

PATENT SPECIFICATION



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477,959

Complete Specification Left: July 3, 1937.

Complete Specification Accepted: Jan. 10, 1938.

PROVISIONAL SPECIFICATION

Improvements in or relating to Gas Fires Provided with Lighters

We, R. & A. MAIN LIMITED, a British Company, and HENRY NORMAN ROBINSON, a British Subject, both of 48, Grosvenor Gardens, London, S.W.1, do hereby declare the nature of this invention to be as follows:—

This invention is for improvements in or relating to gas fires provided with lighters. It is usual to dispose a lighter immediately adjacent a burner nozzle.

According to this invention, there is provided, in combination with a gas fire having one or more radiants disposed above a burner, a lighter which is arranged at the upper end of the radiant or radiants. For example, the lighter may be disposed in the space above the radiant in the path of the upwardly-flowing gases.

In applying the invention to a gas fire having a flue passage in communication with the space above the radiant, the lighter may be disposed in the said passage, while, in a case where the gas fire is provided with a canopy, the lighter may be disposed beneath the canopy.

The invention is particularly applicable to small portable gas fires where the flue passage is disposed adjacent the top of the radiant, such for example as is described in prior Specification No. 322,838.

Any known form of lighter may be employed, such as a pyrophoric lighter, a catalytic lighter or electric lighter, and an operating member for the lighter may be disposed in a convenient position at the front of the fire. When a pyrophoric lighter is employed having a rotatable roughened steel striking wheel, the wheel may be operated by a rotatable shaft which is arranged to extend through a front wall of the gas fire, for

example, when the lighter is disposed in a flue or beneath a canopy, the shaft is arranged to extend through the front wall above the radiant through the canopy. The shaft is provided at its outer end with a manipulating knob formed from a heat-insulating material, such for example as the material sold under the Registered Trade Mark "Bakelite". The inner end of the shaft may be connected either directly or through gearing to the roughened hard-steel wheel.

In applying the invention to a fire such as is shown in prior Specification No. 322,838, the pyrophoric lighter comprises a housing in which the steel wheel and a spring-pressed flint are mounted, which housing is secured on the outside of the upper rearwardly-extending wall of the flue. The housing and the flue wall are provided with apertures through which the igniting sparks may shower. The shaft for rotating the wheel extends forwardly over the flue and through a bearing mounted in the front wall of the fire above the openings for the radiants. Alternatively, the operating shaft could be arranged to extend upwardly from the flue and be operated from behind the front wall of the fire.

It is found that a pyrophoric lighter disposed in the manner described above, particularly in small portable fires, operates with greater certainty than in an arrangement in which it is disposed close to the burner, since in the latter case only the burner jet opposite the lighter may be ignited.

Dated this 8th day of July, 1936.

BOULT, WADE & TENNANT,
Chartered Patent Agents,
111 & 112, Hatton Garden,
London, E.C.1.

COMPLETE SPECIFICATION

Improvements in or relating to Gas Fires Provided with Lighters

We, R. & A. MAIN LIMITED, a British Company, and HENRY NORMAN ROBINSON, a British Subject, both of 48,

Grosvenor Gardens, London, S.W.1, do hereby declare the nature of this invention and in what manner the same is to

[Price 1/-]

be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention is for improvements in
or relating to gas fires provided with
lighters. It is usual to dispose a lighter
immediately adjacent a burner nozzle.
We are also aware of Specification No.
10 385,357 in which it has been proposed,
in a gas fire having tubular radiants dis-
posed above a burner, to fix an igniter at
the back of a radiant and to provide it
with a scoop which projects downwardly
over the aperture at the top of the
15 radiant.

According to this invention, there is
provided in combination with a gas fire
having a number of tubular radiants dis-
posed above the teats of a gas burner, a
20 lighter disposed in a space above and in
free communication with the upper ends
of all the radiants. It is found with
this arrangement that a readily ignitable
mixture is formed in the aforesaid space
and the flame initiated in this space
25 lights back simultaneously through
all the radiants to the teats of the
burner.

In applying the invention to a gas fire
30 having a flue passage, the lighter may be
associated with said flue passage. Alter-
natively, in the case of a gas fire pro-
vided with a canopy, the lighter may be
associated with the canopy.

35 Preferably, the lighter is of the kind
provided with a hand-control which is
disposed in a convenient position in front
of the fire. For example, if a pyrophoric
lighter of the flint-wheel type is
40 employed, a shaft for rotating the wheel
is arranged to extend through a front
wall of the fire.

