United States Patent

[11] **3,543,741**

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[54] **ARTIFICIAL LOG FIREPLACE WITH FLAME AND LOG POSITION CONTROL**
8 Claims, 6 Drawing Figs.

[52] U.S. Cl. **126/92, 431/125**
[51] Int. Cl. **F24c 3/04**
[50] **Field of Search** 431/125; 126/92

[56] **References Cited**

UNITED STATES PATENTS

3,042,109	7/1962	Peterson	431/125X
3,291,116	12/1966	Brooks	431/125X
3,362,395	1/1968	Peterson	126/92

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ABSTRACT: The disclosure concerns the control of flame production and distribution in relation to artificial log-positioning in fireplaces.

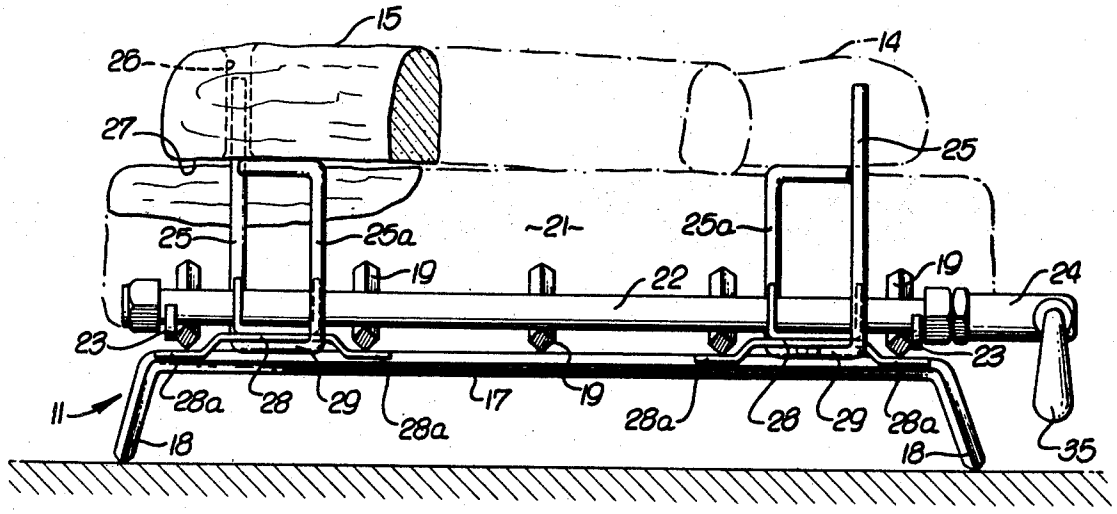


FIG. 1.

