

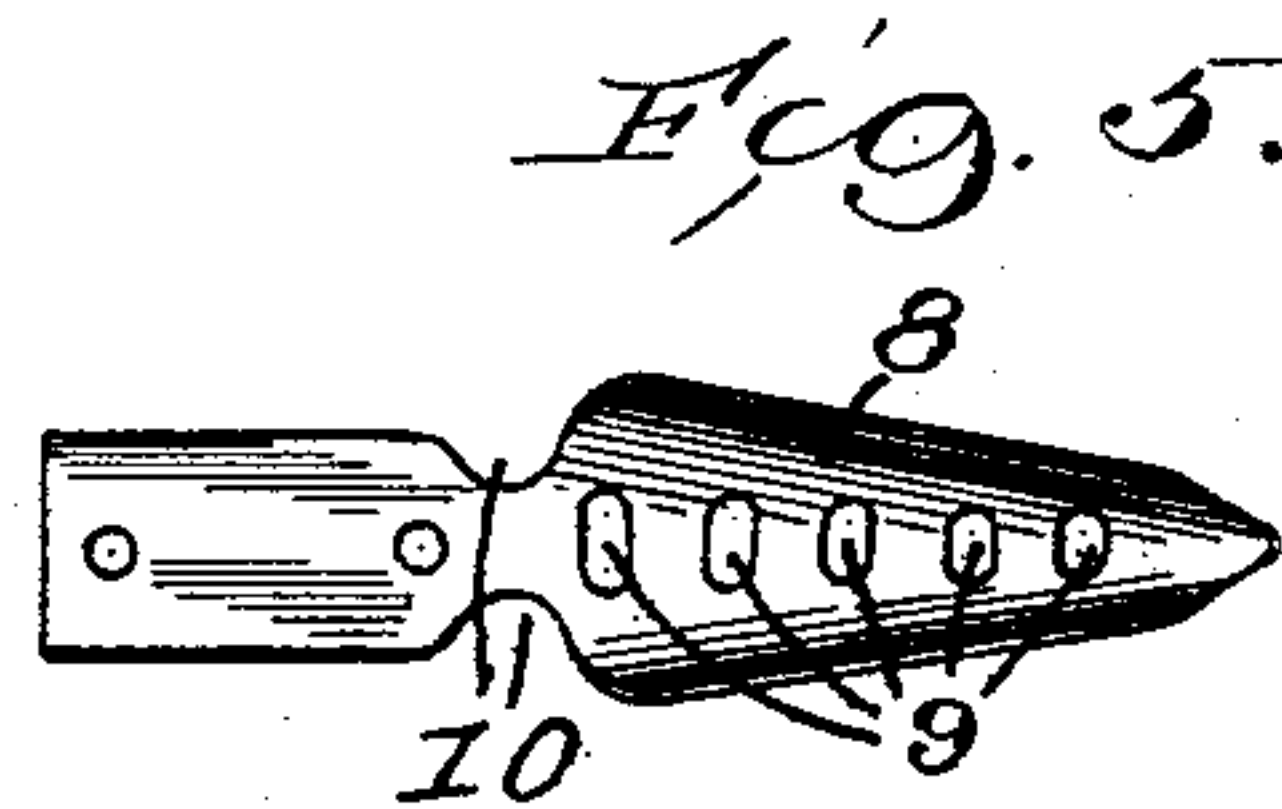
