W. S. LEWIS.

TEST CLIP.

APPLICATION FILED OCT. 3, 1916.

1,249,430. Patented Dec. 11, 1917.

Fig. 1

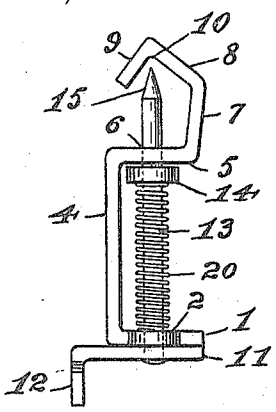


Fig. 2

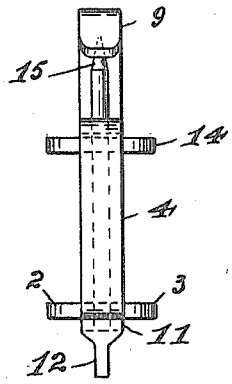


Fig. 3

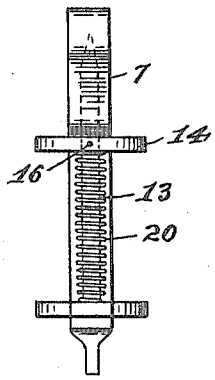


Fig. 5

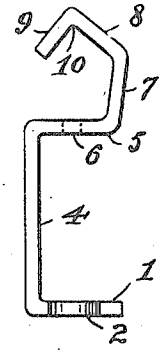


Fig. 7

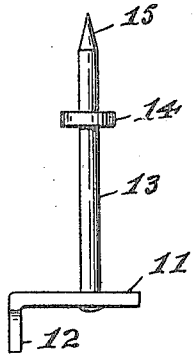
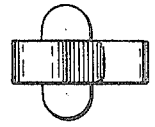


Fig. 4



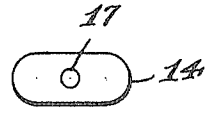


Fig. 9



Fig. 10

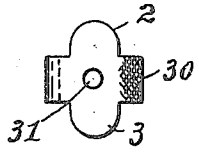


Fig. 6

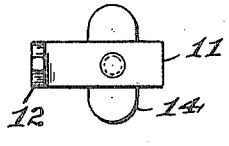


Fig. 8

Inventor

Wilbur S. Lewis

By Joseph L. Wright

Atty.

UNITED STATES PATENT OFFICE.

WILBUR S. LEWIS, OF CLEVELAND, OHIO.

TEST-CLIP.

1,249,430. Specification of Letters Patent. Patented Dec. 11, 1917.

Application filed October 3, 1916. Serial No. 123,499.

To all whom it may concern:

Be it known that I, WILBUR S. LEWIS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Test-Clips, of which the following is a specification.

My invention relates to test clips or clamps. Devices of this character are ordinarily used for making temporary connections with electrical conductors which are usually provided with a coating or covering of insulating material.

The object of my invention is to produce a device which will be cheap to manufacture and which will be simple and efficient in its operation.

The design of the present test clip is such that the conductor with which connection is to be made is placed in alinement with a plunger or pointer which is adapted to pierce the insulation and to make contact with the electrical conductor.

The portion of the device for holding the conductor has a loop or bend formed at one end for receiving the conductor. The opposite end of the same piece is U-shaped and adapted to receive and hold in place the plunger mechanism. A needle or pointer associated with the mechanism projects into the loop which supports the electrical conductor. This needle is pointed and readily pierces the insulation of the conductor.

My invention is illustrated in the accompanying drawings wherein:

Figure 1 shows a side view of the assembled device.

Fig. 2 is an end view looking in one direction, while Fig. 3 is an end view looking in the opposite direction.

Fig. 4 is a top plan view of Fig. 3.

Fig. 5 is a detail showing the main portion of the element which holds the electrical conductor.

Fig. 6 is a bottom view of Fig. 5.

Fig. 7 is a detail showing the arrangement of the needle and its associated parts.

Fig. 8 is a bottom view of Fig. 7.

Fig. 9 is a plan view of the stop disk.

Fig. 10 is a side view of Fig. 9.

Referring to Figs. 5 and 6 it will be noted that the main or supporting element is provided with two loops and practically form an S-shaped member.

As shown in Figs. 1, 2 and 3, this member serves to support the plunger mechanism shown in detail in Figs. 7 and 8. The upper loop of the supporting member is arranged to receive an electrical conductor. The lower portion of the member carries the tension spring 20 and serves to support the needle or pointer 13. The pointer 13 is rigidly fastened to the base or support 11 and the collar or disk 14 is held in place on the pointer by means of the rivet 16.