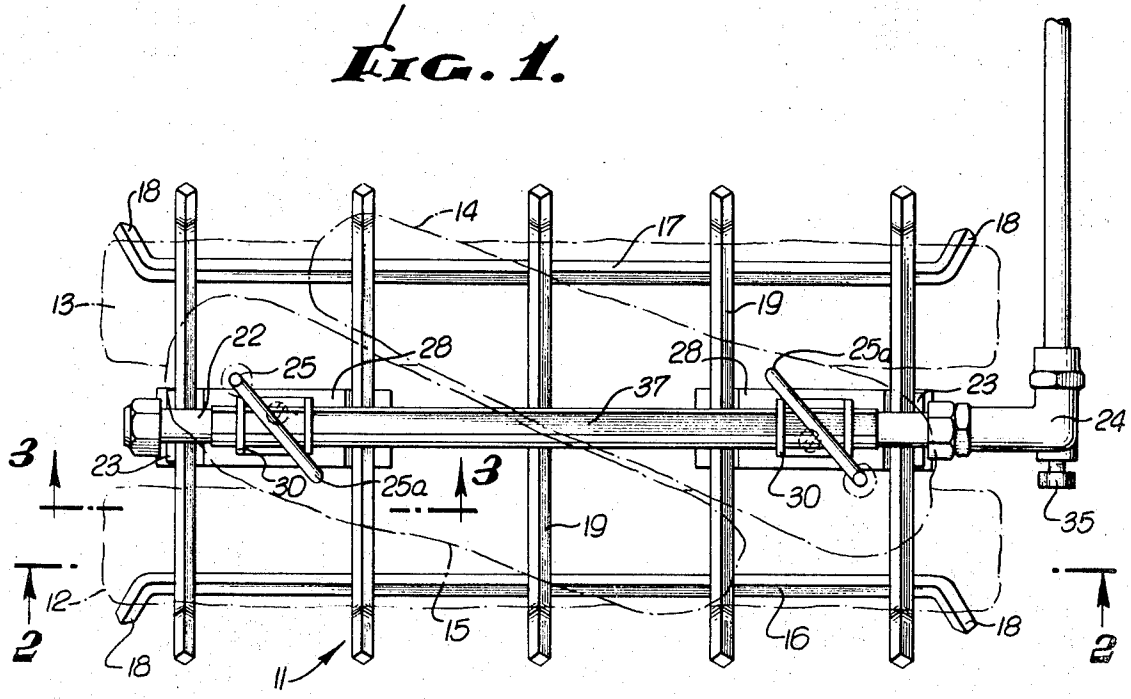
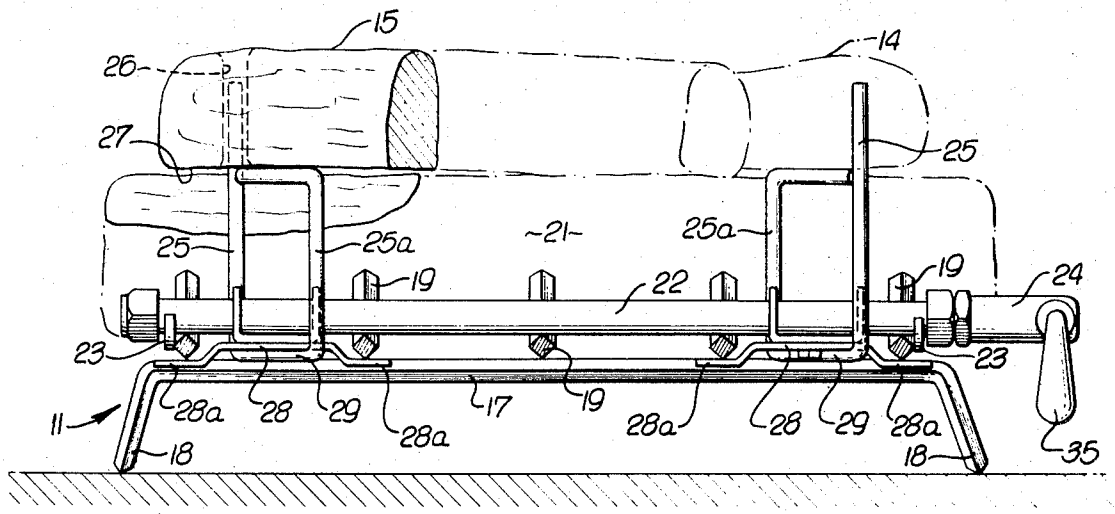


FIG. 2.



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FIG. 3.

