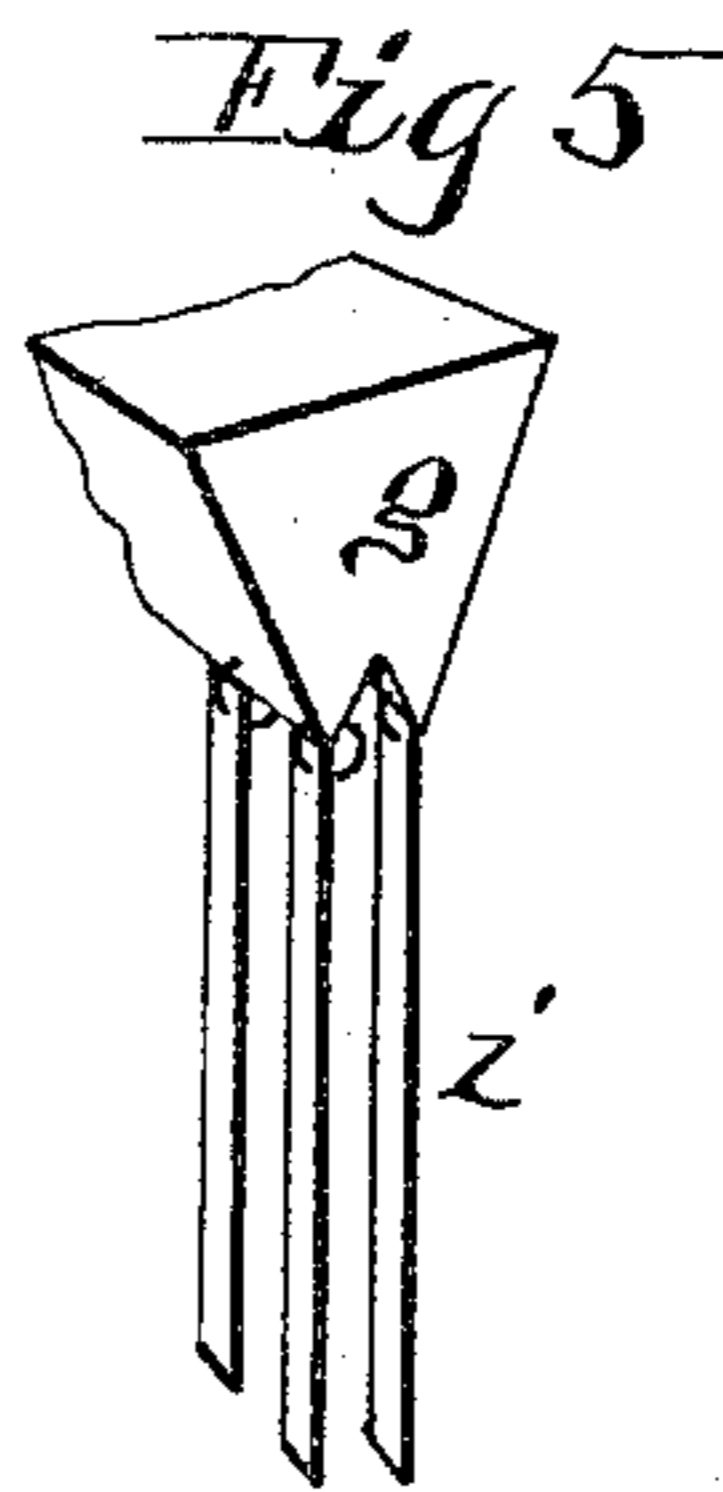
