

(No Model.)

J. W. RICHARDS & J. B. HALL.  
CONDUIT FOR ELECTRIC WIRES.

No. 414,327.

Patented Nov. 5, 1889.

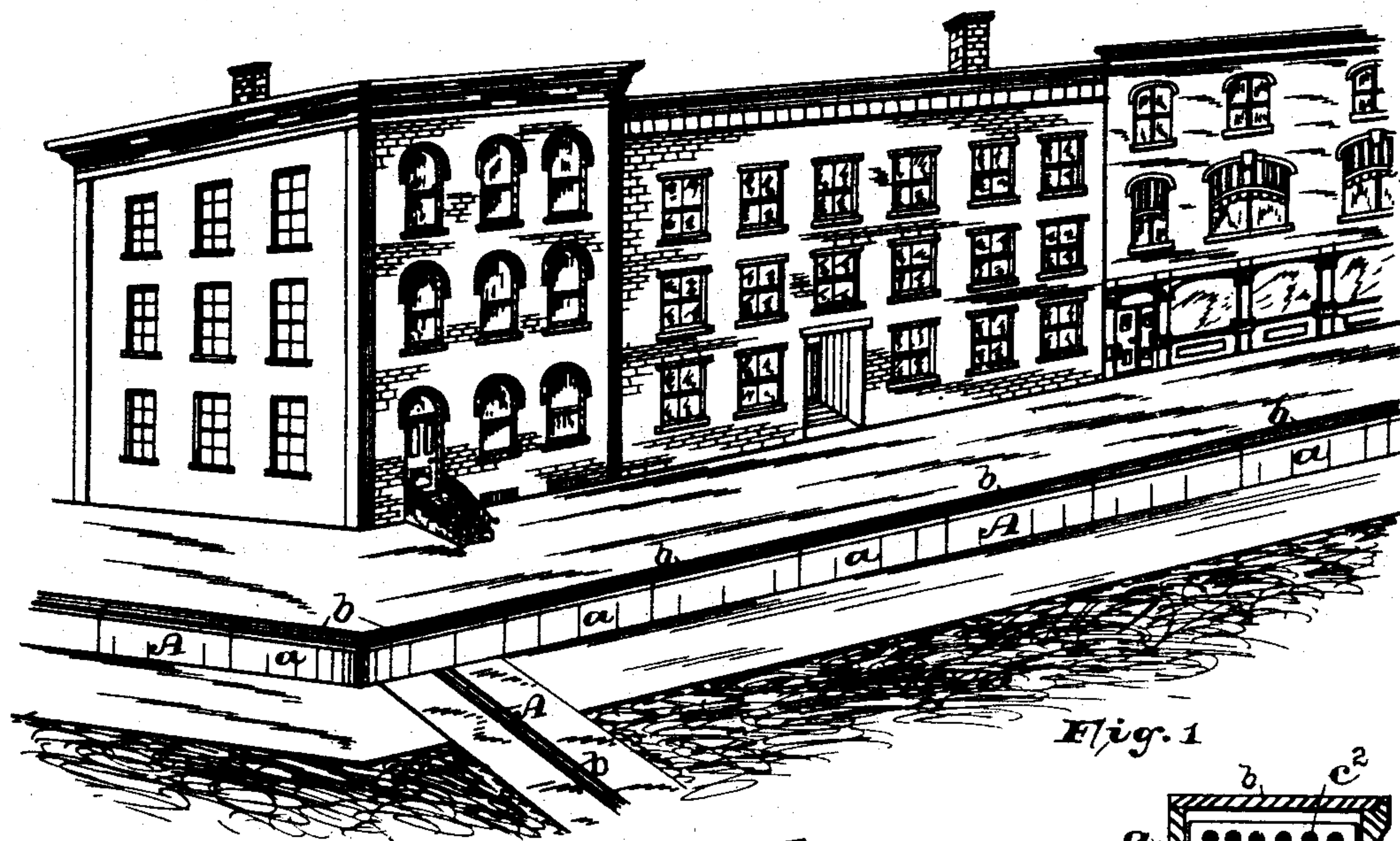


Fig. 1

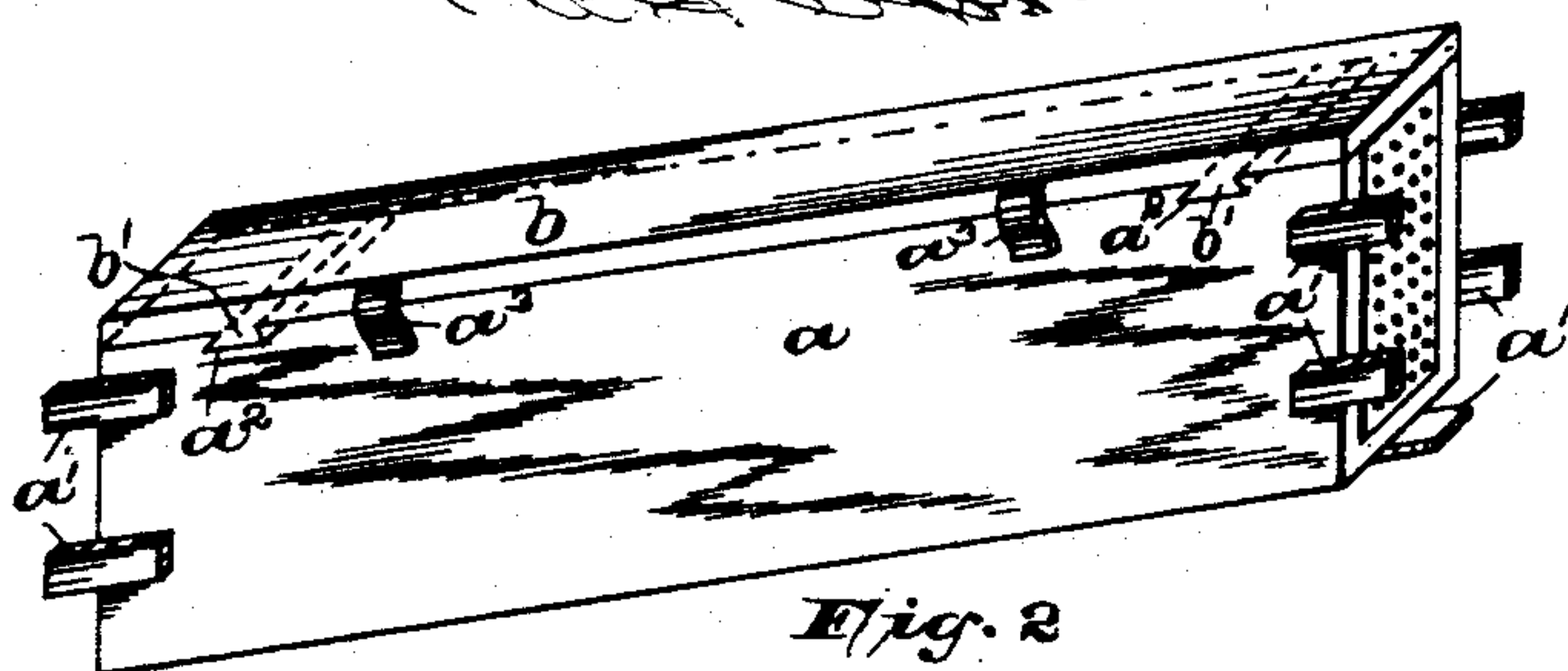


Fig. 2

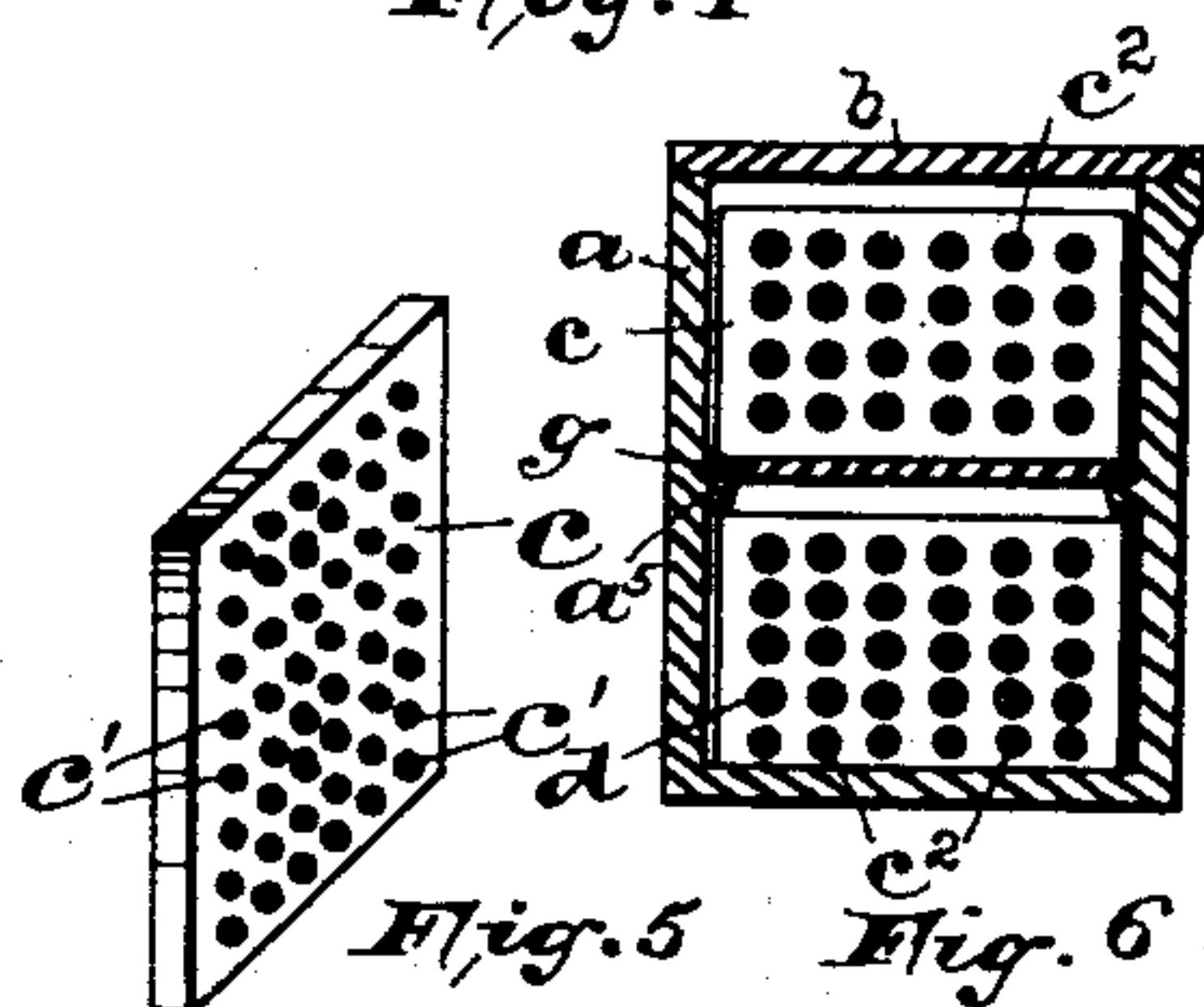


Fig. 5

Fig. 6

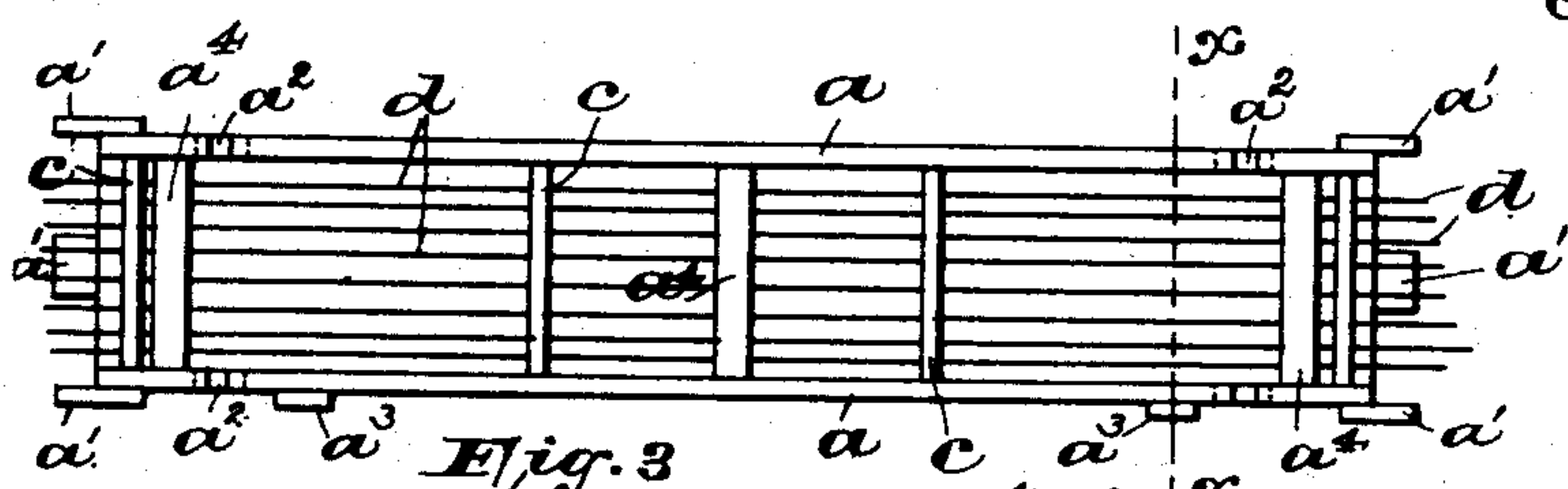


Fig. 3

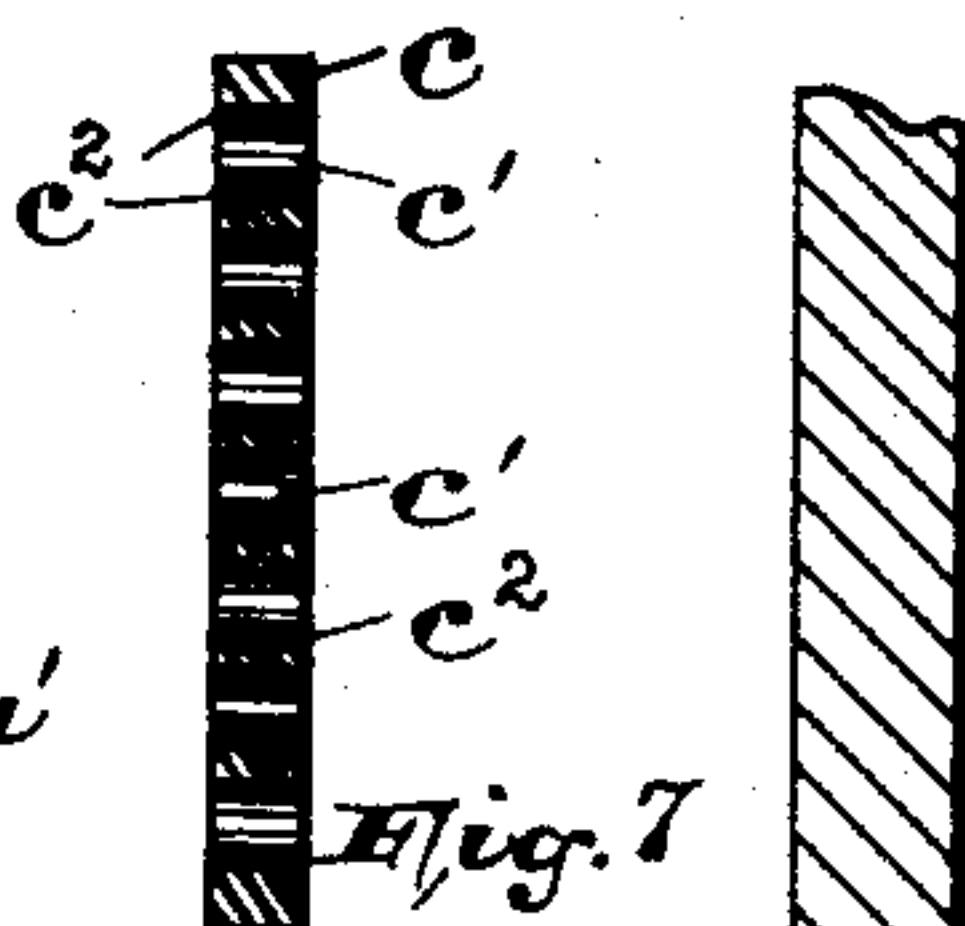


Fig. 7

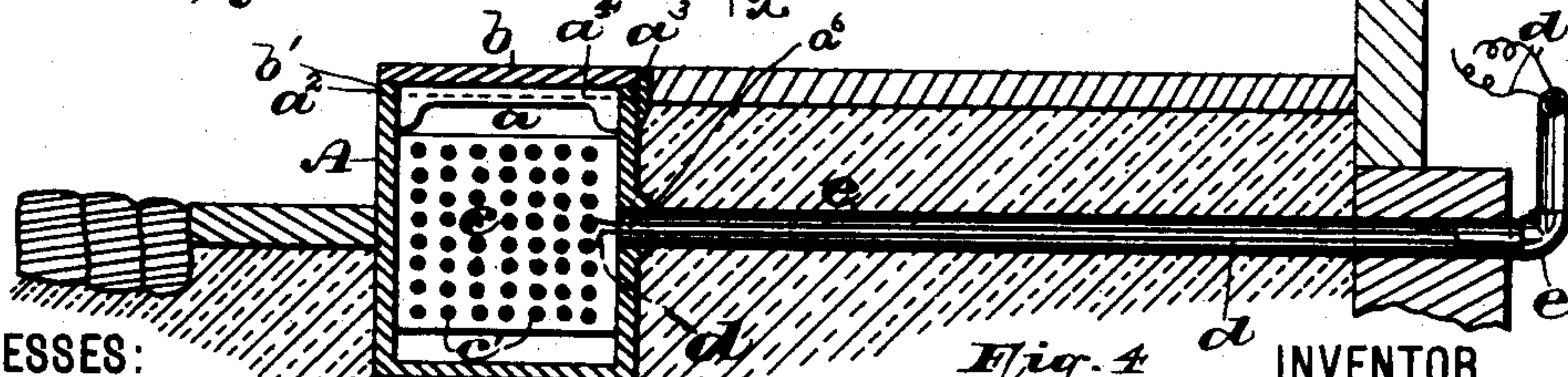


Fig. 4

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# UNITED STATES PATENT OFFICE.

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## CONDUIT FOR ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 414,327, dated November 5, 1889.

