Aug. 8, 1961 L. E. BARKER 2,995,306

SALAMANDER

Filed July 8, 1958

Fig.1

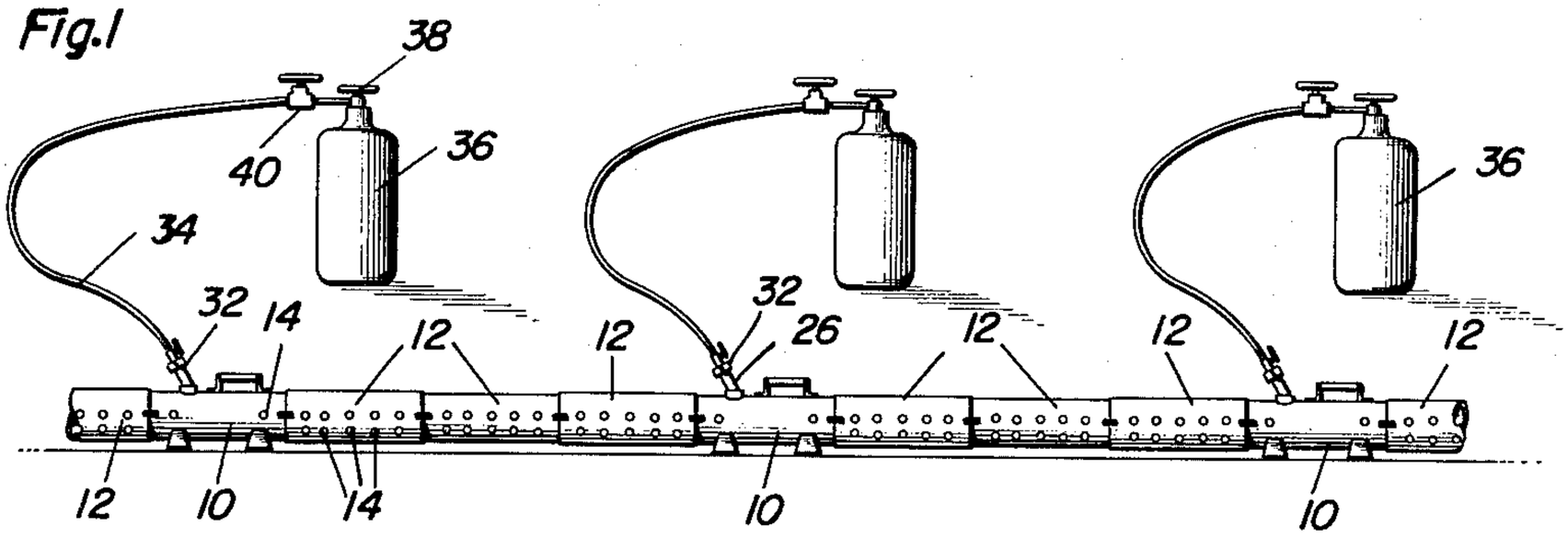


Fig.2

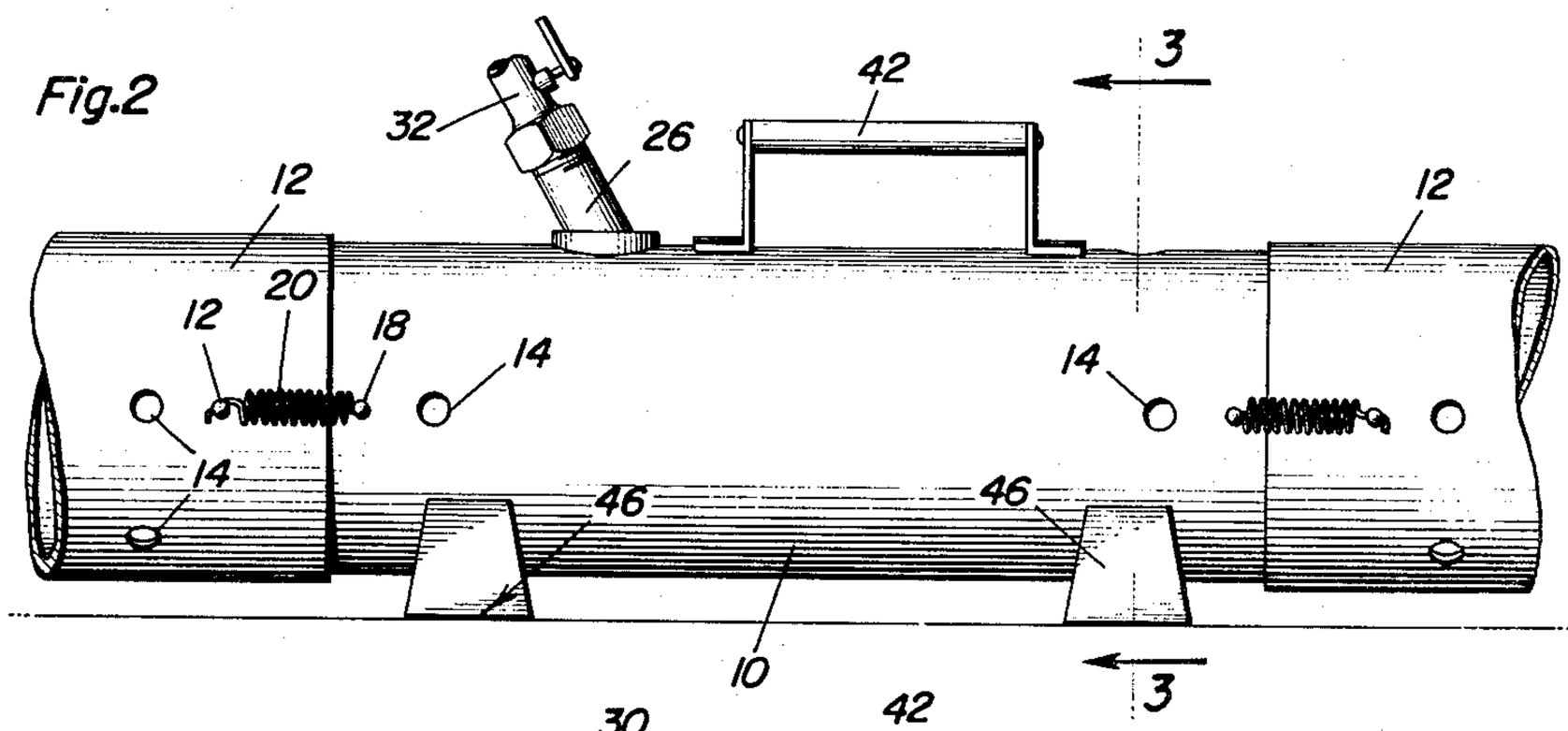


Fig.4

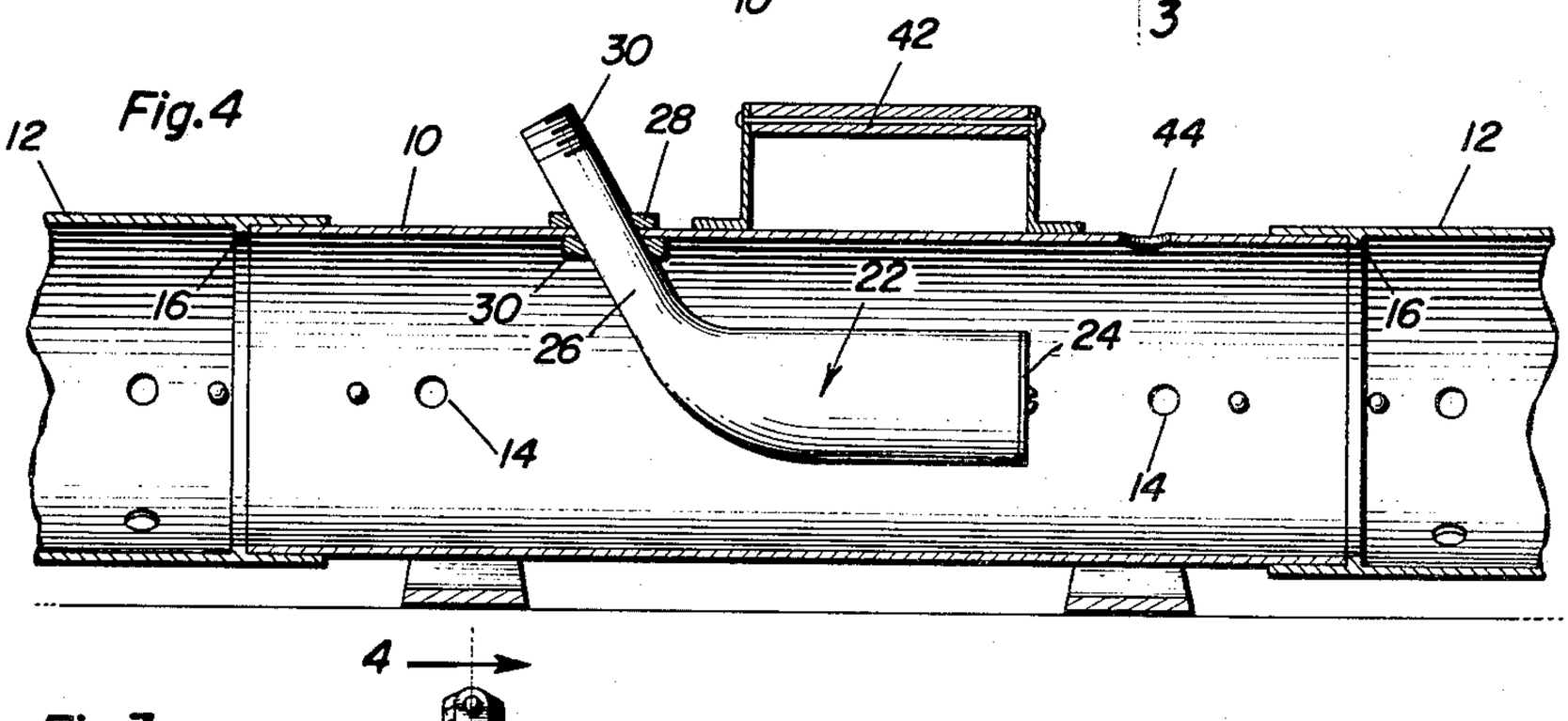
