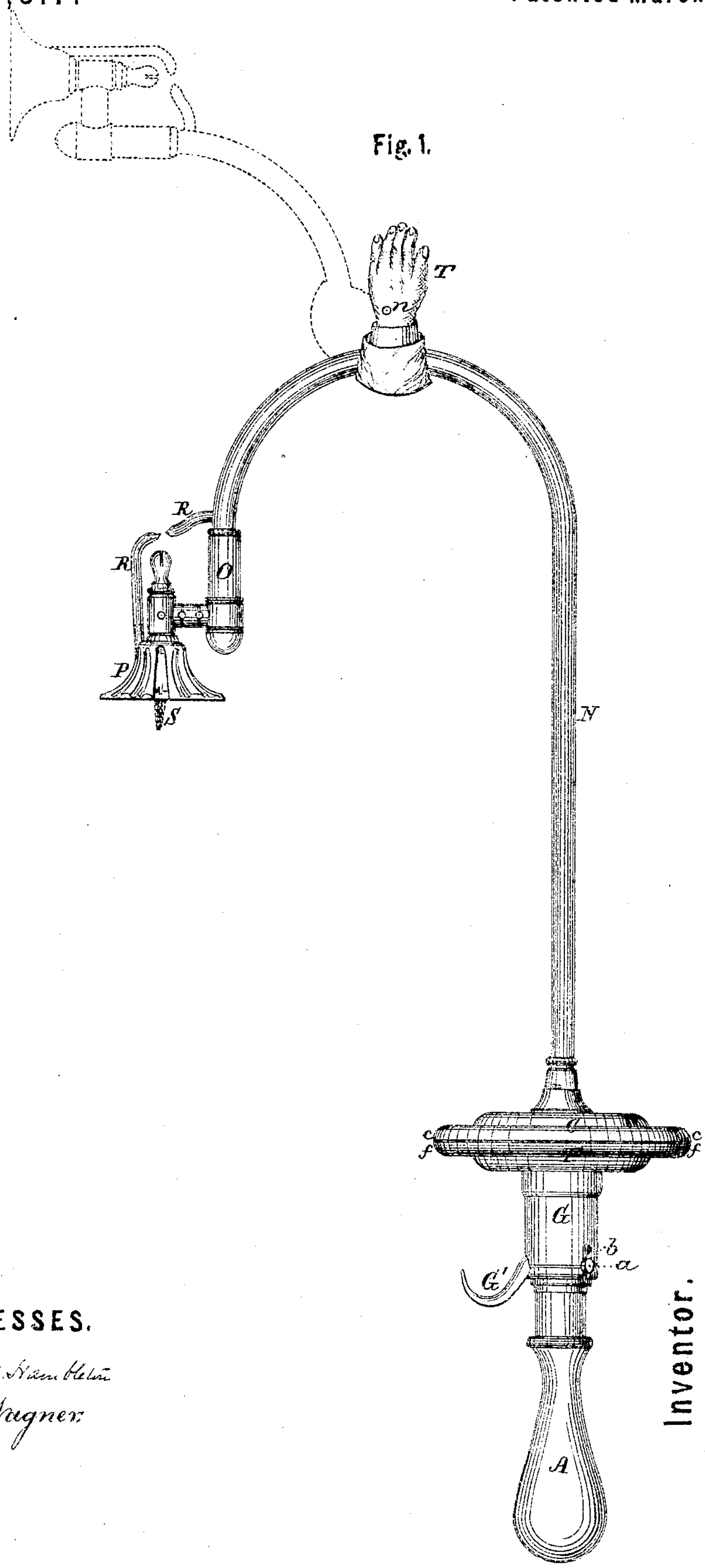
WILLIAM W. BATCHELDER. 2 Sheets – Sheet I.

Improvement in Electric Torches for Lighting Gas, &c.

No. 124,317. Patented March 5, 1872.

Fig. 1.



WITNESSES.

Francis A. Hamblin

Ernst Wagner

Inventor.