Application filed August 9, 1889. Serial No. 320,220. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN W. RICHARDS and JOSEPH B. HALL, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Conduits for Electric Wires, &c.; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The present invention relates to conduits or ducts for electric-light wires or other wires, adapted to be arranged in the street at that side of the walk nearest the gutter, and is designed to furnish a curb which is neater and at the same time more useful than the ordinary stone curb now employed.

The invention consists in the arrangement and combinations of parts described in the following specification and illustrated in the drawings herewith accompanying, and which will finally be embodied in the clauses of the claim.

Referring to said drawings, Figure 1 illustrates one side of a street in perspective, showing the adaptation of our improved curb thereto in the place of the ordinary stone curb. Fig. 2 is a perspective view of one of the sections constituting the curb-conduit. Fig. 3 is a plan view of the same with the cover removed; and Fig. 4 is a transverse section through the walk and the gutter, illustrating the arrangement of the conduit in place, and also one means for connecting the same with a house, and through which the conducting-wires may be led into the same. Fig. 5 is a perspective view of a perforated frame through which the wires are passed and by means of which they are arranged in place within the sections comprising the conduit. Fig. 6 represents a cross-section of the conduit provided with a partition of a non-conducting material arranged horizontally therein, and above and below the same are arranged the wire supporting or holding frames; and Fig. 7 is a vertical section of one of the wire-holding frames provided with glass eyelets or

any other suitable non-conducting material through which the wires are passed.

In said drawings similar reference-letters are used to indicate corresponding parts in each of the several views.

In carrying out our invention the conduit is formed in sections joined at the ends with cement, and which are preferably of cast-iron lined with wood; but the same may be of any other desirable material, and arranged along the street in place of the stone curb, and each section is provided with a cover, which is on a level with the upper surface of the walk.