In one constructional form of the
invention, the pyrophoric lighter is pro-
45 vided with a casing through which said
shaft extends and which casing is
attached to the front wall of the gas fire
so that an open part of the casing which
houses the flint wheel is arranged to
50 register with a hole formed in the canopy
of the fire above the top of the radiants.

The following is a description of a
number of embodiments of the invention,
reference being made to the accompany-
55 ing drawings, in which:—

Figure 1 is a vertical section through a
portable gas fire largely formed from
sheet metal.

60 Figure 2 is a vertical section through
a cast-metal gas fire having a front flat
wall.

Figure 3 is a front elevation of a part
of the flat front wall of the fire of Figure
2, showing the panel which supports the
65 lighter,

Figure 4 is a sectional plan of the
lighter shown in Figure 1, and

Figure 5 is a vertical section through
the lighter on the line 5—5 of Figure 1,

In the construction shown in Figure 1, 70
the back wall 10 and the side walls 11
of the fire are formed from one piece of
sheet metal which is shaped at the upper
end to provide the lower part 12 of a
75 flue passage. The front edges of the side
walls are attached to a front wall 14
which has the usual opening for expos-
ing the radiants 15. The front wall
extends upwardly above the opening to
80 provide an ornamental front portion 16.
The upper part 17 of the flue is also
formed from sheet metal and is secured
to the lower part 12 by welding. The
forward part 18 of said flue part forms an
85 inner canopy and has welded to it a strip
of metal 13 which constitutes an outer
canopy. The strip is bowed upwardly at
the centre of its rear edge and has the
rear corners welded to the inner canopy
90 at 46. By these means the inner canopy
18 is spaced away from the outer canopy
13. A firebrick back 19 is disposed
between the radiants and the back wall of
the fire. The lighter is of the pyro-
95 phoric type, the general arrangement of
which is best seen in Figure 4. The
lighter is provided with a flint-wheel 21
which is secured on a shaft 22 by a nut
23 which forces the wheel against a
100 shoulder 24 formed on the shaft. The
shaft is rotatably mounted in a tubular
casing 25, one end of which is screw-
threaded at 26 to engage a threaded hole
in a casing part 27 which houses the flint-
105 wheel. This casing part has an opening
through which sparks may be projected,
it has also secured to it a second tubular
casing 28 disposed at right-angles to the
tubular casing 25. Mounted within the
110 second tubular casing is the flint 29
which is pressed against the flint-wheel
by a spring-operated plunger 30 having
a shoulder against which one end of the
compression-spring 31 rests. The other
115 end of the compression-spring abuts
against a cap 32 which is in screw-
threaded engagement with the end of the
second tubular casing. The end of the
plunger 30 extends out beyond the cap
120 so as to give an indication of the amount
of flint within the casing. As will be
seen from Figure 1, the outer end of the
first tubular casing, which is screw-
threaded, is arranged to extend through
125 a hole in the ornamental upper part of
the front wall and is engaged by a nut 33
having an externally-threaded shank por-
tion 34 which receives a nut 35. Suit-
ably shaped washers 36 and 37 are dis-
posed between the nut 33 and the wall 16 130

and between the wall 16 and the nut 35, whereby the casing 25 is rigidly secured to the wall 16. The length of the tubular casing 25 is so selected that the flint-wheel 21 is disposed immediately above the top of the radiant 15. As will be seen from Figure 1, the casing part 27 is open at its lower end and this lower end is arranged to register with a hole 38 formed in the upper part 17 of the flue.

In the construction shown in Figure 2, the back wall 10, side walls 11 and inner canopy 18 are all cast from one piece of metal and the flue 12 is secured to the inner canopy at the upper part of the back wall. The front wall 16 is also formed from cast metal and has secured thereto a frame 39. Instead of the lighter casing being clamped direct to the front wall 16, as in the construction shown in Figure 1, the forward end engages a threaded hole in a panel 40 which is sunk flush with the front wall 16 in a recess 41 formed in that wall. The panel is retained in position by set-screws 42 as seen in Figure 3. Alternatively, instead of the lighter casing being screwed to the panel, it may be formed integral therewith. As in the previous construction, the casing part 27 is arranged to register with a hole 38 in the inner canopy 18. In both constructions, the shaft 22 is arranged to extend in front of the wall 16 and has secured thereto a manipulating knob 43 which is preferably formed from a heat-insulating material such as is sold under the Registered Trade Mark "Bakelite". The knob may be provided with a metal core 44 which is secured to the end of the shaft 22 by a set-screw 45.

