

G. A. & L. E. MILLER.  
 LIGHTNING ROD BRACE.  
 APPLICATION FILED NOV. 18, 1910.

1,003,285.

Patented Sept. 12, 1911.

2 SHEETS-SHEET 1.

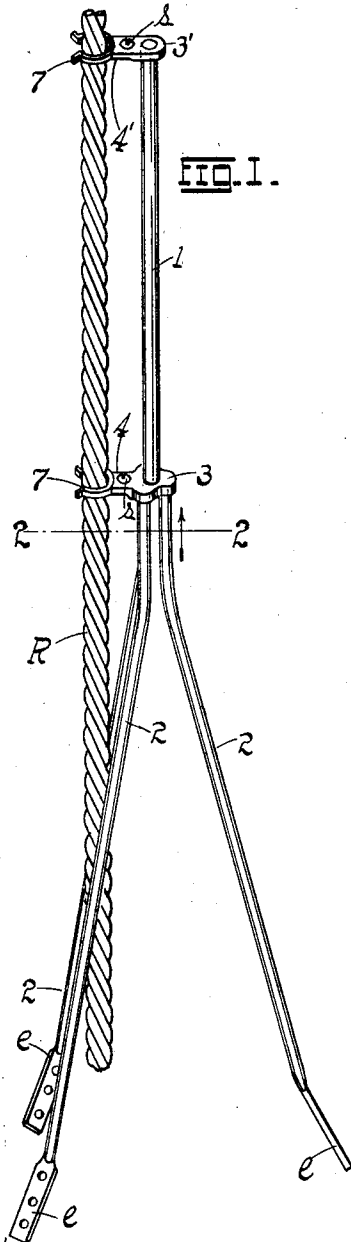


FIG. 1.

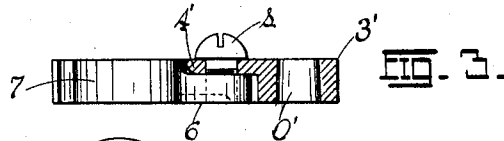


FIG. 3.

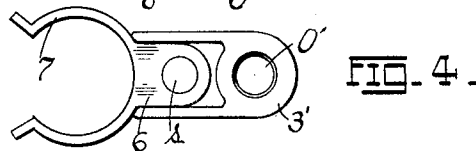


FIG. 4.

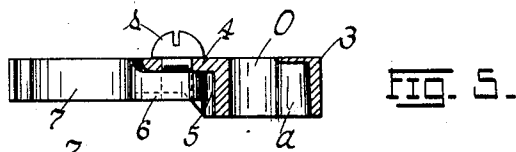


FIG. 5.

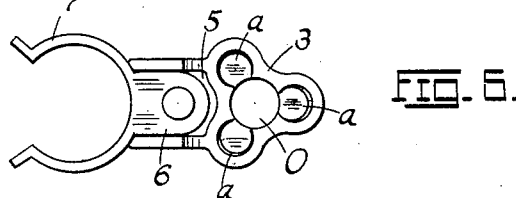


FIG. 6.

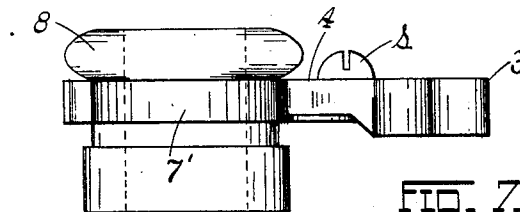


FIG. 7.

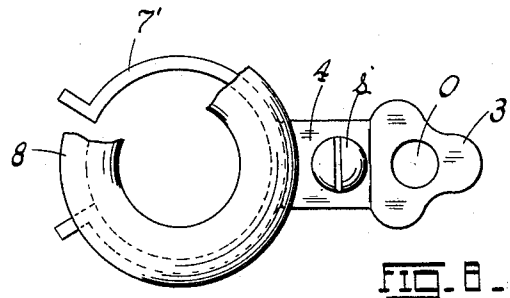


FIG. 8.

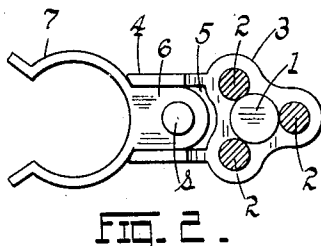


FIG. 2.

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 LIGHTNING ROD BRACE.  
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1,003,285.

