

(No Model.)

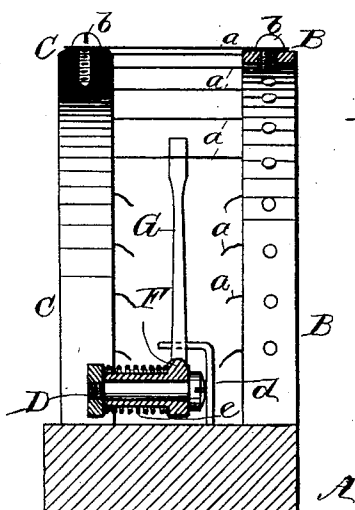
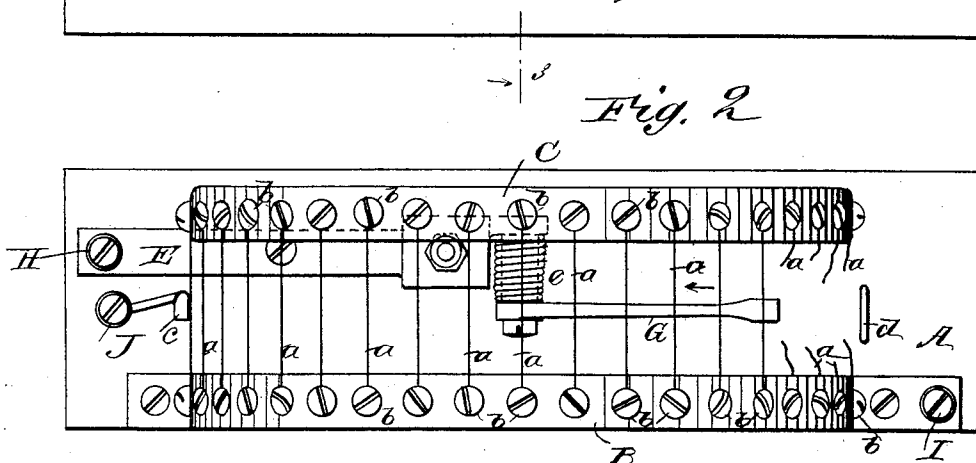
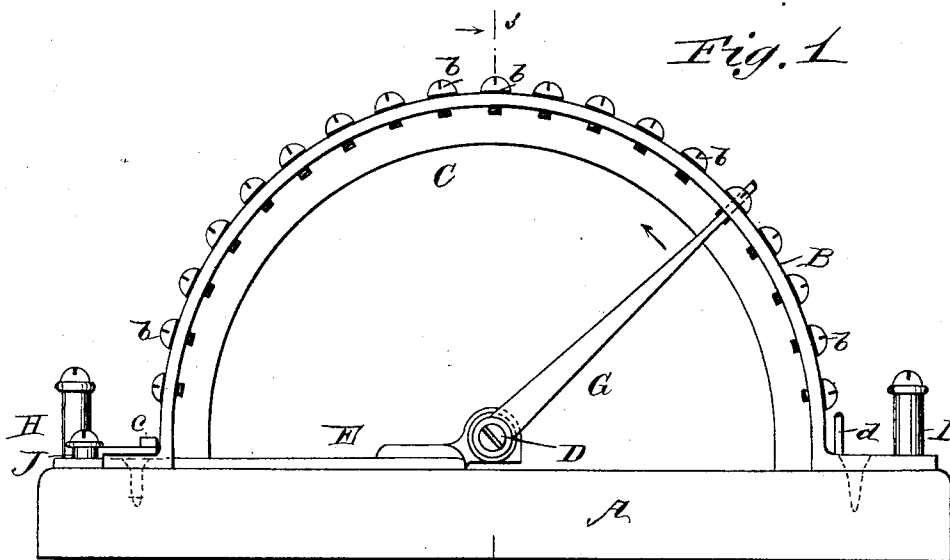
2 Sheets—Sheet 1.

T. L. CARLETON.

LIGHTNING ARRESTER AND AUTOMATIC FUSE BLOCK.

No. 563,257.

Patented July 7, 1896.



WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR

A. F. Carleton

BY *Munn & Co*

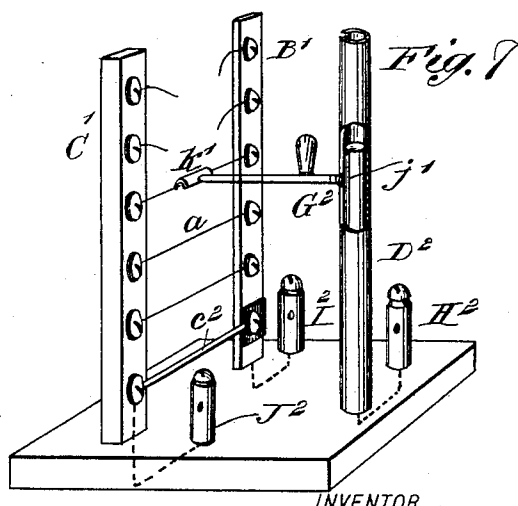
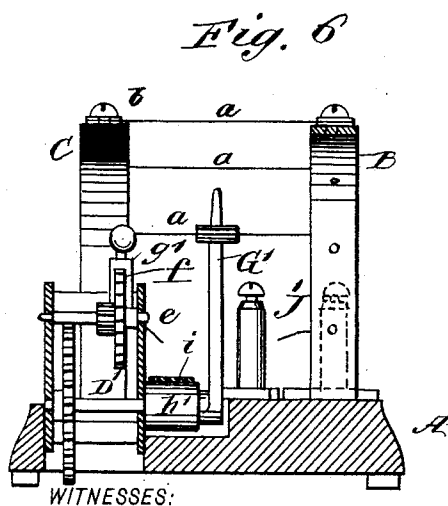
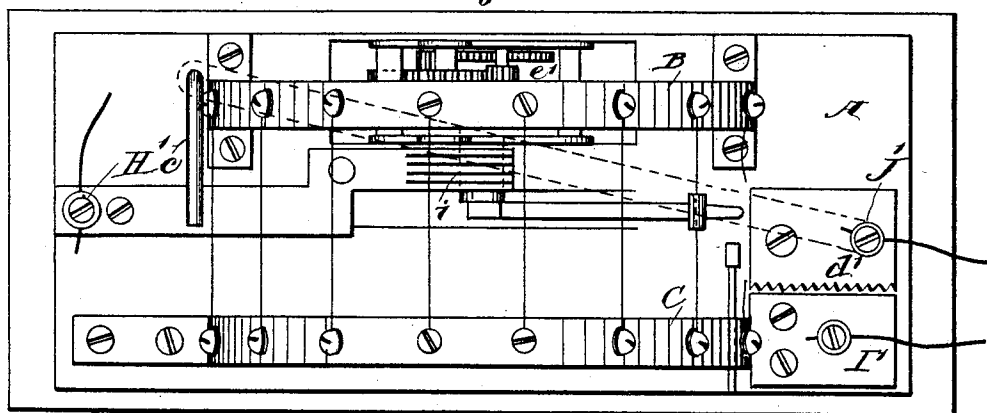
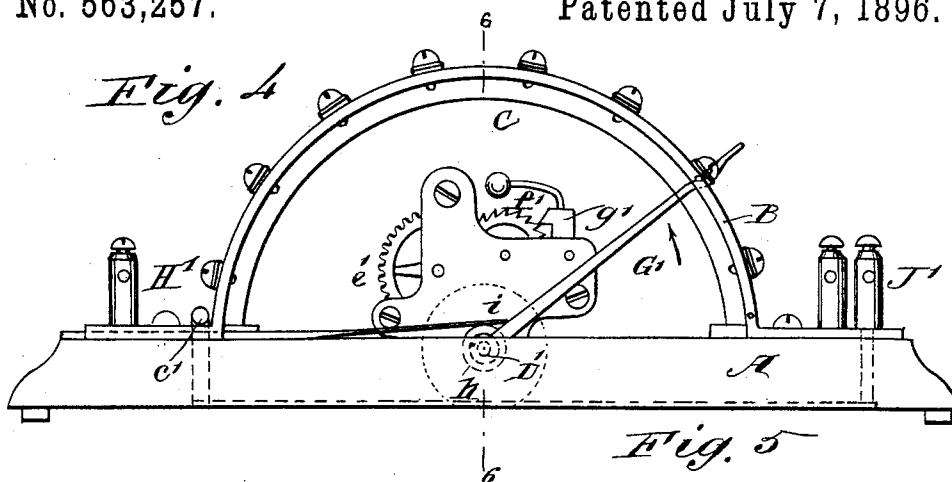
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

