No. 786,691. PATENTED APR. 4, 1905.

L. STEINBERGER.

STRAIN.

APPLICATION FILED AUG. 24, 1904.

Fig. 1.

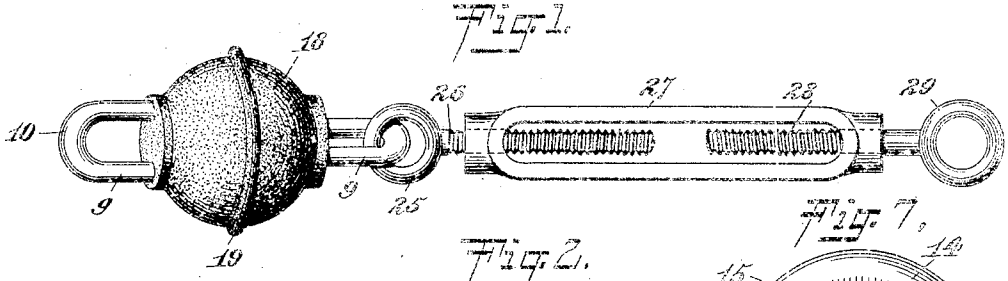


Fig. 7.

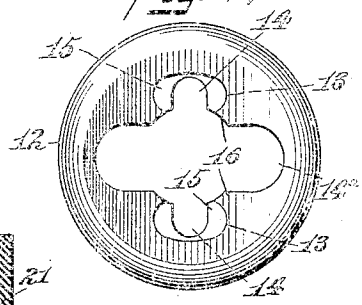


Fig. 2.

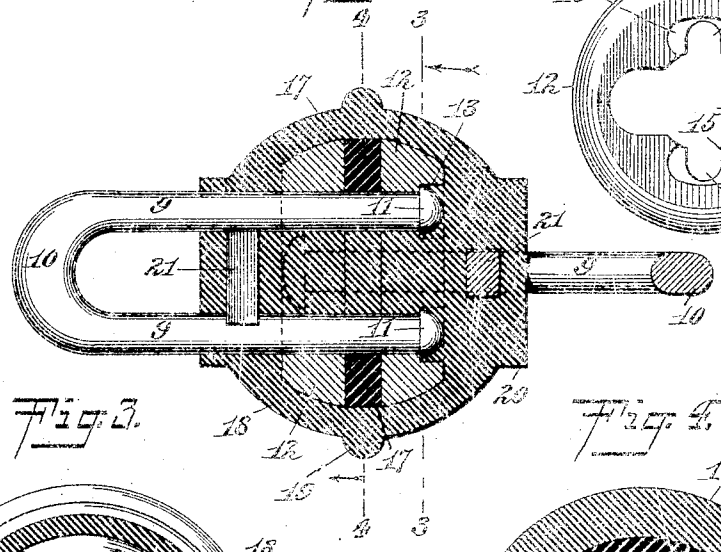


Fig. 3.

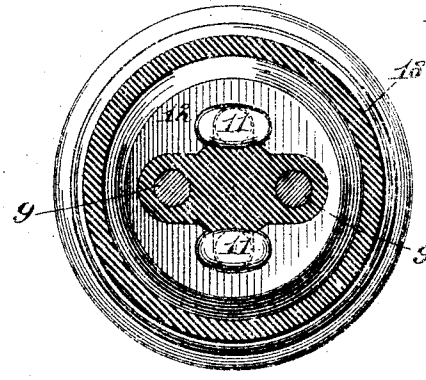


Fig. 6.

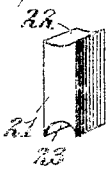


Fig. 4.

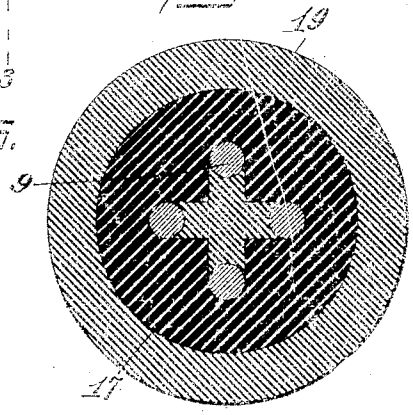
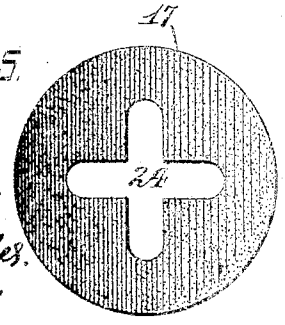


Fig. 5.



