A. McMURTRIE.

CLAMP.

APPLICATION FILED NOV. 27, 1911. RENEWED NOV. 21, 1916.

1,230,742. Patented June 19, 1917.

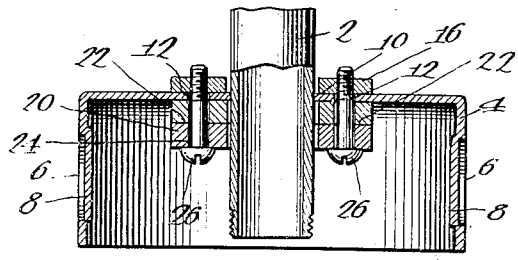
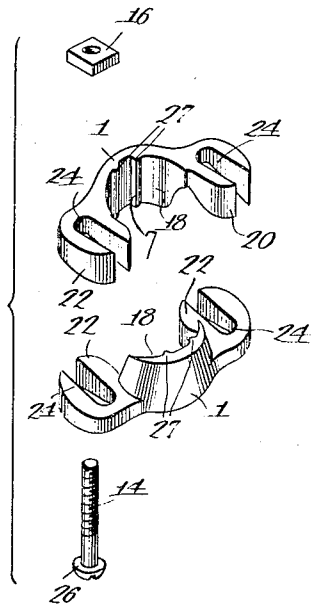


Fig.1.

Fig.2.



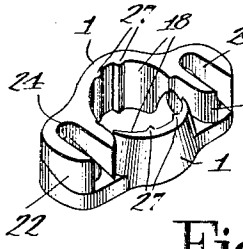


Fig.3.

Witnesses:
James C. Edelin
D. W. Edelin

Inventor:
Adnah McMurtrie
by his attorney
Alexander C. Brownfield

UNITED STATES PATENT OFFICE.

ADNAH McMURTRIE, OF NEW YORK, N. Y., ASSIGNOR TO THOMAS & BETTS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CLAMP.

1,230,742. Specification of Letters Patent. Patented June 19, 1917.

Application filed November 27, 1911, Serial No. 662,715. Renewed November 21, 1916. Serial No. 132,715.

To all whom it may concern:

Be it known that I, ADNAH McMURTRIE, of New York, N. Y., have invented certain Improvements in Clamps, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings designating like parts.

This invention relates to clamping devices and is of particular utility when embodied in a clamp for electrical conduit, although I contemplate the utilization of my improvements in any field for which they are adapted by their nature.

An important object of my invention is to provide a "grounding clamp" which term I use without technical limitation as a brief and convenient designation for a device for effecting mechanical and electrical connection between such an electrical conduit member as a ceiling box and a gas pipe projecting through the conduit box to receive a chandelier, it being desirable to insure a path of good conductivity for any electrical current which may accidentally flow from the chandelier to the gas pipe, so that destructive arcing will be avoided.

Another object of my invention is to provide an attachment of the class described which can be used upon various sizes of pipe without requiring special adjustments preliminary to emplacement, the adjustment being effected automatically by the act of setting the fastening devices employed to secure the attachment in place.

Other objects of notable importance include the construction of the device in a plurality of symmetrical parts of identical construction, so that but one form of pattern will be required in their manufacture, and any two of the members may be secured together in opposed relation, without preliminary selection, to embrace between them the article to which attachment is to be effected, as for example the gas pipe to which reference has already been made.

Another object consists in the construction of the attachment in such a manner that it does not require an expensive preparatory threading operation to fit it for emplacement, but can be secured by ordinary machine screws or by stove bolts and nuts passed into the usual holes found in the bases of outlet boxes, these holes being sometimes threaded and sometimes plain. My improved attachment constitutes a universal fitting for these conduit members.

Another object of my invention is to provide a convenient method of attaching a ground wire to a pipe or conduit where no outlet box is used. In such a case the ground wire may either be coiled under the head of the bolt, or secured to a lug held under the head of the bolt. The lugs on one of the component parts of the clamp may have threaded holes instead of slots, and then ordinary machine screws may be used in place of bolts.

This lateral movement of the segments relatively to each other, has the effect of scraping their contacting surfaces to cause a good electrical connection, and the co-axial play gives a scraping contact of the seat portions of the segment with the pipe embraced therebetween, while the threaded engagement of the bolts and the scraping action of their heads upon the segment lugs and the base respectively completes the electrical union between the pipe, clamp and box.

The various features of my invention will be illustrated and described fully in the accompanying drawings and specification and set forth in the claims.

In the drawings,

Figure 1 is a view, in vertical section, of an installation comprising an outlet box, a gas pipe and a grounding clamp in the construction of which my invention has been embodied.

Fig. 2 is a view in perspective of the component members of the clamp, shown separately, but in position for assemblage; and

Fig. 3 shows the clamping members in assembled relation separately from the box.