THOMAS L. CARLETON, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO HIMSELF, AND WILLIAM H. BELT, OF SCRANTON, AND EDWARD G. BURKLIN, OF BILOXI, MISSISSIPPI, AND FRANK L. LOWIS, OF AUBURNDALE, OHIO.

LIGHTNING-ARRESTER AND AUTOMATIC FUSE-BLOCK.

SPECIFICATION forming part of Letters Patent No. 563,257, dated July 7, 1896.

Application filed February 28, 1894. Serial No. 501,835. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. CARLETON, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and

Improved Lightning-Arrester and Automatic Fuse-Block, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my improved lightning-arrester and automatic fuse-block. Fig. 2 is a plan view of the same. Fig. 3 is a vertical transverse section taken on line 3 3 in Fig. 1. Fig. 4 is a side elevation of a modified form of my improved lightning-arrester and automatic fuse-block. Fig. 5 is a plan view of the same. Fig. 6 is a vertical transverse section taken on line 6 6 in Fig. 4, and Fig. 7 is a perspective view of another modification of my invention.

Similar letters of reference indicate corresponding parts in all the views.

The object of my invention is to construct a superior lightning-arrester and automatic fuse-block of that class in which the parts after one operation will automatically place themselves in position for another operation, thus always maintaining the circuit complete, except at the instant of rupture by lightning or other causes. This end I attain by a construction which comprises in its organization a pair of curved bars secured to a base, one of the bars being of insulating material, the other of conducting material, a series of shunts connecting the curved bar of insulating material with the curved bar of conducting material, and an actuating-arm resting against one of the shunts and capable of automatically passing to the next in series upon the destruction of the first, the metallic bar being connected with the line and the spring-pressed arm with the ground or line. The construction also embodies a contact for engaging with the arm after it has completed contacts with and destroyed all of the shunts, as will be hereinafter more fully described.

The invention consists in certain novel features of construction and combinations that will fully appear hereinafter, and be finally the subjects of the claims.

To the base-board A are secured the curved

bars B C, the curved bar B being made of metal and the bar C being formed of insulating material, such as vulcanite. The said bars are parallel with each other and are formed on circles, of which the stud D is the center. The said stud D is secured to a metallic strip E, attached to the base A, and on the said stud is placed a sleeve F, which carries an arm G. The said arm G is held normally in contact with one of the wires *a*, stretched across from the curved bar B to the curved bar C by a spiral spring *e*, surrounding and attached to the sleeve F at one end and secured to the strip E at the opposite end. The wires *a* are held in place by screws *b*, inserted in the curved bars B C.

The strip E is provided at its outer extremity with a binding-post H, and the curved bar B is furnished with a binding-post I. Near the binding-post H is placed a binding-post J, which supports a contact-piece *c*. In the base A is inserted a right-angled spring *d*, for holding the spring-pressed arm G while the shunts *a* are being put into place.

The instrument being placed in the line by connecting the binding-posts H I with the line-wire, and the binding-post J being connected with the ground and the shunt-wires *a* being in place, the current passes from the binding-post I through the bar B, the first of the wires *a*, the arm G and its pivot, the strip E to the binding-post H. Should the line be struck by lightning or short-circuited, the heavy charge would cause the fusion of the wire *a*, thus momentarily interrupting the circuit. The spring-pressed arm G moves forward to the next wire *a* and reestablishes the circuit. Should the line be struck a second time, the second wire will be melted, and so on until the entire series of shunt-wires is melted. After the last one of the series gives way the arm G strikes the contact *c*, thus grounding the line. Should a continuous heavy current be delivered to the line-wire, the shunt-wires *a* will be fused in quick succession and the line will be grounded on the contact *c*.

