

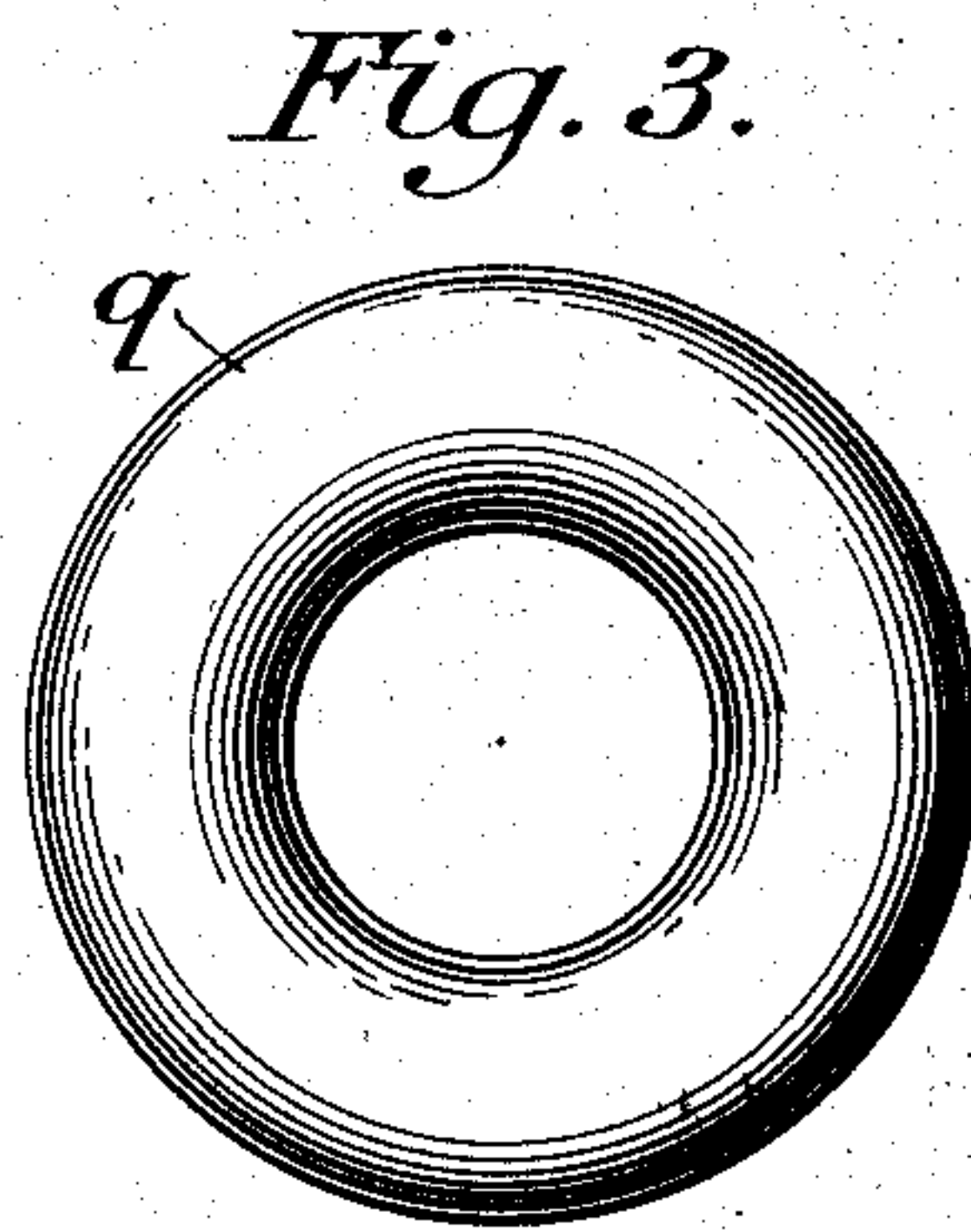
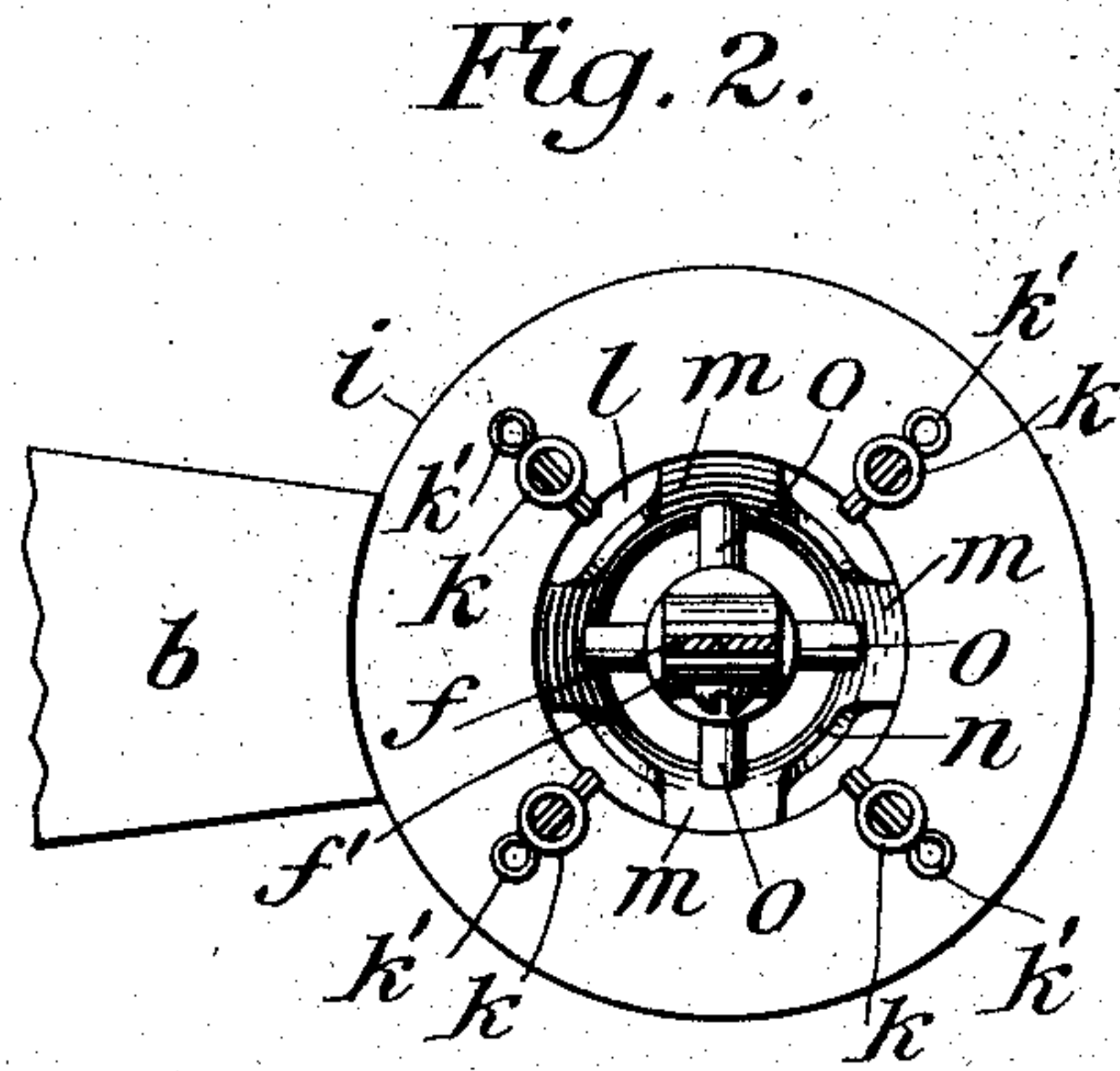
