May 20, 1930. L. W. ROSEN 1,758,978

BINDING DEVICE FOR FLEXIBLE LINEAR CONNECTIONS

Filed March 30, 1926

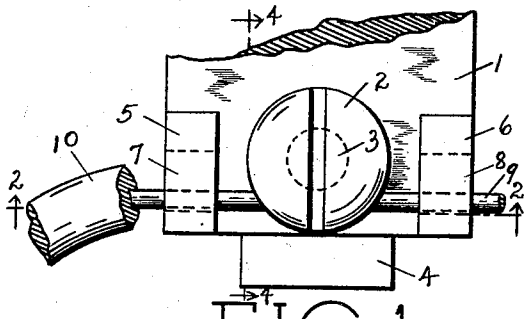


FIG. 1

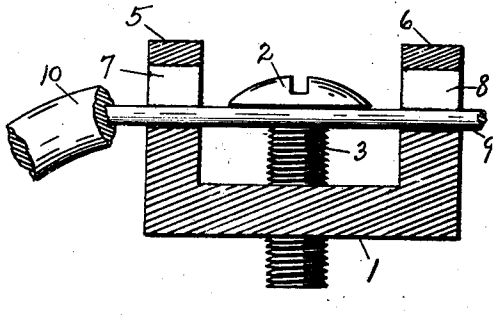


FIG. 2

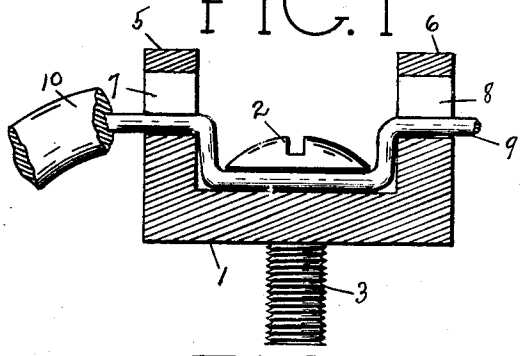


FIG. 3

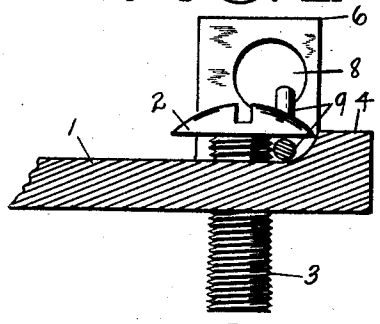


FIG. 4

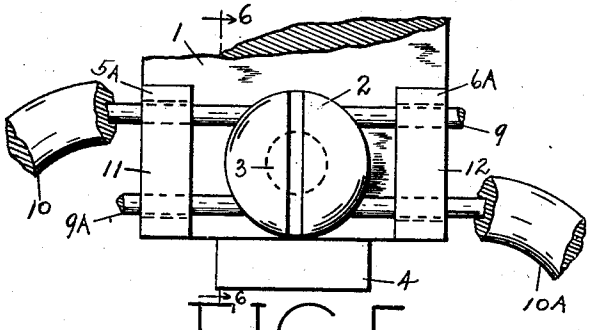


FIG. 5

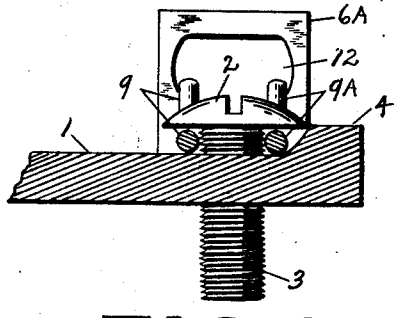


FIG. 6

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UNITED STATES PATENT OFFICE

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BINDING DEVICE FOR FLEXIBLE LINEAR CONNECTIONS

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The object of my invention is for improvement on the method principally of binding wire terminals to the connecting means or terminals of electrical parts or fixtures, including binding posts, although the manner of binding accomplished by my device need not be restricted to the use of wire but can embrace any other flexible linear connection for whatever purpose used, and it is understood that any reference in this specification to wire shall be intended to include also any such other flexible linear connection.

