Nov. 20, 1928. 1,692,218

R. E. McINTOSH

CLAMP

Filed Aug. 28, 1926 2 Sheets-Sheet 1

Fig. 1.

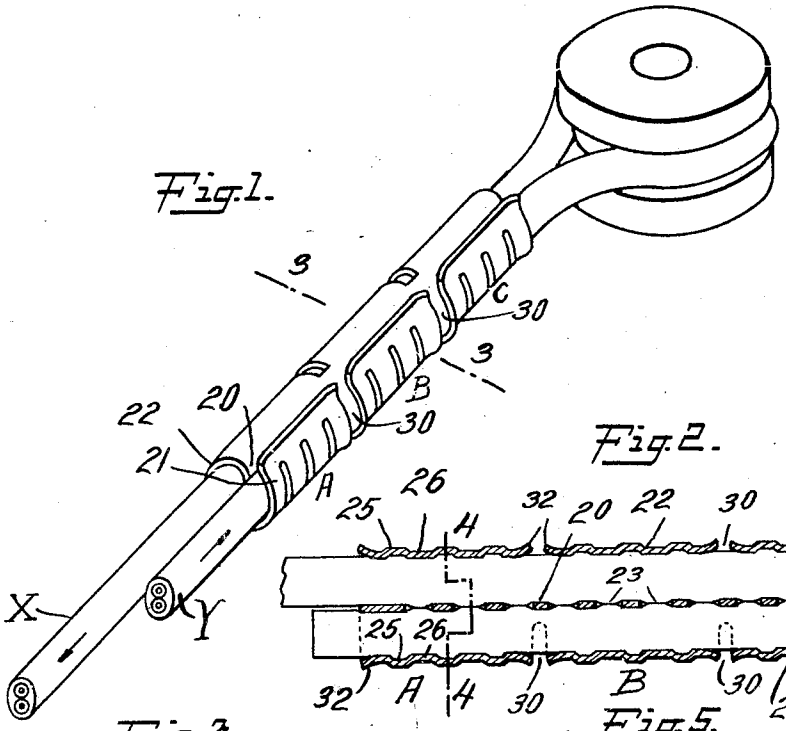


Fig. 2.

Fig. 3.

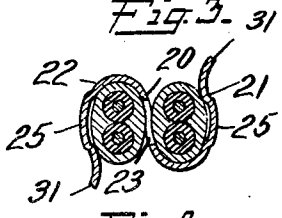


Fig. 5.

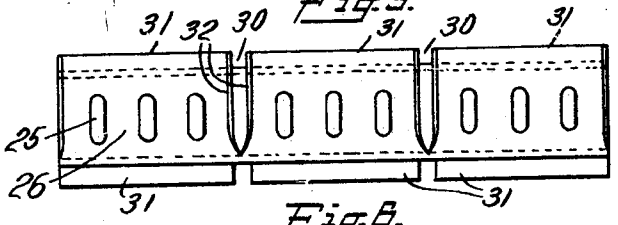


Fig. 4.

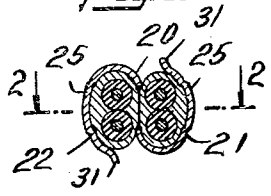


Fig. 6.

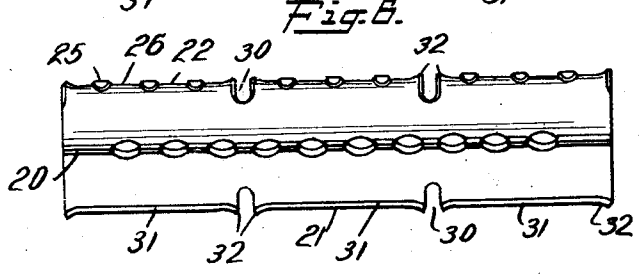
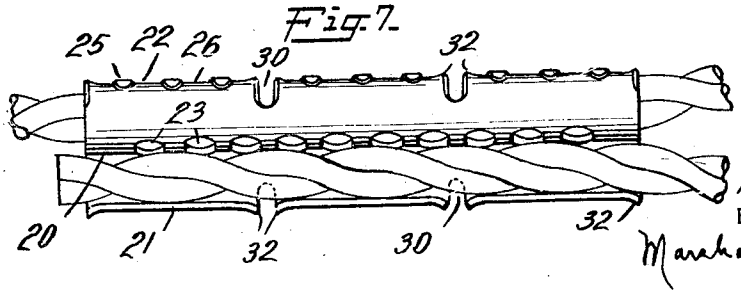


Fig. 7.



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Nov. 20, 1928. 1,692,218

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Filed Aug. 28, 1926 2 Sheets-Sheet 2

Fig. 9.