It will be appreciated that a pyrophoric lighter of the above kind may be applied to many different forms of gas fire. For example, in a case where the ornamental front plate 16 of the construction shown in Figure 2 is replaced by an outer canopy, the panel 40 might be suitably shaped to engage a recess in the canopy or the end of the tubular casing 25 might be secured direct to the canopy by the means shown in Figure 1.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. The combination with a gas fire having a number of tubular radiants disposed above the teats of a gas burner, of a lighter disposed in a space above and in free communication with the upper ends of all the radiants.

2. The combination according to claim 1, and having a flue passage, wherein said lighter is associated with said flue passage.

3. The combination according to claim 1, and having a canopy over the space above the radiants, wherein the lighter is associated with the canopy.

4. The combination according to any of the preceding claims, wherein said lighter is provided with a hand control which is disposed in a convenient position in front of the fire.

5. The combination according to claim 4, in which a pyrophoric lighter of the flint-wheel type is provided, wherein a shaft for rotating the wheel is arranged to extend through a front wall of the fire.

6. The combination according to claim 5, in which a pyrophoric lighter is provided with a casing through which said shaft extends and which is attached to the front wall of the gas fire, and wherein the flint-wheel is housed in an open part of the casing which is arranged to register with a hole formed in a canopy above the top of the radiants.

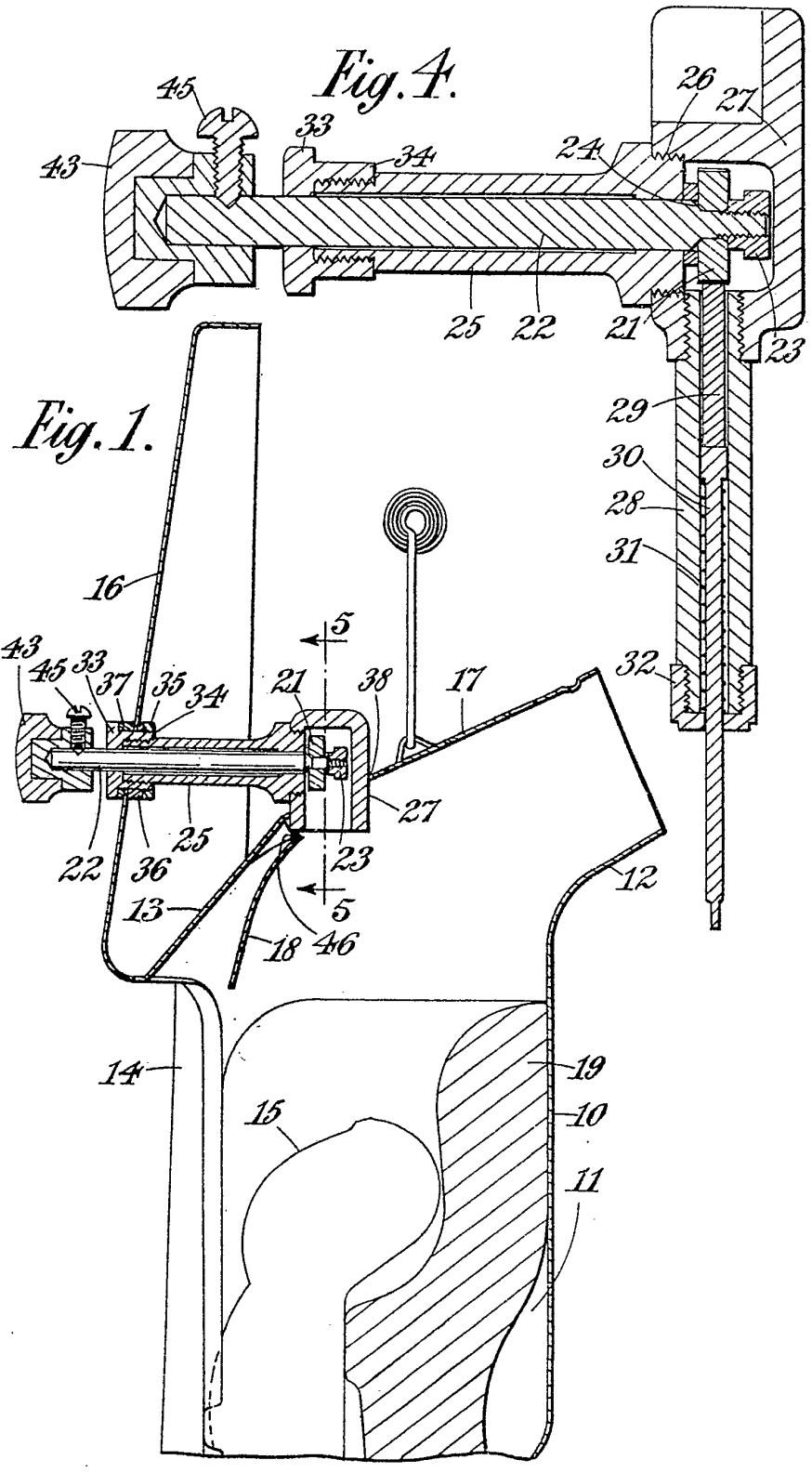
7. The combination according to claim 6, wherein said casing of the lighter is mounted on or formed integral with a panel which is secured in or over an aperture formed in the front wall of the fire.