In the drawings, A indicates the conduit, which consists of any desired number of sections or main portions *a*, open at the ends and the tops, and upon which are arranged the covers *b*. The ends of each box may be provided at their sides and at the bottom with lugs *a'*, into which fits the end of the next section, and which are arranged in such a manner that the sections when in place interlock and are all of the same height and perfectly level. As has been stated, covers *b* are arranged on each section, the same being provided with ribs *b'*, which fit into recesses *a<sup>2</sup>* in the sides of the casings or sections *a*, said ribs and recesses being dovetailed, in order to avoid the lifting off of the cover from the top, so that the same may be removed independently from any one of the sections in case of a break in the wires or any other accident to the section. On that side of the section nearest to the walk are arranged stops *a<sup>3</sup>*, extending up therefrom, as shown more especially in Figs. 2 and 4, against which the cover *b* abuts, thus preventing the same from being forced from its position on the section by a sudden jar from wagon-wheels in case of the backing up of a wagon against the section.

The casing or section *a*, as is shown in Fig. 4, is arranged at the end of the sidewalk in the same manner as the ordinary curbstone, being partly embedded in the ground below the level of the gutter and projecting above the same at such a distance that the cover on each section is on a level with the top of the walk. Strengthening ribs or braces *a<sup>4</sup>* are arranged within the section, extending from side to side in any convenient manner, and



beneath the same and parallel with the plane of said ribs  $a^4$  are arranged any desirable number of plates  $c$ , preferably of wood, having perforations  $c'$  therein, through which are  
 5 passed the insulated electric-light or other wires  $d$ , as is evident. Said wire-holding plates or frames may be of wood or glass or any other suitable non-conducting material, and in the perforations  $c'$  in the said frames  
 10 may be arranged eyelets  $c^2$ , of glass or some analogous material, through which the wires  $d$  are passed, as will be seen from Fig. 7.

As illustrated in Fig. 6, the casing or sections  $a$  may be provided on their inner sides  
 15 with flanges  $a^5$ , upon which is placed a glass plate or partition  $g$ , and above and below the same are arranged the wire holding or supporting frames  $c$ . This arrangement is of advantage when it is desirable to string wires in  
 20 the conduit for different purposes—as, for instance, electric-light wires may be arranged above and telephone-wires below the glass partition in the conduit without any danger of the stronger current in the electric-light  
 25 wires interfering with that in the telephone or other wires that may be arranged within the conduit. The casing  $a$  may be provided with any number of such horizontal partitions.

At the required distances in each of the sections below the level of the sidewalk may be  
 30 arranged a smaller conduit or pipe  $e$ , through which the wires from the main conduit  $A$  may be introduced into the houses, as is illustrated more especially in Fig. 4. In the present case  
 35 we have employed an ordinary pipe for this purpose, which is tapped into the side of the casing or section  $a$  at  $a^6$ , as shown.

When it becomes necessary to cross the street with the wires, the sections are ar-  
 40 ranged between the stones in the cross-walk, as will be seen from Fig. 1, the end sections in the crossing communicating with the section in the curb in any well-known manner.

Should the casing or section  $a$  at any time  
 45 become charged with electricity, we have provided the bottom of each section with a copper wire  $f$ , leading down therefrom into damp ground, thus discharging the unnecessary amount of electricity from the casing  
 50 and avoiding all possible danger to pedestrians and the animals that may pass over and thereby come in contact with the covers of the sections.

The great advantage of this improvement  
 55 will readily be seen as the wires are removed from above the streets, thereby causing no obstruction to the firemen in case of a fire in a building on the street. Furthermore, another advantage is attained in that by em-  
 60 ploying our improved conduit in place of the curbstone, and providing the same with a removable cover on a level with the sidewalk, any break in the line may be repaired without digging up the street, as is the case in  
 65 underground conduits heretofore used.

Instead of sliding the covers on from the side of the casing, the same may be secured

to the top thereof by means of bolts, or the same may be slid upon the sections from one end, as will be understood. This latter construction has this objection, however, that in  
 70 case of a break in the line it will necessitate the removal of the covers of all the sections in the street, the cover on the first section being removed first, and so on until the  
 75 break in the line has been reached.

The conduit may be lined with wood or with any other suitable non-conducting material, if desirable.

Having thus described our invention, what  
 80 we claim is—

1. A hollow curb provided with stops extending up therefrom on that side nearest the walk, and having removable covers on  
 85 said curb adapted to slide away from the walk, and means therein for stringing wires, for the purposes set forth.