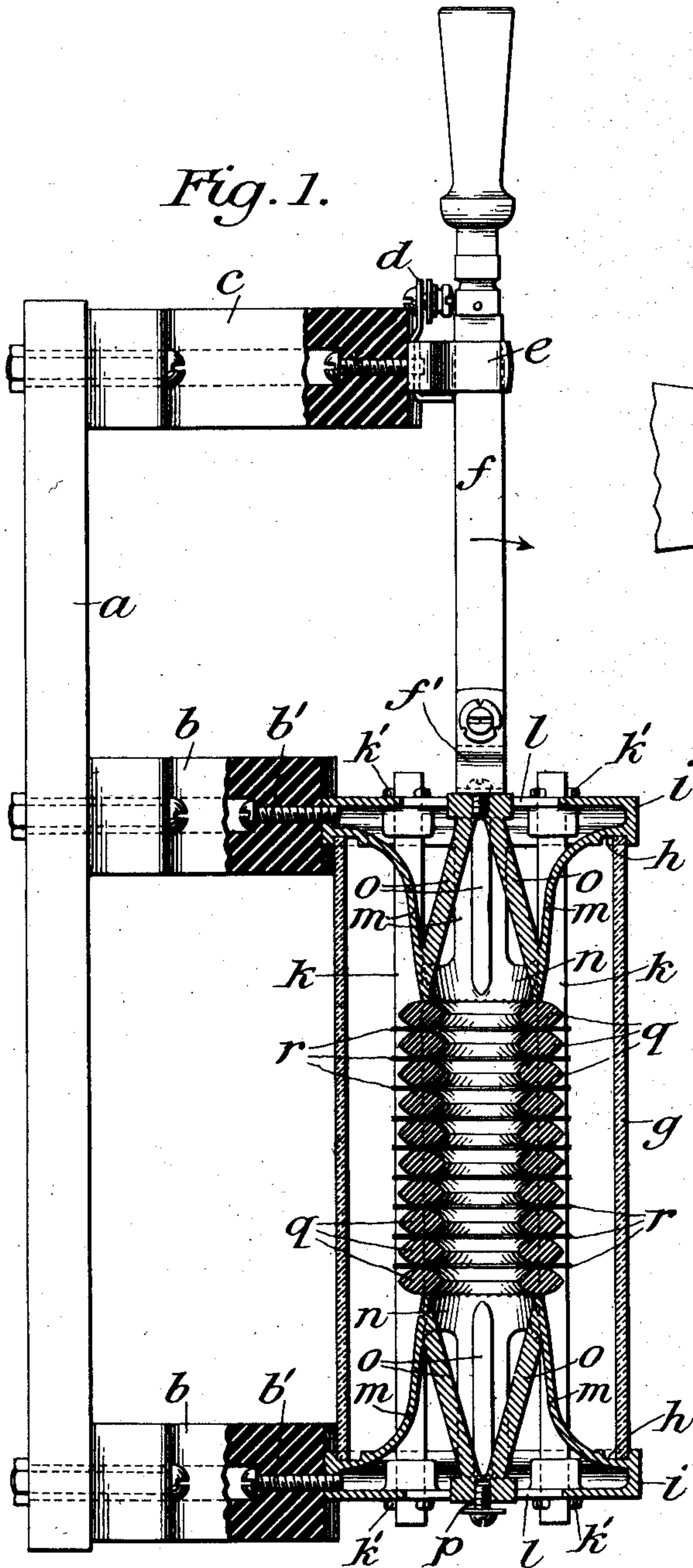
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H. M. SHAW.