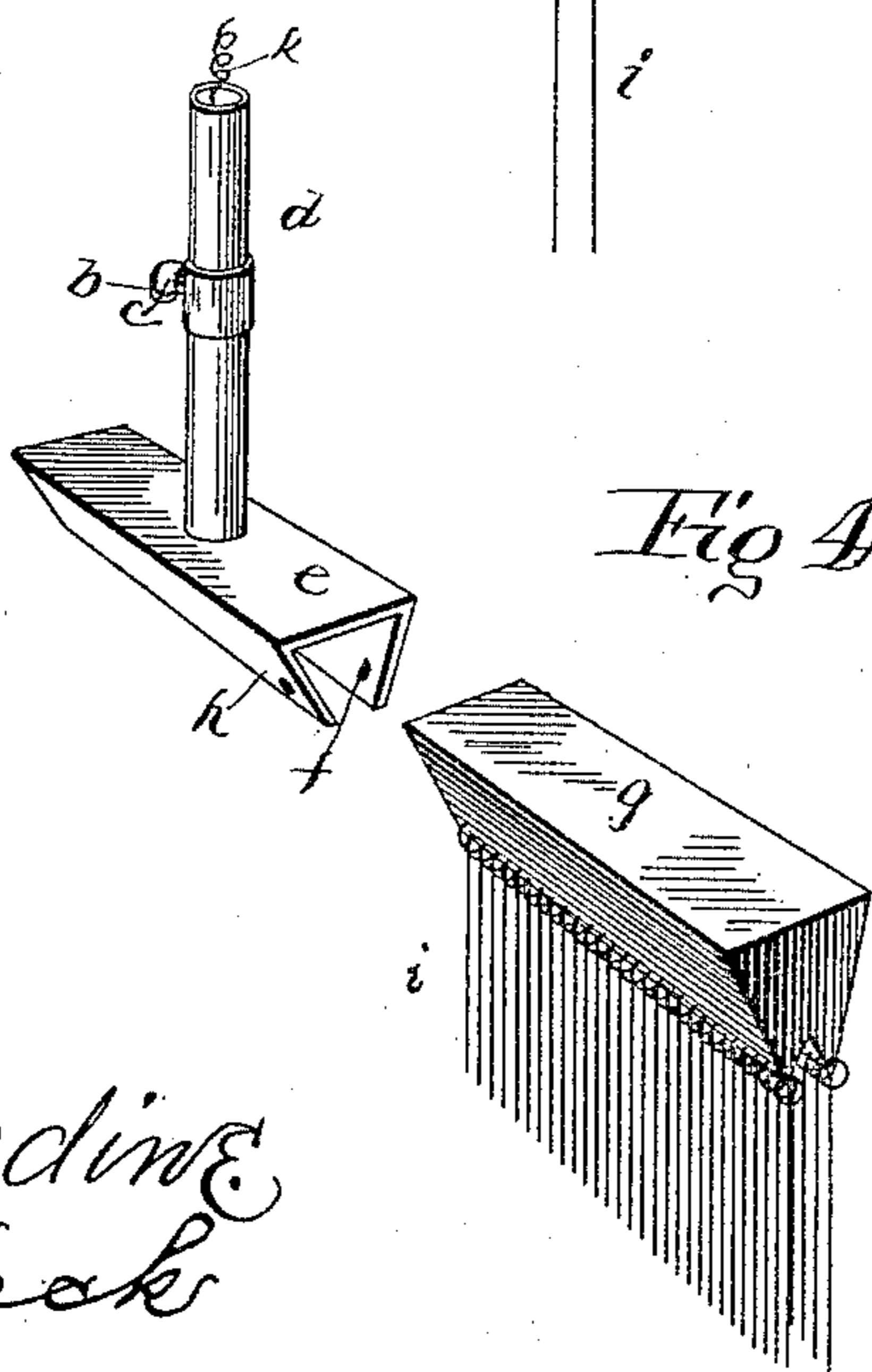