The benefits, which I claim are derived from my invention, are as follows: A quicker means of inserting the wire terminal about the clamping screw; avoidance of necessity of shaping the wire terminal before insertion about said screw; making said wire terminal remain tighter in position when and after being clamped; and also minimizing the possibility of such clamping screw or wire terminal becoming accidentally loose after such clamping has taken place and bringing on loose contact, no contact or a short circuit, all of these benefits to be derived at one and the same time from the two operations of merely inserting the wire terminal in the direction of its length and tightening the clamping screw thereon.

Those inexperienced in the art will often round the wire terminal in the wrong direction about the clamping screw, so that on the tightening of such screw the rounded end of the wire terminal will actually squirm out and leave a very poor and insecure connection, the danger of which may not be apparent to them because the true position of such rounded end is more or less hidden by the screw head or nut. Yet it is to be noted, that even though the end of the wire terminal is rounded in the right direction, namely to the right, so that when the screw is being tightened thereon it will not tend to unround such terminal end, any pull on such wire in the direction of its length, after such tightening, will stress the screw to turn to its left and thereby tend to loosen the same. Therefore, if the end of the wire terminal is rounded either to the left or to the right, each has the particular danger above noted, making it bad either way.

Various other features of the invention will appear as the specification proceeds.

In the accompanying drawings I have illustrated a practical embodiment of the invention as applied to a certain type of binding connections. It will be understood, however, that the invention is not limited to this particular disclosure, but is susceptible of many changes and modifications, and I would further have it known that the claims are not limited to the forms shown and described, and that the terms of the claims are terms of description rather than of limitation except as may be required by the state of the art.

For a more particular description of my invention, reference is to be had to the accompanying drawings, forming a part hereof, in which

Fig. 1 is a top view of an electrical part or fixture containing my improvement, with portion broken away to reveal only the terminal and some adjacent structure, and showing a wire terminal inserted therein, in unbound position.

Fig. 2 is a front sectional view, substantially along the line 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a view similar to Fig. 2, except that the wire terminal and screw are both shown in bound position.

Fig. 4 is a side view, in section substantially along the line 4—4 of Fig. 1, looking in the direction of the arrows.

Fig. 5 is a view similar to Fig. 1, except that it shows my improvement arranged for the binding of the terminals of two separate wires, and showing each of these wires inserted, and resting in unbound position.

Fig. 6 is a side view, in section substantially along the line 6—6 of Fig. 5, looking in the direction of the arrows.

In the accompanying drawings, the connecting terminal of an electrical part or fixture 1 has the usual flat head screw 2 operating through its threaded shank 3 adjacent to the conventional end guard 4. Integral with this connecting terminal 1, and turned

up at right angles to it, are the guides 5 and 6, in each of which are the holes 7 and 8 respectively for receiving the wire terminal 9 at the end of the insulated portion 10 of said wire. The holes 7 and 8 are substantially larger in diameter than the diameter of the wire terminal 9 in order to facilitate the insertion of said wire into said holes, but said holes are nevertheless so disposed as to cause said wire after insertion therein to hug the threaded shank 3 of the screw 2 and keep the same strictly within the bounds of the under portion of the head of said screw directly in the straight path between said two holes as shown in Fig. 1. These holes 7 and 8, as shown in Fig. 2 and in Fig. 3, are directly opposite each other, on the same plane, and higher than the plane of the part or fixture 1, so that after the wire terminal is inserted as shown in Fig. 2 and bound by the turning down of the screw thereon as shown in Fig. 3, such wire terminal is shaped into a U-like form as a result of such tightening of the screw.

It will be noted by reference to Fig. 3, that in the compression of the wire terminal automatically into a U-like form through the tightening of the screw, the side spaces theretofore existing between the inside walls of the guides 5 and 6 and the respective portions of the periphery of the screw head adjacent to said walls on a line with the wire terminal as shown in Fig. 3, are filled in and padded up with portions of the wire terminal about the same, the pressure of such padding against such periphery of the screw head helping to prevent said screw from thereafter becoming loose.

It will also be noted that after such wire terminal 9 is bound, as shown in Fig. 3, any pull on the insulated portion 10, no matter in what direction, will have no effect toward the loosening of the screw. The force of any universal movement of the insulated portion 10 of said wire or of any pulling or pushing thereof, will be spent on the structure of the guide 5, and whatever strain, if any, goes beyond this structure, is spent toward attempting to lift the screw up and not toward turning it.

