Mar. 27, 1923. 1,449,460

G. B. THOMAS

CLAMP FOR BINDING SCREWS AND THE LIKE

Filed Dec. 20, 1918

Fig. 1.

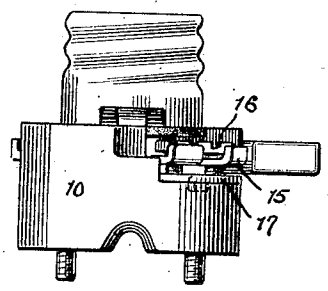


Fig. 2.

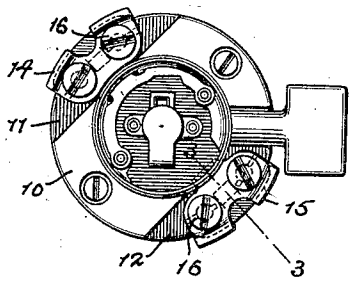


Fig. 3.

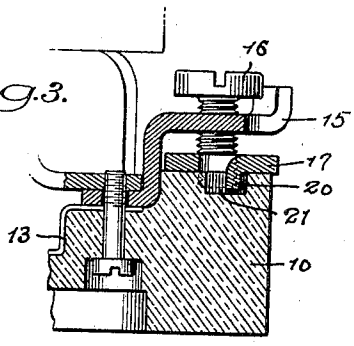


Fig. 4.

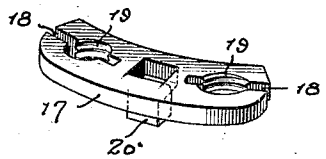


Fig. 5.

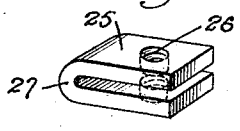


Fig. 6.

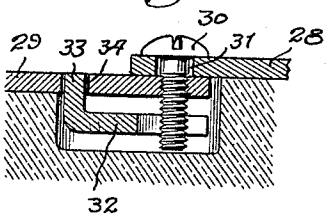
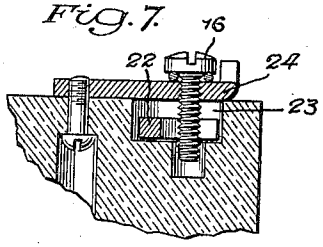


Fig. 7.



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Patented Mar. 27, 1923. 1,449,460

UNITED STATES PATENT OFFICE.

GEORGE B. THOMAS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE BRYANT ELECTRIC COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

CLAMP FOR BINDING SCREWS AND THE LIKE.

Application filed December 20, 1918. Serial No. 267,728.

To all whom it may concern:

Be it known that I, GEORGE B. THOMAS, a citizen of the United States of America, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Clamps for Binding Screws and the like, of which the following is a specification.

My invention relates to clamps for binding screws and the like, and particularly for binding screws for electric fittings such as lamp sockets, switches, cutouts, and the like, the object of my invention being to provide a clamp adapted to hold the screw firmly against accidental loosening such as is apt to occur where an electric fitting is subject to vibration, jarring, or other cause apt to loosen the screws.

In the accompanying drawings—

Fig. 1 is a side elevation of a lamp socket in which my invention is embodied in one form;

Fig. 2 is a plan thereof;

Fig. 3 is an enlarged partial section on the line 3—3, Fig. 2, with the center contact omitted;

Fig. 4 is a perspective of the binding screw clamp plate;

Fig. 5 is a perspective of a modified form of binding screw clamp plate;

Fig. 6 is a section illustrating the application of the clamp to the holding screw for a pair of bus bars or the like;

Fig. 7 is a section illustrating another modified construction of a binding screw terminal.

For the sake of illustration, I have here shown my invention embodied in an electric lamp socket or receptacle. This fitting comprises an insulating base 10, having depressed ledges 11 and 12 on opposite sides of its lamp receiving face and a central well 13 to accommodate the switch mechanism. On the ledges 11 and 12 rest wire terminal plates 14 and 15, each carrying a pair of binding screws 16.

In fittings which are subjected to considerable vibration, such as electric lamp sockets on railway trains, factories, ships, etc., there is the constant danger that the binding screws 16 will loosen under the continual vibration to which they are subjected, and thus not only destroy their electrical connection with the leading-in wires, but also free the latter and subject the line to accidental short-circuits. To prevent the likelihood of this occurrence, I have provided means, associated with the binding screw terminal plates, for clamping the shanks of the binding screws and thus holding the latter fast despite their tendency to loosen under the conditions mentioned.

