

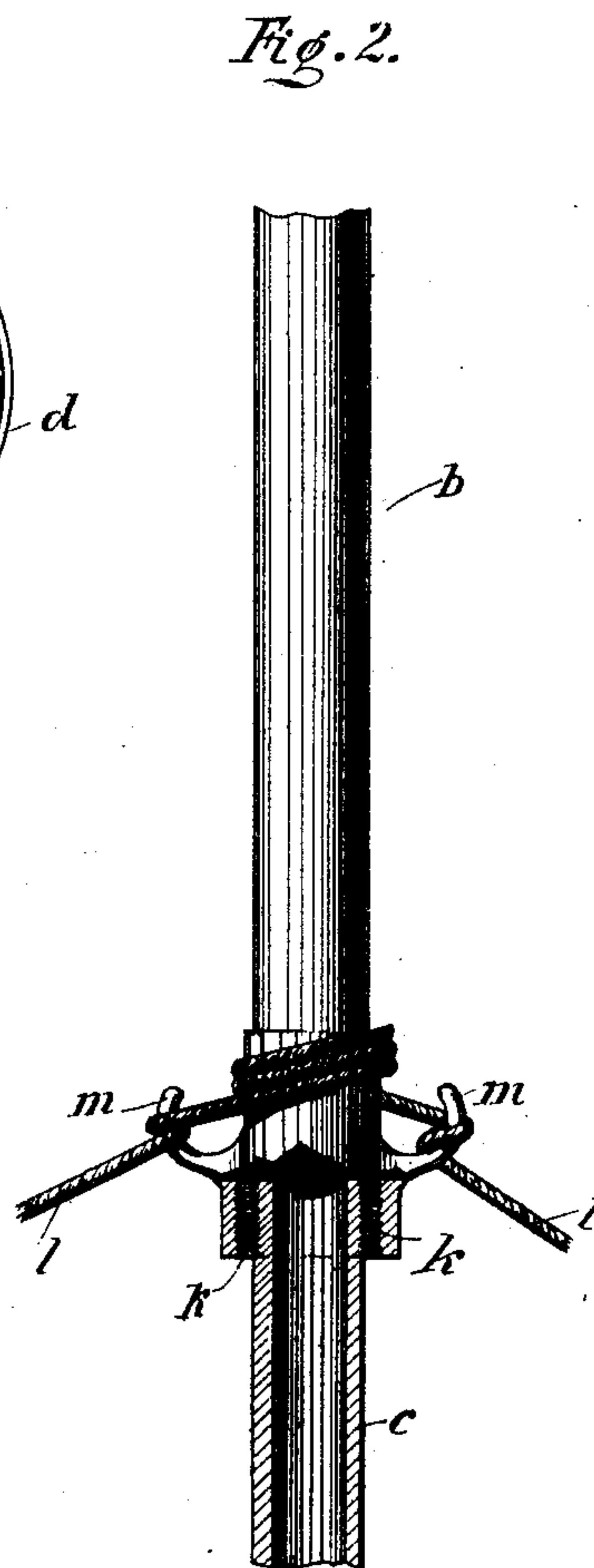
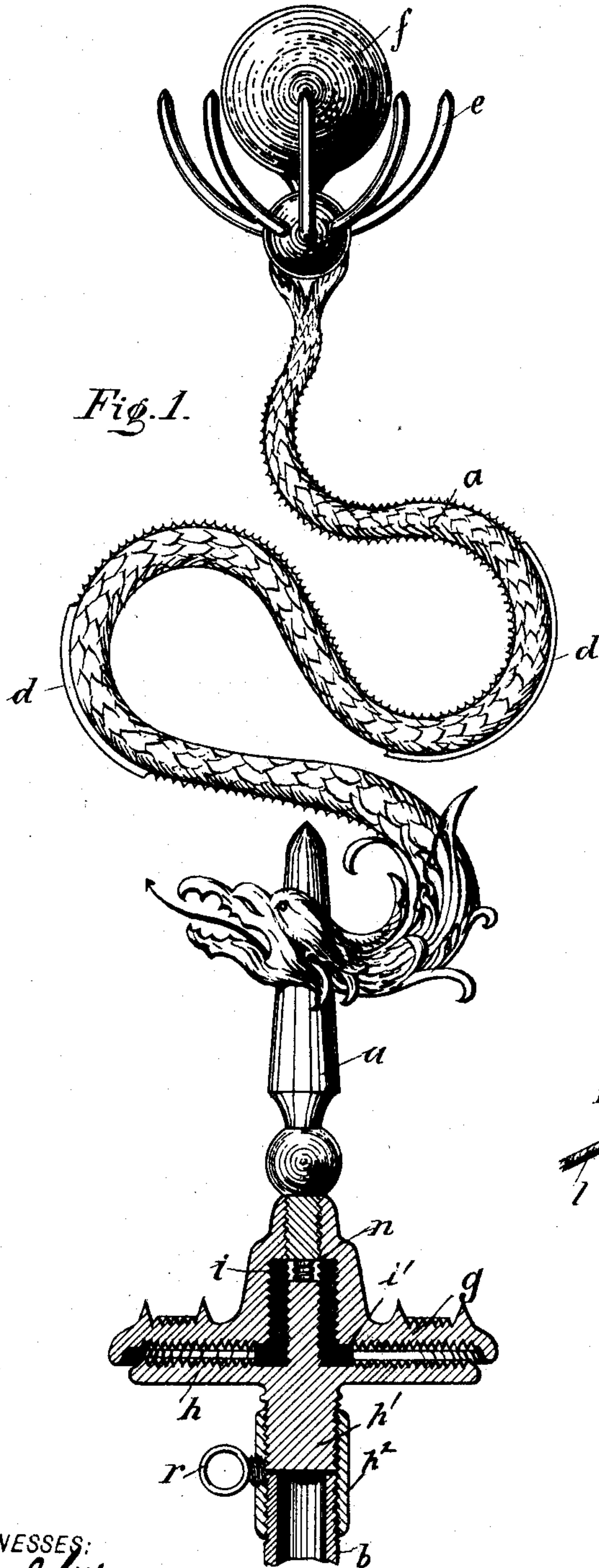
No. 623,033.