8. The combination with a gas fire of a lighter, substantially as shown either in Figure 1 or Figures 2 and 3 of the accompanying drawings.

Dated this 26th day of May, 1937.

BOULT, WADE & TENNANT,
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111 & 112, Hatton Garden,
London, E.C.1.

[This Drawing is a reproduction of the Original on a reduced scale.]



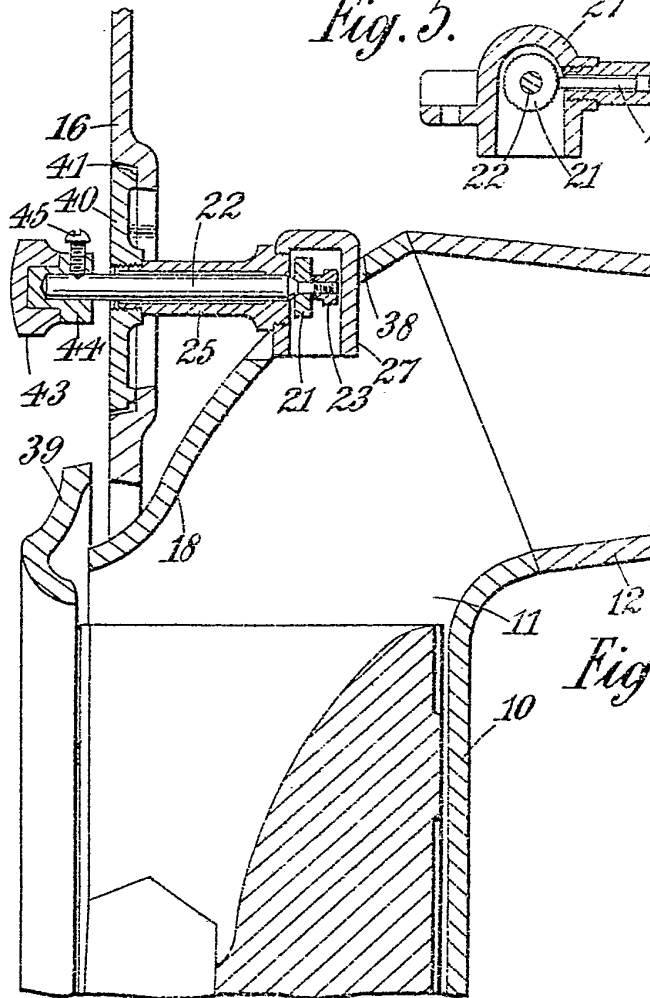
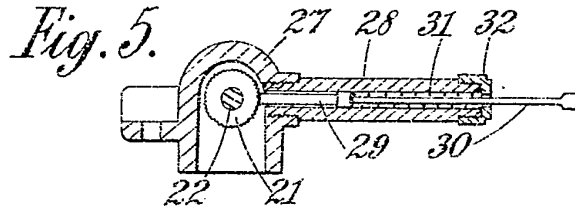
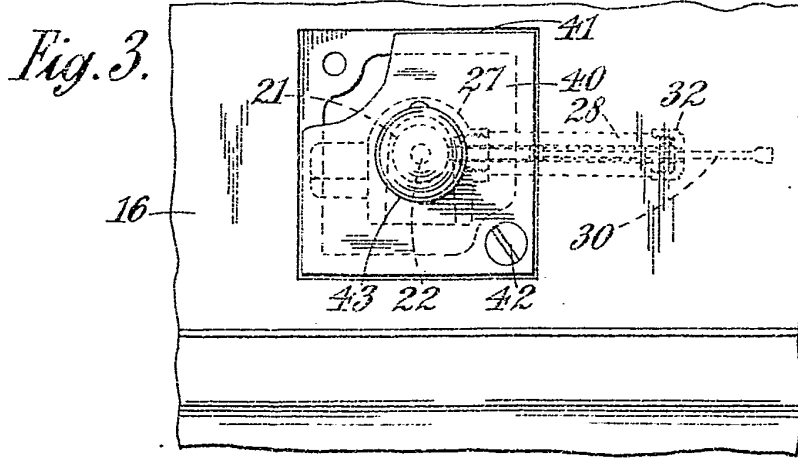


Fig. 2.

