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INCANDESCENT GAS FIRE
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FIG. 1.

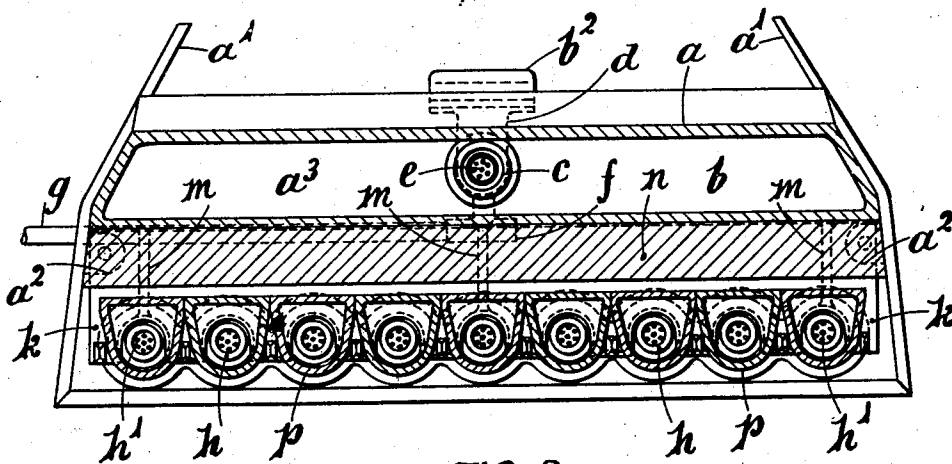
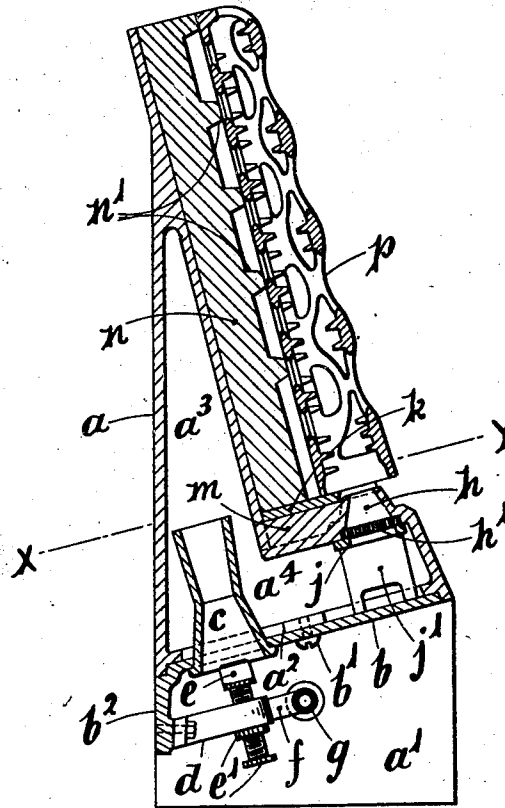


FIG. 2.

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INCANDESCENT GAS FIRE.

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This invention relates to incandescent gas fires, and more particularly to that type of gas fire having upstanding radiants assembled in parallel alignment against a back plate of refractory material, such as fire-clay, over a series of burners fed with a mixture of gas and air.

The principal object of my invention is to provide an improved construction wherein the gas and air mixture is pre-heated before being burnt, thereby increasing the heating efficiency of the fire and decreasing the consumption of gas, and a further object of the invention is to avoid back-firing when lighting or extinguishing the fire and to provide a fire which will burn quietly.

The invention consists of the employment of a hollow support of L-section, the upright portion of said support lying behind the refractory back plate and the forwardly-projecting portion of said support carrying the burners, in combination with an upright induction tube the upper end of which extends into the upright portion of the hollow support to a height above that of the angle between the upright and forward portions thereof. The gas supply nozzle projects into the lower end of the induction tube, and the mixture of gas and induced air is projected by the induction tube into the upright portion of the hollow support and passes downwards into the forward portion of the support to the burners. While the fire is burning, the radiants and refractory back plate become incandescent and radiate heat, and the radiant heat passing to the rear heats the upright portion of the hollow support and the gaseous mixture circulating therein. Thus waste heat from the refractory back plate is utilized to raise the temperature of the gas and the primary air for combustion before it is burnt, and a regenerative effect is obtained, insofar that the temperature of the fire is raised by reason of the preheating of the gaseous mixture by the waste heat.

The position of the upper end of the induction tube ensures that the gaseous mixture does not pass directly to the burners but first circulates through the upright portion of the hollow support. Back-firing is thus prevented, and the fire burns quietly.

The accompanying drawings illustrate a fire in accordance with my invention. In the drawings, Figure 1 is a vertical section

and Figure 2 is a plan section on the line X—Y in Fig. 1.