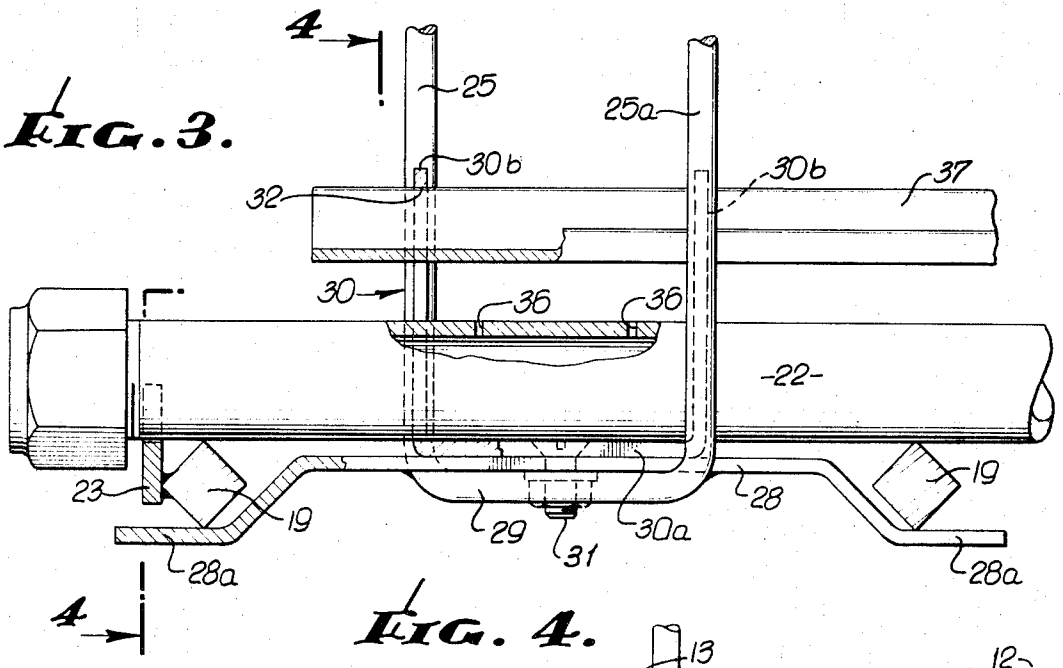


FIG. 4.

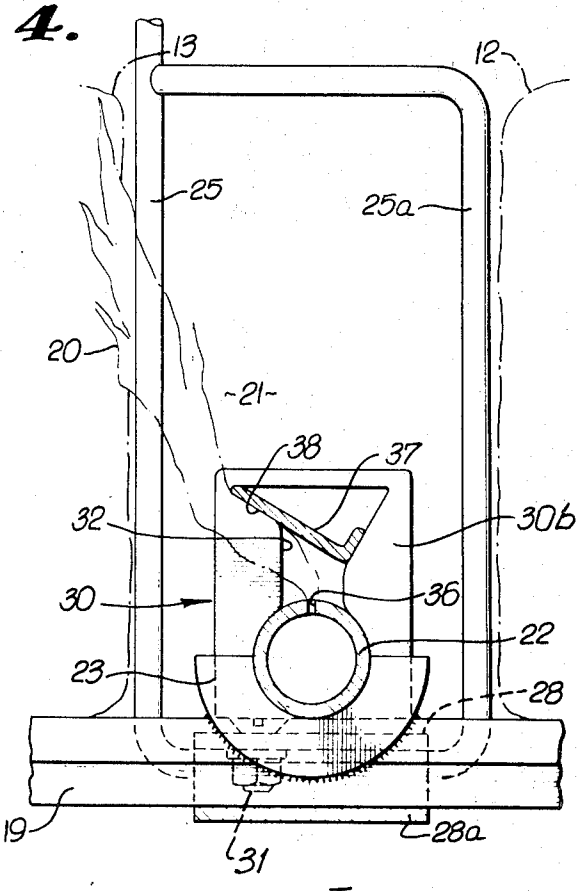


FIG. 5.

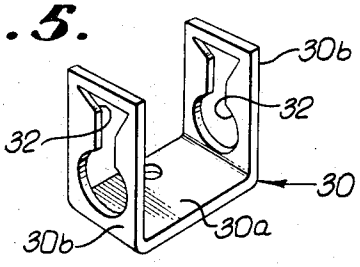
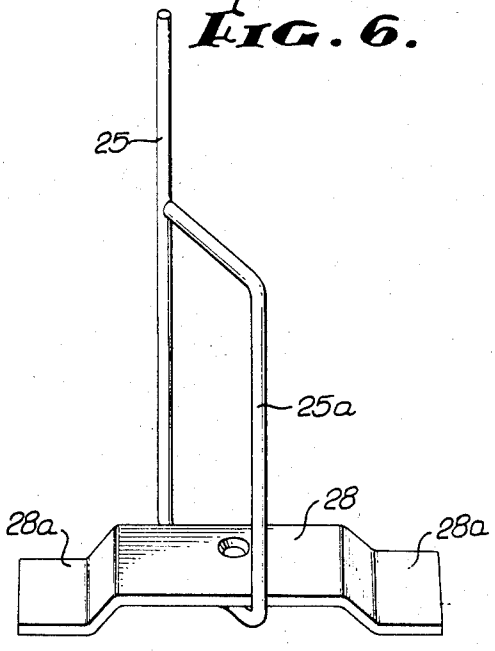


FIG. 6.



