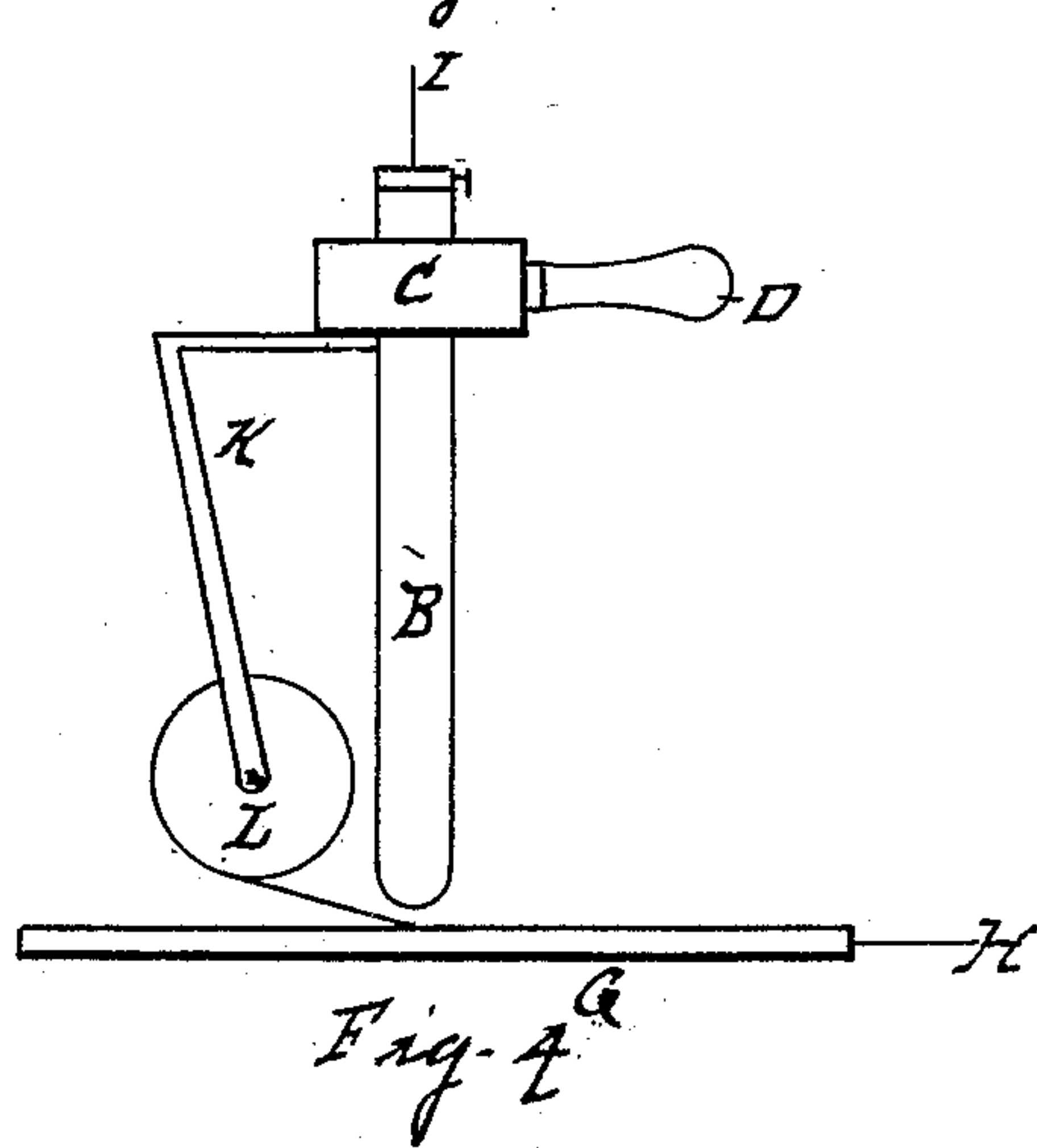
