

F. A. GODFREY.
 FIXTURE SUPPORT.
 APPLICATION FILED DEC. 19, 1917.

1,294,790.

Patented Feb. 18, 1919.

Fig. 3.

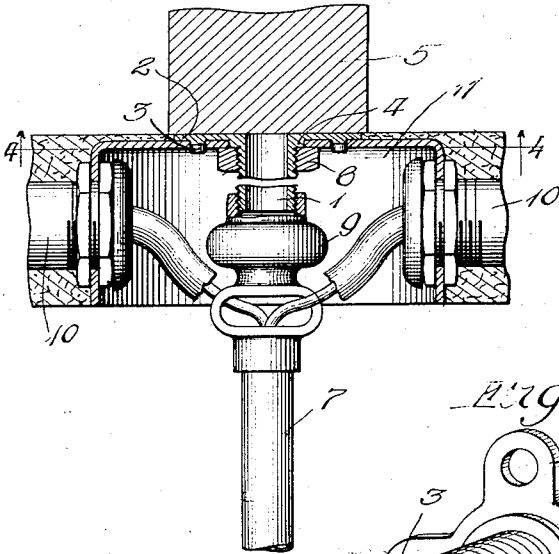


Fig. 4.

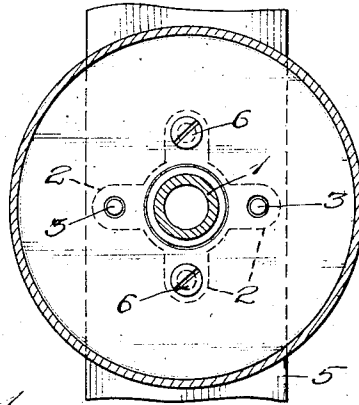


Fig. 1.

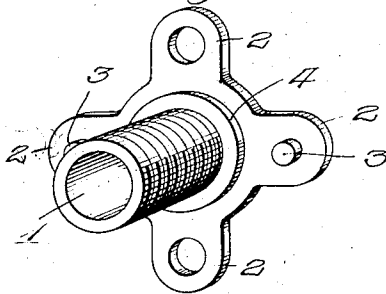


Fig. 2.

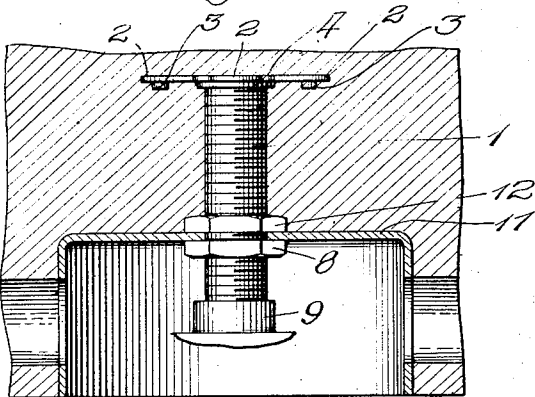
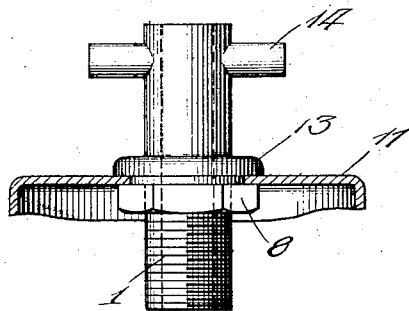


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FIXTURE-SUPPORT.

1,294,790.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK A. GODFREY, citizen of the United States, residing at Chicago, Illinois, have invented certain
5 new and useful Improvements in Fixture-Supports; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it apper-
10 tains to make and use the same.

My invention relates to appliances used in connection with electric wiring, and particularly to those used for the supporting of electric fixtures and the connecting of the
15 latter to wires run in conduits. For this class of work, it has long been customary to employ so-called outlet boxes made of steel or iron and having apertures opening into the conduits; also to employ threaded studs
20 for supporting the piping or stem of the fixture. On ceiling work, it has been customary to fasten the outlet box to the ceiling with its opening directed downwardly, and to suspend the fixture-supporting stud from
25 the outlet box by bolts extending upwardly through the base of the stud and through the closed end or top of the outlet box. Consequently, the firmness with which the fixture was supported has depended both upon
30 the strength of the supporting bolts and upon the proper tightening of the latter. In aiming to secure this desired firmness, it has been customary to employ four bolts for connecting the stud to the outlet box, there-
35 by requiring considerable time in the assembling. Where the regulations imposed by trades unions require this assembling to be done by the men on the job, the high wage rate and the inconvenience have increased the
40 cost of the required time to an item which grows large in size where many outlet boxes are to be installed.

To reduce this expenditure, my invention aims, in one of its aspects, to expedite the
45 fastening of the stud to the outlet box and to reduce the number of bolts or other auxiliary fastening elements. It also aims to provide types of fixture studs suitable interchangeably for use where the outlet box is
50 fastened to a timber, or where it is to be suspended from an anchor embedded in concrete. For the former case, my invention aims to provide a fixture stud having a head adapted to rest on the top of the down-
55 wardly open outlet box, to provide simple

the outlet box, to provide simple means for preventing the stud from rotating with respect to the outlet box while being clamped in position, and to provide means for simultaneously securing both the stud and the
60 box to the adjacent timber.