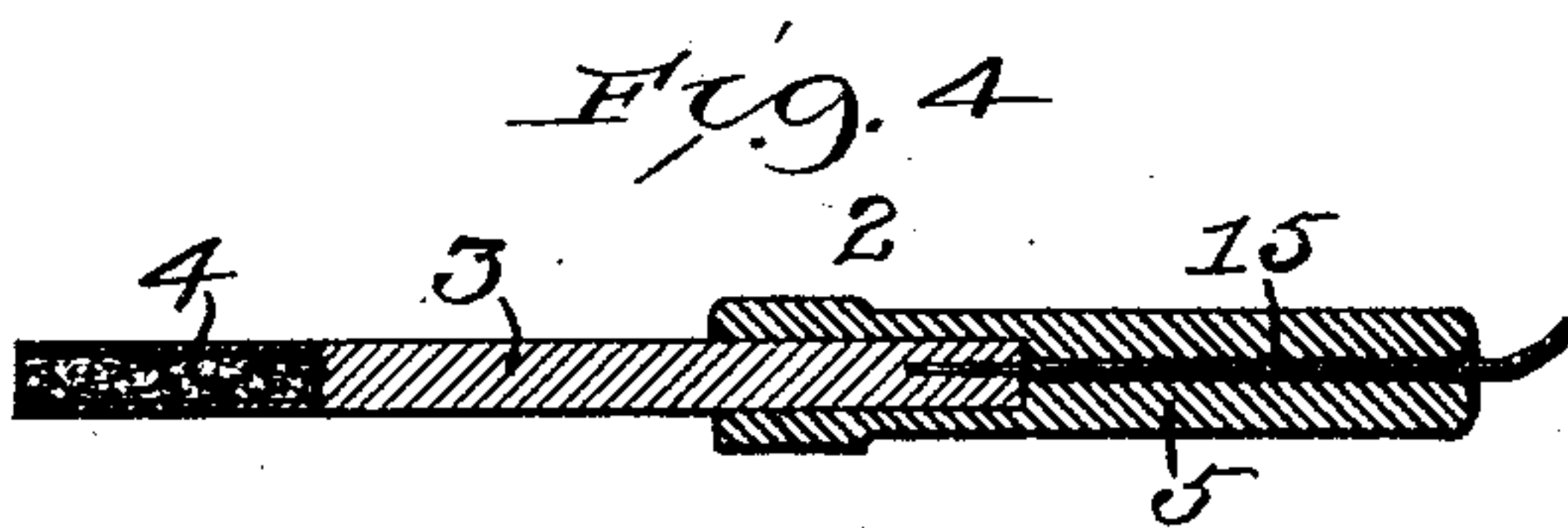
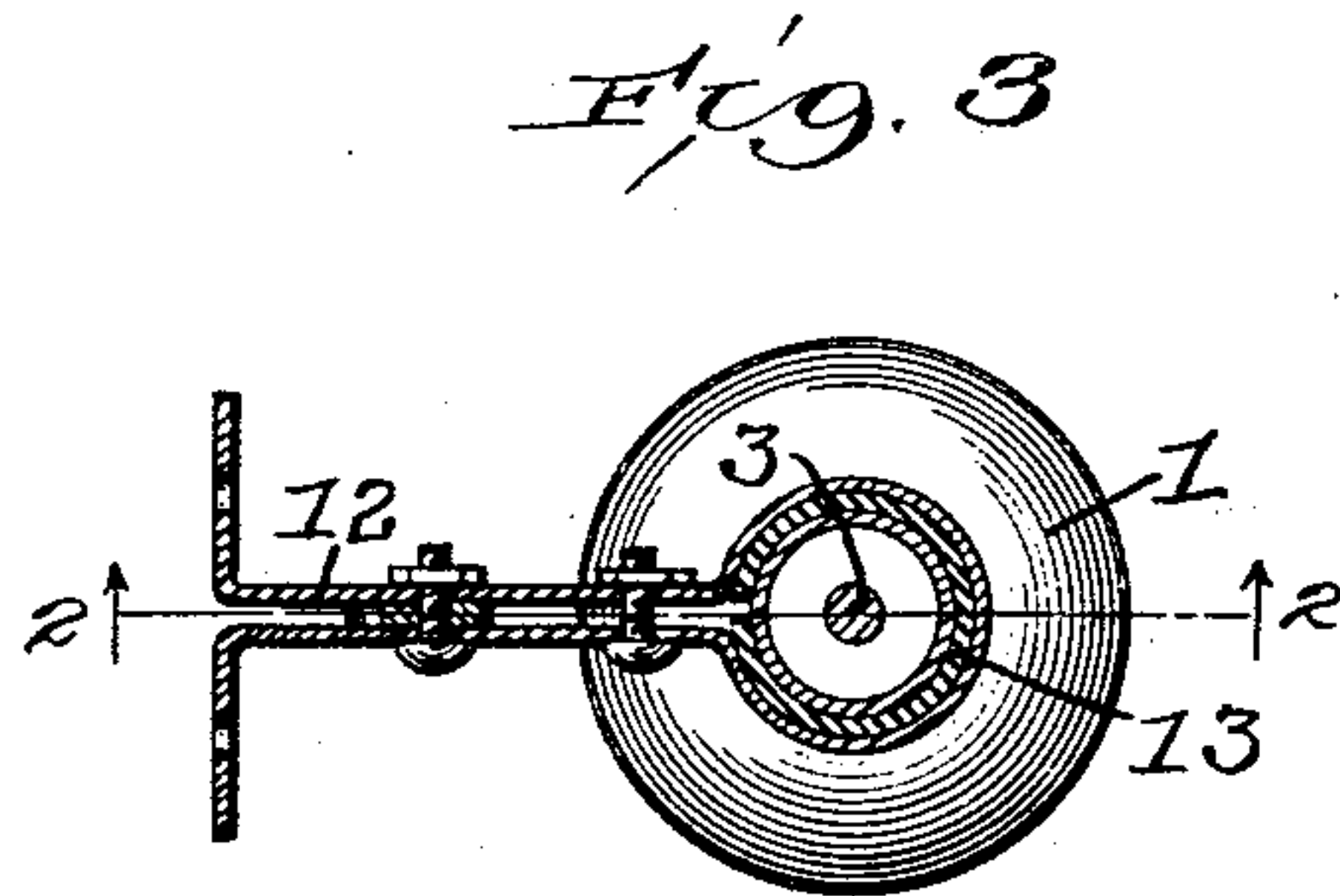
