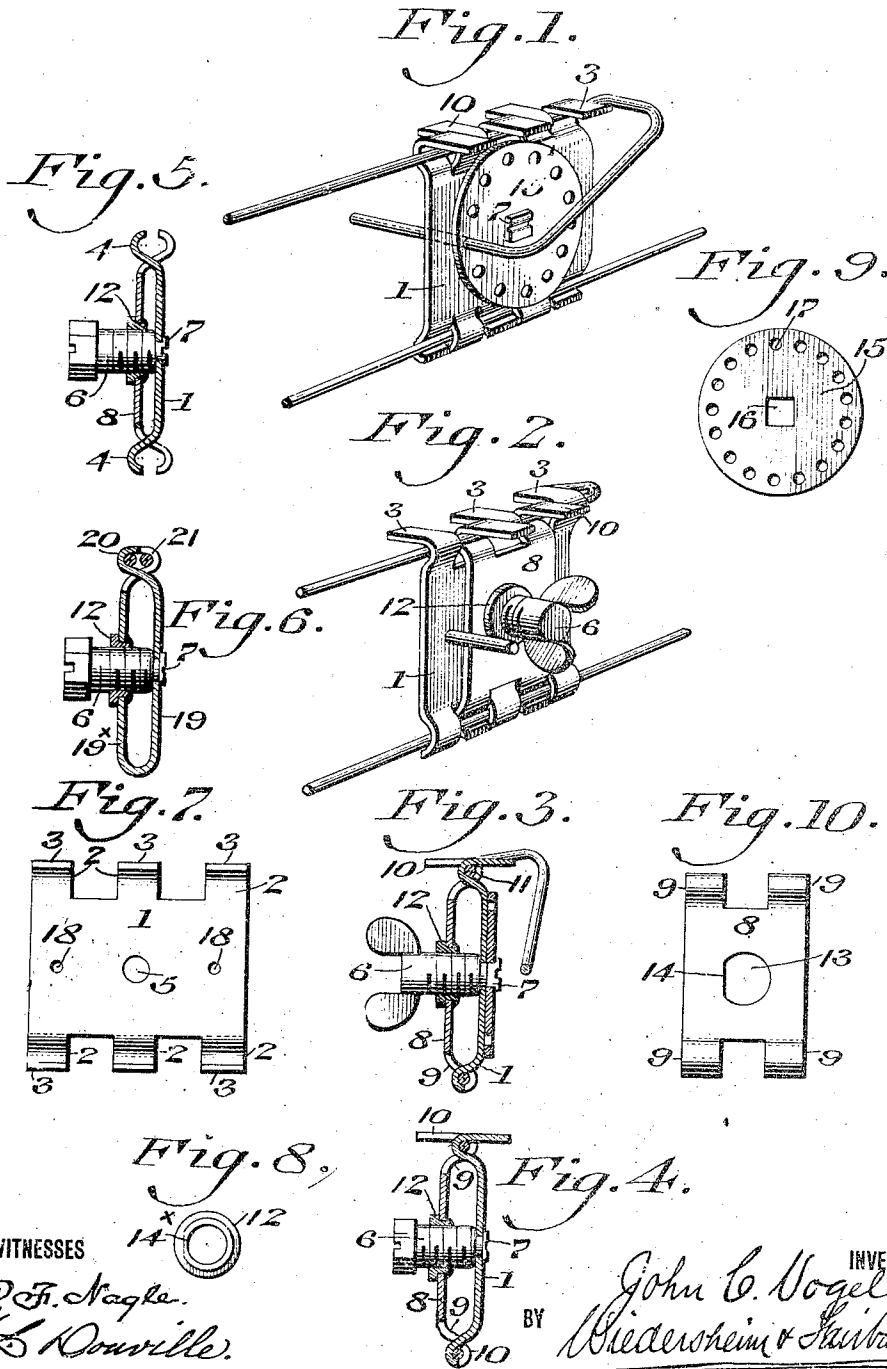


J. C. VOGEL.
CONNECTOR FOR ELECTRICAL CONDUCTORS.
APPLICATION FILED APR. 28, 1909.

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CONNECTOR FOR ELECTRICAL CONDUCTORS.

953,934.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN C. VOGEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Connector for Electrical Conductors, of which the following is a specification.