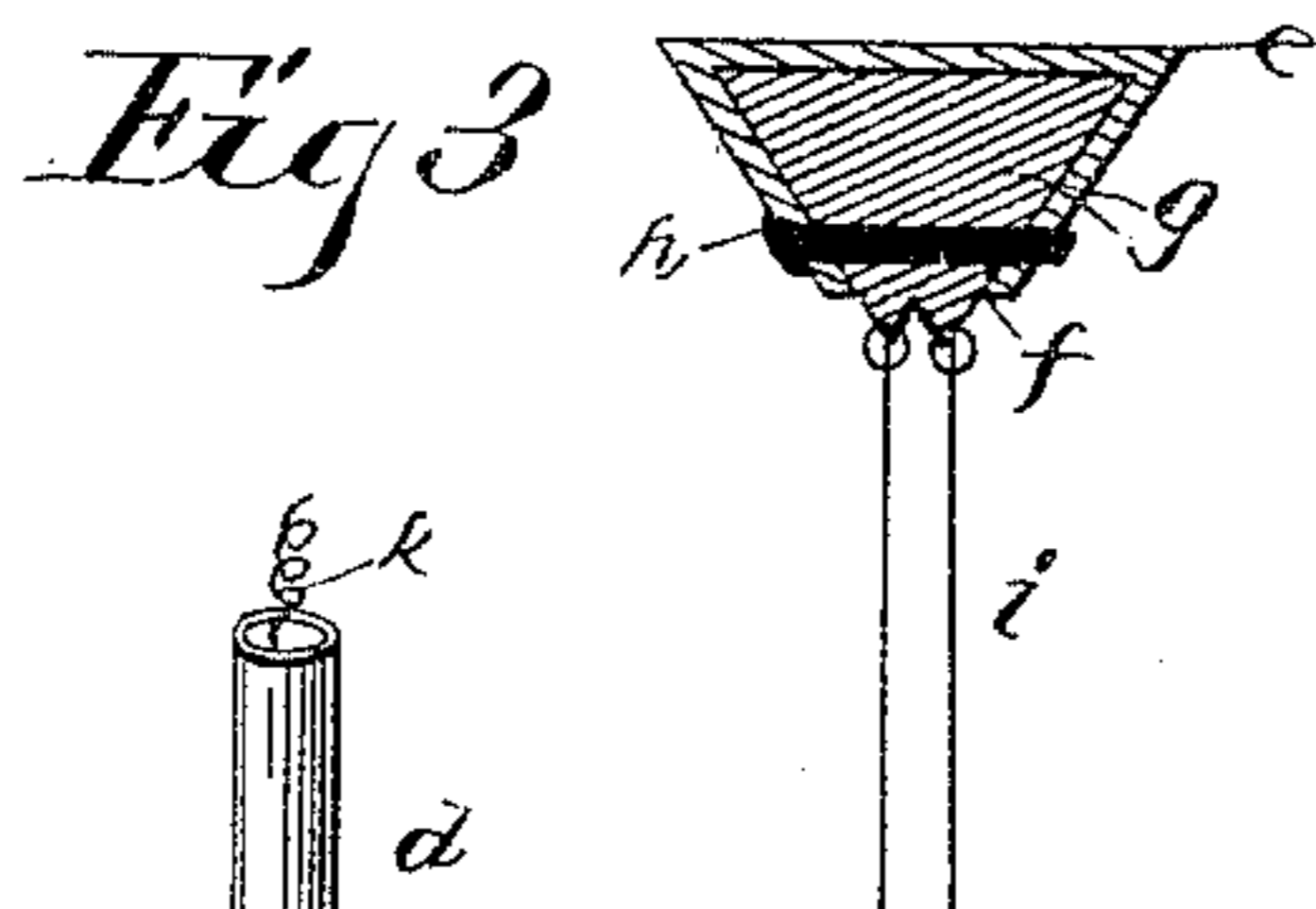
