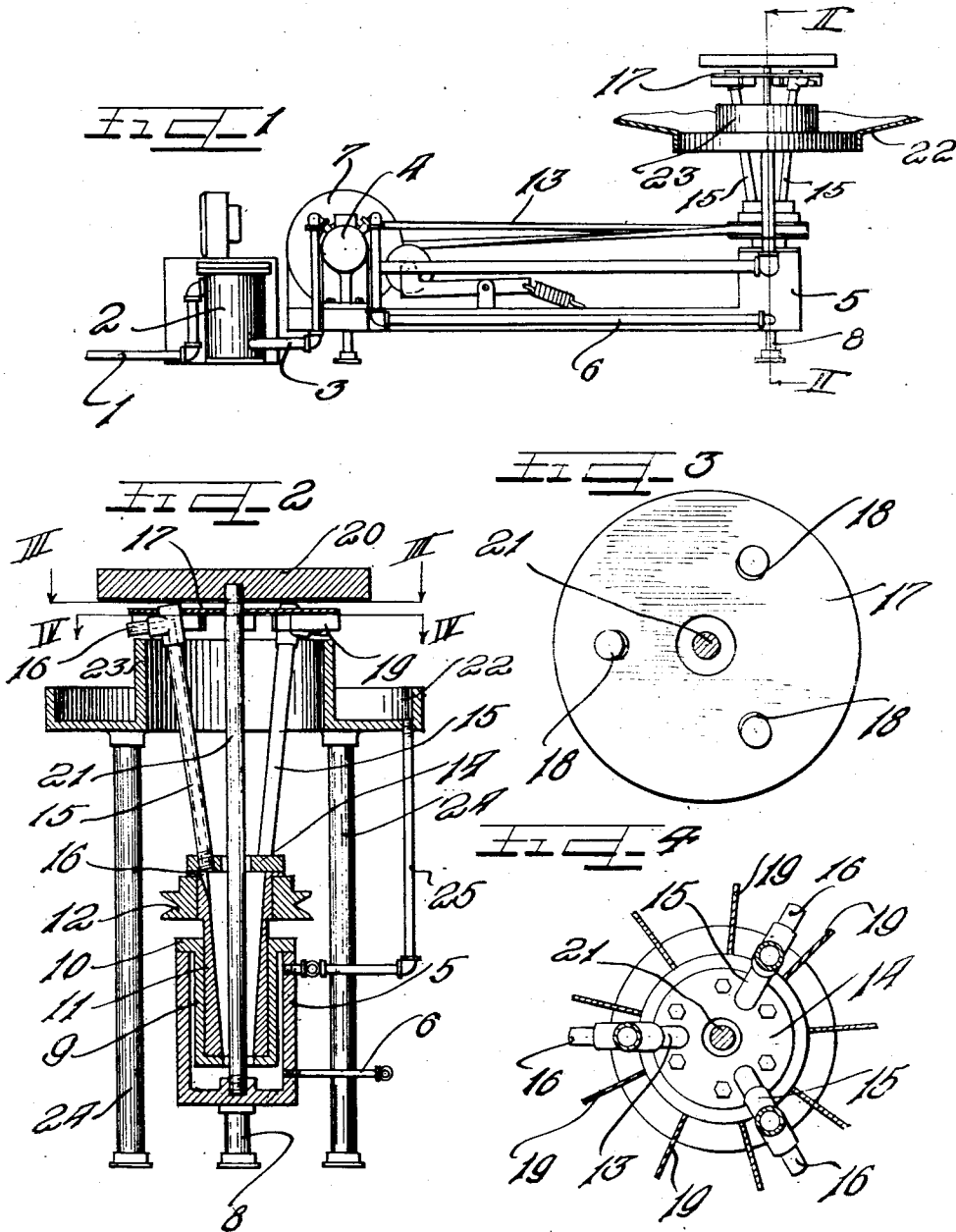


Jan. 15, 1929.

1,698,760

J. W. LOGAN
OIL BURNING APPARATUS
Filed Jan. 24, 1927



INVENTOR

James W. Logan

Charles W. Allen

BY

UNITED STATES PATENT OFFICE.

JAMES W. LOGAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE VULCAN OIL BURNER CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEVADA.

OIL-BURNING APPARATUS.

Application filed January 24, 1927. Serial No. 162,948.

This invention relates to an oil burner and consists in certain improvements upon the oil burner shown in my Patent No. 1,667,042, dated April 24, 1928.

5 In connection with the aforementioned burner; it was found that the conical conveyor became extremely hot above the fuel well and too hot for ordinary purposes.

The primary object of this invention is to overcome this objection in eliminating the conical conveyor above the fuel well and using a plurality of individual pipes which can be more effectively cooled by the surrounding air.

15 The invention comprises the novel structure and combination of parts hereinafter described and more particularly pointed out and defined in the appended claims.

In the accompanying drawing, which illustrates a preferred embodiment of this invention and in which similar reference numerals refer to similar features in the different views:

25 Figure 1 is a side elevational view of an oil burner embodying this invention.

Figure 2 is an enlarged sectional view taken substantially upon the line II—II of Figure 1.

30 Figure 3 is an enlarged sectional view taken substantially upon the line III—III of Figure 2 looking in the direction of the arrows.

Figure 4 is an enlarged sectional view taken upon the line IV—IV of Figure 2 looking in the direction of the arrows.

35 As shown on the drawings:

In the drawing there is shown the complete burner comprising a fuel supply pipe 1, which supplies the liquid fuel to a strainer 2 from which it is pumped through a pipe 3 and a pump 4 into the liquid fuel well 5. A suitable pipe 6 connects the pump with the lower end of the fuel well. The pump is driven by a suitable motor 7.

