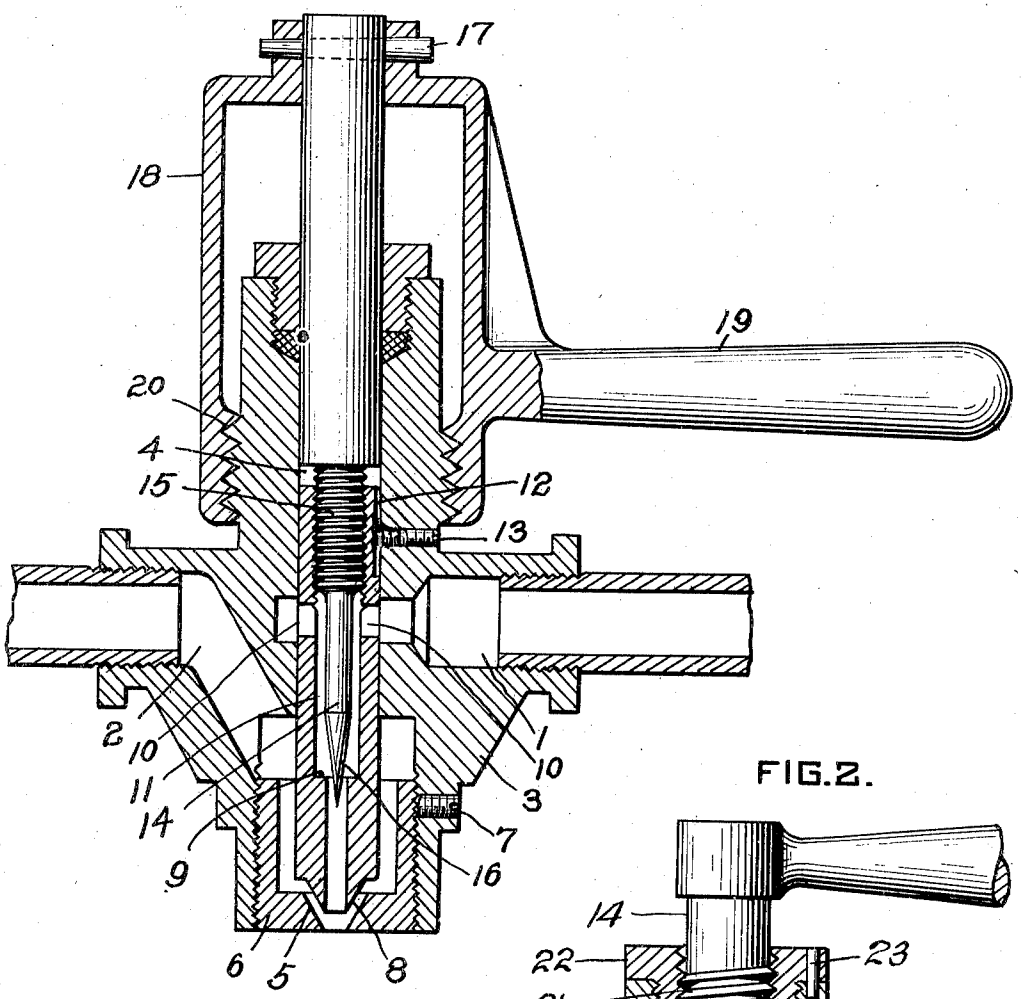
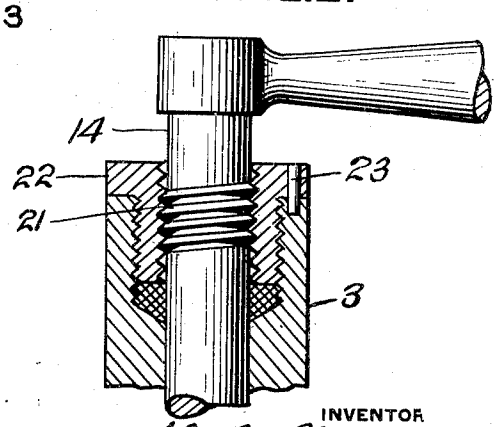


FIG. 2.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN M. MILLER, OF SEWICKLEY, PENNSYLVANIA, ASSIGNOR TO TATE JONES & COMPANY, INCORPORATED, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

HYDROCARBON-BURNER.

1,302,826. Specification of Letters Patent. Patented May 6, 1919.

Application filed September 6, 1918. Serial No. 252,856.

To all whom it may concern:

Be it known that I, JOHN M. MILLER, residing at Sewickley, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Hydrocarbon-Burners, of which improvements the following is a specification.

The object of my invention is to provide a hydrocarbon burner which will be simple and practical in construction, and whereby a single member may operate simultaneously two valves each controlling one of the two fluids entering into the combustible mixture.

In the accompanying sheet of drawings, forming part of my specification I have illustrated the preferred embodiment of my invention. Figure 1 is a central longitudinal sectional view of the burner, and Fig. 2 a similar view of the upper portion of the burner showing a modification of construction.

The burner which I provide includes three elements, a casing provided with a central bore and with a pair of inlets for oil and for air or such other fluid as may be mixed with the oil to form a combustible mixture, a sleeve longitudinally slidable but non-rotatable within such casing bore, and a stem within such sleeve. The sleeve is provided with two valve elements one of which cooperates with a valve element formed on the casing and the other with a valve element formed on the stem to control flow of the fluids entering the casing inlets, and the three elements are interconnected by differential threads whereby the turning of the stem becomes effective to open and close both valves simultaneously.