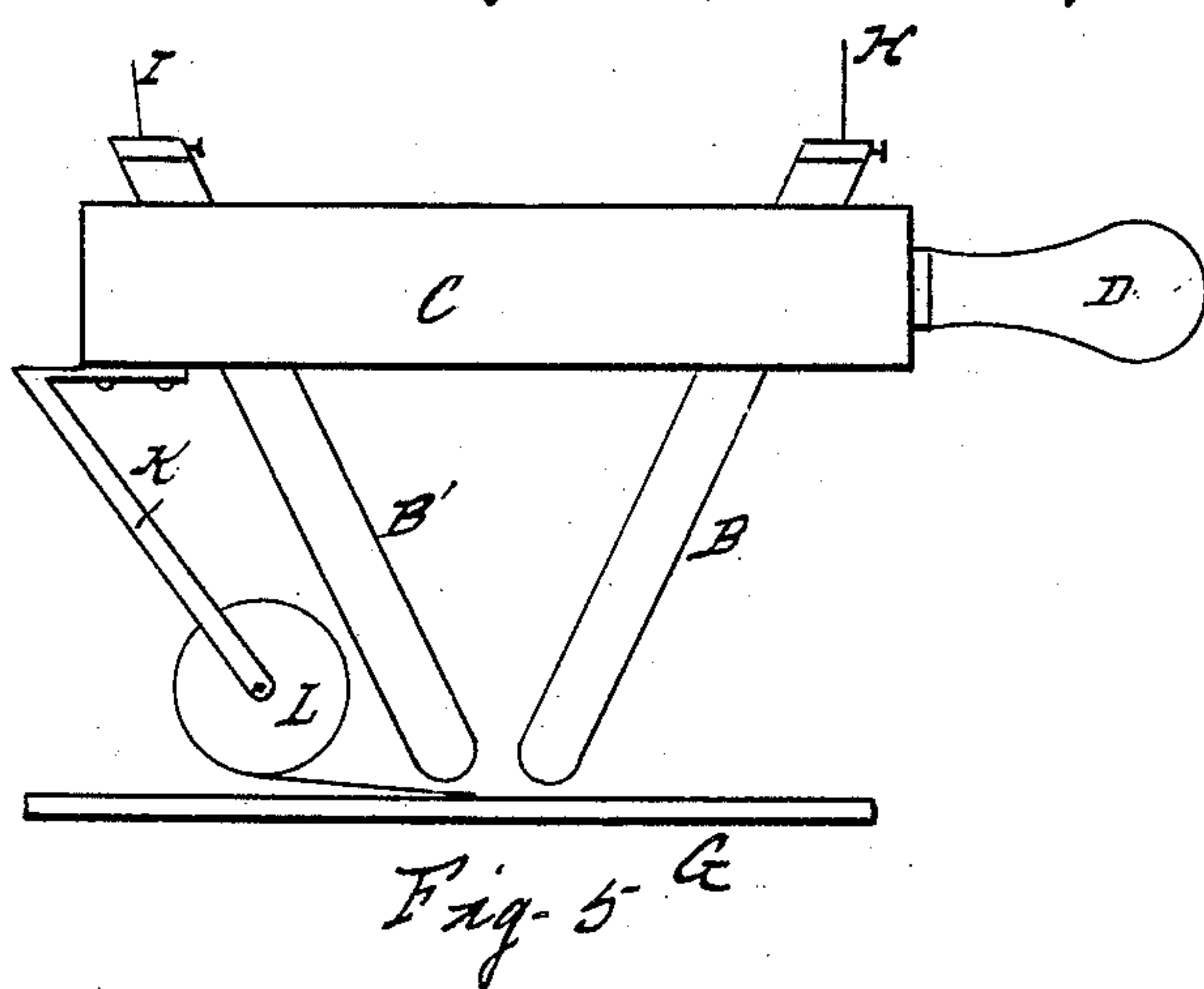