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ARTIFICIAL LOG FIREPLACE WITH FLAME AND LOG POSITION CONTROL

BACKGROUND ON THE INVENTION

This invention relates generally to artificial log fireplaces, and more particularly concerns the control of flame production and distribution in relation to artificial log arrangements in such fireplaces.

The advantages and desirabilities of fireplaces incorporating gas burners and artificial or refractory logs have become recognized. However, efforts to achieve close simulation to natural log fireplaces have produced problems in the areas of flame production and distribution in relation to artificial log arrangements. For example, it is desirable to produce flames so related to the burner structure and logs that relatively complete combustion is afforded prior to flame impingement upon the logs, in order to minimize production of carbon monoxide which might otherwise occur proximate the logs. Also, it is desirable that the upper log or logs be capable of location in overlying relation to the burner structure by means of locating structure integrated with the cradle or grate and burner structure in such a way as to provide a suitably low cost unit capable of rapid and adjustable assembly.

SUMMARY OF THE INVENTION

It is a major object of the invention to provide a solution to the problems outlined above, as well as other problems encountered in the construction and operation of artificial log fireplaces. Accordingly, in one of its important aspects concerning log positioning the invention is directed to a combination that includes a cradle for front and rear logs extending transversely; transversely extending gas burner structure carried by the cradle and from which flames are adapted to rise between the front and rear logs; front and rear upright shoulders in positions on the cradle to block rearward movement of the front log and frontward movement of the rear log so that a space is defined between the logs to receive the flames; and means on the cradle to position an upper log to extend over the front and rear logs in the path of the rising flame. Typically, the positioning means may include a pivot projecting upwardly into a recess in the upper log to enable pivoting of the upper log to rest on the front and rear logs with selected angularity; and the pivot may be clamped to the burner structure in such manner as to project upwardly with concealment in the space between the front and rear logs and so as to position the upper log to receive impingement of flames which have been deflected therebelow. In this regard, the deflector may be located to promote substantially complete combustion of the gases prior to flame impingement on the upper log, so as to minimize production or escape of carbon monoxide. Further, the deflector may be located to deflect flames to rise in a single sheet pattern.

These and other objects and advantages of the invention, as well as the details of illustrative embodiments, will be more fully understood from the following detailed description of the drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a fireplace assembly incorporating the invention;

FIG. 2 is a front elevation taken on lines 2–2 of FIG. 1;

FIG. 3 is an enlarged section, taken in elevation on lines 3–3 of FIG. 1;

FIG. 4 is an elevation taken in section on lines 4–4 of FIG. 3;

FIG. 5 is a perspective showing of a burner and deflector support bracket; and

FIG. 6 is a perspective showing of upper log-positioning structure as used in the FIG. 1 assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings the apparatus illustrated includes a cradle 11, and refractory or fire-resistant log means such as front, rear and upper logs 12—15 carried in the cradle to simulate a natural log-burning hearth when viewed from the front. The cradle typically comprises a grate having transversely extending members 16 and 17 supported on legs 18 and supporting forwardly and rearwardly extending bars 19, which are transversely spaced apart.

The assembly also includes transversely extending gas burner structure carried by the cradle and from which flames 20 are adapted to rise in the space 21 formed between logs 12 and 13. As one example, burner duct 22 extends above and is supported on the bars 19, as for example by U-shaped brackets 23 attached to certain bars, whereby the duct is concealed in space 21 between logs 12 and 13. The duct is supplied with combustible gas as from a line 24 with valve control at 35, there being gas outlet ports 36 provided in and lengthwise of the duct.

One important aspect of the invention has to do with the provision of means projecting upwardly within space 21 to position at least one, and typically both, of the upper logs 14 and 15 to extend over the front and rear logs, typically at selected angularity and separation determined by pivoting of the upper logs about fixed pivots, while remaining in the path of the rising flames. Such means may, with unusual advantage, take the form of a pivot rod or rods 25 the upper terminals of which project loosely and upwardly into the recess or recesses 26 sunk upwardly in the lower faces 27 of the upper logs 14 and 15. As a result, the upper logs may be independently pivoted about rods 25, but their positioning with respect to interception of the rising flames is maintained.