W. W. Batchelder
by Johnson Klauke & Co
his Attorneys.

2 Sheets – Sheet II.

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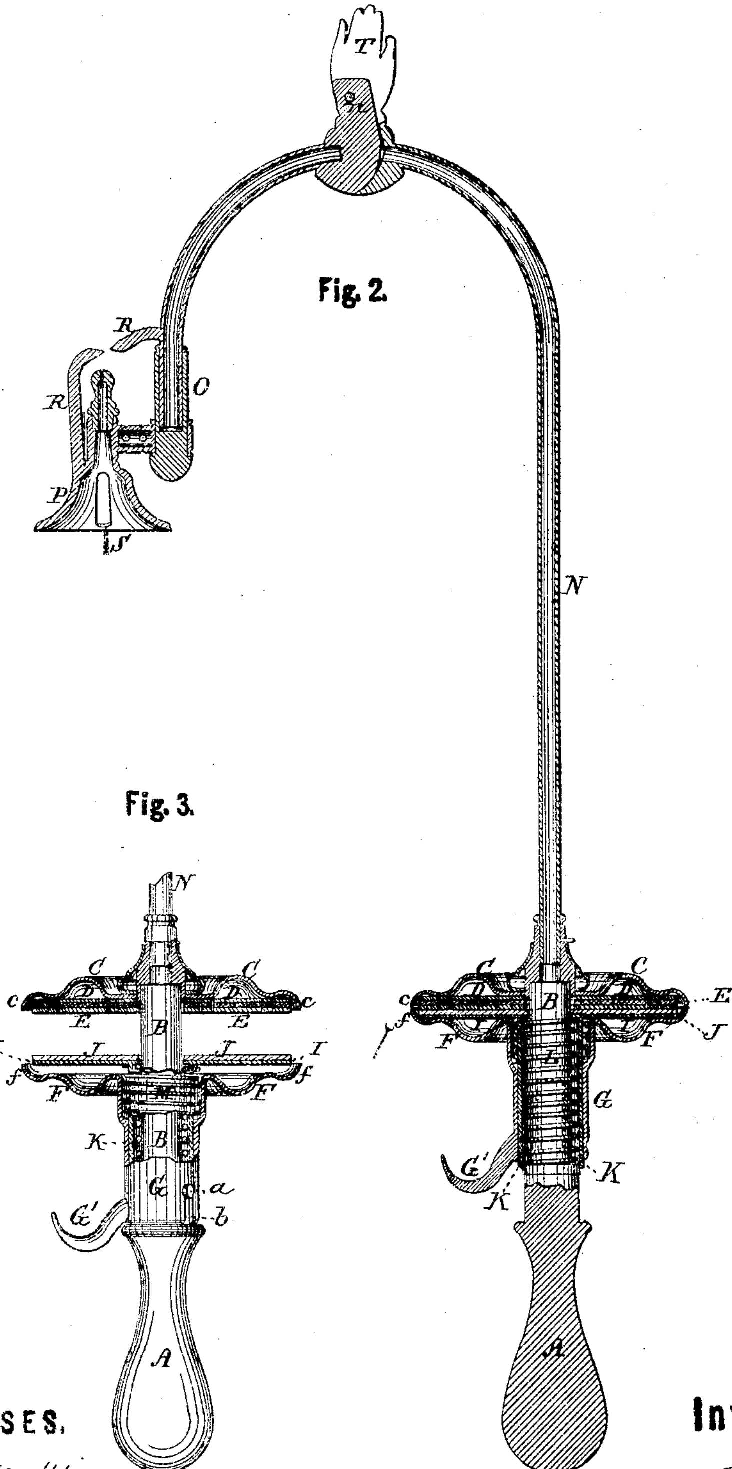

WITNESSES.

Francis H. Hambleton
J. Wm. Wagner.

Inventor.

W. W. Batchelder
by Johnson Klaucke & Co
his Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM W. BATCHELDER, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRIC TORCHES FOR LIGHTING GAS, &c.

Specification forming part of Letters Patent No. 124,317, dated March 5, 1872.

To all whom it may concern:

Be it known that I, WILLIAM W. BATCHELDER, of the city, county, and State of New York, have invented certain new and useful Improvements in Electric Torches, of which the following is a specification:

My invention relates to a hand device or torch for lighting gas by the generation of an electric current; and in the accompanying drawing Figure 1 represents an elevation of such a torch, embracing my invention. Fig. 2 represents a sectional view of the same; and Fig. 3 represents a similar section, showing the generating-surfaces as separated.