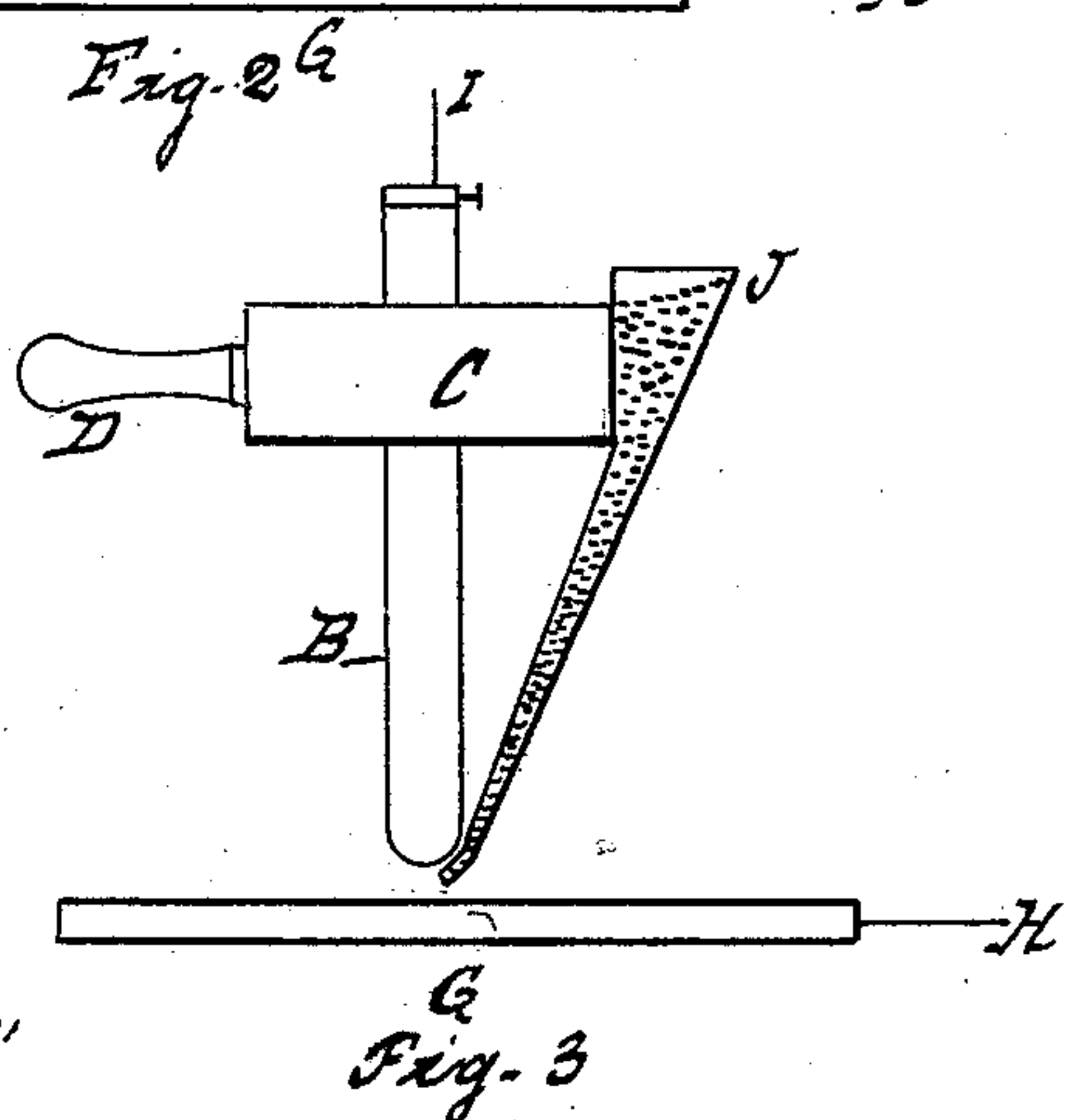
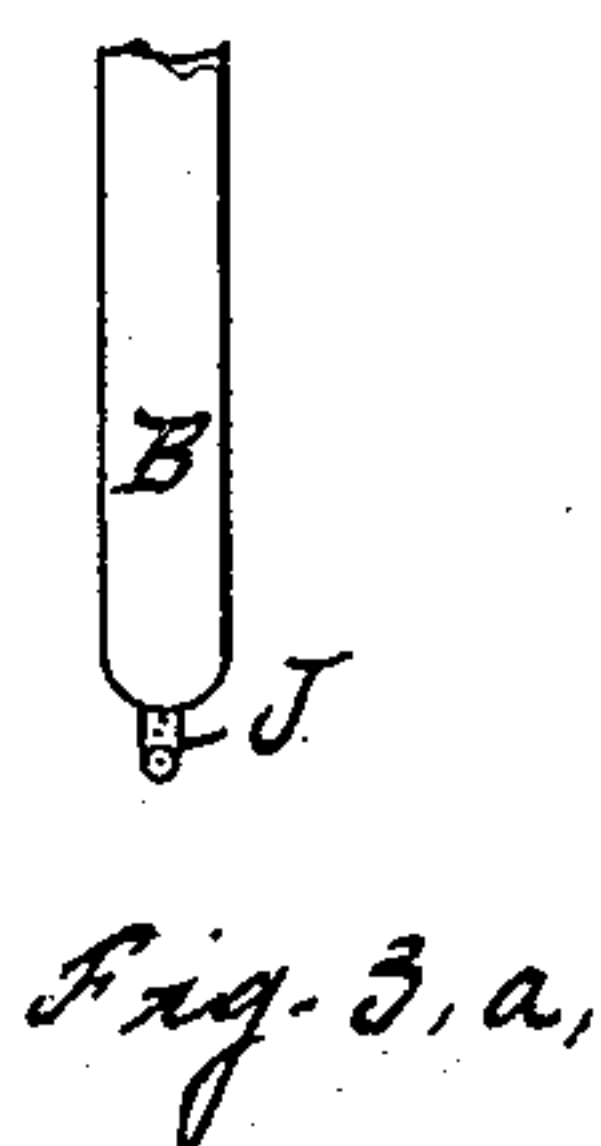