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2 SHEETS-SHEET 2.

FIG. 9.

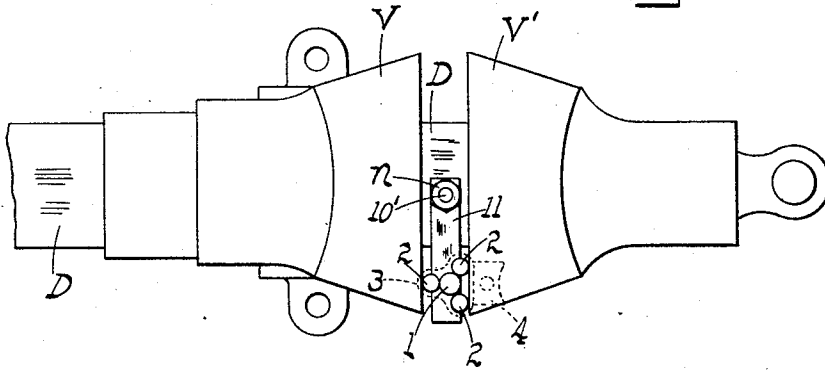
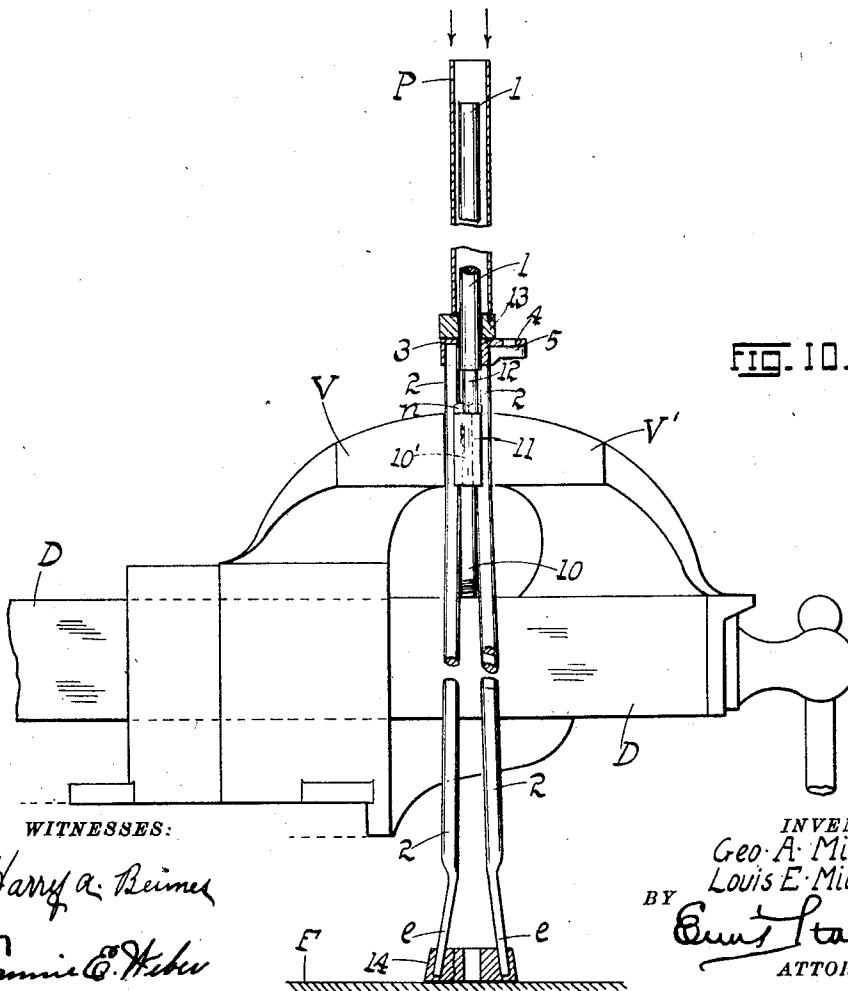


FIG. 10.



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# UNITED STATES PATENT OFFICE.

GEORGE A. MILLER AND LOUIS E. MILLER, OF ST. LOUIS, MISSOURI.

## LIGHTNING-ROD BRACE.

1,003,285.

Specification of Letters Patent.

Patented Sept. 12, 1911.

Application filed November 16, 1910. Serial No. 592,672.