This invention relates to wire connectors and more particularly to that class of a connector for uniting electrically and mechanically wires or rods, whereby a continuous circuit is provided.

It consists of a clamping means whereby wires of different sizes or diameters may be held securely therein equally as well as wires of the same size, one in which the clamp may be opened quickly and readily without injury to the connector; one which may be used to join the ends of two wires or rods to form a continuous wire and one which will at all times form a secure and solid binding means between two wires so that any vibrations will have no effect upon the clamp to loosen any of its adjacent parts.

It further consists of a novel means for locking the connector after it has been attached to adjacent wires and whereby it is impossible for the parts to become separated or otherwise loosened therein.

In the wire connectors heretofore in use I have found that owing to the construction of the same when rigid plates are employed for gripping the wire, it is extremely difficult to obtain the proper tension on the wires in order to lock the same in position, owing to the fact that many different sized wires are employed and the plates do not accommodate themselves to the wires. My invention is designed to overcome these defects and in the drawings I have shown a construction which I have found operates successfully in practice; but it will be evident that the arrangement of the parts may be varied, changes may be made in the construction; and that other instrumentalities may be employed which will come within the spirit of my invention and I do not therefore desire to be limited in every instance to the exact construction as herein shown and described. I preferably form my plates of suitable spring material, whereby the gripping jaws thereon will accommodate themselves to the different sized wires and will always tightly grip the same.

While I have shown in the drawings three jaws on one plate and two on another, it will

be understood that I do not desire to be limited to this number as any suitable number may be employed.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents a perspective of my connector or clamp in operative position. Fig. 2 represents a similar view of the opposite side of the same. Fig. 3 represents a section of the device in gripping position. Fig. 4 represents a section of the same showing a modification thereof. Fig. 5 represents a section of the device in open position. Fig. 6 represents a section of another modification. Figs. 7, 8, 9 and 10 represent details of parts of the device.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates a plate or body forming one portion of a connector embodying my invention, the same having extensions 2 formed thereon, preferably spaced apart, for a purpose to be later described, the said extensions terminating in jaws 3, which in the present instance are extended in a plane at angles to the body or plate 1. In forming this jaw, it is preferable to bend the plate sufficiently in order to provide a seat 4 adjacent the jaws in which the wire to be engaged may readily fit and be held securely against movement.

5 designates an opening formed in the plate, with which cooperates a screw-threaded stud 6, the same preferably being movably secured by means of a head 7 rotatably fastened to the plate 1.

8 designates a second plate or body provided with off sets 9 spaced apart and so located relative to the extensions 2 of the plate 1 that when the two plates are joined together they will coincide with the spaces between the jaws 3, thereby interfitting and forming a gripping means for a wire or rod, as the case may be. It will be noted that similar jaws 10 are formed on the off sets 9, preferably being bent relative to the plate 8 so as to provide a seat 11 for the wire or rod.

Referring to Fig. 3, it will be noted that where the plates are formed of comparatively thin material, it is preferable to provide a bushing 12 in order that sufficient bearing surface may be formed for the stud 6 during the clamping action.

It will of course be understood that an

opening 13 is provided in the plate 8 and in order that the same may properly engage the bushing 12 and hold it against rotation, a flat side 14 is formed thereon, cooperating with a similar flat portion 14^x of the said bushing 12.

It will be clear that in operating position the arrangement of the several parts is such that the respective jaws 3 and 10 are oppositely disposed and move to grip the wires or rods during the movement of the stud 6 when forcing the two plates apart, while if it is desired to release the connection, the stud 6 is rotated in an opposite direction to bring the plate together and thereby release the said jaws.

15 designates a suitable member provided with an opening 16 for engagement with the head 7 of the stud 6 and upon which it is mounted for rotation therewith in any well known manner, the same member preferably having a series of apertures 17 therein, in the present instance concentrically arranged with respect to the stud 6, any one of which in certain positions of the stud may be alined with one or the other of a pair of openings 18 formed in the plate 1. The function of the openings just described is to form a lock for the connecting device when in operative position and to prevent any loosening of the parts during vibration or other causes.