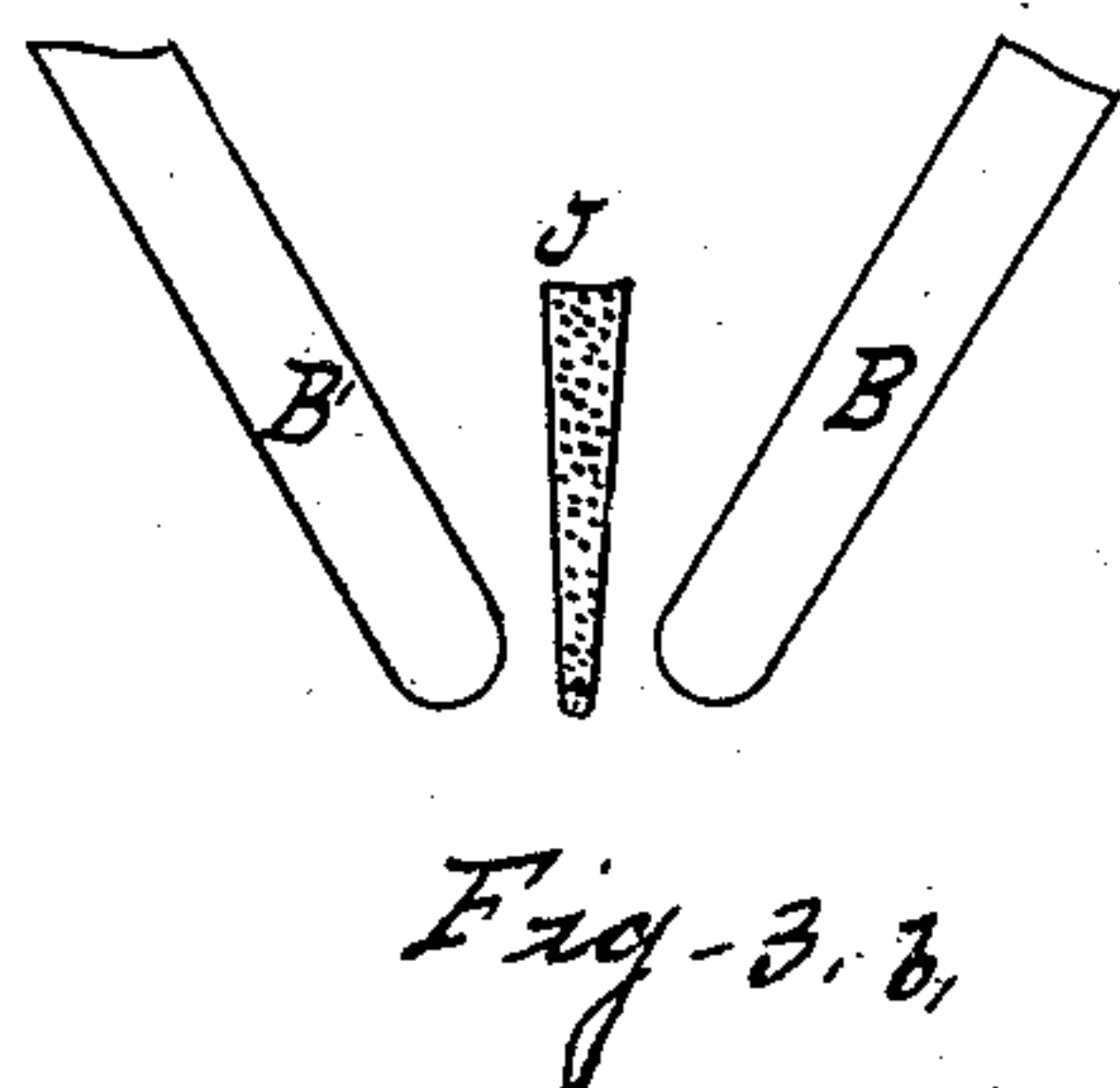