STATIC DISCHARGER AND LIGHTNING ARRESTER.

APPLICATION FILED FEB. 8, 1905.



Attest:

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STATIC DISCHARGER AND LIGHTNING-ARRESTER.

No. 815,384.

Specification of Letters Patent.

Patented March 20, 1906.

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To all whom it may concern:

Be it known that I, HENRY M. SHAW, a citizen of the United States, residing in East Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Static Dischargers and Lightning-Arresters, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention has for its object to provide an improved lightning-arrester or static discharger especially adapted for use with high-tension currents where the dynamic or useful current with ordinary arresters or dischargers is apt to follow the static discharge when an arc has once been established.

One object of the invention is to reduce the possibility of the formation of an arc by providing for the immediate and continuous withdrawal of heated air.

Another object is to prevent the reduction of the efficiency of the device by the conduction of moisture from one part to another thereof.

A further object is to promote the discharge of the static current by giving to the intermediate conducting parts of the device such shape as to afford maximum surface discharge with a proper discharging-point.

It is also the purpose of the invention to improve generally the construction of devices of this character, as will be more fully explained hereinafter with reference to the accompanying drawings, in which, for purposes of explanation and illustration of the nature of the invention, it is shown as embodied in a convenient and practical form.

In the drawings, Figure 1 is a view, partly in elevation and partly in vertical central section, of a device which embodies the invention. Fig. 2 is a detail view, in end elevation, as seen from the upper end in Fig. 1 with the switch-bar in section. Figs. 3 and 4 are detail views, on an enlarged scale, in plan and transverse section, respectively, of one of the conducting-rings.

In the drawings the improved device is shown as mounted upon a suitable base *a*, of insulating material, being supported thereon by suitable brackets *b b* and *c*, also preferably of insulating material. The brackets *b b* support the discharger or arrester, while the bracket *c* supports one of the line-terminals *d* and the fork *e* of a knife-switch *f* to

provide, if desired, for the cutting out of the device in the usual manner.

The arrester or discharger in the form shown in the drawings comprises an insulating-casing *g*, preferably cylindrical and preferably of glass, the ends of which are received in grooves *h*, formed in the heads *i*. The latter may be secured to the brackets *b* by screws *b'* and may be further supported and held together against the ends of the cylinder *g* by insulating-rods *k*, which may be provided outside of the heads with pins *k'*. As represented in the drawings, the two heads are alike, each having a central opening *l* and provided with inwardly-projecting arms *m*, preferably terminating in a knurled ring *n*, from which arms *o* project outwardly to receive at one end the pivot-piece *f'* of the knife-switch and at the other end the binding-post *p*, forming the other line-terminal.

