(No Model.)

# W. S. HOW.

## INSULATION OF ELECTRICAL CONDUCTORS.

No. 285,267. Patented Sept. 18, 1883.

*Fig. 3.*

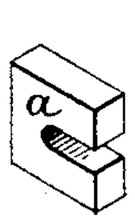



*Fig. 2.*

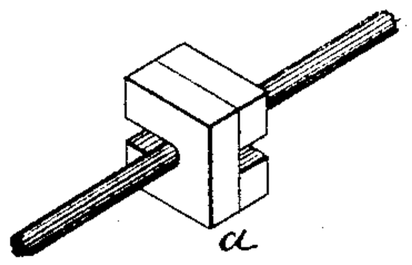



*Fig. 1.*




*Fig. 5.*

*Fig. 4.*

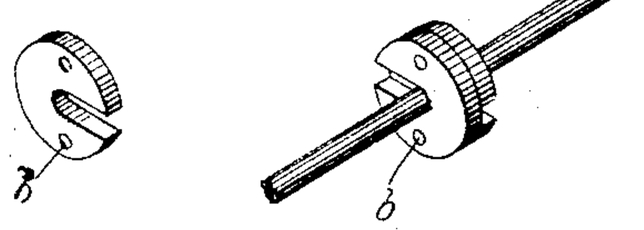



*Fig. 7.*

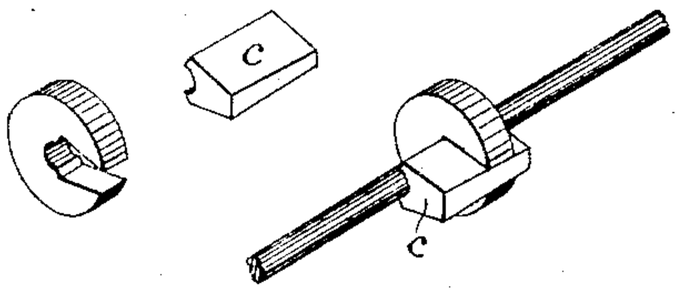



*Fig. 6.*

*Fig. 9.*

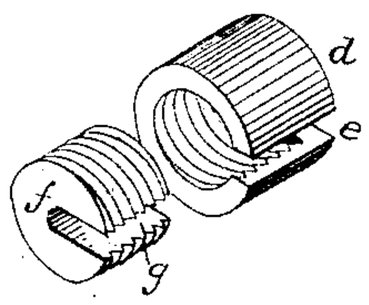



*Fig. 8.*

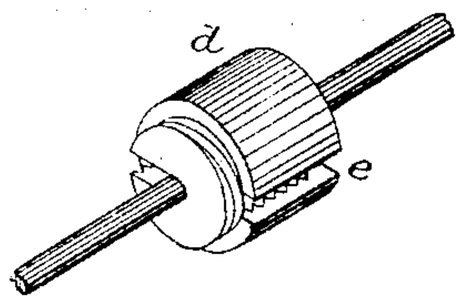



*Fig. 11.*

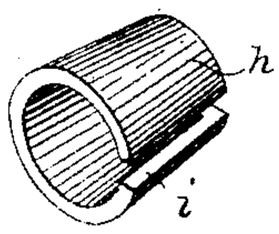



*Fig. 12.*

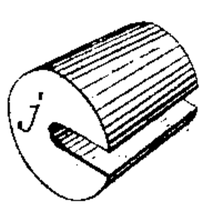
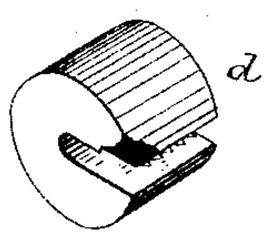



*Fig. 10.*




WITNESSES

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# UNITED STATES PATENT OFFICE.

WOODBURY S. HOW, OF PHILADELPHIA, PENNSYLVANIA.

## INSULATION OF ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 285,267, dated September 18, 1883.

Application filed June 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WOODBURY STORER HOW, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in the Insulation of Electric Conductors, of which the following is a specification.

The first part of my invention relates to an improved manner of laying electrical underground conductors, and the next part of my invention relates to an improved insulating block or button, in which the wire may be loosely supported, or which may be firmly keyed to the wire, as the case may be.