WITNESSES:

William P. Goebel.

W. Harrison.

INVENTOR

Louis Steinberger.

BY Munn & Co.

ATTORNEYS

No. 786,691. Patented April 4, 1905.

UNITED STATES PATENT OFFICE.

LOUIS STEINBERGER, OF NEW YORK, N. Y.

STRAIN.

SPECIFICATION forming part of Letters Patent No. 786,691, dated April 4, 1905.

Application filed August 24, 1904. Serial No. 221,966.

To all whom it may concern:

Be it known that I, LOUIS STEINBERGER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Strain, of which the following is a full, clear, and exact description.

My invention relates to strains of the kind employed in connection with wiring, and admits of general use for all purposes in which a strain is generally employed.

My invention relates more particularly to certain improvements in construction whereby additional results are produced, as described below and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view showing my strain in connection with a turnbuckle. Fig. 2 is an enlarged longitudinal vertical section approximately through the center of the strain. Fig. 3 is a vertical cross-section through the strain upon the line 3 3 of Fig. 2 looking in the direction of the arrow. Fig. 4 is a central vertical cross-section taken upon the line 4 4 of Fig. 2 looking in the direction of the arrow. Fig. 5 is a front elevation of the washer 17, of insulating material. Fig. 6 is a perspective view of the detachable link-stay 21. Fig. 7 is a front elevation of one of the metallic bearing-disks 12.

The cylindrical tensile members 9 are connected together by a thickened bearing portion 10, having, preferably, an oval cross-section, as indicated at the right of Fig. 2, and are provided with integral heads 11, preferably oval in general outline and otherwise of the shape indicated. Two metallic disks 12 are provided with bearing-apertures 13, each having substantially the form of a mutilated ellipse. Each disk 12 is further provided with slots 14 14^a, each slot 14 merging into a bearing-aperture 13. By this means shoulders 15 are formed at the bottom of the bearing-apertures 13 and are engaged directly by the heads 11. The bearing-apertures 13 being elliptical in form, as indicated in Fig. 7, leave portions 16, of metal, so disposed as to partially encircle the heads 11. The object of this arrangement is to prevent the heads 11 from approaching each other when the strain is subjected to great mechanical stress. I make the tensile members 9 substantially parallel with each other, as indicated in Fig. 2, rather than inclined toward each other. The tensile members 9 and the connecting or thickened portion 10 together constitute a form of link which is U-shaped rather than V-shaped, thus paralleling the direction of stress as between the two tensile members.

In order to provide against lateral movement of the tensile members 9 relatively to each other, I insert a stay 21 between them and provide the stay with concave faces 22 23, engaging the respective tensile members 9. The latter being parallel, as above stated, the stay 21 may be moved to any point intermediate of the heads 11 and the thickened portion 10. Preferably the tensile members 9 spring tightly against the concave faces 22 23 of the stay, so as to hold it firmly in position at any point at which it may be spaced from the heads.

To assemble the strain, I take the two disks 12 and place one of them upon each side of the washer 17, of insulating material. This washer is provided with a substantially cross-shaped slot 24, and this slot is turned into registry with the slots 14 14^a of the disks. The disks are so disposed relatively to each other that the slot 14^a of one disk registers with the slot 14 of the other. The stays 21 need not be removed from the links in assembling the strain, but may be slipped toward the connecting portions 10 and located at any desired point. The disks, washer, and links being in position, the device is placed within a mold and pressed up with a mass of insulating material 18, preferably provided with a central bead 19 and with end beads 20, so as to assume the general conformity indicated in Figs. 1 and 2.

It will be noted that while the links are closed by means of the stays 21, yet the closed members thus formed do not interlink in the sense that the closed metallic member formed by one of the links and its stay 21 encircles any

part of the other link or of its stay 21. In the strict sense of the word, therefore, the two links do not interlink with each other.

As will be seen in Fig. 1, either of the links may be caused to engage an eye 25, provided with a bolt 26, the bolts being thus connected with the strain. This bolt is threaded and is engaged by the turnbuckle 27, which also engages a threaded bolt 28, provided with an eye 29, to which a wire or other fixture may be secured. By rotating the turnbuckle 27 the mechanical tension upon the strain may be increased or decreased at will.