2. A hollow curb consisting of sections arranged end to end, provided with stops extending up therefrom on that side nearest  
 90 the walk, each section being provided with a sliding cover adapted to slide in a direction away from the side of the walk, wires arranged in said curb, and means for connecting any one of said sections with a building,  
 95 so that wires may be passed therethrough into the building, for the purposes set forth.

3. A duct or conduit arranged at the side of the walk of the street to take the place of the curbstone, consisting of sections arranged  
 100 end to end and interlocking, and provided with recesses in the top of each side and a cover on each section provided with reversed wedge-shaped ribs adapted to fit in the corresponding cavity or recesses in the sections to  
 105 enable the sliding movement of the cover therefrom, as and for the purposes set forth.

4. A duct or conduit arranged at the side of the walk of the street to take the place of the curbstone, consisting of sections arranged  
 110 end to end and interlocking and provided with recesses in the top of each side, and a cover on each section provided with reversed wedge-shaped ribs adapted to fit in the corresponding cavity or recesses in the sections to  
 115 enable the sliding movement of the cover therefrom, and means in said conduit on which wires are arranged, as and for the purposes set forth.

5. A duct or conduit arranged at the side  
 120 of the walk of the street to take the place of the curbstone, consisting of hollow sections joined end to end and having recesses in the top of their sides and projections or stops on one side of each section extending up there-  
 125 from, and a cover on each section provided with reversed wedge-shaped ribs adapted to fit in the corresponding cavity or recesses in the sections to enable the sliding movement of the cover on the section, and plates in said  
 130 sections having perforations therein adapted to receive wires, as and for the purposes set forth.

6. A duct or conduit arranged at the side



of the walk of the street to take the place of a curbstone, consisting of hollow sections joined end to end, each section having recesses in the top of its sides and being provided on the top thereof with a sliding cover on a level with the sidewalk, each cover being provided with reversed wedge-shaped ribs adapted to fit into said recesses in said sections to enable the independent sliding movement of each cover, and a wire connected with the bottom of each section leading to the ground, for the purposes set forth.

7. A duct or conduit arranged at the side of the walk of a street to take the place of the curbstone, consisting of hollow sections joined end to end and provided with stops extending up from each section on that side nearest the walk, a sliding cover on each section on a level with the top of the sidewalk and adapted to slide away from said walk, wires arranged within said duct, a separate and independent wire connected with the bottom of each section and leading to the ground, and a pipe or supplemental conduit extending from any one of said sections and terminating in a building, for the purposes set forth.

8. A duct or conduit consisting of sections arranged and secured together end to end, provided with sliding covers, partitions of glass or any other non-conducting material therein, and frames or plates above and below said partitions for stringing different sets of wires thereon, for the purposes set forth.

9. In a duct or conduit, in combination with each section having upwardly-projecting stops thereon on that side nearest the walk and covers on each section adapted to slide away from the walk, plates provided with perforations, and eyelets in said perforations made from non-conducting material, as and for the purposes set forth.

10. A duct or conduit consisting of sections arranged and secured together end to end and

provided with sliding covers, horizontal partitions of glass or any other non-conducting material therein, and frames having eyelets of non-conducting material arranged in perforations therein, said frames being arranged above and below the horizontal partitions, as and for the purposes set forth.

11. A duct or conduit arranged at the side of the walk of the street to take the place of the curbstone, consisting of sections arranged end to end and provided with recesses in the top of each side, a cover on each section provided with reversed wedge-shaped ribs adapted to fit into the corresponding cavity or recess in the sections to enable the sliding movement of each cover therefrom, partitions of glass or any other non-conducting material therein, and means above and below said partitions for stringing wires thereon, substantially as set forth.

12. A duct or conduit arranged at the side of the walk of the street to take the place of the curbstone, consisting of sections arranged end to end and provided with recesses in the top of each side, and a cover on each section provided with reversed wedge-shaped ribs adapted to fit into a corresponding cavity or recess in the sections to enable the sliding movement of each cover therefrom, partitions of glass or any other non-conducting material therein, frames arranged above and below said partitions for stringing wires thereon, and a supplemental conduit for connecting any one of said sections with a building, for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 8th day of July, 1889.

JOHN W. RICHARDS.  
JOSEPH B. HALL.

Witnesses:

FREDK. C. FRAENTZEL,  
FREDK. S. RICE.