Likewise, where my invention is to be used in wall or ceiling constructions not including conveniently disposed timbers, I aim
65 to provide simple means for anchoring a portion of the stud in the concrete and for clamping the outlet box to the stud. Further objects of my invention will appear from the following specification and from
70 the accompanying drawings, in which

Figure 1 is a perspective view of a fixture stud embodying my invention and adapted interchangeably for use on timbers and for
75 anchoring in concrete.

Fig. 2 is a fragmentary vertical section through a portion of a concrete wall or ceiling and through a conduit box secured there-
80 according to my invention.

Fig. 3 is a similar section showing my invention as used in securing an outlet box and a fixture stem to a timber concealed in the wall or ceiling, and also showing the
85 method of wiring.

Fig. 4 is a vertical section through Fig. 3, looking upward from the line 4-4.

Fig. 5 is a fragmentary view showing the top of an outlet box and a fixture stud designed only for use on concrete walls or ceilings.
90

In its general aspects, my invention is readily applicable to standard types of outlet boxes, which boxes usually are substantially cylindrical and equipped in their sides with perforations through which the
95 wires may enter. Each such box also commonly has in its closed ends a central opening and four smaller openings spaced equally distant from the former and adapted for receiving the shanks of screws. In
100 carrying out my invention, I desirably employ a stud having a threaded shank 1 integral with a base of considerably larger diameter. This base desirably has a pair of wings 2 diametrically opposite each other
105 and equipped with perforations matching two of the centrally opposed perforations in the top or closed end of the downwardly open outlet box. The base of the stud also desirably carries a pair of projections 3
110 facing in the same direction as the shank 1 of the stud and adapted to enter one pair

of screw holes in the top of the outlet box when the shank of the stud is inserted through the central opening of this top, substantially as shown in Fig. 3. To further improve the alinement, I preferably form a flange 4 on the base of the stud, which flange fits the said central opening in the top of the outlet box. When the stud is thus slipped into position, with the projections 3 extending respectively through two of the screw holes in this top, the perforations in the wings 2 will aline with the other pair of these screw holes, thus making it easy to fasten both the outlet box and the stud to the timber 5 by screws 6 extending upwardly through the said top and the wings 2 into the timber. In making this fastening, the flat end surface of the base of the stud affords a square bearing against the timber, thus avoiding the tilting and rocking which has so frequently been met with the old manner of fastening where bolt heads of irregular size projected above the top of the box. However, I preferably do not depend entirely on the clamping of the stud base between the outlet box and the timber for holding the stud firmly, as the leverage exerted through a side pressure on a fixture stem 7 of any considerable length might tend to loosen this clamping. To avoid this, I preferably employ a nut 8 threaded upon this stud and engaging the under face of the top of the box. The fixture stem 7 is desirably connected to the shank 1 of the stud through an insulating joint 9, which joint provides suitable openings for the wires entering from conduit 10 extending through the lateral openings of the box and clamped to the latter.

Where my invention is to be employed in reinforced concrete construction, I desirably extend the shank 1 of the stud through the top 11 of the box for a considerably shorter distance than the length of the shank, and clamp this top of the box between nuts 8 and 12 threaded upon the shank. By so doing, I provide considerable space between the base of the stud and the top of the box, thereby permitting concrete to fill this space and to afford a support for the base of the stud, the base of which then acts as an anchor. When thus anchored, it will be obvious that both the non-circular shape of the base and the projections 3 will hold the base against rotation, so that it will not be loosened by the attaching or unscrewing of the insulating joint 9, or of any fixture portion carried by the latter.

However, while I have shown and de-

scribed my invention as including a main element having a threaded shank of ample length for permitting the stud to be used interchangeably on timbered ceilings and in concrete ceilings, and while I have pictured the base of the stud as substantially cross-shaped, I do not wish to be limited to this or other details of the construction and arrangement here described, it being obvious that the same might be modified in many ways without departing from the spirit of my invention. For example, Fig. 5 shows a simplified form of stud designed only for use on concrete walls or ceilings, and requiring only a single nut 8 for clamping the top of the box to a flange 13 on the stud. In this case, the stud desirably carries a series of transverse arms 14 near its upper end, which arms will afford the needed anchorage for supporting the stud and the various elements secured to the latter. In each case, I have pictured the studs as having hollow shanks, thereby reducing the weight and enabling me to secure a good annealing when using malleable iron. In practice, I have found that there is no objection to such a hollow stud even for embedding in concrete, as the concrete will only enter the bore for a comparatively short depth and will not pass through to a point where it might interfere with the connecting of other elements to the lower end of the stud. Of course, it will also be obvious that while I have pictured my invention as used in ceiling work, it will be equally adapted for use on walls or the like.

I claim as my invention:

1. For use with an outlet box having in its closed end a main aperture surrounded by secondary apertures, a fixture stud having a base adapted to rest upon the said closed end and having a shank projecting downwardly through said main aperture, the said base having projections entering certain of the secondary apertures and perforations alining with other secondary apertures.
2. In combination a downwardly open outlet box having a perforation in its closed end, a fixture-supporting stud having a shank extending downwardly through the said perforation and having a base resting upon the said closed end, cooperating means upon the base of the stud and the said end of the box for preventing relative rotation thereof, and separate means for clamping the said end and base to each other.

Signed at Chicago, Illinois, December 11th, 1917.

FREDERICK A. GODFREY.