The base 11 is provided with an extension 12 which may be fastened to a wire leading to the testing apparatus.

The openings 6 and 31 are provided in the portions 5 and 1 respectively of the lower loop through which the pointer 13 may be passed.

In assembling the pointer 13 is passed through the opening 31 and then through the spring 20 and disk 14, after which the rivet 16 is inserted to hold the stop disk 14 in place.

Under the influence of the tension spring 20 bearing against the extension 11 of the supporting member and the under surface of the collar 14 the pointed end of the needle is forced into the upper loop. This loop is provided with a recess 10 formed by the inclined portions 8 and 9 for holding the conductor in alinement with the plunger.

As shown in Fig. 6 the lower extension 1 of the supporting member is roughened or corrugated and the upper surface of the extension 11 associated with the plunger is also roughened. These two surfaces are adapted to make connections with a conductor from which the insulation has been removed.

In order to operate the device the collar 14 is pressed downward against the tension spring 20, thus providing a space between the point 15 of the plunger 13 and the recess 10. The electrical conductor is then placed within the recess and the collar 14 pressed upward to cause the point 15 to pierce the insulation.

Ordinarily the tension of the spring 20 will be sufficient to cause the point 15 to penetrate the covering of the electrical conductor.

With the arrangement shown an electrical conductor is always held in place and in alinement with the point 15 of the plunger

and the tension of the spring 20 is sufficient to hold it in place and to insure positive electrical connection being made.

Having thus described my invention what I desire to secure by Letters Patent is:

1. A test clip comprising an S-shaped bracket having two loops, a plunger mechanism for coöperating with said bracket, said plunger mechanism comprising a base upon which is mounted a pointed plunger, said plunger being arranged to pass through one of said loops, a tension spring surrounding said plunger to force the pointed end of said plunger into the other of said loops.

2. A test clip comprising an S-shaped bracket having two loops, a plunger mechanism for coöperating with said bracket, said plunger mechanism comprising a base upon which is mounted a pointed plunger, said plunger being arranged to pass through one of said loops, a tension spring surrounding said plunger to force the pointed end of said plunger into the other of said loops, said base being provided with a terminal extension for attaching an electrical conductor.

3. A test clip comprising an S-shaped bracket having two loops, a plunger mechanism comprising a base for supporting a pointed plunger, said plunger arranged to pass entirely through one of said loops, and to project into the other of said loops, a tension spring and a collar, said collar being fastened to said plunger, said tension spring arranged to surround said plunger and interposed between said collar and said bracket to maintain the pointed end of said plunger within the other of said loops.

4. A test clip comprising an S-shaped member having two loops, plunger mechanism for coöperating with said bracket comprising a base and a plunger mounted thereon, said plunger arranged to pass entirely through one of said loops, a tension spring, said tension spring arranged to surround said plunger and force the free end of said plunger into the other of said loops and to maintain said base in engagement with the outer surface of said bracket, the outer surface of said bracket and said base serving to clamp an electrical conductor.

5. A test clip comprising an S-shaped bracket, a plunger mechanism for coöperating therewith comprising a base for supporting a plunger, a disk surrounding said plunger, said plunger arranged to pass entirely through one of said loops, a tension spring, said tension spring arranged to surround said plunger and interposed between said disk and bracket and to force the free end into the other of said loops for engagement with an electrical conductor, the outer surface of the opposite loop and the base of said plunger mechanism also serving as a clamping device for an electrical conductor.

6. In a device of the class described, the combination of an S-shaped bracket provided with two loops, plunger mechanism coöperating with said bracket comprising a base and a pointed plunger mounted thereon, said plunger arranged to pass through one of said loops and project into the other of said loops into engagement with an electrical conductor, a tension spring, said tension spring surrounding said plunger for maintaining said mechanism in place, the base of said mechanism provided with a terminal for attaching an electrical conductor so that direct connection is made between the electrical conductor in said loop and the electrical conductor fastened to said base.

7. In a device of the class described, the combination of an S-shaped bracket having two loops, one of said loops being provided with a recess for accommodating an electrical conductor, the other of said loops being provided with projections, plunger mechanism comprising a base upon which is mounted a plunger, said plunger arranged to pass through the last mentioned loop and project within the first mentioned loop, a tension spring and disk, said disk arranged to be fastened to said plunger, said spring surrounding said plunger and interposed between said disk and said bracket, a terminal for said base for attaching an electrical conductor, said plunger forming direct connection between said electrical conductor and the electrical conductor within said recess.

In testimony whereof I affix my signature in the presence of two witnesses.

WILBUR S. LEWIS.

Witnesses:
JOHN POLATSCK,
A. MCCIME.