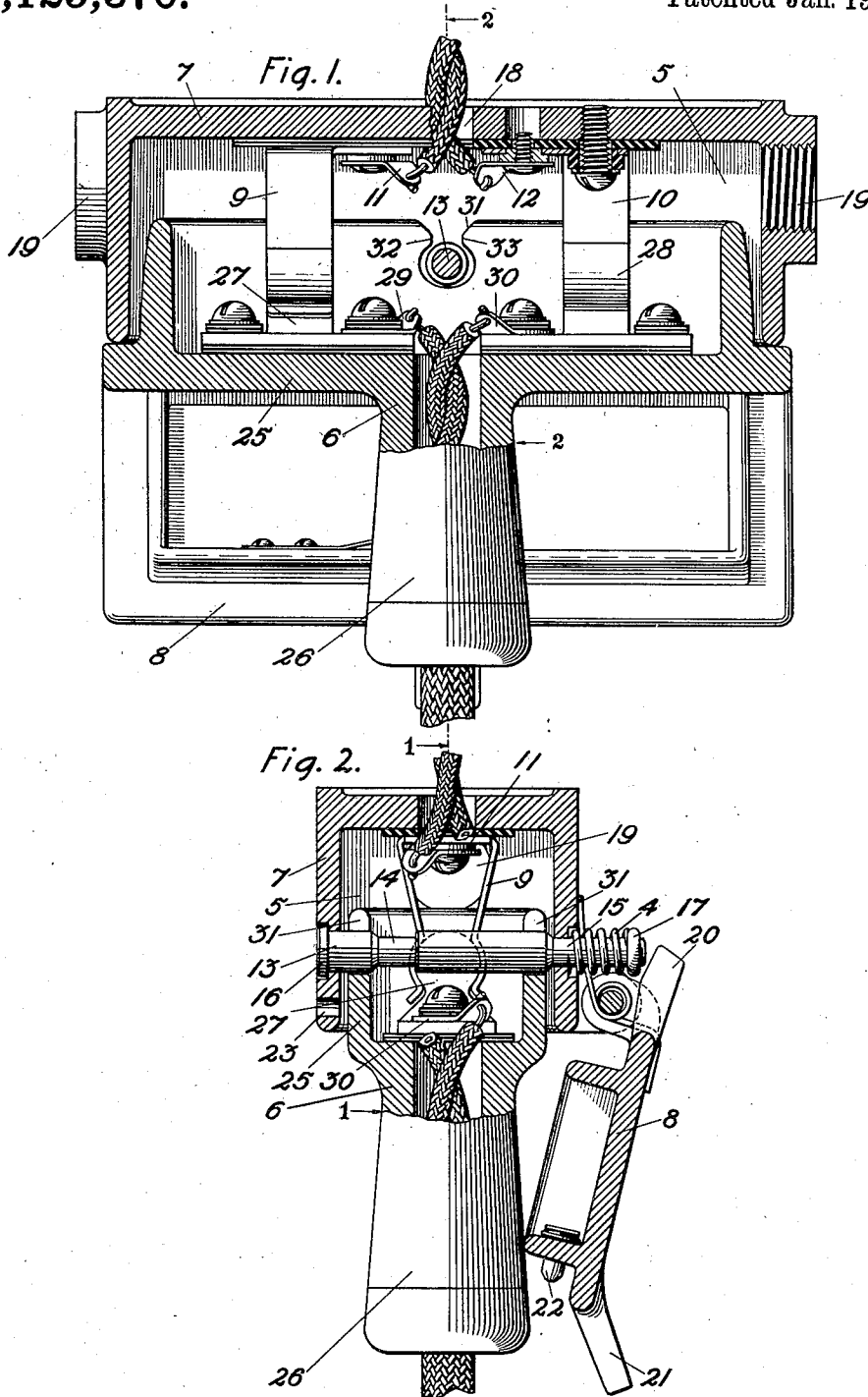


E. C. G. MUELLER.
CONNECTOR.

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1,125,370.

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UNITED STATES PATENT OFFICE.

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CONNECTOR.

1,125,370.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EMIL C. G. MUELLER, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented a certain new and useful Improvement in Connectors, of which the following is a full, clear, concise and exact description.

This invention relates to connectors and more particularly to connectors for joining electrical conductors, and has for its object the production of a connector composed of two members which will lock together when connection is made.

The features of this invention are the means provided for locking together the two members of the connector and other details of structure and combination of parts as will hereinafter more clearly appear.

This invention is illustrated in the accompanying drawing in which the same reference characters are used throughout to designate the same parts, in which—

Figure 1 is a view partly in section on line 1—1 of Fig. 2, and Fig. 2 is a view partly in section on line 2—2 of Fig. 1.

As shown in the drawing, the connector comprises two members, a jack 5 and a plug 6. The jack 5 consists of a box-like metallic case 7 having a spring pressed cover 8 pivoted to one edge of the open side. Insulatively secured to the base of the case 7 are U-shaped contact springs 9 and 10. Terminals 11 and 12 are electrically connected to contact springs 9 and 10 respectively. A plunger 13 having reduced portions 14 and 15 is mounted cross-wise of the case 7 about midway between the contact springs 9 and 10. On one end of the plunger 13 is formed a head 16, which coöperates with the side of the case 7 to limit the movement of the plunger in one direction. The other end of the plunger extends beyond the other side of the case 7 and is encircled by a spiral spring 4. One end of the spring 4 rests against the side of case 7 and the other end against a projection 17 of the plunger 13, and normally holds the plunger 13 in the position shown in Fig. 2. The base of the case 7 is provided with an opening 18 through which conductors to be connected to the terminals 11 and 12 may be brought. The ends of the case 7 are each provided with a threaded opening 19 into which conduit may be secured, and therethrough may

be brought the conductors to be connected to terminals 11 and 12. The cover 8 has a lug 20 formed integrally thereon, said lug being arranged to engage with the end of the plunger 13 and move said plunger against the action of the spring 4 when the cover is raised far enough. The cover 8 is provided with another lug 21, the purpose of which is to serve as a handle for the cover. A spring pressed latch 22 is carried by the cover 8 and is adapted to engage the opening 23 in the side of the case 7 when the cover 8 is in its closed position.

