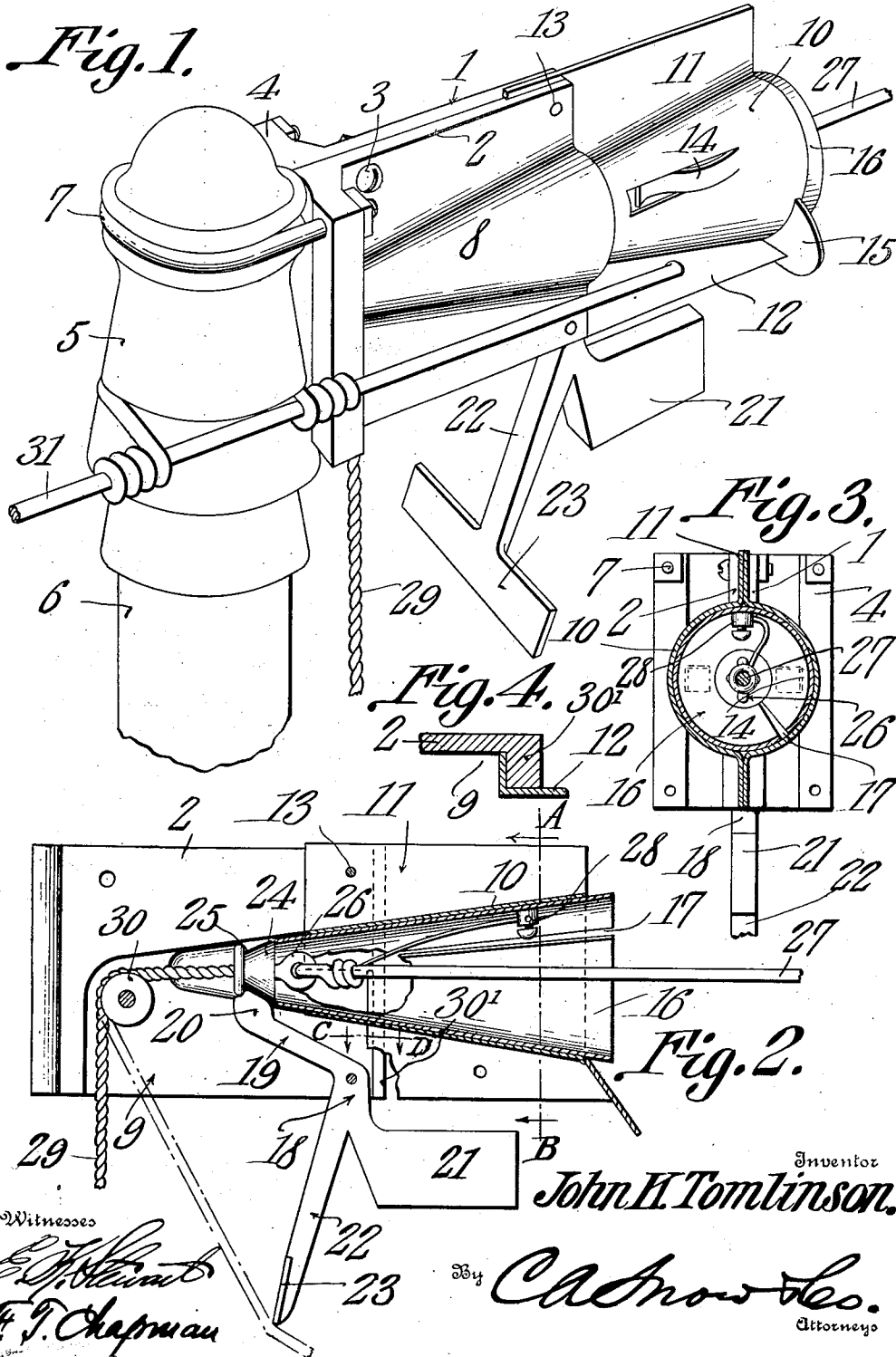


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 TELEPHONE LINE WIRE DETACHER.
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TELEPHONE-LINE-WIRE DETACHER.