In the modified form shown in Figs. 4, 5, and 6 the arm G', instead of being attached to the stud D, is attached to the spring-arbor

D' of a spring-actuated train of gearing e' , which terminates in an escapement-wheel f' , whose motion is limited by the pallet g' and the weighted arm attached thereto. As the
 5 spring-actuated train of gearing is of the usual well-known form, no special description will be required. The spring-arbor in this case is provided with a thimble h' , which is in electric communication with the arm G' ,
 10 and the said thimble is pressed by a brush i , formed on the end of a copper strip connected electrically with one branch of the main wire through the binding-post H' . The arm G' normally rests upon one of the wires
 15 a , and when the wire is fused by a strong current or discharge of lightning the spring of the train of gearing causes the arm to move forward to the next fuse-wire, but on account of the escapement its movement is smaller
 20 than that of the arm G . (Shown in Figs. 1, 2, and 3.) When the arm G' passes the last fuse-wire, it comes to rest upon the ground-contact c' , which is electrically connected with the ordinary lightning-arrester plate d'
 25 at the opposite end of the base-board A and having binding-posts I' and J' . By retarding the movement of the arm G' in the manner described time is given for the complete discharge of the line-wire, and it also prevents
 30 a blow upon a fuse-wire, and thus avoids a possibility of injury to the wire or its connections.

It will be seen that the spring in Figs. 4, 5, and 6 while specifically such is more broadly
 35 a motor or means for actuating the arm G' .

In the modification shown in Fig. 7 the fuse-wires a are stretched from a metallic post B' to a post C' of insulating material. The post B' is connected with the binding-
 40 post I^2 , and the ground contact-wire C^2 is stretched from the post B' to the post C' , but it is insulated from the binding-post B' and connected electrically through the ground-wire with the binding-post J^2 . In front of the
 45 wires supported by the posts B' C' there is a tubular standard D^2 , which is slotted longitudinally on the side next the series of wires and contains a follower j' , carrying an arm G^2 , provided on its free end with a contact-
 50 piece k' , which rests upon the fuse-wire. As the fuse-wires are melted one after the other, as described in connection with Figs. 1 and 4, the arm G^2 drops into contact with the fuse-
 55 wire is melted it comes into contact with the

ground-wire c^2 , thus connecting the line-wire with the ground.

Having thus described my invention, I claim as new and desire to secure by Letters
 Patent—

1. In an automatic fuse-block and lightning-arrester, the combination of a conducting-bar, a non-conducting bar, fuse-wires extended across from one bar to the other, a contact-arm mounted to successively engage
 60 the fuse-wires, a motor connected to move the arm, and mechanism capable of regulating the operation of said motor and making the movement of the arm regular and uniform, substantially as described. 70

2. In an automatic fuse-block and lightning-arrester, the combination of a conducting-bar, a non-conducting bar, a series of contact-wires extended across from one bar to the other, a contact-arm mounted to successively engage the contact-wires, spring-controlled gearing for moving the contact-arm at a regular speed, and a brush making sliding
 75 contact with the contact-arm, substantially as described. 80

3. An automatic fuse-block and lightning-arrester, the same consisting of a base, two arc-shaped bars mounted on the base, one being of a conducting and the other of a non-conducting material, fuse-wires extended
 85 across from one bar to the other, a contact-arm mounted on an axis concentric to the arcs of the bars and capable of successively engaging the contact-wires, a contact-point adapted to be engaged by the contact-arm
 90 when all of the fuse-wires have been severed, spring-controlled gearing for driving the contact-arm at a regular speed, and a brush making sliding engagement with the contact-arm, substantially as described. 95

4. In an automatic fuse-block and lightning-arrester, the combination of a conducting-bar, a non-conducting bar, fuse-wires extending across from one bar to the other, a contact-arm mounted to successively engage
 100 the fuse-wires, a motor for moving the contact-arm, said motor having a tendency to operate continually and mechanism capable of partly restraining said motor and of making regular and uniform the movement thereof
 105 and of the arm, substantially as described.

THOMAS L. CARLETON.

Witnesses:

LOUIS ROSENTHAL,
 JAMES J. LEMON.