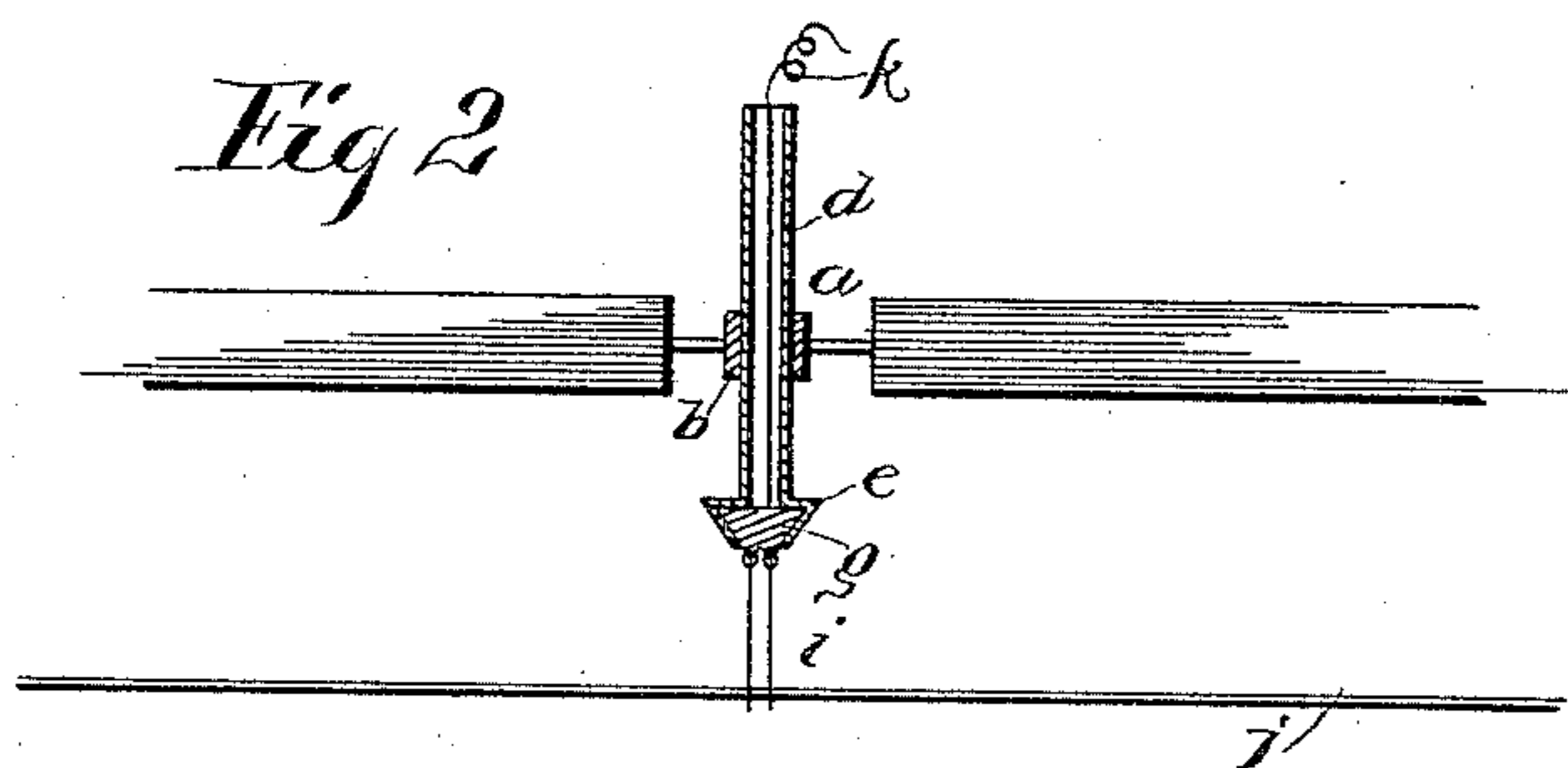