45 The fuel well 5 consists of a cylindrical casing which is supported upon a leg 8. Within the cylindrical well there is suspended a cylindrical bearing 9 having an upper annular flange 10 which rests upon the upper edge of the well 5. A conical conveyor 11 is rotatably mounted within the cylindrical bearing 9 and the upper part of this conveyor extends a suitable distance above the well for the attachment of a pulley

12 whereby the same may be rotated by means of a belt 13 driven from the motor. The top 55 of the conical conveyor is substantially closed by a plate 14 through which a plurality of oil conveying pipes 15 are threaded. It will be noted that the lower ends of these pipes are located adjacent the wall of the conical conveyor which is preferably cut away as indicated at 16 to facilitate the passage of the oil from the conical conveyor to the mouth of said pipes. 60

The pipes 15 which are three in number 65 extend upwardly and slope outwardly. At their upper ends they are provided with suitable spouts 16 for directing the fuel in radial directions. A top plate 17 provided with suitable apertures 18 for receiving the pipes 70 15 is removably supported upon the tops of the pipes. The spout couplings preferably form the supports for sustaining the plate 17. Upon the bottom of the plate 17 are a plurality of radially extending deflector plates 75 or blades 19 extending from the lower surface of the plate 17 and together therewith serve as a fan which is constrained to rotate with the conical conveyor and feed pipes 15. Above the fan there is a heat absorbing plate 80 20 which is sustained upon a stationary rod 21 which extends through the top plate 14 of the well and is suitably anchored in the bottom of the well by means of a threaded socket. Just below the fan there is a cylindrical drip pan 22 provided with an upwardly extending neck 23 surrounding the pipes 15. This drip pan or basin is connected by a pipe 25 with the top of the oil well 5. The drip pan is supported upon suitable standards 24 supported upon the floor. 85 90

It will be appreciated that during the operation of the burner, the conical conveyor will rotate and cause the diverging pipes 15 to rotate therewith. As the pipes 15 rotate they will cause a thorough circulation 95 of the air besides being more directly exposed thereto and the tendency for them to become overheated is largely avoided. In other words, the rotating pipes 15 serve to whip the air adjacent the nozzles so as to preclude the oil from being overheated. 100

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this inven- 105

tion and I, therefore, do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

- 5 1. In a liquid fuel burner, the combination with a combustion chamber, of a centrifugal member including a relatively long conical bore of sufficient divergence to effect fuel elevation at comparatively low speeds, a guide rod extending through said bore and about which said member is rotatable, fuel projecting means disposed above the discharge end of said conical bore and connected to said rod, and a plurality of diverging pipes connecting said centrifugal member to said nozzles, said pipes being rotatable with said member to elevate fuel to said nozzles and to whip the air adjacent said nozzles to prevent overheating of the fuel delivered thereto.

2. In a liquid fuel burner, the combination with a combustion chamber, of a centrifugal fuel conveyor operable at relatively low speeds including a tube having a conical bore, the largest end of said bore comprising a discharge orifice, a plurality of radial nozzles disposed above the discharge end of said tube, an air deflecting plate associated with said nozzles, a guide rod extending through said bore and connected at one end to said plate, means for rotating said tube about said rod, means for delivering liquid fuel to said conical bore including a cup-like chamber serving as a mounting for the other ends of said tube and rod, and a plurality of diverging pipes connecting said conveyor to said nozzles, said pipes being rotatable with said conveyor to elevate the fuel from said conical bore to said nozzles and to whip the air adjacent said nozzles to prevent overheating of the fuel.

3. In a liquid fuel burner, the combination with a combustion chamber, of a centrifugal fuel conveyor comprising a tube having a conical bore, the largest end of said bore comprising a discharge orifice, a plurality of radial nozzles disposed above the discharge end of said tube, an air deflecting plate connected to said nozzles above said tube, a rod extending through said bore and said deflector plate, means for rotating said tube about said rod, means for delivering

liquid fuel to said conical bore including a cup-like chamber serving as a mounting for the other end of said tube, said rod extending clear through said conical bore and having its other end connected to the wall of said cuplike chamber, and a plurality of fuel conveying pipes connected to said conveyor, said pipes diverging outwardly and being substantially parallel to the conical wall of said conveyor defining said bore, whereby fuel is elevated from said bore to said nozzles and the air adjacent said nozzles is whipped so as to augment the circulation of air under said deflector plate.

4. In a liquid fuel burner, the combination with a combustion chamber of a centrifugal fuel conveyor comprising a liquid fuel conduit, upwardly inclined diverging fuel feeding pipes having their lower ends connected to said conduit, nozzle means connected to the upper ends of said pipes, and means for rotating said pipes and said conduit to elevate fuel from said conduit to said nozzle means and to whip the surrounding air by said pipes so as to maintain them cool.

5. In a liquid fuel burner, the combination with a combustion chamber of a centrifugal fuel conveyor comprising a liquid fuel conduit, upwardly inclined diverging fuel feeding pipes extending from the top of said conduit, said pipes having their lower ends connected to said conduit adjacent the wall of the conduit, nozzles extending laterally from the upper ends of said pipes and means for rotating said pipes and said conduit to elevate fuel from said conduit to said nozzles and to whip the surrounding air by said pipes so as to maintain them cool.

6. In a liquid fuel burner, the combination with a combustion chamber, of a centrifugal conveyor comprising a liquid fuel conduit, upwardly inclined diverging fuel feeding pipes having their lower ends in communication with said conduit and means for rotating said pipes to elevate fuel by centrifugal action from said conduit into said chamber and to whip the surrounding air by said pipes so as to maintain them cool.

In testimony whereof I have hereunto subscribed my name.

JAMES W. LOGAN.