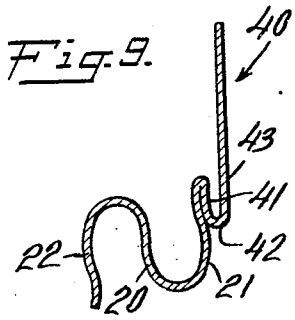


Fig. 8.

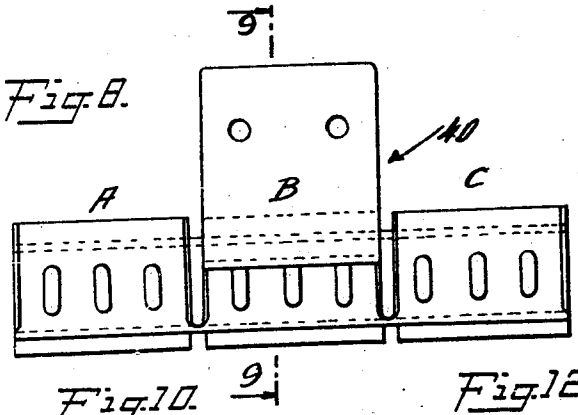


Fig. 11.

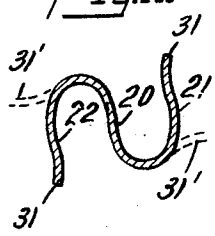


Fig. 10.

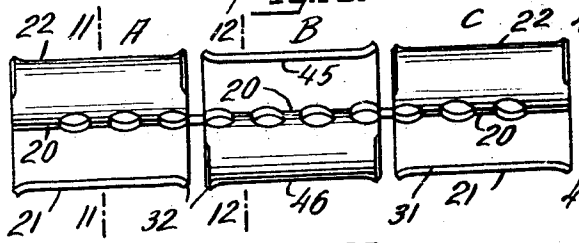


Fig. 12.

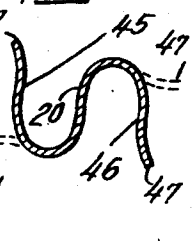


Fig. 13.

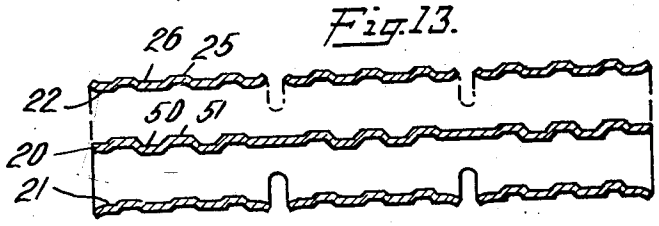


Fig. 14

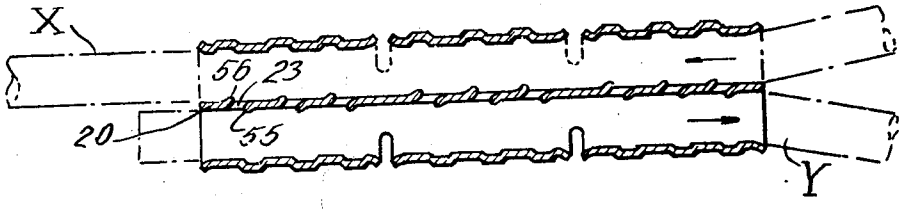


Fig. 15.

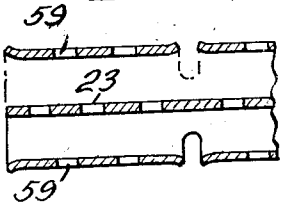
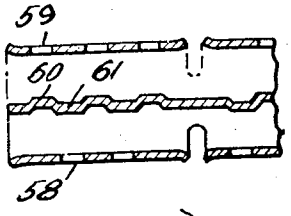


Fig. 16.



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Patented Nov. 20, 1928. 1,692,218

UNITED STATES PATENT OFFICE.

ROY E. McINTOSH, OF NEW YORK, N. Y., ASSIGNOR TO JOHN EDWARD OGDEN, OF MOUNTAINVILLE, NEW YORK.

CLAMP.

Application filed August 28, 1926. Serial No. 132,124.

This invention relates to clamps particularly adapted for use in clamping parallel strands of insulated wire together. Clamps of this type are known as "dead end" clamps.

As is well known in securing the dead end of a wire, the wire is usually bent around an insulator or fixed support, the free end being brought to a position parallel with the other portion of the wire and the two parallel strands secured together by tie wire. There is often considerable strain on the dead end and this strain must be taken care of by the tie. The tying clamp of the dead end requires considerable care and skill since it is difficult to hold the ends while the tie is being applied and at the same time maintain the desired tension in the span.