In the accompanying drawings, Figure 1 is a view showing a section of an underground system laid according to my improved plan. Figs. 2 and 3 are detail views of the improved insulating-blocks; and Figs. 4 to 12, inclusive, are detail views of slightly-modified forms of insulating blocks or buttons.

The insulating-blocks represented in Figs. 2 and 3, which are the same as those shown in the underground system illustrated in Fig. 1, consist of slotted blocks *a*, rectangular in cross-section, the slots of which are so disposed that when the blocks are applied reversely on the wire, as illustrated in Fig. 3, they form a rectangular supporting-block within which the wire is grasped. The wires may be laid in a suitable trough or receptacle, and provided with such insulating-blocks, which may be piled one upon the other, so as to afford firm support and perfect insulation for a large number of wires.

The trough A is preferably rectangular in cross-section and of such a size as to just admit the required series of blocks when arranged side by side. In the drawings two sets of blocks are arranged within the trough, each supporting a vertical series of wires. In order to identify the wires at any point in the line, each wire is numbered, and the blocks which support or insulate it are numbered to correspond therewith, so that any line may be identified without fail and without test at any point in the line.

In Figs. 4 and 5 I have shown insulating blocks or buttons formed circular in cross-section with radial slots. These buttons are to be applied to the wire, as illustrated in Fig. 5, in the same manner that the rectangular blocks are, and may be firmly bolted together, so as to grip the wire between them by bolts or rivets or screws inserted through the apertures *b*. The blocks illustrated in Figs. 2 and 3 may be similarly bolted together, if desired.

In Figs. 6 and 7 an insulating-button, consisting of a single disk or block with a radial slot, is shown. This button is firmly secured upon the wire by a wedge or key, *c*, which is driven between its dovetailed lips, as illustrated in Fig. 7.

Figs. 8, 9, and 10 illustrate an insulating block or button, consisting of a cylindrical block, *d*, formed with a radial slot, *e*, and screw-threaded internally, as illustrated. A plug, *f*, formed with a radial slot, *g*, and provided with an external screw-thread, fits snugly in the block *d*. The wire is laid in the inner ends of the slots *e* and *g* before the blocks are united, and as the slots radiate from the same center, the block and plug may be screwed together without twisting or otherwise distorting the wire. When in position the slots *e* and *g* radiate in different directions, so that the wire is locked to the blocks.

In Figs. 11 and 12 I have shown a further modification, in which a hollow frustum-shaped block, *h*, is provided with a radial slot, *i*, and receives a frustum-shaped slotted plug, *j*. The wire is seated in the inner ends of the slots, which are made to radiate in different directions from the wire, and the plug is then driven into the hollow block and held there by friction.

While my improved insulating-blocks are especially designed for underground systems of conductors, they may, of course, be employed for aerial lines, or for any other purpose where they would be useful. The buttons are preferably formed of glass or porcelain; but of course any suitable insulating material of proper strength may be employed.

The right to hereafter file other applications for any matter herein described or illustrated and not specifically claimed is reserved.

I claim as my invention—

1. A system of electric conductors consisting of a series of numbered wires and a series of supporting and insulating blocks or buttons through which the wires pass, the blocks or

buttons which support each wire being numbered to correspond with the wire, for purposes of identification.

2. The combination, substantially as set forth, of a trough or receptacle, a series of wires arranged therein, and a series of radially-slotted blocks or buttons, which support and insulate the wires within the trough.

3. The combination, substantially as set forth, of an electrical conductor, the radially-slotted insulating and supporting blocks or buttons, and means for fastening such blocks or buttons on the wire and confining the wire in the inner ends of the slots.

4. The combination of an electrical conductor and the insulators, each consisting of a pair of radially-slotted blocks or buttons, which are fastened to the wire, so as to confine it in the slots, substantially as set forth.

5. The combination of the electrical conductor, the slotted socketed block, and the slotted plug which fits in the socket of the block, substantially as set forth.

In testimony whereof I have hereunto subscribed my name this 22d day of May, A. D. 1883.

WOODBURY STORER HOW.

Witnesses:

JOHN URIAN,

J. A. B. WILLIAMS.