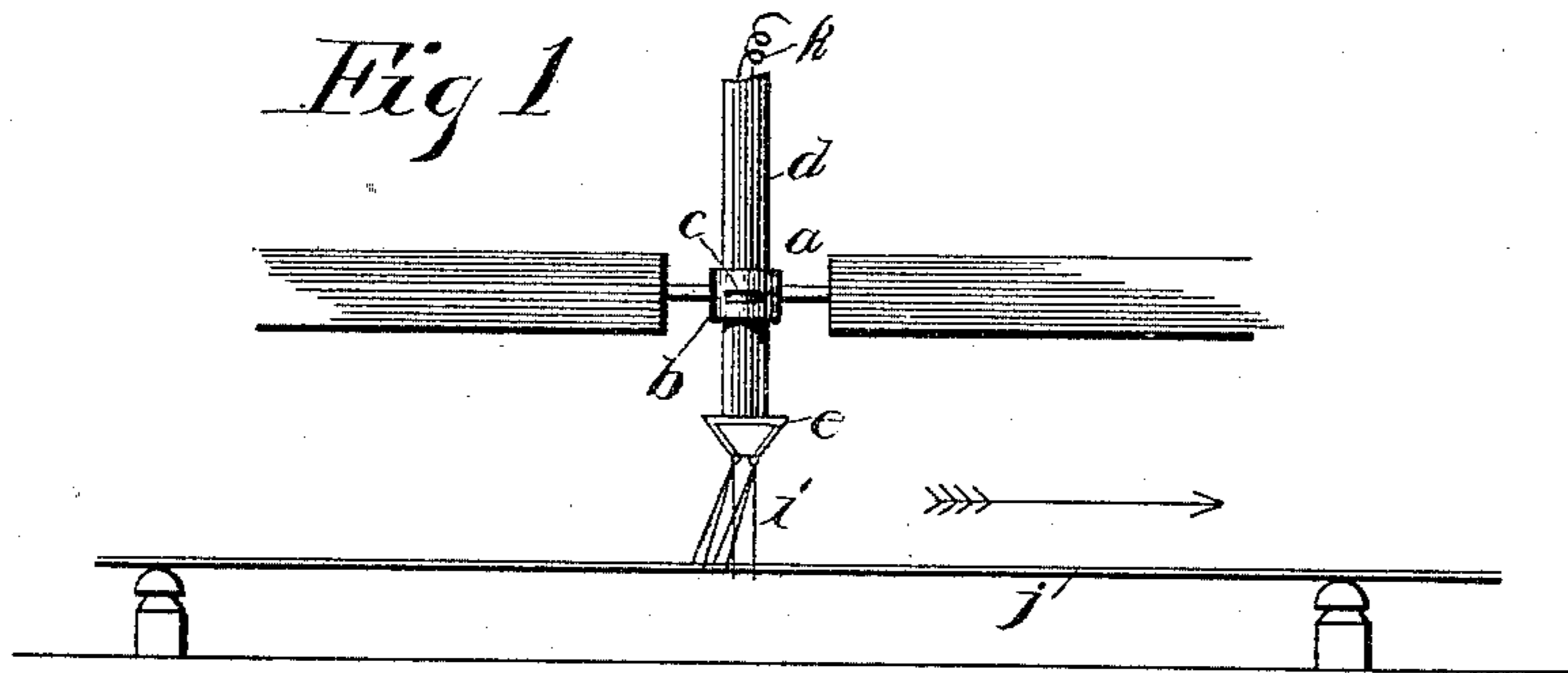


