

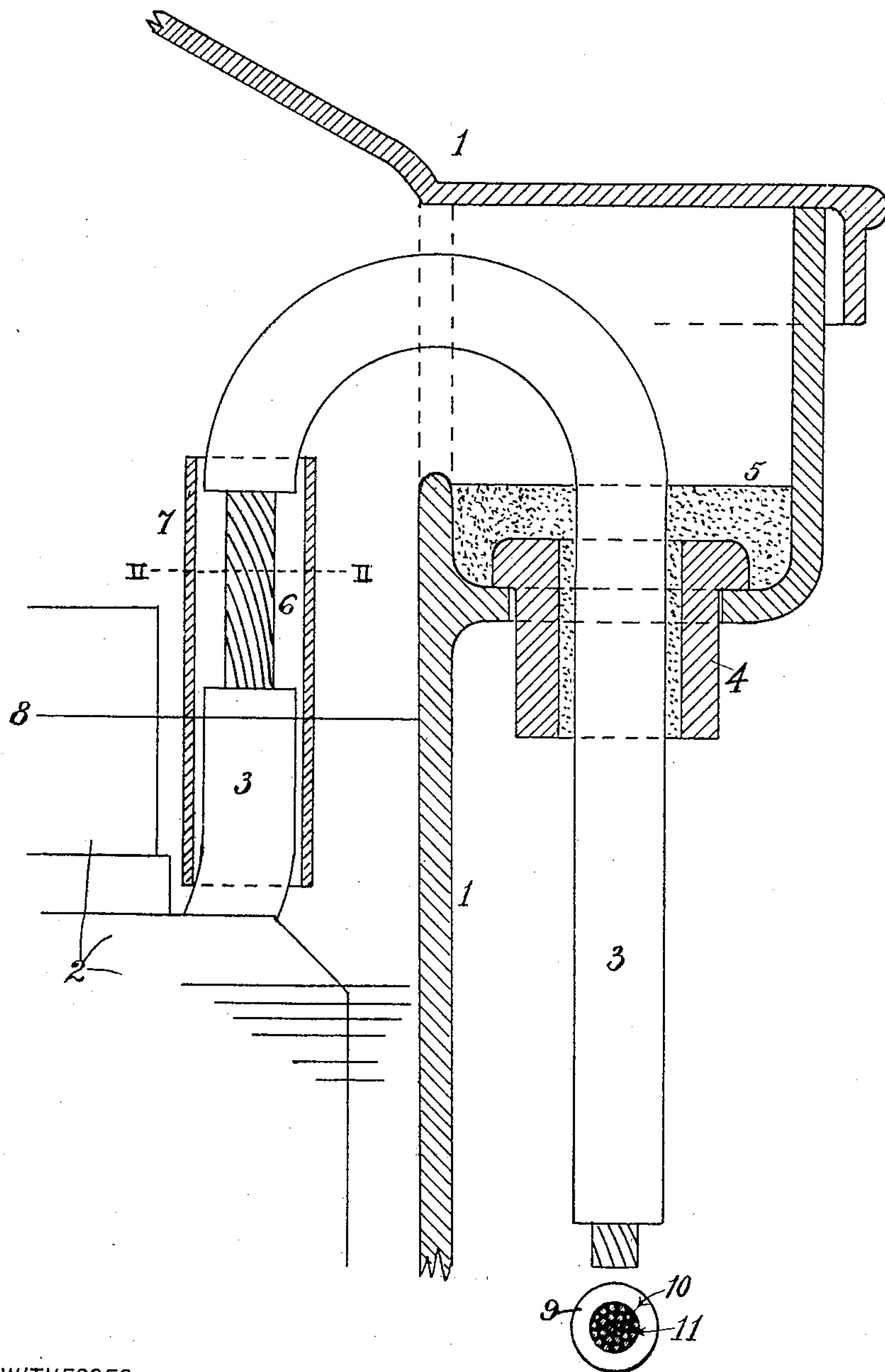
No. 658,192.

Patented Sept. 18, 1900.

F. C. SUTTER.
ELECTRIC CONDUCTOR.

(Application filed Dec. 30, 1899.)

(No Model.)



WITNESSES:

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ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 658,192, dated September 18, 1900.

Application filed December 30, 1899. Serial No. 742,066. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. SUTTER, a citizen of the United States of America, and a resident of the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented certain new and useful Improvements in Electric Conductors, of which the following is a specification.

Referring to the annexed drawings, which make part of this application, Figure 1 is a sectional view showing my invention as applied to alternate-current transformers, and Fig. 2 shows a cross-section of my device.