The plug 6 consists of a box-like body 25 having a handle 26 formed integrally thereon. Contact members 27 and 28 are insulatively secured to the bottom of the box-like body 25. Terminals 29 and 30 are electrically connected to contact members 27 and 28 respectively. Both sides of the box-like body 25 are slotted as at 31, 31, both slots being in such position that they register with the plunger 13, when the plug 6 is inserted within the jack 5. The slots or notches 31 each have restricted portions 32 and 33 which form restricted entrances for the notches and permit the reduced portions of the plunger 13 to pass therethrough, but prevent the passage of the portions of normal diameter. The handle 26 of the plug is hollow to permit the passage therethrough of the conductors which are to be connected to terminals 29 and 30.

When it is desired to make connection between the plug 6 and the jack 5, the cover 8 of the jack is raised and forced back, forcing the lug 20 into engagement with the end of the plunger 13, whereby said bar is moved against the action of the spring 4. When the cover 8 has been moved its maximum distance, the plunger 13 has been moved sufficiently to permit the reduced portions 14 and 15 thereof to be in line to be engaged by the slots 31, 31 of the plug upon the insertion of said plug within the jack. Releasing the cover 8 will permit it to rest against the handle 26 of the plug, due to the action of the spring secured to the cover. This will cause disengagement of the lug 20 and the end of the plunger 13, permitting said plunger to be returned to its normal position, due to the action of the spring 4. The return of the plunger 13 to its normal position moves the larger portions of the plunger into the slots 31, 31

of the plug and locks said plug within the jack. When the plug is inserted within the jack, contact is made between the contact members 27 and 28 and the U-shaped contact springs 9 and 10 respectively.

When it is desired to disconnect the plug and jack, the cover 8 is moved to its maximum distance outwardly, causing the lug 20 to engage the end of the plunger 13 and move said plunger against the action of spring 4 so that the reduced portions 14, 15 of the plunger 13 are within the slots 31, 31 of the plug, whereupon the plug may be withdrawn from the jack, the cover released and all parts returned to normal.

A plug and jack equipped with a locking mechanism, such as has been described, is particularly applicable where telephone connection is desired between a train in a station and a telephone exchange. A jack having a locking mechanism is mounted in a convenient place in the station, and another jack without locking mechanism is mounted under one of the cars of the train. Conductors from the telephone exchange are connected to the station jack, and conductors from a telephone set inside the car to the train jack. A cord having two conductors, each end terminating in a plug, is provided to complete connection between the station and train jacks. When connection is desired, the plugs are inserted within the jacks. Should the train start before the plugs are withdrawn from the jacks, disconnection will automatically take place at the train jack which is not provided with a locking mechanism, and the cord and plugs will be left in the station.

While a plug and jack have been described as embodying this invention, it will be readily apparent that it is applicable to various other connectors and the invention is, therefore, not limited to a plug and jack.

I claim:

1. In a connecting device, a casing, a jack-spring located within said casing, a plug for engaging said jack-spring, a cover for said jack casing, and means located in said casing and controlled by said cover for retaining said plug in engagement with said jack-spring.

2. In a connecting device, a casing, a jack-spring mounted therein, a plug contact for cooperating with said jack-spring, a casing for said plug contact adapted for insertion into said jack casing, locking means within

said jack casing for engaging said plug-contact casing to retain said plug contact and said jack-spring in engagement, and a cover for said jack casing controlling the operation of said locking means.

3. In a connecting device, a jack-spring, a casing therefor, a plug contact for cooperating with said jack-spring, a casing for said plug contact adapted for insertion into said jack casing, said plug casing having a notch therein, a spring-pressed plunger in said jack casing having portions cooperating with the notch in said plug casing to lock said plug casing in said jack casing, a hinged cover for said jack casing, and means on said cover for engaging said plunger to permit the insertion and withdrawal of said plug casing.

4. In a connecting device, a casing, a jack-spring mounted therein, a plug contact for cooperating with said jack-spring, a casing for said plug contact having a notch therein, a spring-pressed plunger within said jack casing normally preventing engagement of said jack-spring and said plug contact and having a reduced portion, a hinged cover for said jack casing, and means on said cover for engaging and moving said plunger against the spring to permit registration of the reduced portion of said plunger and the notch of said plug casing.

5. In a connecting device, a casing, a jack-spring mounted therein, a spring-pressed plunger in said casing having a portion of reduced diameter, a plug contact for cooperating with said jack-spring, a casing for said plug contact adapted for insertion into said jack casing and having therein a notch with a restricted entrance smaller than said plunger and larger than the reduced portion thereof, the normal position of said plunger preventing engagement of said jack-spring and said plug contact, a cover for said jack casing, and a lug carried by said cover for engaging and moving said plunger to permit the reduced portion thereof to pass through the restricted notch entrance of said plug casing.

In witness whereof, I hereunto subscribe my name this 25th day of August A. D., 1913.

EMIL C. G. MUELLER.

Witnesses:

ROY C. HOPGOOD,
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