July 26, 1927. 1,636,791

I. E. SMITH

OIL BURNER INSTALLATION

Filed March 7, 1927

Fig. 2

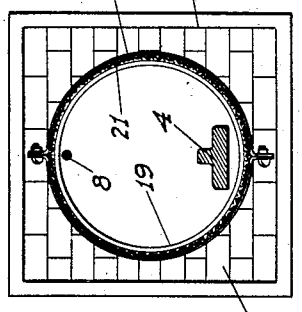
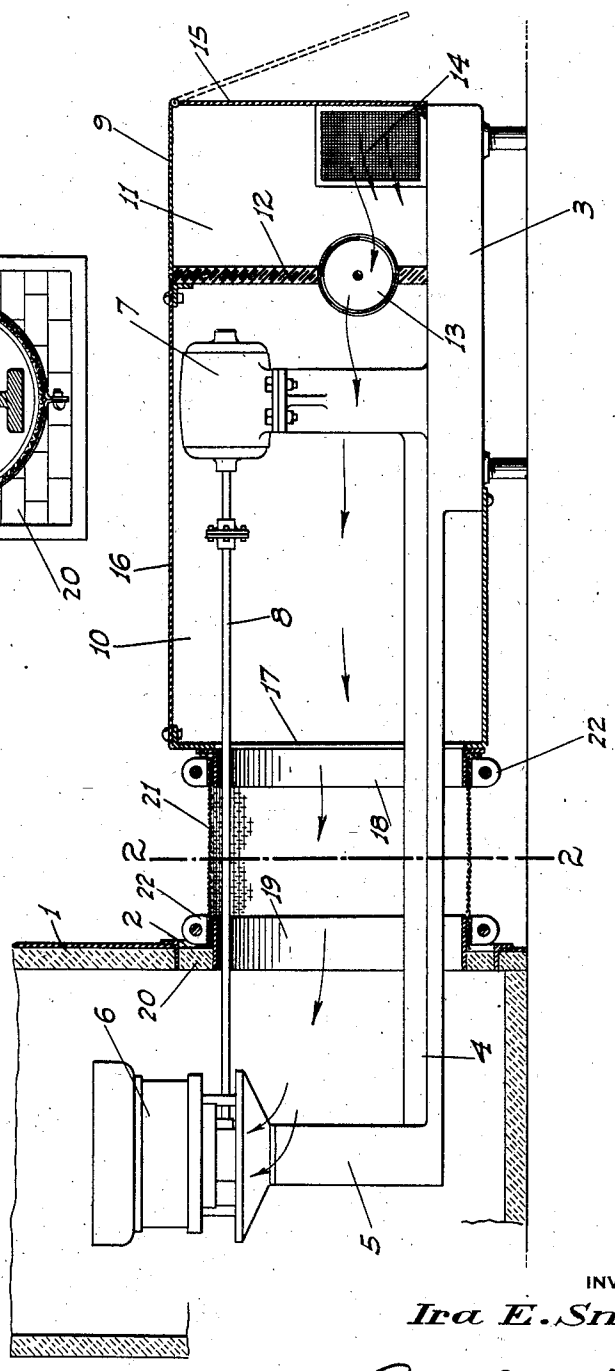


Fig. 1



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UNITED STATES PATENT OFFICE.

IRA E. SMITH, OF STOCKTON, CALIFORNIA.

OIL-BURNER INSTALLATION.

Application filed March 7, 1927. Serial No. 173,335.

This invention relates to improvements in means for mounting electrically driven oil burners in connection with the furnace or firebox in which the burner is located, and particularly represents improvements over the structure shown in my Patent No. 1,609,995, dated November 30th, 1926.

In this previous apparatus the motor and other exterior parts of the burner structure were enclosed in a housing extending from the outer end of the supporting base of the structure to the firebox opening so as to form an air passage to the firebox whose opening and closing could be controlled by a properly positioned damper. This housing was rectangular in cross section, of considerable length and of a flexible fabric throughout. This arrangement provided the desired vibrationless connection feature but proved awkward and cumbersome to apply or detach when necessary, and since it tended to sag intermediate its ends a neat appearance could not of course be maintained.

The principal object of the present invention therefore is to improve upon this housing structure by making the greater portion of the same of a rigid and permanently attached character, and the remainder between the firebox and the rigid housing quite short and of flexible fabric, connecting the firebox and rigid housing in such a manner that it may be easily made, applied and removed, while functioning just as efficiently for its purpose as the previous arrangement.

A further object of the present invention is to construct the rigid portion of the housing in such a manner that the various operating units of the oil burning structure, enclosed within the rigid housing, are readily rendered accessible whenever necessary without detaching the entire housing and without dismounting the fabric housing portion. At the same time these operating units are normally completely enclosed and thoroughly protected against possibility of damage from contact with exterior objects.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Fig. 1 is a sectional elevation of my improved oil burner installation structure shown in connection with a firebox.

Fig. 2 is a cross section on the line 2—2 of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes the firebox of the furnace having the usual rectangular side opening 2. Mounted on the floor outside the furnace is a rigid base 3. Projecting from the end of the base adjacent the firebox and formed integral therewith or rigidly secured thereto in any suitable manner is a rigid extension 4. This extension is clear of the floor and projects into the furnace through the opening 2 in spaced relation to the sides and bottom thereof. Supports 5 project upwardly from the inner end of the extension and support a burner 6 of suitable form, such as for instance as is shown in my Patent No. 1,582,552, dated April 27th, 1926, though other forms of burner may of course be mounted instead of the one shown. The general arrangement of the motor, burner and co-related parts is substantially as shown in my Patent No. 1,512,247, dated October 21st, 1924.