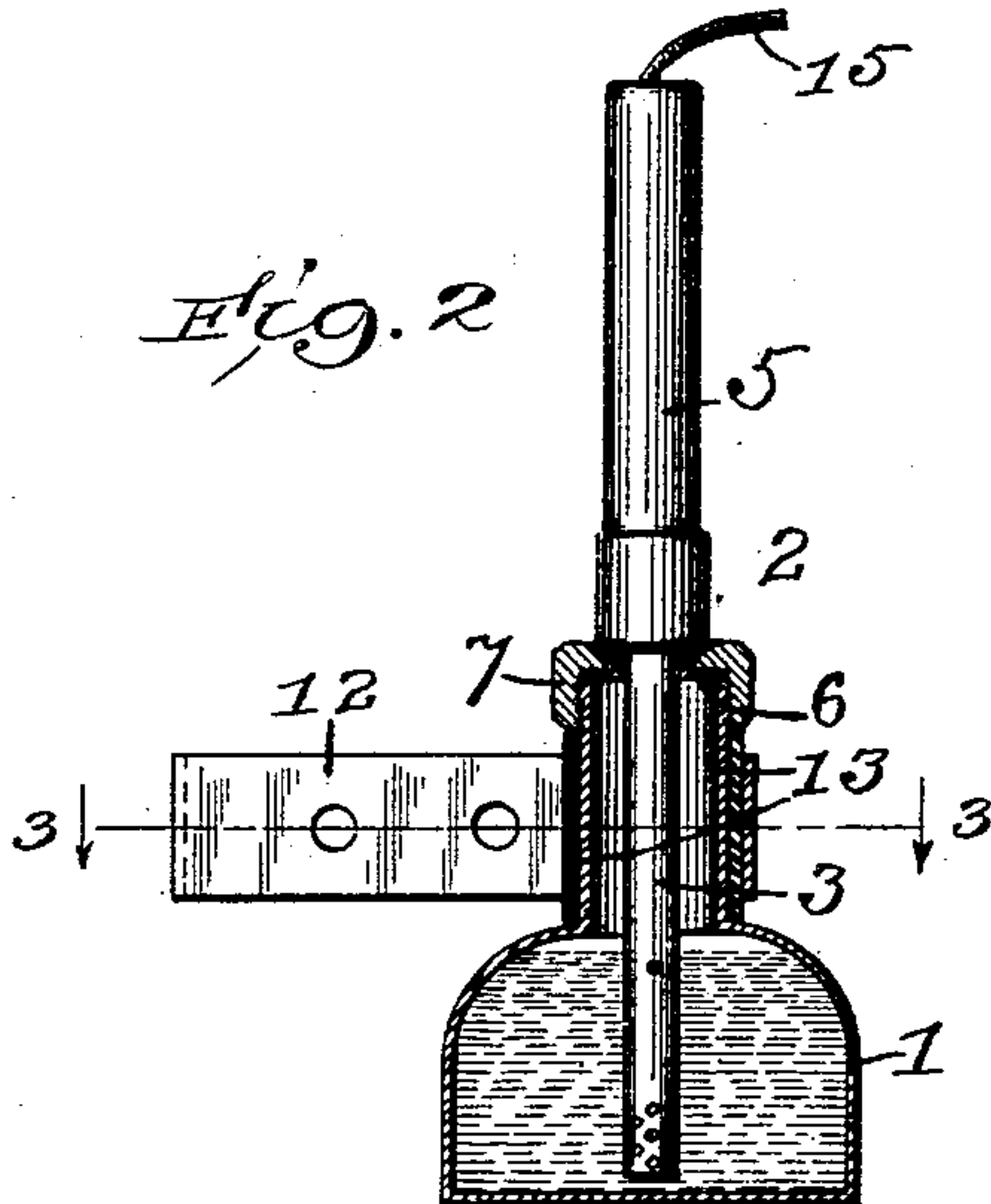