Firmly held by pressure between the knurled rings *n* is a composite hollow body made up of a series of alternating conducting-bodies *q* and non-conducting or insulating bodies *r*, which offer effective resistance to the passage of the useful current, while the static discharge can pass around them or across them from one to another of the bodies *q*. Each of the conductors *q* is preferably ring-like, having an ovoid cross-section, substantially as shown in Fig. 4, since such form affords a maximum surface discharge with a satisfactory discharging-point. Any suitable material may be employed, a carbonized material being preferable. The interposed insulators *r* are likewise annular and are formed of any suitable non-conducting material, such as mica.

It will be observed that an open passage is provided from end to end of the lightning-arrester or static discharger, affording a free path for a current of air not only through the intermediate body, but around the same, within the casing *g*, so that the device has a chimney-like effect, and the heated air which might promote the formation of an arc passes off quickly, being replaced by cooler air which completely surrounds the intermediate composite body both exteriorly and interiorly. It will be further observed that the resistance across the series of rings is less than the resistance between the heads over the glass casing *g*, so that there is no danger of current taking the wrong path. Further-

more, there are no moisture - conducting bodies exposed exteriorly and in contact with the intermediate composite body to vary the resistance of the intermediate composite body and reduce its efficiency. The rods *k* not only serve to hold the heads together against the ends of the composite body, but they prevent lateral displacement of the members of the composite body in case they are not held tightly or the device is subjected to a shock.

For convenience each head *i*, with the ring *n* and arms *m* and *o*, is formed in one integral piece; but it will be obvious that it might be formed otherwise and that various other changes in details of construction and arrangement might be made without departing from the spirit of the invention.

I claim as my invention—

1. In a lightning-arrester and static discharger, the combination of a hollow composite body composed of alternating conductors and insulators and apertured conducting-heads between which said composite body is held, whereby air may freely circulate through said composite body, substantially as described.

2. In a lightning-arrester and static discharger, the combination of a hollow composite body composed of alternating ring-like conducting-bodies and ring-like insulators, and apertured conducting-heads between which said composite body is held, substantially as described.

3. In a lightning-arrester and static discharger, the combination of a hollow, composite body composed of alternating conducting-rings and insulators, said conducting-rings having an ovoid section and conducting-heads between which said composite body is secured, substantially as described.

4. In a lightning-arrester and static discharger, the combination of a hollow composite body composed of alternating conductors and insulators, conducting-heads between which said composite body is secured and an insulating-casing surrounding said composite body and also held between said heads, substantially as described.

5. In a lightning-arrester and static discharger, the combination of a hollow composite body, composed of alternating conducting bodies and insulators, heads between which said composite body is held and rods holding said heads together and preventing lateral

displacement of the members of said composite body, substantially as described.

6. In a lightning-arrester and static discharger, the combination of a hollow, composite body, composed of alternating conductors and insulators, conducting-heads between which said composite body is held, rods holding said heads together against said composite body, and an insulating-casing also held between said heads, substantially as described.

7. In a lightning-arrester and static discharger, the combination of a composite body composed of alternating ring-like conductors and ring-like insulators affording a free passage through said body, apertured heads between which said composite body is held and an insulating-casing surrounding said body and held between said heads, substantially as described.

8. In a lightning-arrester and static discharger, the combination of a composite body composed of alternating ring-like conductors and ring-like insulators, apertured heads between which said composite body is held, insulating-rods holding said heads together against the composite body and preventing lateral displacement of the members thereof and an insulating-casing held between said heads, substantially as described.

9. A ring-like conducting-body for a lightning-arrester and static discharger substantially ovoid in cross-section.

10. A ring-like conducting-body for a lightning-arrester and static discharger formed of carbonized material and substantially ovoid in cross-section.

11. In a lightning-arrester and static discharger, the combination of a series of alternating conductors and insulators and conducting-heads, said conductors being substantially ovoid in cross-section, substantially as described.

12. In a lightning-arrester and static discharger, the combination of a series of conductors and insulators and conducting-heads, said conductors being ring-like in form and substantially ovoid in cross-section, substantially as described.

This specification signed and witnessed this 7th day of February, A. D. 1905.

HENRY M. SHAW.

In presence of—

ANTHONY N. JESBERA,
W. B. GREELEY.