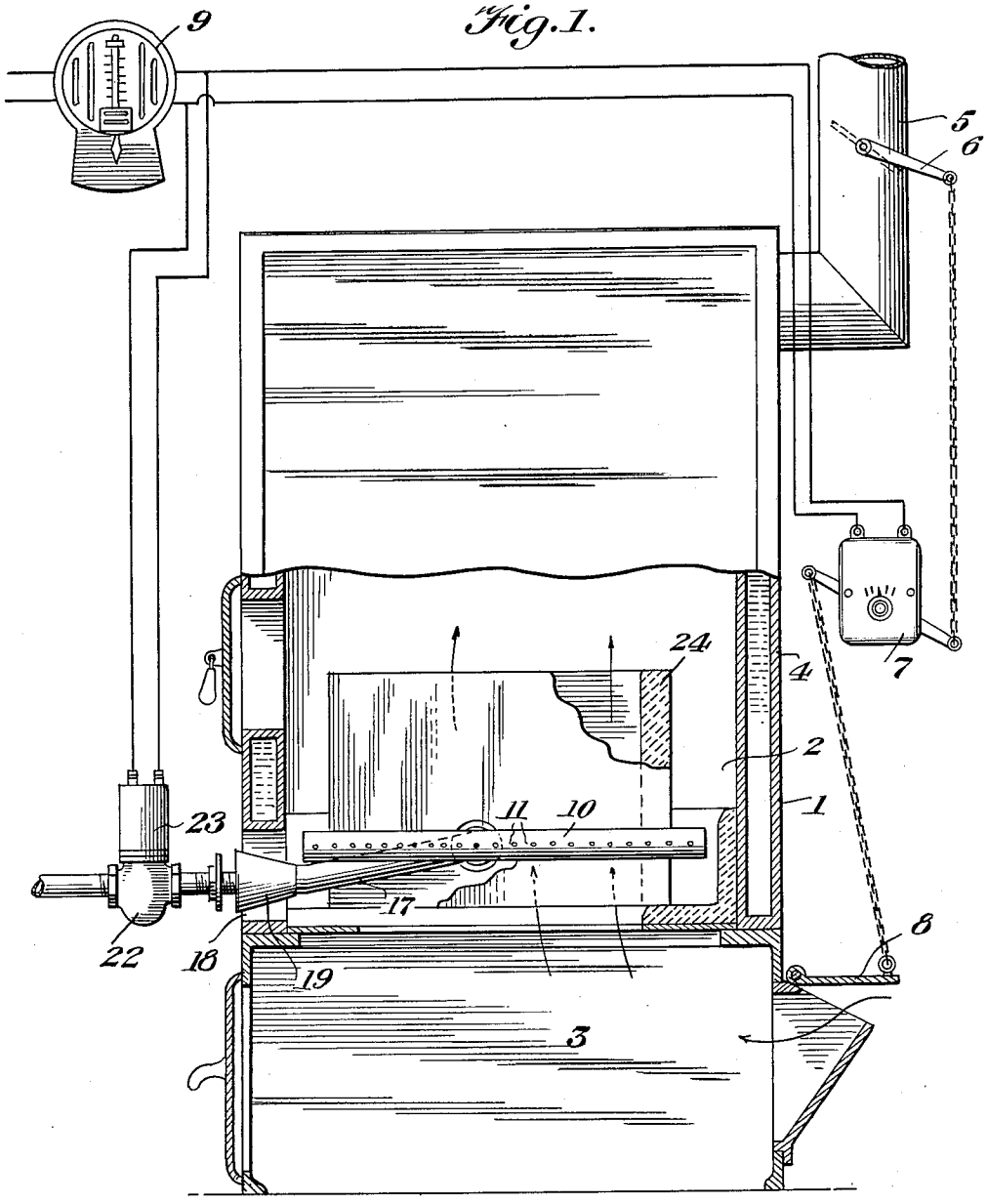
April 17, 1934. P. A. DAYTON 1,955,622

GAS BURNER

Filed July 20, 1932 2 Sheets-Sheet 1

Fig. 1.



Perry A. Dayton
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

April 17, 1934. P. A. DAYTON 1,955,622

GAS BURNER

Filed July 20, 1932 2 Sheets-Sheet 2

Fig. 2.