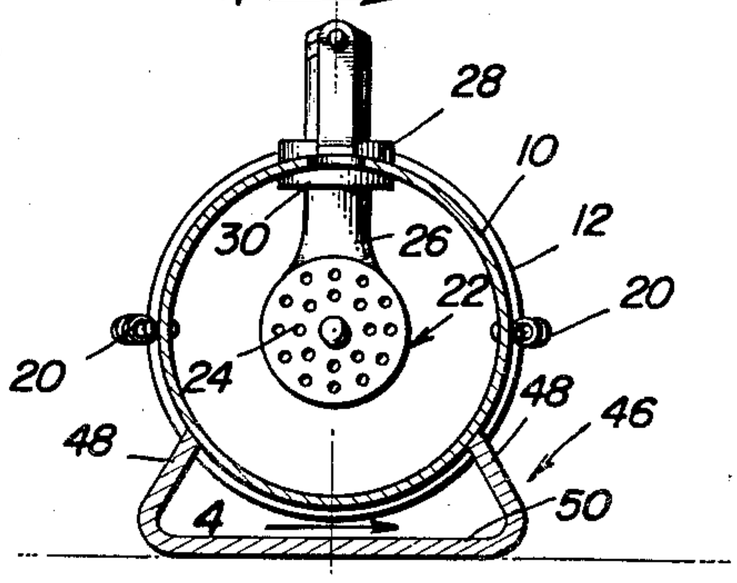


Fig.3



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SALAMANDER

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This invention comprises a novel and useful improvement in a salamander and more particularly relates to a longitudinally elongated multi-section salamander capable of being constructed and assembled in any desired length for distributing heat over relatively large areas and distances.