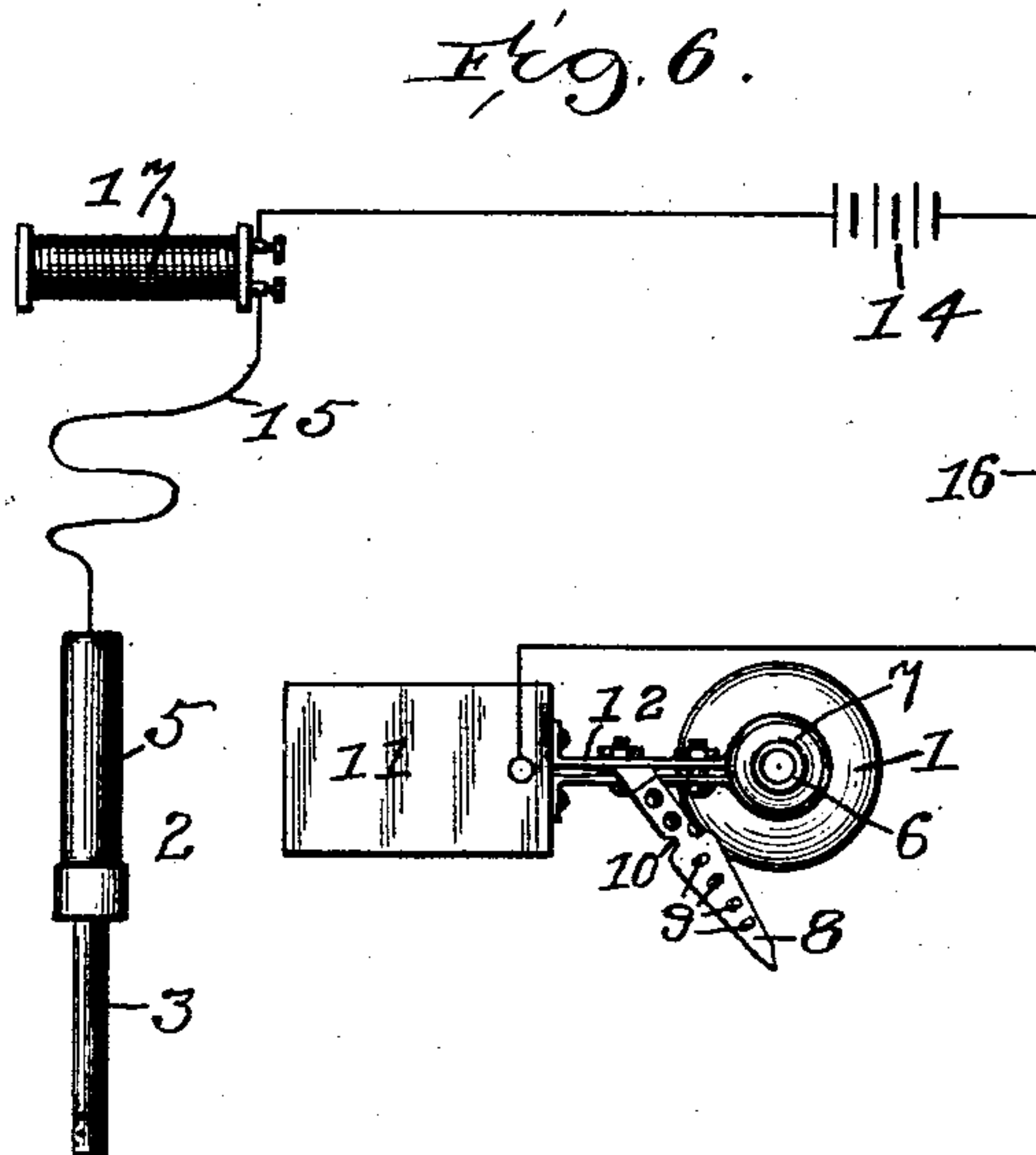