(No Model.)

J. R. BRANCH.  
ELECTRIC CONTACT BRUSH.

No. 453,104.

Patented May 26, 1891.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JAMES R. BRANCH, OF RICHMOND, VIRGINIA.

## ELECTRIC CONTACT-BRUSH.

SPECIFICATION forming part of Letters Patent No. 453,104, dated May 26, 1891.

Application filed October 28, 1890. Serial No. 369,579. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES R. BRANCH, of Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Electric Contact-Brushes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in contact-brushes, the object of the invention being to provide an improved contact brush or device to travel on a stationary conductor, and which will maintain a constant electrical connection therewith, and is so constructed that the wires or contacts of the brush will not retain, catch, or hold pieces of paper or other articles which would tend to prevent a perfect electrical connection. These objects are accomplished by and this invention consists in certain novel features of construction, and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is an elevation of the brush and its holder, the brush being represented as in motion. Fig. 2 is a longitudinal section. Fig. 3 is a cross-section through the brush. Fig. 4 is a perspective showing the parts of the brush separated. Fig. 5 is a detail perspective showing a different form of contact strips, rods, or links.

In the drawings, the reference-letter *a* indicates a bracket rigidly secured to the desired portion of a railroad-vehicle, having the vertical tube or socket *b* provided with set or clamping screw *c*.

*d* is a vertical rod carried by and vertically adjustable through tube *b*, and clamped at the desired position therein by the set-screw *c*.

*e* is a horizontal holder upon the lower end of said rod *d*, said holder being hollow and open at one or both ends, and having the narrow longitudinal slot *f* in its lower side.

*g* is the carrier fitting in said holder, and held therein by the pin or screw *h* extending removably across the open end of the holder.

This carrier carries the plurality of heavy wires, strips, or links *i* of conducting material, which travel upon and in electrical connection with the conductor *j* extending along the track. These conducting rods or wires *i* are loosely secured in any suitable manner to the carrier *g*, so that the wires or rods will have free independent lateral, forward, and rearward swing, and hence hang free and in a normal vertical position by gravity. The brush can be made as wide and as long as desirable, and the conducting wires, strips, or rods of any suitable material and loosely connected to their carrier in any suitable manner, preferably that shown. The conducting-wire *k* is electrically connected with the conducting rods or wires through the carrier, which is preferably made of conducting material, and this wire, which is preferably insulated, extends up through the rod or arm *d*, which is made hollow for this purpose. The many advantages of this construction are obvious. If some or all of the wires wear out or need replacing the operator has but to remove pin *h* and take out carrier *g*, and replace the worn wires with perfect ones, and then replace the carrier. The entire brush can be raised and lowered when desired, and by reason of the free swing of the conducting rods, wires, or links flying pieces of paper or other articles or substance cannot be held by the brush or catch in the same and prevent a perfect connection, as the wires will immediately swing aside and separate and let the article fall out.

It is evident that various changes might be made in the form and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the precise construction herein set forth.

What I claim is—

1. A contact-brush consisting of a bracket, a supporting-rod carried by said bracket in vertical adjustment, the hollow holder rigid on the lower end of said rod, and the carrier removably located in said holder and carrying the contact devices, substantially as described.

2. A contact-brush consisting of a bracket, a tubular rod secured to said bracket in vertical adjustment, the hollow holder on the

lower end of said rod, the carrier removably located therein, the contact devices carried thereby, and the conducting-wire from said carrier extending up through the hollow rod.

5 3. In combination, the tubular bracket, the vertical rod adjustably clamped therein, the horizontal hollow holder rigid on the lower end of the rod, and the carrier carrying the contact devices and movable in and out of said holder.

10 4. The hollow holder having the opening at its under side, in combination with the carrier removably located in said holder, and carrying the contact links, rods, or strips extending through said opening.

15 5. The hollow horizontal holder, open at one end and having a longitudinal bottom opening, in combination with the carrier removably fitted in said holder, and the contact wires, rods, or strips secured to the under  
20 edge of said carrier and extending through said bottom opening of the holder.

6. A contact-brush consisting of a station-

arily-held carrier having a lower longitudinal edge provided with transverse apertures, a support for said carrier, and the series of 25 depending wires or rods having eyes at their upper ends passing through said apertures, whereby the rods or wires are allowed universal swing.

7. The herein-described contact-brush consisting of the depending arm carrying a holder 30 rigid on its lower end, a removable horizontal carrier carried by said holder, and the freely-swinging depending contact links or rods loosely jointed to said carrier, as set forth. 35

In testimony that I claim the foregoing as my own I affix my signature in presence of witnesses.

JAS. R. BRANCH.

Witnesses:

O. E. DUFFY,  
GRAHAM L. GORDON,  
C. M. WERLE.