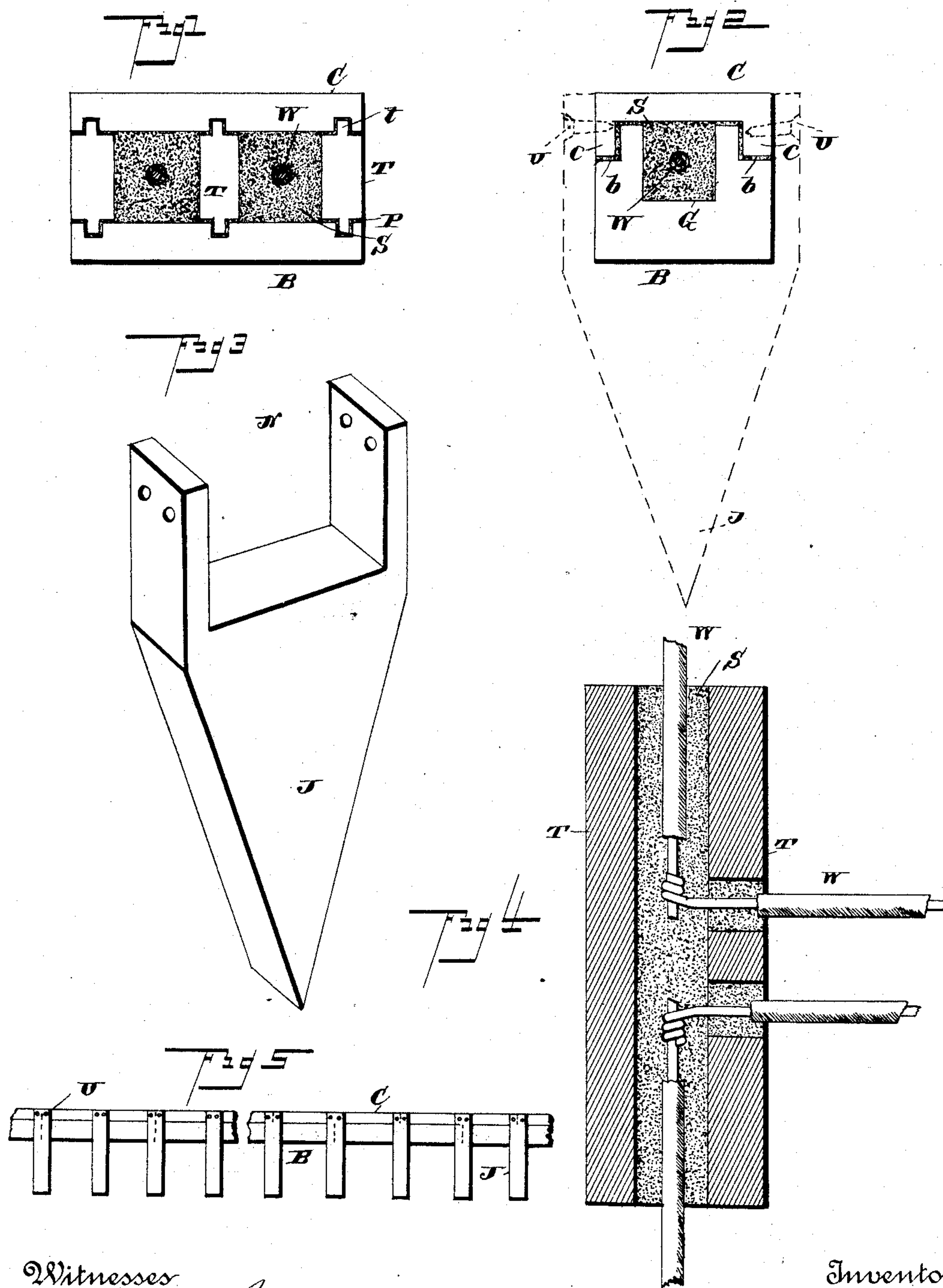


(No Model.)

E. L. WITTHAUS.  
UNDERGROUND CONDUIT FOR ELECTRIC WIRES.

No. 429,104.

Patented May 27, 1890.



Witnesses

*John Smilie*  
*N. L. Collamer*

Inventor

*Erich L. Witthaus*

By his Attorneys

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

ERICH L. WITTHAUS, OF BALTIMORE, MARYLAND.

## UNDERGROUND CONDUIT FOR ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 429,104, dated May 27, 1890.

Application filed January 29, 1890. Serial No. 338,471. (No model.)

*To all whom it may concern:*

Be it known that I, ERICH L. WITTHAUS, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a new and useful Electric Conduit, of which the following is a specification.

This invention relates to electric conduits, more especially of that kind which are adapted to protect one or more large single wires in which an electric current of high potential is being conveyed; and the invention consists, broadly speaking, of a casing of wood surrounding each wire or having longitudinal holes for a number of wires, the top and bottom of this casing being connected by tongue and groove, wooden wedges adapted to be seated in the ground or in the bottom of a trench in the ground and having open upper ends to receive the wooden casing, and other details of construction and arrangement of parts which are necessary for carrying out the idea and for forming branches in the conduit, all as will be hereinafter more fully described.