It is obvious of course that the guide 5 is the one that provides the resistance against the loosening of the screw and that the guide 6 is just a means of properly housing the tail end of the wire and keeping it in position for this kind of binding.

It is to be noted from Fig. 1 and Fig. 2 that the wire terminal 9 is passed in the direction of its length through the holes 5 and 6, which are directly opposite each other on the same plane, so that no bending or shaping is necessary to apply such wire about the screw shank 3, and which method of insertion can be accomplished very rapidly. During all the time that the tightening of the screw is applied on said wire, the guide holes 7 and 8 automatically keep said wire in firm position and uniformly firmly hugging the shank 3 of said screw, so that at no time can the wire squirm out of such position or get into any shape to escape the maximum coverage by the screw head.

Should it be desired to have two separate wires bound to one terminal, the guides 5A and 6A can be employed, as shown in Fig. 5, and which guides have the similar and similarly placed slots 11 and 12 respectively. These slots 11 and 12 are on the same plane above the part or fixture 1 similar to the plane of the holes 7 and 8, and are so positioned crosswise to the threaded shank 3 of the screw as to allow the insertion of the wire terminal 9 or the wire terminal 9A respectively on each side of the threaded shank 3, each in exactly the same manner as if inserted in one set of guide holes as that shown in Figs. 1, 2 and 3, and that otherwise all that has been said of the employment and use of one wire terminal pertains to the two wire terminals as shown in Figs. 5 and 6, and the insulated portions thereof 10 and 10A.

Owing to the fact that any pull on the insulated wire 10, after the wire terminal 9 is tightened as shown in Fig. 3 and Fig. 9, will tend greatly to stress the screw up in the direction of its length against the resistance of the interlocking threads, it is to be noted that even were the screw or nut left somewhat loose, yet if the screw head or nut were down sufficiently to retain a substantially shaped U of the wire terminal 9, such wire terminal will be held secure in position and will show greater resistance to any pull on the insulated portion 10 of the wire than a loose screw or nut will offer under similar degree of looseness where the wire terminal is wound around the screw shank in the conventional way. In like manner, if the screw or nut fell out after the wire terminal had been substantially tightened, the U-like formation remaining at such terminal would keep the wire in place in the absence of any strong pull on the wire.

While I have shown and described one embodiment of my invention, it is obvious that it is not restricted thereto, but is broad enough to cover all structures that come within the scope of the annexed claims.

Having described my invention, what I claim is:

1. In a binding device for flexible linear connections, a screw positioned in a base with a flat head on said screw lowerable to said base, guide means fixed to said base and adjacent to said screw for receiving and holding such connection on a straight line beneath the screw head and beside the shank of said screw and normally above said base.

2. In a binding device for flexible linear connections, a screw positioned in a base with

a flat head on said screw lowerable to said base, guide means fixed to said base and adjacent to said screw for receiving and holding such connection, when said head is sufficiently raised, on a straight line beneath the screw head and beside the shank of said screw and normally above said base, and when said head is sufficiently lowered for causing and retaining such connection in a U-like form between the entrance and exit of said guide means.

3. In a binding device for flexible linear connections, a screw positioned in a base with a flat head on said screw lowerable to said base, guide means fixed to said base and adjacent to said screw for receiving and holding a multiple of such connections, when said head is sufficiently raised, on a straight line beneath separate portions of said screw head and each beside the shank of said screw and normally above said base, and when said head is sufficiently lowered for causing and retaining such connections each in a U-like form between the entrance and exit of said guide means.

4. In a binding device for flexible linear connections, a screw positioned in a base with a flat head on said screw lowerable to said base, guide means fixed to said base and adjacent to said screw for receiving and holding such connection, when said head is sufficiently raised, on a straight line beneath the screw head and beside the shank of said screw and normally above said base, and when head is sufficiently lowered for causing and retaining such connection in a corrugated form between the entrance of said guide means and the surface of said base in contact position with said head of said screw.

In witness whereof, I subscribe my signature.

LOUIS W. ROSEN.