One of the objects of the invention is to provide a clamp that is simple and practical in construction, efficient in operation and can be easily and readily secured to the wire strands.

Another object of the invention is to provide a clamp of the character specified so constructed and arranged that it can be closed in sections.

Another object of the invention is to provide a clamp adapted for securing two parallel strands of wire and having means adapted to securely grip the insulation of the wire, thereby preventing longitudinal movement of the strands in the clamp.

Further objects of the invention will appear from the following specification taken in connection with the drawings, which form a part of this application, and in which

Fig. 1 is a perspective view showing a clamp constructed in accordance with the invention and secured in position on the dead end of a wire or cable;

Fig. 2 is a transverse sectional elevation taken substantially on line 2—2 of Fig. 4;

Fig. 3 is a transverse sectional elevation of the clamp shown in Fig. 1 before the sides of the clamp have been closed, this view being taken substantially on line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 3, but showing the clamp closed on the wire strands;

Fig. 5 is a side elevation of the clamp shown in Fig. 1;

Fig. 6 is a plan view of the clamp shown in Fig. 1;

Fig. 7 shows the clamp illustrated in Figs. 1 to 6 used with twisted strands of wire;

Fig. 8 is an elevational view showing the clamp illustrated in Figs. 1 to 6 provided with a tab for suspending the clamp;

Fig. 9 is a sectional elevation taken substantially on line 9—9 of Fig. 8;

Fig. 10 is a plan view of a modified form of clamp constructed in accordance with the invention;

Fig. 11 is a transverse sectional elevation taken substantially on line 11—11 of Fig. 10;

Fig. 12 is a transverse sectional elevation taken substantially on line 12—12 of Fig. 10;

Fig. 13 is a longitudinal sectional elevation similar to Fig. 2, but showing the wire gripping surfaces formed in a slightly different manner from that shown in Fig. 2;

Fig. 14 is a view similar to Fig. 13, but showing another modification of the wire gripping portions of the clamp; and

Figs. 15 and 16 are fragmentary sectional views similar to Fig. 14, but showing the gripping surfaces constructed in a still different manner.

The invention briefly described consists of a clamp S-shaped in section and comprising a central web and two side portions. In use, one of the strands of insulated wire is placed in each of the side portions and the sides are then closed around a central portion or clamped around the wire strands and the central portion and the two sides are provided with means for firmly and securely gripping the insulated wire, thus effectively preventing any longitudinal movement of the wire strands in the clamp. In certain forms of the invention, perforations are provided for receiving intruded portions of the insulation. In other forms of the invention, depressions are formed in the walls or side portions, and in other forms, alternate depressions and projections engage the wire strands.

The clamp is preferably formed in sections so that one or more sections may be used as desired and this facilitates the use of the clamp since the sections can be closed one at a time.

Further details of the invention will appear from the following description.

Referring, first, to the embodiment of the invention illustrated in Figs. 1 to 7 inclusive.

In this form of the invention, the clamp is S-shaped in section and comprises a central web or wall 20 and side portions 21 and 22 extending oppositely from the central portion or web.

The central web 20 is formed with a plurality of perforations 23 extending therethrough and adapted to receive the intruded insulation when the side portions 21 and 22 of the clamp are closed as shown in Fig. 4.

The side portions 21 and 22 have alternate depressions 25 and projections 26 formed in the walls thereof, attention being called to the fact that the projecting portions 26 are disposed opposite the perforations 23 in the central web 20 and the depresisons 25 are disposed opposite the imperforate portion of the central web.

The clamp is preferably formed in sections as shown at A, B and C, the sections being separated by slots 30, the slots in the side portions 21 and 22 being alined and extending inwardly from the free edges 31 of these portions. The edges of the slots are preferably flared outwardly as shown at 32, the flared ends stiffening the clamp and also avoiding abrasion of the wire or cable.

After the parallel strands of wire are placed in the side portions 21 and 22 of the clamp, the ends 31 are bent over the wire strands as shown in Fig. 4, thus firmly gripping the strands and forcing the insulation into the depresisons 25 and into the perforations 23.

Fig. 7 illustrates the clamps shown in Figs. 1 to 6 used for securing twisted strand cable or wire.

In Figs. 8 and 9, the clamp construction is similar to that already described but the central section B has formed thereon and extending therefrom, a tab 40 for suspending the clamp from a wall or other suitable supporting structure. It will be noted in Fig. 9 that the tab 40 is formed by bending the side 21 of the clamp downwardly as shown at 41, outwardly as shown at 42 and upwardly as shown at 43. This offsets the tab from the side of the clamp and tends to hold the clamp away from the supporting structure.