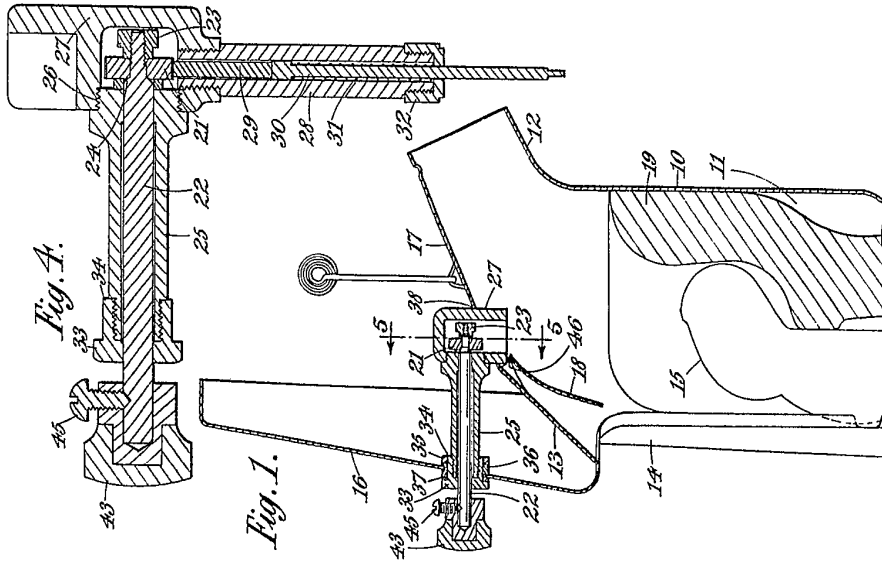


Fig. 1.

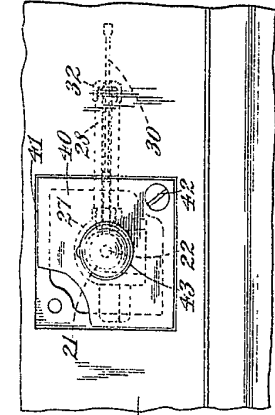


Fig. 2.

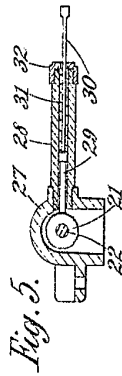


Fig. 3.

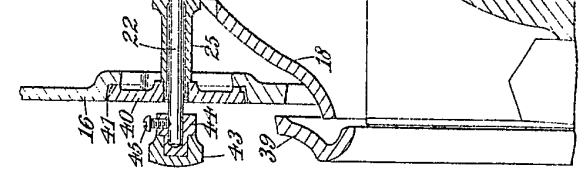


Fig. 4.

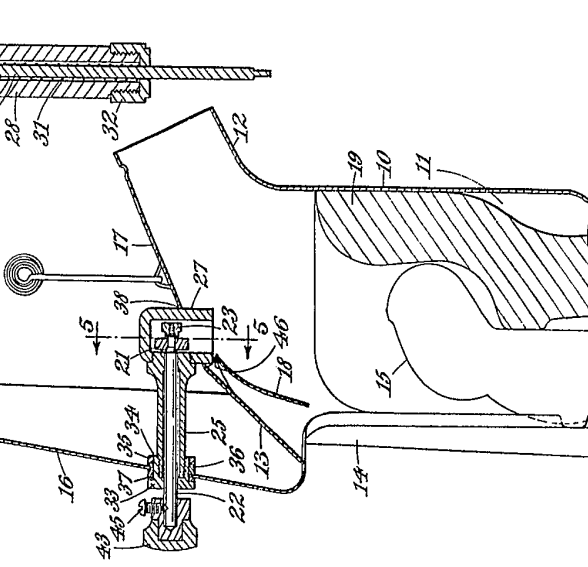


Fig. 5.

[This Drawing is a reproduction of the Original on a reduced scale.]