In the accompanying drawings, Figure 1 is an end view of my improved conduit as constructed for the reception of more than one wire. Fig. 2 is a similar view of the conduit as constructed for the reception of a single wire. Fig. 3 is a perspective view of one of the supporting-wedges. Fig. 4 is a horizontal sectional view of my preferred arrangement of switch. Fig. 5 is a side elevation of sections of my completed conduit, showing the manner of arranging the sections.

I preferably construct my improved conduit of strips of white oak or other hard wood and in sections of about ten feet in length. In the form of conduit shown in Fig. 1 the letter B represents the bottom piece, and the letter C the top piece, each being provided along its inner face with longitudinal grooves, one greater in number than the number of wires it is desired to carry in the conduit. The letter T represents vertical strips or partitions, and these strips have tongues *t* along their upper and lower edges, which engage the grooves in the bottom and in the cover. The partitions are one greater in number than the number of wires it is intended the conduit shall hold, and it will be readily understood that the longitudinal compartments or divisions of

the conduit formed by these partitions will be just sufficient to accommodate the wires.

In the form of conduit shown in Fig. 2 the bottom B is provided with a comparatively deep central groove G and with two upwardly and outwardly opening notches *b* in its upper corners, and the top C is provided with two tongues *c*—one along each edge—which tongues are adapted to extend and fit into the notches *b* in the bottom B. The body portion of the cover C thus forms the top for the open groove G, and this groove G forms a single receptacle for the wire which it is desired the conduit shall contain.

In all instances the wood of which the top, the bottom, and the vertical partitions, if there are any, is composed is thoroughly saturated—preferably with ordinary lubricating-oil—for the purpose of causing said wood the longer to resist the ravages of time and the destroying influences of the various acids, alkalies, and gases which may be contained in the earth surrounding the conduit. The space between the partitions T or between the sides of the groove G is then filled preferably with some filling S—such as resin or sawdust—and the wire W is embedded therein. The grooves and notches and the tongues of the parts which are to be brought together are then preferably smeared with a coating of resin in its melted or plastic condition and the parts pressed firmly together. The insulation which surrounds the wire W, the body or filling S which surrounds the insulation, and the oil-saturated casing which surrounds the filling S and whose joints and seams are sealed with resin will form a very strong and efficient, yet inexpensive and easily-constructed, conduit, which will not only prevent loss of the current, but will also prevent the access of moisture or other injurious substances to the wire.

In Fig. 3 I have illustrated a wedge J, having in its upper end a large rectangular notch N of a size and shape adapted to embrace the body of the conduit proper, and this wedge may be of hard or soft wood and also saturated with oil, if desired. In laying my conduit I generally dig a shallow trench in the ground, and in this trench at the distance of five feet I drive the wedges J. The bottom of the conduit is then laid in the notches in the



upper ends of these wedges, the ends of the sections abutting against each other, and the wires are inserted and the covers put on in the manner above described. Screws U are  
 5 then passed through the upper ends of the wedges and into the edges of the cover C, whereby the cover is held tightly down upon the bottom and the latter is retained in position within the notch and the whole device is  
 10 prevented from movement in any direction in a very effectual manner. It will of course be understood that if the sections are ten feet long every other wedge in the trench will span the joint between the meeting ends of the sec-  
 15 tions, as seen at the left of Fig. 5; or, if preferred, I can lay the top and bottom of the sections of the conduit so that they will break joint with each other and the meeting ends of the tops will alternate with the meeting  
 20 ends of the bottoms, as seen at the right of that figure and as will be readily understood.

In Fig. 4 I have shown a horizontal sectional view of the manner in which I prefer to construct the conduit where it is desired to make  
 25 a switch, shunt, or branch therein. In this instance the side strip T is severed at the point where it is desired the outside wire shall connect with the conduit-wire and the severed ends of the strip are moved slightly apart.  
 30 The leading-in wire is then passed through the opening so formed and the body or filling S is packed or tamped closely around such wire, as clearly shown in this figure.

Having described my invention, what I  
 35 claim is—

1. An electric conduit comprising a casing of wood saturated in lubricating-oil, a filling of sawdust and resin within said casing, and insulation around the wire within the filling, substantially as described. 40

2. An electric conduit composed of wood saturated in oil and comprising a bottom B and top C, having three or more longitudinal grooves in their opposite faces, the interchangeable vertical partitions T, each partition separating two wires and having longitudinal tongues along the upper and lower edges engaging said grooves, and plastic resin between the tongues and grooves, the whole constructed substantially as described. 45 50

3. In an electric conduit, the combination, with the conduit-sections composed of wood and comprising upper and lower members, of wedges J, having notches N in their upper ends closely fitting the exteriors of said members, and screws U, passing through said wedges into the upper of said members, substantially as described. 55

4. A support for electric conduits, consisting of a wedge-shaped piece of wood saturated in oil and provided with a notch at its upper end, as and for the purpose set forth. 60

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

ERICH L. WITTHAUS.

Witnesses:

MURRAY HANSON,

WILLIAM H. BERRY.