My invention, briefly speaking, is a device by which capillary attraction of liquids along a cable or conductor is prevented.

In a stranded cable liquids tend to travel along the cable by means of the interstices between the wires, and in the case of cables provided with an insulating-covering liquids also tend to travel along through said covering. This is especially noticeable in the case of electrical apparatus, where lead-cables running from a transformer or other like device are greatly injured from this syphoning. As is well known, it is customary to submerge the windings of a transformer in oil, both to improve the insulation and to enable the apparatus to operate at a lower temperature, together with various other reasons. For this purpose light-bodied oils are found much superior to those of heavier body; but heretofore a great drawback experienced in their use has been their tendency to follow through capillary attraction the lead-cables in the interstices between the strands of the said cables and also through the insulating-coverings thereof. This syphoning of course results in a continuous waste of the oil, rendering frequent attention necessary, and the effect of the oil upon the rubber or other insulating material is very destructive. It is to prevent this that my invention is intended.

The following is a detailed description of my device, reference being had to the accompanying drawings.

1 is a broken section of a transformer-case of the usual type.

2 represents the core and coils, of any usual design, contained in transformer-case 1.

3 is a lead-cable running from either the primary or secondary coil.

4 is the insulating-bushing, through which cable 3 passes out of transformer-case 1, and 5 represents cement or other like material holding bushing 4 and cable 3 in place.

6 is a section of cable 3 stripped of the insulating-covering, (shown at 9, Fig. 2,) said bare section beginning at a point a little above the level of the oil in the transformer-case, and 7 is an insulating cover or wrapping which, if desired, may be provided to protect section 6 of cable 3, such insulation being of non-porous material, through which the oil cannot pass nor be drawn up.

8 represents the level of the oil in case 1, said level being maintained somewhat below the base of section 6.

In Fig. 2 I show a sectional view of my cable, and such figure correctly represents a section of the cable, taken on line II II in Fig. 1.

9 is the insulation, which is shown cut away below the end of the cable, and 10 represents the wires or strands composing the cable proper, while 11 represents a filling of solder or other like material with which while in a melted condition the interstices between the strands are filled, making the wires into one integral mass or solid wire, along which the oil is unable to travel. Thus the oil cannot pass along said cable from a transformer-case, inasmuch as the interstices between the strands are filled up with the solder and the porous insulation is removed and the substitute tube or wrapping 7 being of such material as to resist the passing of the oil. Such wrapping 7 may be omitted, if desired, it being intended simply to maintain the insulation of the cable.

It will be readily seen that my invention can be applied generally under any circumstances where a stranded cable leads out of or passes through oil or other liquids whether said cable be insulated or not. In case of a solid or single-stranded wire which, being insulated, is subject to the tendency of the oil or other liquids to travel along its insulation, such tendency may be corrected or avoided by removing the insulating material for a

space above or beyond where the liquid enters the insulating-covering and, if desired, substituting therefor a non-porous insulating-covering, as 7 in Fig. 1.

5 It is readily seen from above that my invention is of the greatest value both in the saving from waste the expensive oil and the protection from deterioration and destruction of the insulating material of the cable or wire due
10 to the saturation thereof with the oil.

Although I have minutely described my invention, especially as relating to electrical appliances, I do not wish to limit myself thereby, but claim, broadly—

15 1. In stranded electrical conductors, a device for preventing the passage of liquids along said conductor consisting of a solid, integral section in said conductor.

20 2. In stranded cables, a device for preventing the passage of liquids along said cables consisting of a section of said cable having the interstices between the strands filled with solder or like material.

25 3. In stranded cables provided with an insulating-covering, a device for preventing the passage of liquids along said cables consisting of a section of said cable devoid of insulating-covering and having the interstices between the strands filled with solder or like material.

30 4. In electrical conductors having an insu-

lating-covering, a device for preventing the passage of liquids along said cables consisting of a section of said conductor devoid of said covering substantially as and for the purpose described.

5. In electrical conductors having a porous insulating-covering, a device for preventing the passage of liquids along said cables consisting of a section of said conductor from which said covering is omitted and a non-porous insulating-covering for said section.

6. In stranded cables provided with a porous insulating-covering, a section devoid of such covering and having the interstices between the strands filled with solder or like material, and a non-porous insulating-covering for said section.

7. In electrical transformers, the conducting-cables leading from said transformer having the insulation omitted from a section thereof and the interstices between the strands of said section filled with solder or like material.

Signed by me at Pittsburg, Pennsylvania, this 13th day of December, 1899.

FREDERICK C. SUTTER.

Witnesses:

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