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To all whom it may concern:

Be it known that I, JOHN K. TOMLINSON, a citizen of the United States, residing at Pickaway, in the county of Monroe and State of West Virginia, have invented a new and useful Telephone-Line-Wire Detacher, of which the following is a specification.

This invention has reference to means for the ready detaching of telephone line wires so that a house line may be readily disconnected from the main line wires when such may be deemed desirable.

On rural telephone wires, and especially on grounded lines there is more or less danger of lightning discharges entering houses and becoming thereby a menace to both property and life and even when no destructive effect is produced by the lightning discharge, the occupants of the house are frightened. The actual or imagined danger from lightning deters many would be users of telephones from having telephones installed on their premises.

Protecting means such as lightning arresters are usually installed in the houses or where means are provided for disconnecting the telephone line from the telephone instrument, such attachments are usually within the houses and the real or imagined danger is not avoided.

In accordance with the present invention the line detaching means are located at the line poles which are usually located a considerable distance from the houses supplied and provision is made for disconnecting the house line wires from the main line wires at the pole connection so that there is no connection between the main or trunk lines and the house line while at the same time when the danger has passed the connection may be readily reestablished without the use of tools or the necessity of the person reestablishing the connection climbing the pole to make the connection.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,

Figure 1 is a perspective view of the detacher. Fig. 2 is a central longitudinal vertical section of the structure of Fig. 1 with the supports therefor omitted. Fig. 3 is a section on the line A—B of Fig. 2. Fig. 4 is a section on the line C—D of Fig. 2.

Referring to the drawings there are shown two plate like members 1, 2, joined together by bolts 3, but it will be understood that the plates 1 and 2 may be combined into a single structure which may be cast or otherwise formed.

At one end of each plate there is formed a flange 4 shaped to rest against an insulator 5 which latter may be of the usual form employed in telephone and telegraph installations the insulator being shown as mounted on a stem 6 such as is commonly employed for the purpose, and it will be understood that the stem 6 rises from a suitable pole or from a cross arm as is customary. The members 1 and 2 are held to the insulator by a strap bolt 7 embracing the insulator and having the ends passed through the flanges 4 and beyond the same receiving nuts as is the usual practice. While but one such bolt is shown in the drawings it will be understood that two or more such bolts may be employed if found desirable.

The central longitudinal portion of each plate 1 and 2 is formed with a tapering convex wall 8, the two walls of the two members 1 and 2 matching to form a taper socket. At the smaller end of the taper wall, the inner wall of each member 1 and 2 is formed with a recess 9 with which the taper socket coalesces.

Entering the socket formed by the walls 8—8 is another tapering socket 10 formed with diametrically opposite wings 11—12 entering for a distance between the corresponding ends of the plates 1 and 2 and there secured by rivets or bolts 13. It will be understood of course that the socket 10 may be formed otherwise than shown.

By making the socket 10 of sheet metal the side walls may be cut out on opposite sides to form spring tongues 14 tending inwardly, or other means for the same purpose may be provided. Whatever be the structure the function of the parts named remains the same. In the particular structure shown the socket 10 terminates at the smaller end within the socket 8 and is there open. The forward end of the socket 10 is formed with a downwardly directed lip 15 for a purpose which will presently appear.

There is provided a conical cup like member 16 of a size and shape to snugly fit into the conical receptacle 10, this cup 16 being split along one side in the direction of its

length as indicated at 17 so as to yield to circumferentially applied compressive forces, but having a normal tendency to return to its initial condition when the compressive forces are removed. This construction causes the cup 16 to snugly engage the inner walls of the conical receptacle 10 when the cup is moved into the latter with the small end foremost, the cup yielding sufficiently to cause a snug fit, while good electrical contact is insured by the spring fingers 14 although it will be understood that these spring fingers are not absolutely essential and may be omitted.