The primary purpose of this invention is to provide a multi-section salamander capable of being progressively lengthened in order to spread its heat over a relatively larger area or distance.

A further object of the invention is to provide a multi-section salamander wherein a plurality of combustion chambers may be successively connected together with various sectional chamber extensions in order to combine any desired number of heating units into a continuous salamander having a uni-directional flow of combustion products therein.

Still another object of the invention is to provide a multi-section salamander in accordance with the foregoing objects which shall be extremely portable in its nature and may be quickly and easily connected or disconnected as to its plurality of sections.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a side elevational view showing the manner in which a plurality of sections may be assembled together to form a continuous multi-section salamander;

FIGURE 2 is a side elevational view of a portion of FIGURE 1 and showing more clearly one of the combustion units forming a section of the same;

FIGURE 3 is a vertical transverse sectional view taken substantially upon the plane indicated by the section line 3—3 of FIGURE 2 and showing the internal construction of and the mounting means for supporting and handling the salamander; and

FIGURE 4 is a vertical longitudinal sectional view taken substantially upon the plane indicated by the section line 4—4 of FIGURE 3 and showing the internal construction of a heating unit of the salamander.

The present invention has for its primary purpose a portable salamander construction consisting of combustion units and extension units, the former being each connected to a separate source of fuel, together with means for assembling these units in various desired combinations in alignment with each other and in communication with each other whereby to provide the resultant salamander of any desired length and heating capacity.

In the accompanying drawings there is shown by way of illustration a preferred manner in which a plurality of combustion units and extension units may be associated together to form a salamander. Thus, as shown in FIGURE 1 it will be seen that a plurality of combustion units **10** are detachably connected in alignment with a plurality of extension units **12**, which latter serve to increase the effective length of the combustion units as well as to connect successively spaced combustion units.

Each combustion unit **10** is complete in itself in order to generate and support combustion of a fuel therein.

As will be apparent from FIGURE 4, each of the units **10** and **12** comprise open-ended sleeves which are provided with suitable apertures **14** in longitudinally and

circumferentially spaced relation along their side walls in order to admit air into the apparatus.

Means are provided for detachably connecting adjacent units together in alignment and in continuous unrestricted communication with each other. Thus, adjacent ends of adjacent units are disposed in telescoping relation as shown in FIGURE 4, there being provided an internal rib **16** upon the interior of one of the units adjacent one end thereof, while the other unit has its end telescopingly received in the first mentioned unit and in abutting relation with the rib **16**.

As shown more clearly in FIGURE 2, the adjacent ends of adjacent units are provided with laterally projecting pins **18** and springs in the form of tension members **20** are secured to these pins for yieldingly retaining the adjacent ends of adjacent units in telescoped relation with each other.

As will now be readily understood, the units may be readily connected to or released from each other to thereby produce a resultant salamander having any desired number of combustion units and extension units as desired to fit a particular requirement.

A burner **22** is disposed in the interior of each combustion unit. As shown best in FIGURE 4, this burner may comprise a member having a fuel discharge nozzle **24**, the end of the burner and the discharge nozzle being positioned centrally of the cylindrical interior of the combustion unit **10** and having an angle, upwardly inclined inlet conduit **26** integrally formed therewith which extends through the top wall of the unit, being fixedly retained in place and sealed therein as by cooperating fastening collars **28** and **30**. These collars are preferably welded in place upon the inlet conduit **26** and upon the top wall of the combustion unit **10** in order to rigidly position the burner in place therein.