Upon a handle, A, I arrange a hard-rubber stem, B, upon the upper end of which is mounted a fixed shell, C, provided with an interior metallic disk, D, having its surface cushioned with any suitable material, to which, and the disk D, is attached a leather facing, E. It is highly important to have this leather facing so attached that its surface will be slightly spongy or yielding, and this I accomplish by sewing the same to the disk D, which latter for this purpose is provided with suitable holes, through which the thread passes, thereby not only producing a very cheap means of securing the leather facing, but allowing it to yield at any point of its surface. Upon the stem B a movable shell, F, is arranged on a sleeper, G, which is also secured to an interior metallic sleeve, K. The movable shell F is capable of having a compound movement upon the stem B—a rotary and an axial one—for a purpose to be presently explained. This movable shelf F is also provided with a metallic disk, I, to which a hard-rubber disk, J, is secured, the surface of which is brought into contact with and separated from the leather disk E in generating and liberating the electric charge. The leather disk E and the hard-rubber disk J are alike in size, as are also the shells C and F, the latter being each provided with a flange, *c f*, which bear upon each other when the shells come into contact with each other. The rubber disk J is mounted upon the interior sleeve K, which is connected to the outer sleeve G of the movable shell by means of a pin, *a*, projecting through a slot, *b*, in the sleeve G, in order to effect the simultaneous turning movement of the sleeve K with its rubber disk and shell F, and at the same time admit of their independent movement to effect their separation from the fixed shell C. This independent movement is of the highest importance, as by it the separation of the metallic connections C and F is effected in advance of the separation of the generating surfaces E and J, in order to prevent the escape of the electricity back through the lips *c f* of the shells, thereby insuring the passage of the electric spark to the lighter. In the example shown I accomplish this independent movement by means of moving one sleeve upon the other to a limited extent, which is controlled by the pin *a* and slot *b*, which lock them together. The limit of this movement of the shell being reached, and the metallic connection broken, the continuance of the axial movement of the sleeves G and K, of course, effects the separation of the generating-surfaces to liberate the electric spark. The electrical current is generated by a slight revolving movement of the hard-rubber disk J in contact with the leather disk E, the charge being held upon the surface of the hard-rubber disk J by means of its metallic back I, so as to give out successive sparks every time the rubber and leather surfaces are brought into contact with each other; the spark passing through the fixed shell C into the lighting portion of the torch by means of the contact of the lips of the movable and the fixed shells. The rotary movement is effected by holding the handle with one hand, and turning the sleeves G and K with the other upon their stem B; and the separation of the shells and generating-surfaces is made by means of a thumb-piece, G′, attached to the outer sleeve G, while the movement which forces the shells toward each other is effected by means of interior springs L and M; the spring L acting upon the stem B to force up the rubber disk J, and the spring M acting upon the inner sleeve K to bring the flanges or lips *c f* of the shells together and into contact with each other. From the fixed shell C rises the metallic conductor N, which may be of any desired shape or length, and which terminates in an insulated end, O, from which projects, laterally, a metallic lighter, P, arranged to embrace the burner, and having its upper portion slotted or perforated to insure the escape of the gas from said lighter. Immediately over the perforated point of the lighter P, two conductors, R, are arranged so as to have the break in the metallic connec-

tion immediately over the point where the gas escapes; one of these conductors R extending from the metallic lighter, and the other from the main conductor N. The advantage of having the lighter P to one side of the main conductor is to protect the insulator from the heat and soot of the flame; and this protection afforded to the insulated end O is of the greatest importance, and renders the device perfect, as the insulated end O cannot, therefore, be made to conduct the spark either by being heated or covered by soot. The conducting-stem N is jointed, as shown at *n*, or otherwise constructed so as to admit of the adjustment of the lighter P for use in any desired position. The lighter is, in the example shown, made bell-shaped, and is provided with a metallic link or chain, S, hanging from its circumference, so as to sag, the especial object and advantage of which is that, in using the torch with an insulating-tip burner, the contact of the chain or link will be effected with the burner below the said insulating-tip, and thereby always insure the connection with the earth, thus adapting the torch to any kind of burner in use. The lighter may be provided with any non-insulating arm, projection, or any pendent device, for insuring the connection of the lighter with the burner below the insulating-tip. The conducting-stem N is provided with a key-turner, T, to open the gas-cock when the latter is out of reach, and the torch, by this key-turner, is made much more complete and convenient.

Having described my invention, I claim—

1. The combination of the fixed and movable flat generating-surfaces E and J with the handle A, conductor N, and lighter P, essentially as described.

2. A portable electric torch in which the generating-surfaces are separated and connected by the axial movement of one upon its stem toward the other, essentially as described.

3. The combination of the metallic connections C F with the generating-surfaces E J, so constructed and arranged that the shell F shall have a separating movement in advance of and independent of the rubber disk J, essentially as and for the purpose described.

4. The combination and arrangement of the inner and outer sleeves G and K, or their equivalent, with their respective springs L and M and the thumb-piece G′, essentially as described.

5. In an electric torch, I claim the lighter P, arranged to one side of the insulated end O of the conductor N, for the purpose of protecting the same from both heat and matter, essentially as described.

6. In an electric torch, I claim the combination, with the lighter P thereof, of a suitable device for connecting the lighter with the burner below an insulated tip, essentially as described.

7. In an electric torch, I claim the conductor N, made adjustable, essentially as and for the purpose described.

8. In an electric torch, I claim the combination of the fixed and movable generating-surfaces E and J, the handle A, adjustable conductor N, insulated end O, laterally-projecting lighter P, and burner-connecting device S, the several parts being constructed, arranged, and operating essentially as described.

WILLIAM W. BATCHELDER.

Witnesses:
A. E. H. JOHNSON,
ALEX. A. C. KLAUCKE.