Pivotaly secured between the edges of the members 1 and 2 where these members are expanded by the recesses 9 is a three armed lever 18 one arm 19 extending into the chamber formed by the co-action of the recesses 9 and having its free end formed into a tooth 20. Another arm 21 of the lever 18 is enlarged to constitute an overbalancing weight tending to swing the lever 18 about its pivot support so as to elevate the toothed end 20 of the arm 19. The third arm 22 of the lever is on the same side of the pivot support of the lever as the wings 21 but is arranged at an angle thereto and terminates in a cross head 23.

The smaller end of the conical cup 16 carries a block 24 formed with a circumferential groove 25 adapted to receive the tooth 20 of the arm 19 of the lever 18. Attached to one end of the block 24, that end facing the interior of the cup 16, there is an eye or other suitable device 26 to which may be attached a telephone line conductor 27 leading to the house of the telephone subscriber. Such an eye provides but imperfect electrical connection for the telephone conductor 27, and to improve this connection there may be provided a binding post 28 on the inner face of the cup 16 to receive the end of the conductor 27, or such end may be simply soldered to the interior of the cup 16.

Attached to the block 24 is a flexible strand 29 extending in a direction away from the small end of the cup 16, through the chamber formed by the co-acting recesses 9 in the plates 1 and 2 and passing over a direction diverting pulley 30 mounted in said chamber, said strand extending to a suitably accessible point as will hereinafter appear.

Where the structure is made of plates 1 and 2 and a separate socket member or receptacle 10 is employed then those portions of the plates 1 and 2 where they are formed with the recesses 9 are inturned as indicated at 30' and the corresponding ends of the wing 12 are outturned about the flanges 13 so as to lock therewith, this structure being shown in Fig. 4.

Let it be assumed that the main line tele-

phone wire indicated at 31, or a branch of the main line telephone wire of which the conductor 31 may be taken as illustrative, is electrically coupled to the socket member or receptacle 10 by being attached to the wings 11, 12 or to any other suitable portion of this structure, it being understood that the wings 11, 12 and socket member 10 under such conditions are made of metal. Let it also be assumed that the house conductor 27 is mechanically connected to the cup 16 by being passed through the eye 26 and then turned about itself a suitable number of times and is electrically connected to the cup by means of the binding post 28 or by any other suitable means, and let it further be assumed that the cup 16 has been introduced into the socket or receptacle 10 until the tooth end 20 of the lever arm 19 is seated in the groove 25 thus locking the cup against removal. Under these conditions there is established electrical connection between the conductor 31 by way of the metallic wing 12 and by the socket or receptacle 10 to the cup 16, the electrical connection being insured by the spring fingers 14, and from the cup 16 to the house wire 27. Because of the large contact surfaces there is thereby established ample electrical conducting connections between the two conductors 31 and 27 so that the circuit is as good as though the conductors 31 and 27 were directly connected one to the other in the usual manner.

Let it be assumed that it is desirable to break the electrical connection between the house conductor 27 and the main line or branch conductor 31 then it is simply necessary to move the strand or rope 29 in a direction to engage the head 23 to move the same against the normal tendency of the weight 21 when the lever 18 will be moved about its pivot in a direction to carry the end 20 of the arm 19 out of engagement with the groove 25 of the block 24. The weight of the house conductor 27 is sufficient to start the cup 16 in a direction to escape from the socket or receptacle 10 and carry the groove 25 of the block 24 out of the path of the end 20 of the lever arm 19 when the lever 18 is released to the action of the weight 21. The strand or cord 29 may now be released and the weight of the house conductor 27 will withdraw the cup 16 from the receptacle 10, and assuming that the strand 29 is of sufficient length the cup 16 will ultimately reach the ground. There is now no danger or even possibility of lightning discharges upon the main line reaching the house conductor 27, and in grounded lines the house instruments will then have ground connections at both ends so that all danger of lightning strokes entering a house through the telephone line is entirely eliminated. When the danger from lightning