Referring to the illustrative embodiment of my invention the inlets 1 and 2 of the casing 3 are preferably located at the sides of the casing 3 on opposite sides of its central bore 4, which bore extends the full length of the casing. The inlet 1 may be for oil and the inlet 2 for air. At the lower end of the casing there is a valve port 5 preferably formed in a nipple 6, having screw-thread engagement with the casing, and in effect forming a part of the casing. To hold the nipple 6 in any desired adjustable position a suitable set screw 7 may be provided.

The sleeve 11 within the bore of the casing is provided at its lower end with a valve 8 which coöperates with the nipple 6 to control flow of air from the inlet 2 through the port 5 in the nipple 6. Within the sleeve there is formed a valve port 9, and through the sides of the sleeve there are openings 10 which communicate with the oil inlet 1 so that oil may flow into the sleeve. That the sleeve 11 may not rotate within the casing, the outer face thereof may, as shown, be provided with a longitudinal slot 12 adapted to receive the end of a set screw 13 inserted through the side of the casing.

The stem 14 extends within the sleeve 11 and is provided with external threads 15 engaging internal threads formed within the upper portion of the sleeve. At the lower end of the stem there is formed a valve 16, preferably a needle valve, adapted to coöperate with the port 9 of the sleeve 11 to control the flow of oil.

The stem has screw thread engagement with the casing to the end that the rotation of the stem may effect an opening or closing of both the valves explained above. In the drawings there are shown two alternative constructions for effecting this screw thread engagement. In Fig. 1, which shows the preferred construction, there is attached to the outer end of the stem, as by means of a pin 17, a cup 18, to which an operating handle 19 may be attached, and which is provided at its lower end with interior screw threads 20 engaging external threads formed on the casing 3. The threads 15 on the stem 14 and the threads 20 in the cup 18 are of the same hand, but the latter are of greater pitch than the former. By such connections the rotation of the stem causes it to move upwardly and to carry with it the sleeve 11, and simultaneously causes the sleeve to move downwardly with relation to the stem but at a less rate than the upward movement of the stem. Thus the sleeve valve 8 moves away from the casing port 5, and the needle valve of the stem moves away from the sleeve port 9.

In Fig. 2 the threaded engagement of the stem with the casing is effected by providing the upper portion of the stem with external threads 21 adapted to engage interior threads formed in the packing nut

22, which is, in effect, a part of the burner casing. The nut 22 may be secured in fixed position as by means of a pin 23 or otherwise. In both forms of construction the screw thread connections may, while the parts are being assembled, be properly adjusted to bring the valves to positions wherein they will close simultaneously.

It will be understood of my invention that the valves may be so constructed that, at the various relative openings thereof, the proper relative proportions of oil and air necessary to afford the most suitable combustible mixture may be simultaneously permitted to flow through the valves.

According to the provisions of the patent statutes, I have described the principle and operation of my invention together with the construction which I now consider to represent the best embodiment thereto. However, I desire to have it understood that, within the scope of the appended claims, my invention may be practised with other forms of construction than that particularly shown and described.

I claim as my invention:

1. In a hydrocarbon burner, the combination of a casing having a central bore and provided with a pair of inlets communicating with and with a valve port at the end of such bore, a sleeve slidable but non-rotatable in said bore and provided with an opening communicating with one of said casing inlets and provided with a valve controlling flow from the other of said casing inlets through said casing port, said sleeve being further provided with a valve port, a stem provided with a valve controlling flow through said sleeve port and having differential screw thread engagement with said sleeve and with said casing, whereby the rotation of said stem causes said stem and sleeve to simultaneously move longitudinally at different rates to control both of said valves, and means to rotate said stem.

2. In a hydrocarbon burner, the combination of a casing having a central bore and provided with a pair of inlets communicating with and with a valve port at the end of such bore, a sleeve slidable but non-rotatable in said bore and provided with a lateral opening communicating with one of said casing inlets and provided at its end with a valve controlling flow from the other of said casing inlets through said casing port, said sleeve being further provided interiorly with a valve port, a stem extending within said sleeve and provided at its end with a valve controlling flow through said sleeve port, said stem having differential screw-thread engagement with said sleeve and with said casing, whereby the rotation of said stem causes said stem and sleeve to simultaneously move longitudinally in the same direction but at different rates to control both of said valves, and means to rotate said stem.

3. In a hydrocarbon burner, the combination of a casing having a central bore and provided with a pair of inlets communicating with and with a valve port at the end of said bore, a sleeve slidable but non-rotatable in said bore and provided with a lateral opening communicating with one of said casing inlets and provided at its end with a valve controlling flow from the other of said casing inlets through said casing port, said sleeve being further provided interiorly with a valve port, a stem extending within said sleeve and provided at its end with a valve controlling flow through said sleeve port, said stem being provided with external screw threads engaging internal threads formed within said slidable sleeve, and a stem-turning member connected to said stem and provided with internal threads engaging external threads on said valve casing, the threads on said stem and on said member being of the same hand but the latter being of greater pitch than the former whereby the rotation of said stem causes said stem and sleeve to simultaneously move longitudinally in the same direction but at different rates to control both of said valves.

In testimony whereof I have hereunto set my hand.

JOHN M. MILLER.

Witness:

FRANCIS J. TOMASSON.