Referring to the drawings, in the example therein illustrated, *a* is the L-section hollow support for the fire unit which rests on feet *a'* at each side and comprises a casting with a removable bottom plate *b* normally secured in position by screws *b'* engaging lugs *a''* on the sides of the casting *a*. The bottom plate *b* carries a central induction tube *c* which passes through said plate and extends up into the upright portion *a''* of the hollow support to a height substantially above that of the angle between the upright portion *a''* and the forwardly-projecting portion *a'* of the hollow support. The hollow space within the support extends the full width of the fire. A depending central lug *b''* on the bottom plate *b* is fitted with a bracket *d* supporting the gas supply nozzle *e* which is connected by a T-piece *f* to the gas supply pipe *g*. The nozzle *e* can be adjusted in the bracket *d* by manipulating the nuts *e'* to vary its position relatively to the mouth of the induction tube *c*.

The burners *h* are formed along the upper face of the forward portion *a'* of the hollow support *a*, and are fitted as usual with perforated diaphragms *h'* retained in position by a perforated cross bar *j* supported by feet *j'* resting on the bottom plate *b*. Above the burners *h* is disposed a recessed plate *k* resting on ribs *m* projecting from the upper face of the forward portion *a'* of the support, said plate supporting the fire-clay back plate *n* and the upright radiants *p* which are disposed side by side over the burners *h*, preferably with their side faces in contact one with another. The radiants *p* abut against notched ribs *n'* across the face of the back plate *n* and extend to the top of, but not above, the latter.

Preferably the forward portion *a'* of the hollow support is upwardly inclined as shown, and the back plate *n* and radiants *p* are rearwardly inclined to direct the major portion of the radiant heat in an upwardly inclined direction.

It will be seen that gas from the nozzle *e* is directed into the induction tube *c* and induces therethrough a certain amount of air which forms the primary air for combustion and mixes with the gas, the gaseous mixture being projected into the upright portion *a''*

of the hollow support. When the fire is burning, heat is radiated by the radiants p and the back plate n , and the heat passing to the rear raises the temperature within the upright portion a^3 and heats the gaseous mixture circulating therein. The heated mixture passes into the forward portion a^4 of the hollow support and so to the burners h . The pre-heating of the gas and primary air raises the temperature of the fire and intensifies the flame, an adequate supply of secondary air passing into the radiants p through the spaces around the burners h below the plate k which supports the radiants. The quantity of gas necessary to raise the radiants to incandescence throughout their full height is reduced while the radiant heat is increased.

What I claim and desire to secure by Letters Patent is:—

1. An incandescent gas fire comprising a hollow support of L-section, a refractory back plate in front of the upright portion of said hollow support, burners along the upper face of the forwardly-projecting portion of said hollow support, upstanding radiants disposed over said burners in front of said refractory back plate, an upright induction tube carried by said hollow support, the upper end of said induction tube extending into the upright portion of said hollow support to a height above that of the angle between the upright and forward portions thereof, and means for supplying gas to said induction tube.

2. An incandescent gas fire comprising a hollow support of L-section, a removable bottom plate normally attached thereto, a refractory back plate in front of the upright portion of said hollow support, burners along the upper face of the forwardly-projecting portion of said hollow support, a recessed plate supported over said forward portion in spaced relationship to said burners, upstanding radiants disposed over said burners in front of said refractory back plate and supported by said recessed plate, an upright induction tube carried by said removable bottom plate, the upper end of said induction tube extending into the upright portion of said hollow support to a height above that of the angle between the upright and forward

portions thereof and means for supplying gas to said induction tube.

3. An incandescent gas fire comprising a hollow support of L-section, a removable bottom plate normally attached thereto, a refractory back plate in front of the upright portion of said hollow support, burners along the upper face of the forwardly-projecting portion of said hollow support, a recessed plate supported over said forward portion in spaced relationship to said burners, upstanding radiants disposed over said burners in front of said refractory back plate and supported by said recessed plate, an upright induction tube carried by said removable bottom plate, the upper end of said induction tube extending into the upright portion of said hollow support to a height above that of the angle between the upright and forward portions thereof, a lug depending from said bottom plate, a nozzle adjustably supported by said lug in co-axial alignment with said induction tube, and means for supplying gas to said nozzle.

4. An incandescent gas fire comprising a hollow support of L-section, a removable bottom plate normally attached thereto, a refractory back plate in front of the upright portion of said hollow support, burners along the upper face of the forwardly-projecting portion of said hollow support, a recessed plate supported over said forward portion in spaced relationship to said burners, upstanding radiants disposed over said burners in front of said refractory back plate and supported by said recessed plate, an upright induction tube carried by said removable bottom plate, the upper end of said induction tube extending into the upright portion of said hollow support to a height above that of the angle between the upright and forward portions thereof, a lug depending from said bottom plate, a nozzle adjustably supported by said lug in co-axial alignment with said induction tube, and means for supplying gas to said nozzle, the forward portion of said hollow support being upwardly inclined and the refractory back plate and radiants being rearwardly inclined.

In testimony whereof I affix my signature.

JOHN MULHOLLAND.