discharges has passed, then it is desirable to reestablish the telephone connection, and this may be done simply by pulling on the rope or strand 29 when the cup 16 will be moved thereby toward the socket or receptacle 10, the block end 24 being foremost. Ultimately the block 24 is brought into engagement with the lip 15 and is guided thereby so that the cup 16 will enter the socket 10 in the proper direction and is finally drawn therein until the block 24 reaches the end 20 of the lever arm 19 and the lever 18 is locked by the outer end of the block 24 against the action of the weight 21 until the groove 25 is brought coincident with the end 20 and the weight 21 will cause the end 20 to seat in the groove 25 and thereby lock the cup 16 against escape from the receptacle 10 when the pull on the cord or strand 29 ceases.

The cord or strand 29 may be simply of sufficient length to reach the ground and be at all times within easy reach of an operator, or the cord or strand may be of sufficient length to be carried to the house to which the house conductor 27 leads and then when pulled it will engage the head 23 of the lever arm 22 and readily move the end 20 of the lever arm 19 out of engagement with the block 24. When the strand or cord 29 leads to the house it may be moved sufficiently to one side of a direct line to escape contact with the head 23 when it is desired to reinsert the cup 16 in the socket or receptacle 10.

It will be understood that although the foregoing description has been limited to the application of the invention to a telephone line, it is equally applicable to a telegraph line or to any line where there is liability of high potential current of dangerous character traversing the line, such high potential current being of abnormal character.

What is claimed is:—

1. A wire detacher comprising two terminal members one of which is movable into and out of axial housed relation to the other, a lock carried by one terminal for holding said terminals in electric connection, and a single means for moving the lock to the unlocked position and restoring the terminal members to the locked position.

2. A wire detacher comprising two terminal members one of which is movable into and out of axial housed relation to the other, a lock carried by one terminal for holding said terminals in electric connection, and a single means operable from a distance for moving the lock to the unlocked position and for restoring the terminal members to the locked position.

3. A line detacher comprising two terminal members one of which is movable into

and out of axial housed relation to the other, a lock carried by one terminal for holding the said terminals in electrical connection, and an actuating means for the movable terminal member also operable to move the lock to the unlocked position.

4. A line detacher comprising terminal members one being movable into and out of electrical connection with the other and having a normal tendency when in operative relation to the other to move away from the same, a lock for holding the terminal members in electrical connection, and an actuating means for the terminal member having the normal tendency to move away from the other terminal member, operable to move the terminal member actuated thereby into locked electrical connection with the other terminal member, said actuating means being operable to move the lock to the unlocked position.

5. A line detacher comprising a terminal member in the form of a socket another terminal member yieldable to circumferentially applied pressure and adapted to seat in the socket, a locking means carried by the socket member and adapted to engage the second named member when seated in the socket and means for moving the locking means to the unlocked position.

6. A line detacher comprising a member in the form of a socket and provided with elastic fingers having a normal inward tendency toward the interior of the socket, an elastic conical terminal member adapted to seat in the socket in electrical contact therewith, a locking means one member of which is carried by the socket member and the other member of which is carried by the conical terminal, and means for moving the locking member carried by the socket to the unlocked position said means being operable from a distance.

7. A line detacher comprising a socketed member, a conical terminal adapted to said socket member and adapted to be secured to an electrical line conductor, a lock member carried by the socket member and having a normal tendency toward the locked position and a flexible strand attached to the conical member and extending through the socketed member, said flexible strand extending to a distant point of access and operable to move the conical member into the socket member to the locked position and to cause the release of the conical member from the lock member.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN K. TOMLINSON.

Witnesses:

W. J. DILLON,
C. E. DOYLE.