My invention admits of a variety of uses and combinations, as will be readily understood by a person skilled in the art to which it belongs.

The structure of the strain-insulator is such that all of the metal parts may be made of drop-forged steel or of other preferred metal, thus obtaining a maximum of strength with a minimum of weight. My strain possesses extraordinary tensile strength, which may be combined with the most absolute certainty of insulation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A strain comprising a plurality of metallic disks provided with bearing-apertures, links engaging said disks and provided with heads engaging said bearing-apertures, stays engaging said links and so disposed as to form therewith closed members which do not interlink with each other, and a member of insulating material interposed between said disks.

2. A strain comprising a metallic disk provided with bearing-apertures and with portions of metal partially encircling said bearing-apertures, a link engaging said disk and provided with heads engaging said bearing-apertures and said portions of metal, said heads being prevented from moving toward each other by said portions of metal, and a stay connected with said link for further preventing said heads from moving relatively to each other.

3. A strain, comprising a plurality of members provided with bearing-apertures disposed within the periphery of said members, insulating material disposed between said members, links provided with means for engaging said bearing-apertures, and means for producing a tension as between said members and said links.

4. A strain comprising a member provided with bearing-surfaces, and a link provided with strain members connected to said member, said link being further provided with a stay or bracing member.

5. A strain comprising a link provided with a plurality of members, and a stay engaging said members for the purpose of preventing said members from moving laterally with reference to each other.

6. As an article of manufacture, a link provided with a plurality of tensile members parallel to each other and having oval strain-heads at the ends of said tensile members.

7. As an article of manufacture, a link provided with a plurality of tensile members and also provided with strain-heads, said link members being further provided with a stay or bracing member adjustable relatively thereto.

8. As an article of manufacture, a link member provided with a plurality of tensile members, and also provided with a detachable stay or bracing member adjustable relatively thereto.

9. As an article of manufacture, a link provided with a plurality of tensile members parallel to each other and also provided with a metallic stay adjustable relatively to said link for bracing the same.

10. As an article of manufacture, a strain member provided with a plurality of apertures merged together and also provided with bearing-surfaces depressed relatively to the normal surface of said member for the purpose of engaging the heads of strain members.

11. A strain comprising a metallic member provided with bearing-apertures inclosed within the outer limits of said member and provided with shoulders, and a plurality of strain members connected to said metallic member and provided with heads engaging said shoulders.

12. A strain comprising a link provided with heads, a member provided with bearing-recesses entirely within the periphery of said member for engaging said heads, and a metallic member for preventing said heads from moving relatively toward each other.

13. A strain comprising a member provided with bearing-surfaces and with portions partially encircling said bearing-surfaces, a link provided with strain-heads, said heads engaging said bearing-surfaces, and a brace for preventing said heads from moving relatively toward each other.

14. A strain comprising a link provided with tensile members for engaging disks or the like, a metallic stay detachably engaging said members, and insulating material engaging said stay and said tensile members.

15. As an article of manufacture, a link provided with a plurality of tensile members having oval strain portions at the ends of said tensile members.

16. As an article of manufacture, a strain member provided with internal mutilations and with bearing-surfaces, and also provided with strengthening portions adjacent to and raised relatively to said bearing-surfaces, said bearing-surfaces being inclosed within the periphery of said strain member.

17. A strain, comprising a link provided with members substantially parallel with each other, stays detachably connected with said members for the purpose of preventing lateral movement thereof relatively to each other, and

insulating material encircling said stays and partially encircling said members.

18. As an article of manufacture, a metallic disk provided with apertures and with integral portions projecting toward each other for the purpose of engaging link-heads so as to prevent lateral movements of said link-heads relatively to each other.

19. A strain, comprising a disk of insulating material, a pair of metallic disks disposed upon opposite sides of said disk of insulating material, and provided with apertures of substantially elliptical shape, said apertures being bounded by projecting portions of metal integral with said metallic disk for the purpose of strengthening the same, links provided with heads engaging said projecting portions and prevented thereby from moving laterally in relation to each other, and a mass of insulation engaging said links and said metallic disks.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS STEINBERGER.

Witnesses:

WALTON HARRISON,

EVERARD BOLTON MARSHALL.