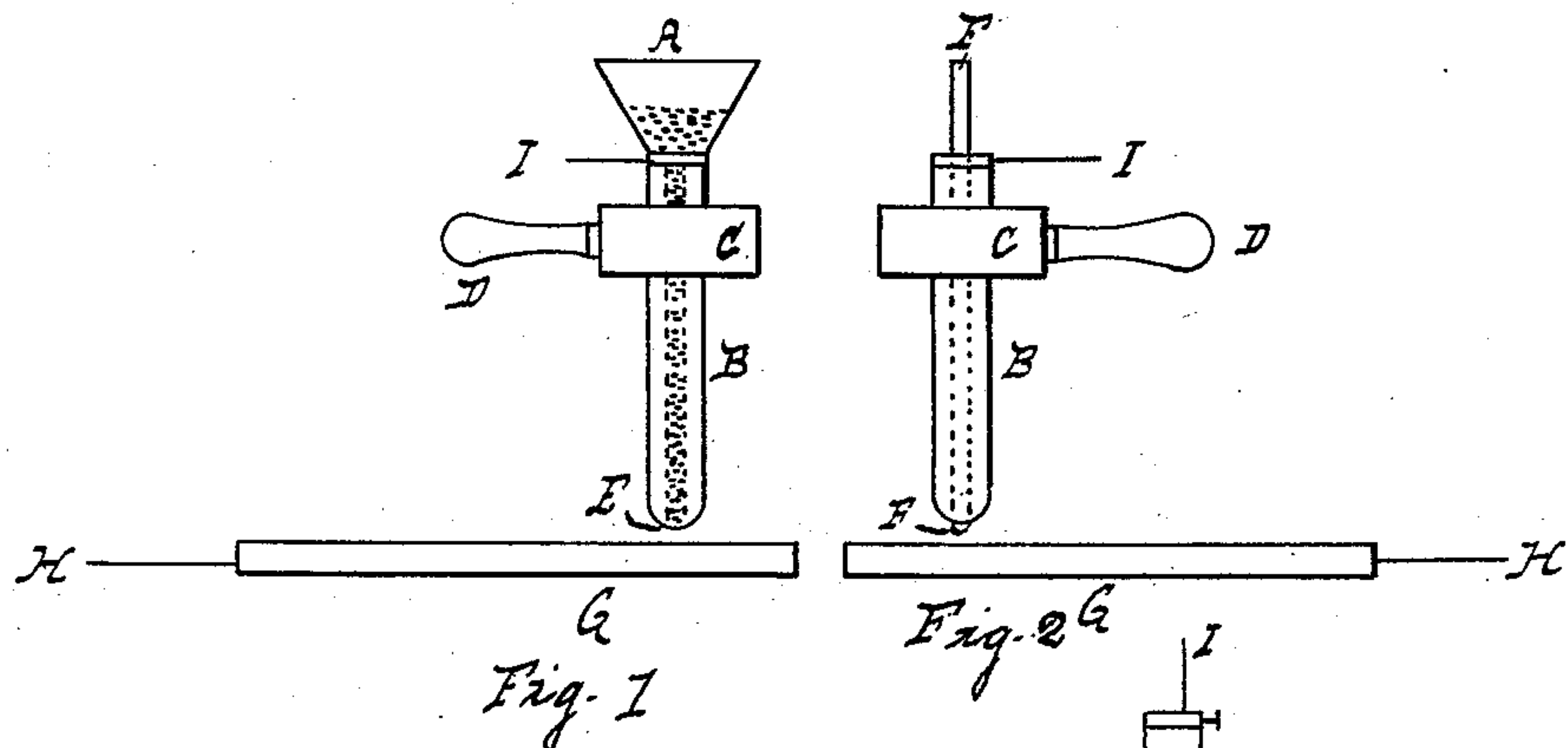