Upon the exterior of each of the combustion units, the conduit **26** for supplying fuel to the burner is externally threaded as at **30** and receives thereon a control valve member shown at **32** in FIGURES 1 and 2. A plurality of flexible pipes or conduits **34** are connected to the inlet conduit **26** through the previously mentioned control valve **32**, and are connected to a suitable source of fuel. Conveniently, the fuel may be supplied from a tank or container **36**, having a manual control valve **38** therefor, there being a further control valve **40** being interposed between the tank **36** and the valve **32**.

As is illustrated in FIGURE 1, a separate source of fuel is suplied for each of the combustion units, it will be understood that in some instances a single source of fuel may be supplied for two or more combustion units by proper connections therewith. Further, although it is preferred to employ a compressed gas as a fuel, it will be understood that various liquid fuels may likewise be employed where desired.

Secured to the top of each combustion unit is a handle **42** by means of which the unit is rendered portable, and an opening **44** is provided in the top wall of the combustion unit, preferably adjacent the handle and in close proximity to the nozzle **24** whereby a lighted taper or the like may be introduced into the combustion unit for the purpose of igniting the fuel supplied thereto by the nozzle **24**.

In order to facilitate use of the device and improved stability of the same, a leg assembly is provided therefor. Thus one or more of the units are provided with supporting leg assemblies designated generally by the numeral **46**. As illustrated, each of the combustion units is provided with such a leg assembly, although it may be understood that any of the extension units may be likewise so equipped.

As shown in FIGURE 3, the leg assembly **46** comprises a U-shaped bracket assembly including side legs **48** which

are welded or otherwise fixedly secured to the bottom portion of the unit, and between which extend a flat web **50** comprising a base for the leg assembly and for the entire unit upon which the leg assembly is mounted.

In the operation of the form of the invention disclosed in FIGURES 1–4, it will be seen that fuel is supplied for combustion into each of the combustion units and is ignited therein. Therefore combustion is drawn through the open rearward end of the aligned series of units and also therefore combustion as well as further air to supplement the air flow and for heating by the combustion units is introduced through the apertures **14** in the various extension units and in the combustion units themselves. Thus, an ample supply of air is provided both for supporting combustion of the fuel introduced and also to be heated by this fuel whereby the products of combustion accompanied by the additional air admitted will be caused to have a uniflow direction of progress through the assembled units and thus will be capable of effectively heating the space adjacent the elongated unit.

Although the units have been shown disposed in a straight line arrangement, it will be understood that by providing suitable non-rectilinear or angulated or curving extension units **12**, that the entire salamander assembly may be given a shape which will enable it to be conformed closely to the curvature of a surface or space which is to be heated by the device.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be restored to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A salamander comprising a combustion unit and an extension unit, said units comprising open-ended sleeves disposed in alignment and having continuous unrestricted communication with each other, means detachably connecting said units together, a burner disposed in said combustion unit having a fuel inlet conduit extending through the wall of said combustion unit and a fuel discharge nozzle centrally supported therein, means for supplying a gaseous fuel to said inlet conduit, an ignition opening in said combustion unit wall adjacent said burner discharge nozzle and including a plurality of air admission ports in each of said units.

2. A salamander including a pair of longitudinally spaced combustion units and an extension unit disposed in alignment therewith and therebetween and having continuous unrestricted communication with both of said combustion units, said extension unit and said combustion unit comprising open-ended sleeves, means detachably connecting said extension unit and said combustion units together, a burner disposed in each combustion unit with each burner having a fuel inlet conduit extending through the wall of its associated combustion unit and a fuel discharge nozzle centrally supported therein, means for supplying fuel to said inlet conduits, an ignition opening in each combustion unit wall adjacent its associated burner discharge nozzle and including a plurality of air admission ports in each of said units.

References Cited in the file of this patent

UNITED STATES PATENTS

1,222,794	Quinn	Apr. 17, 1917
2,286,366	Lea et al.	June 16, 1942
2,535,545	Moss	Dec. 26, 1950
2,764,969	Weiss	Oct. 2, 1956

FOREIGN PATENTS

520,565	Germany	Feb. 26, 1931
108,204	Great Britain	July 31, 1917