In addition, the rods 25 and auxiliary rods 25*a* provide front and rear upright shoulders in positions on the cradle to block rearward movement of the front log, and frontward movement of the rear log so that the space 21 is defined with predetermined width, for reception of the flame pattern to be deflected, as will be described, prior to interception of the flames by any of the logs, thereby to minimize production of unwanted carbon monoxide. Rods 25 and 25*a* may typically be attached to brackets 28, the rods forming loops with lower extremities 29 extending under and welded to the brackets. The latter are in turn suspended from the burner duct 22 by means of the U-shaped brackets 30. As shown, a fastener 31 attached the crosspiece 30*a* of bracket 30 to the bracket 28, and the burner duct 22 extends through openings 32 in the legs 30*b* of bracket 30 to support the latter. Tightening of the fastener 31 clamps the end extensions 28*a* of bracket 28 against the underside of cradle bars 19, as seen in FIG. 3. In this regard, the brackets 28 may be rotated prior to such tightening, affording ready adjustment of the width of the space 21 between the logs 12 and 13, by virtue of front to rear variable positioning of the rods 25 and 25*a*. The clamps 28 may also be retained against different pairs of rods 19.

Another aspect of the invention concerns the provision of a flame deflector 37 extending in the path of the rising flame in such manner as to effect substantially complete combustion of the gas prior to flame impingement upon the logs. For example, the underside 38 of the deflector may extend at an angle, as shown, relative to vertical to deflect flames to rise in a single sheet pattern, for impingement on the logs 13, 14 and 15. Deflector 37 is advantageously received in openings 32 provided in the legs 30*b* of brackets 30. Accordingly, all of the deflector and log-positioning structure is carried by the burner duct, which may be rapidly assembled into a grate of standard construction.

I claim:

1. In fireplace apparatus, the combination comprising a cradle for front and rear logs extending transversely, transversely extending gas burner structure carried by the cradle and from which flames are adapted to rise between the front and rear logs, and means supported by the burner structure and including uprights defining front and rear upright shoulders in positions to block rearward movement of the front log and to block frontward movement of the rear log so that a space is defined between said logs to receive said flames and so that an

upper log may be positioned to extend over said front and rear logs in the path of said rising flame, said means including support structure supporting said uprights for movement to adjust the front to rear spacing of said upright shoulders, said support structure having a clamping adjustment operable to hold the uprights in fixed position relative to the burner.

2. In fireplace apparatus, the combination comprising a cradle and front and rear logs extending transversely thereon, transversely extending gas burner structure carried by the cradle and from which flames are adapted to rise between the front and rear logs, front and rear upright shoulders in positions on the cradle to block rearward movement of the front log and to block frontward movement of the rear log so that a space is defined between said logs to receive said flames, an upper log on the front and rear logs, means on the cradle to position said upper log to extend over said front and rear logs in the path of said rising flame, said logs consisting of fire resistant material, said upper log containing an upwardly extending recess, and said means projecting upwardly in said recess.

3. The combination of claim 2 wherein said means comprises a pivot extending loosely in said recess and about which the upper log is pivotable to rest on said front and rear logs

and with a selected angularity with respect to the front and rear logs.

4. The combination of claim 3 including a second upper log containing a recess, and said means including another pivot extending in said second upper log recess to accommodate pivoting thereof in spaced relation to and independently of the first-mentioned upper log.

5. The combination of claim 3 in which said pivot and at least one of said shoulders is defined by a narrow upright members carried by the cradle.

6. The combination of claim 5 in which said means includes an adjustable clamp for holding said members in adjustably clamped relation to said burner structure, whereby said pivot may be shifted relative to the burner structure.

7. The combination of claim 1 wherein said burner structure includes an elongated gas burner, and a flame deflector extending between said front and rear shoulders and in the path of flame rising from the burner, said clamping adjustment being loosenable to allow pivoting of the uprights about a vertical axis.

8. The combination of claim 7 wherein the underside of said deflector extends at an angle relative to vertical to deflect flames to rise in a single sheet pattern for impingement on the upper log.