Patented Apr. 11, 1899.

G. RAUNACHER.  
LIGHTNING CONDUCTOR.

(Application filed Jan. 20, 1899.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

GUSTAV RAUNACHER, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR OF ONE-HALF TO GRANT GREENHAM, OF TRIEST, AUSTRIA-HUNGARY.

## LIGHTNING-CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 623,033, dated April 11, 1899.

Application filed January 20, 1899. Serial No. 702,839. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAV RAUNACHER, major, of Vienna, Austria-Hungary, have invented certain new and useful Improvements in Lightning-Conductors, of which the following is a description.

When buildings are damaged by lightning in spite of lightning-conductors, this is generally caused by the bad condition of the latter or by reason of the low collecting capacity and the insufficient insulation of the rod.

The lightning-conductor shown in Figures 1 and 2, partially in section and in elevation, consists of the head *a* and the rod made in two parts *b c*.

The head *a* consists of a rod bent several times—for instance, in the shape of a dragon provided with numerous teeth or points omitted at the spots *d* for not conducting the lightning directly to the parts underneath. All these points possess a very great emanating capacity, diminishing to a great extent the danger of the striking. On the other hand, the points possess a great absorbing capacity if the neutralization of a cloud should not be possible and the lightning strikes. A damaging of the lightning-conductor's head, rendering it unserviceable, cannot happen in consequence of the great number of points.

The head is provided with several points (sucking-points) *e* at its upper end, and, moreover, with one or more vaulted surfaces *f*, being advantageously ovoid or ball-shaped, the points surrounding the latter. The points having the purpose to emanate the electricity bound by the cloud will perform this action with the possibly greatest success on account of their great number. The vaulted surfaces will much help the points in their function by their great surface when they absorb or attract lightning striking the neighborhood. The vaulted surfaces form, so to say, the condenser for bound electricity and may themselves be provided with small points.

The points, as well as the vaulted surfaces, are preferably made of cast-iron, being coppered and subsequently silver-plated to increase their conductivity. The whole head

is painted with a suitable mass, well conducting electricity, having a high melting-point and undergoing no change.

The electricity accumulated in great quantities on the vaulted surfaces thus much increases the absorbing power of the lightning-conductor according to the simple law that the attraction of electricities increases with their quantity.

Discharge-plates *g* and *h* are inserted between the head and the rod, separated from one another by insulating material to weaken the vehemence of the lightning striking the conductor. As an insulating-piece, a sleeve of asbestos or stabilite *i*, with flange *i'*, is best employed, determining the distance of the two plates at the same time. These plates are provided with many points to distribute the electric spark on a greater surface and to weaken its vehemence. If an electric connection is desired between the head and the rod, a screw-shaped spring may be inserted into the cavity *n*.

The rod is copper-plated on its surface to increase its conductivity, and consists of two parts *b* and *c*, insulated from one another best by an asbestos or stabilite ring *k*. The lower part *c* is fixed on the ridge of the roof in the well-known manner. From the top part *b* a double earth-lead *ll* branches off, being wound several times around the rod and around arms *m*, fixed on the same and soldered with the rod, whereby a well conducting connection is attained.

By the insulation of the two parts of the rod from one another the danger of the lightning jumping over on the building to be protected is much lessened.

The lower plate *h* has a threaded shank *h'*, which is connected to the upper end of the part *b* by a sleeve *h''*, clamped in place by a thumb-screw *r*.

The present lightning-conductor thus answers every desired demand.

Having now particularly described and ascertained the nature of my invention, I declare that what I claim is—

1. In a lightning-arrester, a head having a

central rounded surface and a plurality of points surrounding the same, substantially as described.

2. In a lightning-arrester, the combination  
5 with the head, of discharge-plates connected therewith and insulated from each other, substantially as described.

3. In a lightning-arrester, a head, a rod  
10 supporting the same, an insulated connection between said parts, and an earth connection from the rod, substantially as described.

4. In combination, the head, the discharge-plates and the asbestos or stabilite sleeve interposed between said plates, said sleeve having a lateral flange, substantially as described. 15

In witness whereof I have hereunto set my hand in presence of two witnesses.

GUSTAV RAUNACHER.

Witnesses:

VINCENT BURES,  
ANTONIO GHERZO.