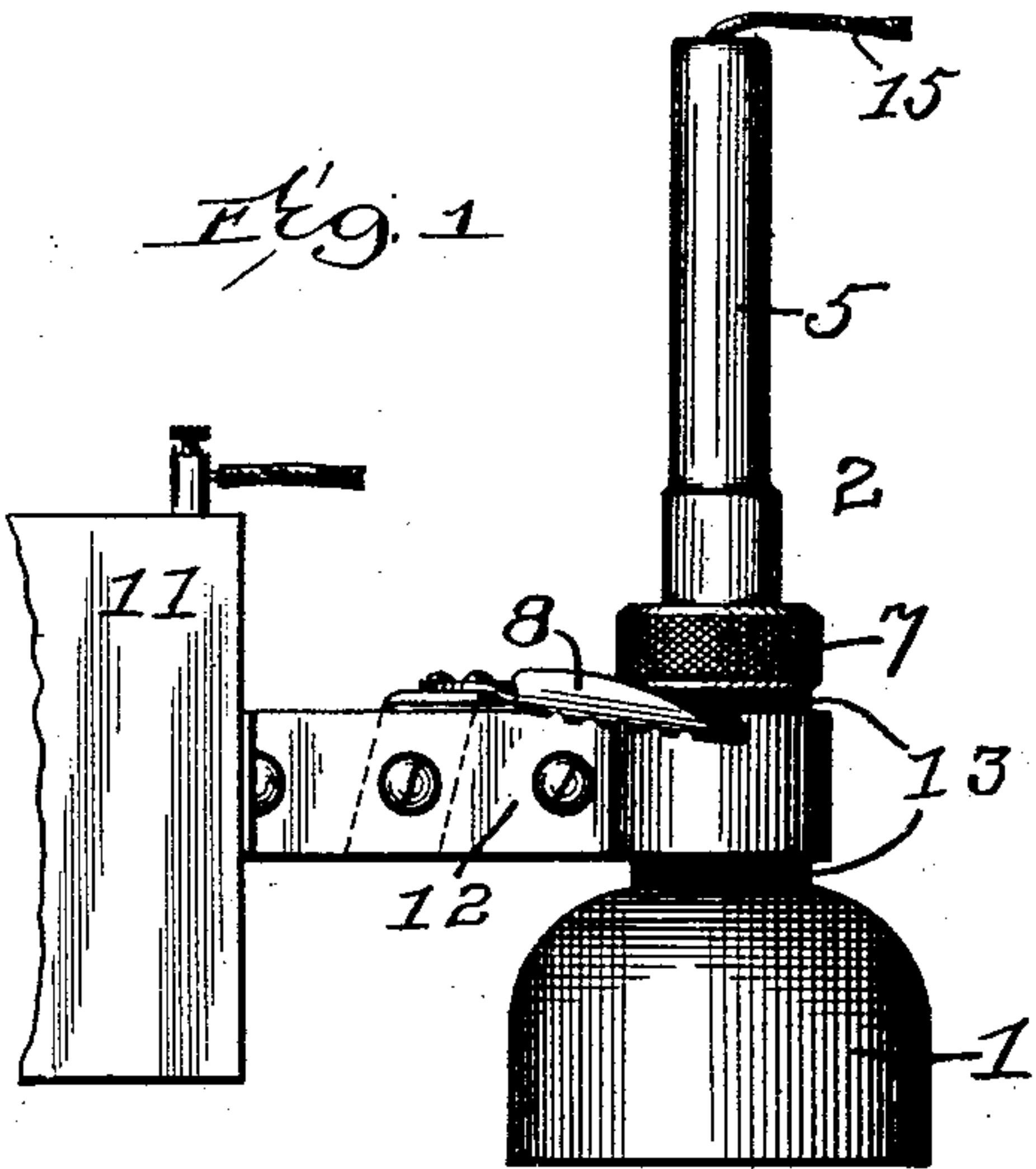
No. 713,305.