Figs. 10, 11 and 12 illustrate a slightly different embodiment of the invention in that the central portion B is formed with an inverted S-shape, that is the side portions 45 and 46 of the section B open in a direction opposite to the side portions 21 and 22 of the sections A and C.

In order to thread the wire or place the wire in the clamp shown in Figs. 10 to 12, the ends 31 of the side portions 21 and 22 are bent laterally as shown at 31′ in Fig. 11 and the ends 47 of the portions 45 and 46 are also bent laterally as shown at 47′ in Fig. 12.

The form of clamp shown in Figs. 10 to 12 provides a very secure and firm gripping action on the strands or cables.

Fig. 13 is a view similar to Fig. 2, but shows the central web 20 provided with alternate depressions 50 and projections 51. It should be noted that the indenting of the material in the central web 20 to form the depression 50 at one side of the web, also forms the projection 51 on the opposite side of the web and vice versa. It should also be noted that the projections 26 of the side portion 22 are disposed opposite the depressions 50 in the central web and the depressions 25 of the side portion 22 are disposed opposite the projections 51 of the central web. This is also true of the depressions and projections on the opposite surface of the central web with relation to the depressions and projections of the side portion 21. It will be evident that this form of construction will provide a very effective and secure gripping action on the strands or cables.

The structure shown in Fig. 14 is somewhat similar to that shown in Fig. 2. In Fig. 14, however, the metal at the edges of the perforations 23 in the central web 20 is bent laterally as shown at 55 and 56. There are thus formed projections at 56 extending in one direction and projections at 55 extending in the opposite direction. It will be evident that when the clamp is used as shown in Fig. 1, tension is exerted on the strand X in the direction of the arrow shown in Fig. 1. This will tend to pull the other strand Y in the opposite direction or in the direction of the arrow placed on strand Y. This tendency of the strands to move in the clamp will be effectively resisted by the projections shown at 55 and 56 since as above stated, these projections extend in opposite directions.

Fig. 15 illustrates still another modification in which perforations 23 are shown in the central web and perforations 58 and 59 are shown in the side portions 21 and 22. It will be noted that the perforations 23 are staggered with reference to the perforations 58 and 59.

In Fig. 16, perforations 58 and 59 are shown in the side portions and the central web is indented alternately on opposite sides forming the projections 60 and 61.

From the foregoing specification it will be seen that a simple, practical and inexpensive form of clamp has been designed and that this clamp will securely and firmly grip the strands or cables placed therein and will effectively prevent any longitudinal movement of the strands in the clamp. Furthermore, since the clamp is formed in sections, the closing of the clamp is facilitated and if one section is sufficient to firmly secure the cables or strands, this section may be separated from the other two sections and used alone.

Although certain specific embodiments of the invention have been particularly shown and described, it will be understood that the invention is capable of further modification

and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. A clamp, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said means including perforations in the central web and inwardly extending projections in the side portions.

2. A clamp, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said means including perforations in the central web and inwardly extending projections in the side portions and said projections being disposed opposite said perforations.

3. A clamp, S-shaped in section and comprising a plurality of separable sections having a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web.

4. A clamp, S-shaped in section and comprising a plurality of sections having a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said sections being separated by slots extending inwardly from the free edges of the side portions.

5. A clamp, S-shaped in section and comprising a plurality of sections having a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said sections being separated by slots extending inwardly from the free edges of the side portions, the edges of the material at said slots being flared outwardly.

6. A clamp, S-shaped in section and comprising a plurality of sections having a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, one of said sections having a tab extending upwardly from a side portion thereof.

7. A clamp, S-shaped in section and comprising a plurality of sections having a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, one of said sections having a tab extending upwardly from a side portion thereof and offset with respect thereto.

8. A clamp, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said clamp having a tab extending upwardly from a side portion thereof.

9. A clamp, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said clamp having a tab extending upwardly from a side portion thereof and offset with respect thereto.

10. A clamp comprising a plurality of S-shaped sections, one of said sections being inverted with respect to the other sections.

11. A clamp comprising a plurality of separable, S-shaped sections, one of said sections being inverted with respect to the other sections.

12. A clamp, S-shaped in section and comprising a plurality of separable sections having a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web.

13. A clamp for securing covered wire, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said means including perforations in the central web, the wire covering being forced into the perforations by the side portions of the clamp.

14. A clamp, S-shaped in section and comprising a plurality of separable sections having a central web and bendable side portions.

15. A clamp, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said clamp having a supporting tab formed thereon.

16. A clamp, S-shaped in section and comprising a central web and bendable side portions and means for firmly gripping the strands in the side portions when said portions are forced toward the central web, said clamp having a supporting tab extending upwardly therefrom.

In witness whereof, I have hereunto set my hand this 10 day of August, 1926.

ROY E. McINTOSH.