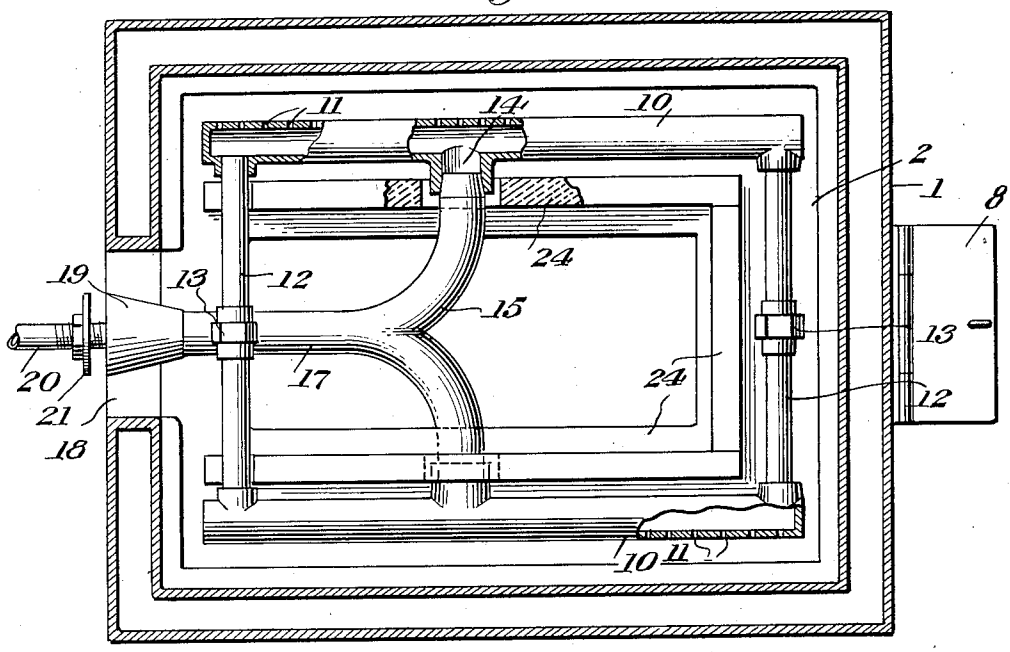


Fig. 3.

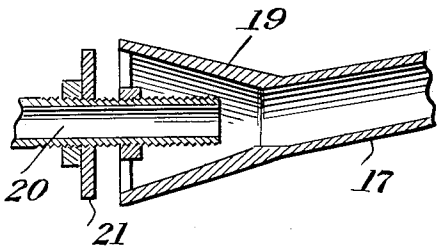
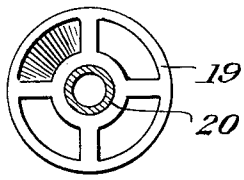


Fig. 4.



Perry A. Dayton

INVENTOR

BY Victor J. Evans & Co.

ATTORNEYS

Patented Apr. 17, 1934 1,955,622

UNITED STATES PATENT OFFICE

1,955,622

GAS BURNER

Perry A. Dayton, Wilkinsburg, Pa.

Application July 20, 1932, Serial No. 623,641

1 Claim. (Cl. 158—104)

This invention relates to gas burners and has for the primary object, the provision of a device which may be economically manufactured and installed in furnaces now in use and primarily designed for burning coal and like fuel.

Another object of this invention is the provision of a burner of the above stated character which will pre-heat in-coming fuel to render maximum heat from a minimum consumption of fuel and will be entirely automatic in operation.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a side elevation partly in section illustrating a furnace with a burner applied thereto and constructed in accordance with my invention.

Figure 2 is a sectional view illustrating the burner mounted in the fire box of the furnace.

Figure 3 is a fragmentary sectional view illustrating a fuel and air mixer for the burner.

Figure 4 is an end view partly in section of the mixer.

Referring in detail to the drawings, the numeral 1 indicates a furnace of a conventional type having the usual fire box 2 located above the ash pit 3. The boiler 4 of the furnace surrounds the fire box and is provided with a flue pipe 5 for carrying off the products of combustion. The pipe 5 is controlled by a damper 6 automatically actuated by an electrical control 7 which also actuates a damper 8 to the ash pit 3 for admitting air to the fire box. The electrical control is automatically operated by a thermostat control 9. The foregoing description relates to a furnace construction to which my invention is applied.

Burner elements 10 are mounted in the fire box 2 adjacent the sides thereof and are of a length substantially equal to the length of the fire box. The burner elements 10 are provided with a series of perforations or apertures disposed toward the sides of the fire box so that the burning fuel from the burner elements will be directed against the walls of the fire box to obtain maximum heat from the fuel. The burner elements are connected adjacent their ends by hollow bars 12 providing means for equalizing fuel pressure between the burners. The bars 12 may be detached from the burner elements or form an integral construction thereof and also are constructed from sections detachably connected by couplings 13 whereby the burner elements may be easily detached from each other for assembling in the fire box. The burner elements 10 are closed at their ends and are provided with intake ports 14 located approximately intermediate their ends to which a manifold 15 is connected. The ends of the manifold received by the ports are chamfered and drawn into a tight fit by adjusting the lengths of the bars 12. The manifold is of substantially T-shape with the leg portion 17 extending into the doorway 18 of the furnace. A substantially conical shaped air mixer 19 is cast to the leg 17 of the manifold and receives therein a fuel supply pipe 20. The air mixer 19 has threaded engagement with the fuel pipe and its intake end is provided with a series of openings, the size of which may be varied by a control plate 21 threaded on the pipe 20 for the purpose of regulating the amount of air to the manifold along with the fuel. The pipe 20 is provided with a control valve 22 operated by an electrical control 23 under the control of the thermostat 9. The fuel entering the air mixer 19 draws air into the mixer which mixes with the fuel or gas passing into the manifold 15 and due to the shape of the latter causes a thorough mixing of the gas and air prior to entering the burner elements 10. The air and fuel entering the burner elements from the manifold is deflected in opposite directions for further mixing the air and gas. The air and gas during its passage through the manifold is pre-heated so that it is approximately the temperature of the burner elements. The fuel and air thus heated and mixed provide maximum heat with a minimum consumption of fuel.

Upstanding walls 24 are arranged in the fire box inwardly of the burner elements cooperating with the walls of the fire box in forming restricted chambers for the burner elements and in which the fuel burns.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of my invention, as claimed.

Having thus described my invention, what I claim is:

A gas burner comprising parallel burner tubes having closed ends and having perforations in their outer sides and provided with openings in their inner sides at their centers and adjacent their ends, a T-shaped manifold having chamfered terminals engaged in the central openings of the burner tubes, a fuel pipe communicating with the manifold, branch tubes having their ends secured in the end openings of the burner tubes to establish communications between them, and couplings on said branch tubes whereby to draw the parallel burner tubes toward each other to effect firm engagement with the manifold terminals.

PERRY A. DAYTON.