*To all whom it may concern:*

Be it known that we, GEORGE A. MILLER and LOUIS E. MILLER, citizens of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Lightning-Rod Braces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in lightning-rod braces; and it consists in the novel construction and arrangement of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a perspective of our improved lightning-rod brace showing its practical operation; Fig. 2 is an enlarged cross-section on the line 2—2 of Fig. 1, the lightning-rod being omitted; Fig. 3 is a combined side view and section of the terminal casting of the brace and holder therefor; Fig. 4 is a bottom plan of Fig. 3; Fig. 5 is a combined side view and section of the lower casting connecting the staff to the legs and the holder coupled thereto; Fig. 6 is a bottom plan of Fig. 5; Fig. 7 is a side view of the lower casting showing a large size holder secured thereto for accommodating an insulator disk; Fig. 8 is a top plan of Fig. 7, with parts broken away; Fig. 9 is a top plan of the jaws of a vise and gripping-block showing the manner of assembling the parts preparatory to driving the lower casting into position; and Fig. 10 is an elevation of Fig. 9, parts being in section.

The object of our invention is to construct a lightning-rod brace in which special provision is made for securing the legs of the brace to the upper rod or standard, said securing device likewise serving as a support for a detachable holder for the lightning-rod.

A further object is to construct a brace the several parts of which may be assembled with a minimum number of operations, and in a minimum length of time.

A further object is to reduce the cost of construction of the brace, to reduce the labor thereon, to dispense with riveting, welding and thread cutting; and further to produce a brace possessing advantages better apparent from a detailed description of the invention which is as follows:—

Referring to the drawings, 1 represents

the upper staff, and 2 a cluster of rods forming legs which constitute the base of the brace, these features being old and well understood in the art. The connecting member or coupling for the staff and legs in our present invention comprises a casting 3 which is provided with a series of sockets *a, a, a*, tapering upwardly or toward the roof of the casting (the roof not being indispensable). The sides of the sockets open inwardly toward the common center about which they are symmetrically disposed, and since there are three sockets they are 120 degrees apart. The roof when present, is provided with a central opening *O* for the free passage of the staff 1 therethrough. Projecting from one side of the casting is an arm 4 provided with a bottom groove 5 for the reception of the tongue 6 of the holder 7. The holder may be of a size to hold the lightning-rod *R* directly as shown in Fig. 1, or we may employ a larger size holder 7' (Figs. 7, 8) for receiving an insulator disk 8 through which the rod may be passed. The free end of the arm 4 is shouldered against the base of the holder once the tongue 6 is inserted the full distance into the groove 5 (Fig. 5), a screw *s* securing the tongue to the arm. Over the upper end of the staff is driven a casting 3' provided with a tapering opening *O'* for the reception of the staff, and with a grooved arm 4' for receiving the tongue 6 of the terminal holder 7, the parts being likewise detachably secured by a screw *s*. By making the holder detachable any size of holder may be attached, once the lightning-rod brace is installed.

In practicing our invention it is of course, necessary to rigidly clamp the rods 1, 2, while the casting 3 is being driven home. This is accomplished through the assistance of a vise as shown in Figs. 9 and 10, in which *V, V'*, represent respectively the stationary and movable jaw of the vise, and *D* the draw-bar of the movable jaw. To the draw-bar *D* is screwed a stem 10 about the upper reduced end 10' of which is swiveled a block 11, a nut *n* passed over the upper screw threaded terminal of said extension preventing removal of the block. The opposite faces of the block are provided with grooves (two on one face and one between the two on the opposite face) into which the upper ends of the rods 2 may be laid, and when the jaws *V, V'*, are brought together, the rods 2