The base 3 supports a driving motor 7 for the burner, said motor being operatively connected to the rotating parts of the burner by a horizontal shaft 8 which extends from the motor to the burner through the opening 2.

The improved housing which I provide for enclosing the external operating mechanisms of the burner structure and for forming a direct air passage or conduit to the firebox opening is constructed as follows:

Mounted on the base 3 and overhanging and enclosing a portion of the extension 4 is a rigid metal housing structure 9. This housing surrounds and encloses the motor 7 and all other external operating devices and parts such as the electric relays and other electrical units, the oil pump and control units and any other features which may be incorporated with the burner structure to form the complete apparatus. The housing 9 is divided into two longitudinally separated compartments 10 and 11 by a transverse panel 12 mounted on the base outwardly of the motor, the electrical units (not shown)

being intended to be mounted on the outer face of the panel or in the chamber 11. A damper 13 preferably of the automatically operating character, such as shown in my co-pending application for patent, Serial No. 147,691, filed November 11th, 1926, is mounted in an opening provided in the panel 12 so that air may pass from the chamber 11 to the chamber 10 and then into the firebox. The air enters the chamber 11 through a side opening 14 therein. Access to the electrical instruments mounted on the panel 12 is had through a normally closed hinged door 15 mounted on the outer end of the housing. Access to the chamber 10 is had upon removing a normally closed fixed cover plate 16.

The motor shaft 8 and the base extension 4 project through a common opening 17 provided at the end of the housing nearest the furnace, this opening being preferably circular in form and being surrounded by an outwardly projecting flange in the form of an annular ring 18. This ring is the same size and concentrically alined with a similar ring 19 which projects outwardly from the firebox opening 2. If said opening is rectangular or square, the ring (which is smaller than the opening) is secured in place by projecting the same into the opening a certain distance and then filling in the space between the ring and the sides of the opening with brick-work, or the like, as indicated at 20 in Fig. 2. A length of cylindrically formed or tubular non-porous fabric 21 such as asbestos cloth, fits over the rings 18 and 19 and is removably clamped in place to form an air-tight joint by suitable clamping bands as at 22. The length of this fabric tube does not need to be very great and in any event is short enough so that there is no tendency for it to sag intermediate its ends.

From the foregoing description it will be readily seen that I have produced a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. An oil burner installation for a firebox having a side opening therein, comprising, with a base member supported exteriorly of the opening, a burner inside the firebox and operating means for said burner mounted on the base outwardly of the firebox; a rigid housing structure mounted on the base and surrounding the operating means, and an additional housing member made of vibrationless material extending from the firebox to the rigid housing and arranged to provide an enclosed air passage from the interior of the firebox through the side opening thereof and into the rigid housing.

2. An oil burner installation for a firebox having a side opening therein, comprising, with a base member supported exteriorly of the opening, a burner inside the firebox and operating means for said burner mounted on the base outwardly of the firebox; a rigid housing structure mounted on the base and surrounding the operating means, a transverse panel dividing said housing into two chambers, a hinged door for the outermost chamber, and a normally fixed but removable cover plate forming part of the housing of the other chamber.

3. An oil burner installation for a firebox having a side opening therein, comprising, with a base member supported exteriorly of the opening, a burner inside the firebox and operating means for said burner mounted on the base outwardly of the firebox; a housing structure mounted on the base and surrounding the operating means, said structure extending from around the firebox opening beyond the operating means to form an air passage, a transverse panel in the housing outwardly of the operating means, a damper in said panel, and an air opening in the housing outwardly of the panel.

4. An oil burner installation for a firebox having a side opening therein, comprising, with a base member projecting into said opening and supported exteriorly of the same, a burner supported from the base inside the firebox and operating means for said burner mounted on the base outwardly of the firebox; a rigid housing structure mounted on the base and surrounding the operating means, said housing at its end adjacent the firebox having an opening through which the adjacent portion of the base projects, an annular flange about said opening projecting toward the firebox, a similar flange projecting outwardly from the firebox and alined with but spaced from the first named flange, and a housing of vibrationless material extending between and surrounding the flanges in engaging relationship therewith.

5. An oil burner installation for a firebox having a side opening therein, comprising, with a base member projecting into said opening and supported exteriorly of the same, a burner supported from the base inside the firebox and operating means for said burner mounted on the base outwardly of the firebox; a rigid housing structure mounted on the base and surrounding the operating means, said housing at its end adjacent the firebox having an opening through which

the adjacent portion of the base projects, an annular circular flange projecting outwardly from said opening, a similar flange projecting outwardly from the firebox opening in concentric and spaced relation to the first named flange, and a tube of vibrationless material extending between and engaging the flanges.

6. An oil burner installation for a firebox having a side opening therein, comprising, with a base member projecting into said opening and supported exteriorly of the same, a burner supported from the base inside the firebox and operating means for said burner mounted on the base outwardly of the firebox; a rigid housing structure mounted on the base and surrounding the operating means, said housing at its end adjacent the firebox having an opening through which the adjacent portion of the base projects, an annular circular flange projecting outwardly from said opening, a similar flange projecting outwardly from the firebox opening in concentric and spaced relation to the first named flange, a tube of vibrationless material extending between and surrounding the flanges in engaging relationship, and clamping bands about said tube over the flanges.

In testimony whereof I affix my signature.

IRA E. SMITH.