In Figs. 1 to 4 I have shown the clamping means in the form of a strap 17 of sheet metal, of arcuate shape to conform to the curvature of the base and located between the wire terminal plate and the base but slightly spaced from the terminal plate. At its opposite ends the straps is longitudinally split at 18 and tapped at 19 in register with the binding screws. In order to effect the desired clamping action, the split ends of the strap are spread before the tap holes 19 are formed, and are then permitted to return to normal position under the inherent spring of the metal or pressed together after the tap holes have been completed, so that the diameter of the holes is then less than that of the stem of the binding screw 16. Substantially the same effect may be attained by tapping the holes 19 on the same pitch as the screw threads, but of slightly less diameter than the screw. When the binding screw enters the tap hole 19, it spreads the split end of the strap and is gripped thereby and held fast.

In order to prevent the escape of the strap 17 from beneath the terminal plate when the screws are turned out, a tongue 20 is struck down from the body of the strap to take into a shallow recess 21 formed in the upper surface of the base. Or, as indicated in Fig. 7 where I have illustrated a clamp plate for a single binding screw instead of a pair, the clamp plate 22 may be pocketed in a surface recess 23 formed in the base beneath the terminal plate 24. In both constructions it will be noted that the clamp plate is spaced from the terminal plate a sufficient distance to prevent the clamp plate from being drawn up into engagement therewith.

If the clamp plate or nut were placed close to the terminal plate so that it might be drawn up against it (as for instance when the terminal plate is tapped large for the binding screw so that the screw would

be very loose in the tapped hole), the strain of the screw when a wire is clamped between its head and the terminal plate would come on the thread of the clamp plate and would cause the tapped hole of the clamp plate to spread or increase in diameter, making it too large for the screw and thereby losing its efficiency as a clamp on the screw, since there is not sufficient spring in the metal of the clamp plate to prevent its "setting" if it is unduly opened.

In Fig. 5, I have shown a modified form of clamp, in which the strap 25 is folded back upon itself with its ends somewhat spaced apart. Tap holes 26 are formed in the overlying strap ends while the latter are pressed together. After the tap holes have been formed, the ends are permitted to separate or are forced apart, thus throwing the taps in the two registering holes slightly out of register. When the binding screw is inserted through the upper end into engagement with the tap in the lower end of the strap, it tends to pull the strap ends together against the action of the spring bend 27, and a clamping action upon the binding screw is thus effected which holds it securely in position. In this construction the hole in the terminal plate may be left plain and the engagement of the binding screw confined solely to the clamping plate; but the screw is held more securely if the usual tap in the terminal plate is provided.

In Fig. 6 I have illustrated the invention applied to a pair of bars to be united—for example a pair of bus bars 28 and 29. The screw 30 passes through a plain hole 31 in bar 28 and through a tapped hole in bar 29, thus clamping the two together beneath the head of the screw. The shank of the screw engages the tap in the split end of the clamp plate or nut 32, which again is spaced beneath the bar 29 to prevent possible injury to its clamping engagement, while an offset lug 33 enters a hole 34 in bar 29 or other abutment to hold the clamp plate against rotation.

Various other modifications will occur to those skilled in the art which do not depart from what I claim as my invention. It will be recognized furthermore that this clamp plate or nut may be utilized in securing other connections besides for binding screws or the like, in electrical fittings.

I claim—

1. An electric fitting having an insulating base, a wire terminal plate mounted on said base, a binding screw threaded through said plate and having a head adapted to bear against the face of said plate and an independent member spaced beneath said terminal plate and engaging said screw with a clamping action.

2. An electric fitting having an insulating base, a wire terminal plate mounted on said base, a binding screw threaded through said plate and having a head adapted to bear against the face of said plate, together with an independent spring clamping member spaced beneath the terminal plate and engaging said screw.

3. An electric fitting having an insulating base, a wire terminal plate mounted on said base, a binding screw threaded through said plate and having a head adapted to clamp a wire against the face of said plate, in combination with an independent member spaced beneath said terminal and comprising a strap tapped and split at the tap to engage the lower end of the binding screw.

4. In an electric installation, a conducting plate having a tapped hole, a binding screw threaded through said hole, an independent clamping member spaced below said plate and frictionally engaging the shank of the said binding screw to hold the latter from accidental rotation, and means engaged by said clamping member to hold the latter against rotation by the binding screw.

5. An electric fitting having an insulating base, a wire terminal plate mounted thereon, a binding screw threaded through said plate, and an independent binding screw clamp arranged between said plate and base and spaced from said plate.

In testimony whereof I have signed my name to this specification.

GEORGE B. THOMAS.