will be gripped between the block and the jaws. On top of the block and between the grooves is a limiting or arresting pin 12, the rods 2 being allowed to project a suitable distance above the upper end of the pin. With the rods 2 thus gripped between the vise jaws, the operator inserts the lower end of the staff 1 between the ends of the rods 2 projecting above the pin 12, pushing the staff down until it strikes said pin. The space between the gripped ends of the rods 2 is a trifle smaller than the cross-section of the staff 1 so that when the latter is forced between them it will be held tightly pending the completion of the operation. Thereupon the operator passes the casting 3 over the staff 1 (the latter passing freely through the opening O), the sockets *a, a, a*, coming directly over the ends of the gripped rods 2. The operator then passes an impact ring 13 over the staff 1, the ring resting on the casting 3. Finally a section of pipe P is passed over the staff 1 on top of the ring 13. By striking the upper end of the pipe with a hammer the casting 3 is driven over the ends of the rods 2 the same entering the tapering sockets *a*, the inclined walls of which cause the rods 2 to close upon the staff 1 and grip the latter so effectively as to permanently secure the parts (Figs. 2, 10). In practice the lower flattened ends *e* of the rods 2 may be inserted into the sockets of a casting 14 bolted or otherwise secured to the floor F (or other support) to take up the impact of the hammer, this arrangement being a precautionary one, in the event the grip of the vise was insufficient for the purpose. When the parts are assembled the vise jaws are parted, whereupon the members 2 (which naturally tend to spread) simply move out of the grooves in the block (the swivel mounting of the block permitting this) the operator lifting the entire brace from between the vise-jaws. Of course, to drive the upper casting 3' is a simple matter, the staff 1 being held in position in any mechanical manner to permit the driving of said terminal casting. The casting 3 may be considered as a band which draws the members 2 into firm engagement with the staff 1.

Having described our invention, what we claim is:—

1. A lightning-rod brace comprising a base, a staff, means for securing the staff to the base, and a detachable holder carried by said securing means.

2. A lightning-rod brace comprising a cluster of legs forming the base, an upper staff, means for securing the upper ends of the legs to the bottom of the staff, and a detachable holder carried by said securing means.

3. A lightning-rod brace comprising a cluster of legs forming the base, an upper staff, means for securing the upper ends of

the legs to the bottom of the staff, a detachable holder carried by said securing means, and a detachable holder secured to the upper end of the staff.

4. A lightning-rod brace comprising a cluster of legs, a staff having the lower end thereof inserted between the upper ends of said legs, a coupling passed over the said ends of the legs and frictionally clamping the legs to the staff, and a suitable holder on the coupling for supporting a lightning-rod.

5. A lightning-rod brace comprising a cluster of legs, a staff having its lower end encompassed by the upper ends of the legs, a member adapted to be passed over the staff, and provided with a series of sockets for receiving the ends of the legs, and driven over the same, the inner walls of the sockets forcing the legs against the staff and gripping the same, and means on the said member for supporting a suitable lightning-rod holder.

6. A lightning-rod brace comprising a cluster of legs, a staff having its lower end encompassed by the upper ends of the legs, a member adapted to be passed over the staff and provided with a series of tapering sockets driven over the leg ends and forcing them into binding contact with the staff, a lightning-rod holder, and a tongue-and-groove connection between said member and holder whereby the latter may be detached from said member.

7. A lightning-rod brace comprising a cluster of legs, an upper staff, a socketed member driven over the upper ends of the legs and forcing the same into gripping engagement with the base of the staff, a grooved arm projecting from the socketed member, and a lightning-rod holder provided with a tongue inserted in said groove and detachably secured thereto.

8. A lightning-rod brace comprising an upper staff, a series of legs at the base thereof, a casting for securing the legs to the staff, a casting at the upper end of the staff, and lightning-rod holders detachably secured to said castings.

9. A lightning-rod brace comprising an upper staff, a cluster of legs having their upper ends encompassing the base of the staff, a casting adapted to be passed over the staff, and provided with sockets tapering upwardly and driven over the top ends of the legs whereby the staff is gripped by the legs, an outwardly projecting grooved arm formed with the casting, and a lightning-rod holder having a tongue inserted in the groove and secured thereto.

10. In a lightning-rod brace, an upper staff, a base for said staff, a terminal socketed casting driven over the top end of the staff, a grooved arm formed with the casting, and a holder having a tongue received by the groove and secured to the arm.

11. A lightning-rod brace comprising a cluster of legs, a staff having its lower end encompassed by the upper ends of the legs, a member adapted to be passed over the staff and provided with a series of sockets open on the sides facing the staff and receiving the terminals of the legs and driven over the same, the walls of the sockets tapering to force the leg members against the staff and grip the same, and means on said member for securing a holder thereto.

12. In a lightning-rod brace, a cluster of legs, a staff having the lower end thereof inserted between and engaging the upper ends of the legs, and a member passed over the ends of the legs and clamping the same to the staff.

In testimony whereof we affix our signatures, in presence of two witnesses.

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LOUIS E. MILLER.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."