In the embodiment of my invention selected for illustration and description to permit ready and complete understanding of my improvements, the parts designated by the reference numeral 1 are the members of my improved clamp, which are shown, by way of example, as constituting the component parts of a grounding clamp to effect physical and electrical connection between a gas pipe 2 and the box 4 shown in Fig. 1, which may be considered to represent an electrical conduit outlet box especially adapted for ceiling and other wall installations, such boxes usually having apertures

6 to admit electrical conduit, with knock-outs 8 to close the apertures not so used, and having a central aperture 10 to admit the gas pipe 2, it being usual also to have holes 12 in the base of the box, to receive attaching screws or bolts 14, with nuts 16, if desired, the holes 12 being threaded in some instances, and not threaded in others.

The clamping members 1 may be of any material and construction suitable to carry my invention into effect, and as one suitable form of construction I have shown them as segments of cast iron and comprising each a concave seat portion 18 and attaching lugs 20, which may, and preferably will, be located at each end of the segments respectively.

In accordance with my invention, these segments are provided with means to cause lateral approach of one toward the other upon relative movement thereof along the axis of the article to which attachment is to be effected, and such means may be of any suitable type.

The construction illustrated herein, by way of example, to effect this clamping movement, comprises inclined cam-surfaces 22, of any suitable number, there being two of these surfaces upon each of the segmental members shown, one on each of the terminal lugs 20, the cam-surfaces being inclined across the axis of the clamp.

By this arrangement of the inclines 22, and when, as I prefer, the segmental members 1 are of identical construction, so as to be symmetrical when assembled, as shown in Fig. 3, embracing the pipe 2, no special preliminary operation is required to prepare the pipe or box wall to receive the clamping members, the latter being self-contained, the lugs 20 registering, so that the inclines 22 enter into coöperative engagement by virtue of the act of assembly.

Any suitable means may be provided for operation of the clamping members into clamping relation with the article to which attachment is to be effected, and as one convenient form of operating device I have shown the lugs 20 as slotted at 24 to receive screws 14 with heads 26, the heads being engaged with the lugs of one of the members, when the screws are driven home, to cramp the members 1 together axially, with the result that they are also cramped together laterally, the inclined cam-surfaces 22 sliding on each other as already described.

I prefer to provide each of the lugs with the elongated slots 24 illustrated, thus giving opportunity for a wide play of the clamping member, to accommodate it to articles varying considerably in width, as for example to a half inch size of gas pipe and to a three eighths size as well, and by use of the bolts 14 screwed into the box wall 15 at 12, with or without the nuts 16, I am enabled to avoid the necessity of providing threaded holes in the lugs 20.

In operation of my improved clamp, using by way of example the installation illustrated in Fig. 1, the box 4 and pipe 2 having been fitted together, the segmental members 1 are assembled, embracing the pipe 2, with the slotted lugs 20 registering and the inclined surfaces 22 in engagement, and the bolts 14 are then driven home forcing the cams 22 together and cramping the concave seat portions into tight engagement with the pipe 1, thus uniting the pipe 1 and box 4 physically and electrically.

It is to be observed that by the double relative movement of the clamping members 1, there is induced a scraping contact between all their contacting surfaces, and this insures good electrical union between members 1 through cams 22, and between screw heads 26 and lugs 20; also between screws 14 and box 4, and between clamping seat portion 7 and pipe 2. To render the last named physical and electrical contact still more perfect, I may provide projections, such as the ribs 27, on seat portions 7, and these ribs will bite into the periphery of pipe 1, as they are moved co-axially therealong by action of cams 22.

Having described my invention thus fully and suitable means by which the same may be put in practice, I wish it to be understood that I do not limit myself to the specific materials and forms of construction selected for illustration and description by way of example, nor in general do I limit myself otherwise than as set forth in the claims read in connection with this specification.

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

1. The combination with an electric conduit member, of a grounding clamp for a gas pipe, said grounding device comprising a plurality of symmetrical segmental clamping members having respectively substantially semi-cylindrical seat portions for engagement with said pipe in opposed relation, said seat members having projecting ribs presented co-axially inward for physical and electrical contact with said pipe, and diametrically opposite lugs on said segments, at the ends thereof, said lugs having slots to receive operating screw bolts, and said slots being extended to permit approach of said segments from opposite sides into operative relation with said pipe, and said lugs overlapping when in said operative relation and having their proximate surfaces inclined across the plane of juncture, serving as coöperating cam-surfaces to cramp said members together toward the axis of said pipe, said coöperative sliding engagement serving also to promote electrical

union of said members with each other, and the abrasive action of said projections serving to promote electrical union of said members with the periphery of said pipe, and the action of said operating bolt members serving by abrasion of their heads and said lugs, to complete the electrical grounding of said conduit member through said bolts and segments to said pipe.

2. A grounding device of the class described; comprising a segmental member having a medial concave seat portion and terminal slotted lugs on each side thereof with cam faces inclined across the axis of said concavity; substantially as described.

3. A grounding device of the class described; said device comprising a plurality of symmetrical, segmental members having respectively medial concave seat portions and slotted terminal lugs on each side of said respective seat portions, with cam faces inclined across the axis of said seat, said members being assembled with said lugs overlapping and said cam faces in engagement; substantially as described.

Signed at New York in the county and State of New York this 15th day of November, 1911.

ADNAH McMURTRIE.

Witnesses:
WM. H. McCORMICK,
ALEX. C. PROUDFIT.