Patented Nov. 11, 1902.

C. A. HOLDRIDGE.  
ELECTRICAL IGNITING DEVICE.

(Application filed Sept. 18, 1901.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

CLARENCE A. HOLDRIDGE, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR OF  
ONE-HALF TO JOHN A. SMITH, OF CHICAGO HEIGHTS, ILLINOIS.

## ELECTRICAL IGNITING DEVICE.

SPECIFICATION forming part of Letters Patent No. 713,305, dated November 11, 1902.

Application filed September 16, 1901. Serial No. 75,472. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE A. HOLDRIDGE, a citizen of the United States, and a resident of Chicago Heights, in the county of Cook and State of Illinois, have invented an Improved Electrical Igniting Device, of which the following is a specification.

This invention relates to igniting devices, and relates particularly to electrical igniting devices especially designed and adapted for use as cigar-lighters.

The object of the invention is to provide an electrical igniting device which will be simple, cheap, and economical and reliable in its operation.

An igniting device of my invention consists of the various features, combinations of features, and details of construction hereinafter described and claimed.

In the accompanying drawings an igniting device of my invention is fully illustrated.

Figure 1 is a side view of an igniter of my invention. Fig. 2 is a vertical sectional view thereof on the line 2 2 of Fig. 3. Fig. 3 is a plan section on the line 3 3 of Fig. 2. Figs. 4 and 5 are enlarged detail views, and Fig. 6 is a diagrammatic view showing the electrical connections of the igniter.

Referring now to the drawings, 1 is a flask or bottle adapted to contain alcohol, gasoline, or other inflammable substance, and 2 is a match designed to be dipped into said bottle to become charged with a small quantity of the inflammable contents thereof in a familiar manner.

The bottle 1 may be made of glass, metal, or other suitable material and is designed to be supported either independently upon its own base or secured as an attachment to a cigar-cutter or other fixed support.

The match 2 preferably consists of a rod 3, the lower end of which is tubular and is packed with incombustible fiber 4—as asbestos, mineral wool, or the like. Preferably, also, the tubular portion of said rod is perforated, thus allowing free access of the contents of the flask or bottle 1 to the packing 4 when the end of said match is immersed therein. A handle 5, of hard rubber or other non-conductor of electricity, is secured to the upper end of said rod 3.

In the preferable construction shown also a diaphragm 6, of rubber or other elastic material, is secured over the mouth of the flask or bottle 1, said diaphragm being provided with an opening which is slightly smaller than the rod 3. The elasticity of said diaphragm will permit the rod 3 to be inserted there-through, while the edges thereof will closely embrace the sides of said rod and will wipe superfluous combustible from the surface thereof, thus preventing the formation of a drop of liquid at the end of said match, which by falling would occasion waste and might injure the object on which it fell and might interfere with the designed operation of the igniter. As shown, said diaphragm is secured in the recess of a cap 7, threaded to the mouth of the bottle, being clamped between the bottom of said recess and the edges of the mouth of the bottle. Said cap 7, being removable, provides for conveniently filling said bottle.

Supported preferably directly upon the flask or bottle 1 in such manner as to be electrically insulated therefrom is an electrical conductor consisting, preferably, of a metal plate 8, terminating in a point and having up-turned lateral edges. Formed at the bottom of the hollow of said plate are holes 9, which impede the flow of liquid toward the point of said plate. Preferably, also, said plate is cut away or weakened, as shown at 10, adjacent to its point of attachment, so that it will bend under a slight pressure and, being resilient, will spring back to its normal position when released. Important advantages result from this construction. The plate 8 being pointed, a better spark is obtained than with a larger terminal. The shape of the plate facilitates lighting the match, as in drawing the match along said plate it naturally follows the hollow thereof until it reaches the point of said plate. Superfluous liquid, which might accumulate on the point of said plate and prevent the formation of the spark, will run toward the bottom of the hollow in said plate, where its flow will be retarded by the holes 9.

In the preferable construction shown the flask or bottle 1 is designed to be secured as an attachment to a cigar-cutter (indicated at 11) by means of a metal bracket 12, secured to the neck of said flask or bottle, said bracket



being electrically insulated from said bottle by means of a sleeve or collar 13, of hard rubber or other suitable non-conductor. As shown also, the plate 8 is attached to said bracket 12, so as to be in direct contact therewith.

My igniter is electrically connected with a battery or other electric generator (indicated at 14) in the following manner: Attached to the opposite poles of said battery are wires 15 16, which are respectively connected to the rod 3 of the match 2 and to the plate 8. As shown, the wire 15 is soldered to the end of said rod 3 and extends through a hole formed lengthwise through the handle 5 of said match, and the wire 16 is secured directly to the casing of the cigar-cutter 11, which is made of metal. A spark-coil (indicated at 17) is introduced into the electrical circuit.