(No Model.)

C. L. COFFIN.
PROCESS OF ELECTRIC WELDING.

No. 405,345.

Patented June 18, 1889.



Witnesses,
Adelaide A. Anderson
Geo. H. Lothrop

Inventor
Charles L. Coffin.

UNITED STATES PATENT OFFICE.

CHARLES L. COFFIN, OF DETROIT, MICHIGAN.

PROCESS OF ELECTRIC WELDING.

SPECIFICATION forming part of Letters Patent No. 405,345, dated June 18, 1889.

Application filed December 20, 1888. Serial No. 294,194. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. COFFIN, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful
5 Improvement in Electric Welding, of which the following is a specification.

My invention consists in an improvement in the art of electric welding, hereinafter fully described and claimed.

10 The drawings are a side elevation, in which Figures 1, 2, 3, and 4 illustrate my improvement as applied to the process described in Patent No. 363,320, to De Benardos and Olszewski, dated May 17, 1887. Figs. 3^a, 3^b, and
15 5 illustrate my invention as applied to my Letters Patent dated January 15, 1889, No. 396,270.

20 In all the figures the letter G indicates the articles to be welded, and the letters B B' indicate carbons. The letter C indicates the carbon-holder, and the letter D indicates the handle of the carbon-holder.

In Fig. 1 the carbon B has a central bore, and carries on its upper end a hopper A, containing fine filings or turnings E, of metal,
25 preferably of the metal to be welded, which pass down through the carbon and fall through the arc upon the joint, becoming fused and re-enforcing the joint.

30 In Fig. 2 the carbon B is also hollow, and instead of the hopper A and the filings E a

wire or rod F of the proper metal passes down through the hollow carbon.

In Fig. 3 the carbon is solid, and a funnel J, carried on the carbon-holder C, delivers
35 filings or turnings in the arc between the carbon and the article to be welded.

In Figs. 3^a and 3^b two carbons are used, set at an angle to spring the arc outward, and the funnel J extends down between the car-
40 bons.

In Figs. 4 and 5 a spool L, carried on an arm K, attached to the carbon-holder C, carries a wire or ribbon of the re-enforcing material, which is fed, as the holder is moved,
45 between the end of the carbon or carbons and the joint to be welded.

In all the devices illustrated the object is to simply supply molten metal to the joint, in addition to that supplied by the articles
50 under treatment, for the purpose of re-enforcing the joint.

What I claim as my invention, and desire to secure by Letters Patent, is—

The herein-described process of electric
55 welding, consisting in feeding metal to the joint through the welding-arc from a supply carried on the welding-tool.

CHARLES L. COFFIN.

Witnesses:

ADELAIDE A. ANDERSON,
GEO. H. LATHROP.