The operation of the locking means consists of bending an end of one of the connecting wires over and inserting the same in one of the apertures 17 and passing it through the alined opening 18 of the plate 1. This is well illustrated in Fig. 1 and it will be very apparent that when the wire is so located, movement of the stud and consequent unlocking of the device is absolutely prevented. Attention is directed furthermore to the manner in which the openings 17 are formed in the member 15, since they are preferably so arranged that when one of them coincides with an opening 18, the opposite opening 18 is positioned between two of the openings 17 and therefore it takes a very slight movement to bring the device to a locking position.

In Figs. 4 and 5 I show a modification wherein the stud 6 is provided with a slotted head in place of the wing construction employed in the previous views.

In Fig. 6 I disclose a construction wherein 19 designates one side of a body or plate and 19^x the other body or plate, which in this figure are integral, and form a loop, each body having jaws 20 and 21 interfitting in the manner as already described for the previous forms.

It will be readily apparent and appreciated by those skilled in the art to which this invention applies, that I have devised very simple, economical and efficient con-

struction for the purpose intended, one in which the flexibility of the parts is such as to prevent vibration of the wires or rods from effecting the solidity of the connector when in position and furthermore in view of my novel locking means, a connector which has once been placed in operative position cannot be loosened or its effectiveness weakened in any manner.

Especial attention is directed to the feature of having the jaws come into gripping connection at the time the plate members are being separated and loosened when the plate members are brought together, as thereby resides a particular feature of strength, durability and efficiency of the device.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In a device of the character described, a plurality of plates, means to vary the distance between said plates, and jaws on each plate so arranged as to cooperate with the wire when said means are adapted to operate to space said plates apart.

2. In a device of the character described, a plurality of plates, connecting means adapted to vary the distance between said plates, and jaws on each plate spaced and adapted to interfit to grip a wire.

3. In a device of the character described, a plurality of plates, off set jaws on each plate, said jaws being adapted to be drawn together when the plates are separated, and to open when said plates are drawn together and means adapted to operate said plates.

4. In a device of the character described, a plurality of plates, off set jaws on each plate, said jaws being adapted to be drawn together when the plates are separated and to open when said plates are drawn together, and screw bolt means to operate said plates.

5. In a device of the character described, a plurality of plates, off set jaws on each plate, said jaws being adapted to be drawn together when the plates are separated and to open when said plates are drawn together, and means to lock said jaws in clamping position.

6. In a wire connector, a plurality of

plates, the opposite ends of said plates having integral members interfitting with each other, a bolt adapted to space said plates apart, and means to lock said bolt in position.

7. In a wire connector, a plurality of plates, screw bolt means adapted to vary the distance between said plates, and interfitting members on said plates to grip a wire or rod when said means space said plates apart.

8. In a wire connector comprising plates, off set jaws on each plate, a bolt adapted to space said plates apart, and a lock on said bolt to hold the same in position.

9. In a wire connector, a plate having integral members, means to actuate said members in either direction, and a lock to hold said means in position.

10. In a wire connector, a plurality of plates having interfitting portions on the opposite ends thereof, and means to space said plates apart to grip a wire.

11. In a wire connector, a plurality of plates, means to actuate said plates, and interfitting members on said plates for gripping a wire therebetween, when said means are operated.

12. In a device of the character described, a plurality of plates having interfitting wire gripping jaws terminating at the sides thereof and means to actuate said plates in either direction.

13. In a device of the character described, a plurality of plates interfitting wire grip-

ping members on the opposite sides of said plates and means to actuate said plates for gripping a wire between said members.

14. In a wire connector, a plurality of plates having interfitting jaws on their opposite ends adapted to grip a wire between said opposite jaws when said plates are spaced apart.

15. In a wire connector having a plurality of plates, interfitting wire gripping members on the opposite ends of said plates, and means to actuate said plates for gripping a wire when said plates are spaced apart.

16. In a wire connector, a plurality of plates, each of their opposite sides having interfitting extended members adapted to grip a wire, and means to actuate said plates for gripping a wire between the opposite members.

17. In a device of the character described, a plurality of plates, screw means adapted to vary the distance between said plates and jaws on each plate so arranged as to cooperate with a wire when said means are adapted to operate to space said plates apart.

18. In a wire connector, plates having on a plurality of their sides interfitting members adapted to grip a wire and means to actuate said plates in either direction.

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Witnesses:

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