The rod 3 is preferably made of steel and the plate 8 of brass, as a better spark is thereby obtained.

The operation of my improved igniter is as follows: When it is desired to ignite the match 2 the end of the rod 3 is immersed in the contents of the flask or bottle 1. It is then withdrawn therefrom, the diaphragm 6 wiping all superfluous combustible from said rod. The end of said rod 3 is then drawn along the plate 8, thus completing the electrical circuit, and is snapped off from the end thereof, thus breaking the circuit and forming a spark which will ignite the combustible with which the packing 4 is saturated, all in a familiar manner. The spring of the plate 8 will operate to break the circuit more quickly, thus insuring the forming of a spark.

I claim—

1. An electrical igniter comprising a match and a metallic surface electrically connected, respectively, with an electrical generator, said match comprising a tubular metal rod and an absorbent packing contained within the bore thereof, substantially as described.

2. An electrical igniter comprising a match and a metallic surface electrically connected, respectively, with an electrical generator, said match comprising a perforated tubular rod and absorbent packing contained within the bore thereof, substantially as described.

3. An electrical igniter comprising a match and a metallic plate electrically connected, respectively, with an electrical generator, said plate terminating in a point and having upturned lateral edges and being provided with a hole or holes in the hollow formed thereby, substantially as described.

4. An electrical igniter comprising a match and a resilient metallic plate electrically connected, respectively, with an electrical generator, said plate terminating in a point and the lateral edges thereof being upturned and being provided with a hole or holes formed in the hollow thereof, substantially as described.

5. An electrical igniter comprising a match

and a metallic plate electrically connected, respectively, with an electrical generator, said match comprising a tubular metal rod and an absorbent packing in the bore thereof, and said plate terminating in a point and having upturned edges and being provided with a hole or holes in the hollow thereof, substantially as described.

6. An electrical igniter comprising a match and a resilient metallic plate electrically connected, respectively, with an electrical generator, said match comprising a perforated tubular metal rod and an absorbent packing in the bore thereof, and said plate terminating in a point and having upturned lateral edges and provided with a hole or holes in the hollow thereof, substantially as described.

7. An electrical igniter comprising a flask or bottle, an elastic diaphragm secured to the mouth thereof provided with an opening, a match and a metallic plate, electrically connected, respectively, with an electrical generator, said match comprising a metal rod adapted to be inserted through the opening in said diaphragm, substantially as described.

8. An electrical igniter comprising a flask or bottle, an elastic diaphragm secured to the mouth thereof provided with an opening, a match and a metal plate electrically connected, respectively, with an electrical generator, said match comprising a perforated, tubular rod and an absorbent packing in the bore thereof and said plate terminating in a point and having upturned edges and provided with a hole or holes in the hollow thereof, substantially as described.

9. An electrical igniter comprising a flask or bottle, an elastic diaphragm secured to the mouth of said flask or bottle provided with an opening, a match and a metal plate electrically connected, respectively, with an electrical generator, said match comprising a tubular metal rod and an absorbent packing in the bore thereof, and said plate being supported upon the said flask or bottle, substantially as described.

10. An electrical igniter comprising a flask or bottle, an elastic diaphragm secured to the mouth thereof, a match and a metal plate electrically connected, respectively, with an electrical generator, said match comprising a tubular metal rod and an absorbent packing in the bore thereof and said plate being secured directly to and electrically insulated from said flask or bottle, substantially as described.

11. In an electrical igniter, the combination of a flask or bottle, an elastic diaphragm secured to the mouth of said flask or bottle provided with an opening, a metal bracket secured to the neck of said flask or bottle, means to insulate said bracket from said flask or bottle, a metal plate secured to and in contact with said bracket, said plate terminating in a point and having upturned edges and provided with holes in the hollow thereof, a



match comprising a perforated tubular rod,  
an absorbent packing in the bore thereof and  
a handle of non-conducting material, said rod  
and said metal plate being electrically con-  
5 nected, respectively, with an electrical gen-  
erator, substantially as described.

In testimony that I claim the foregoing as

my invention I affix my signature, in presence  
of two subscribing witnesses, this 20th day of  
August, A. D. 1901.

CLARENCE A. HOLDRIDGE.

Witnesses:

JOHN A. McKEOWN,

B. M. PAYNE, Jr.