(No Model.)

F. H. LIPPINCOTT.

SOLDERING APPARATUS.

No. 513,518. Patented Jan. 30, 1894.

Fig. 1.

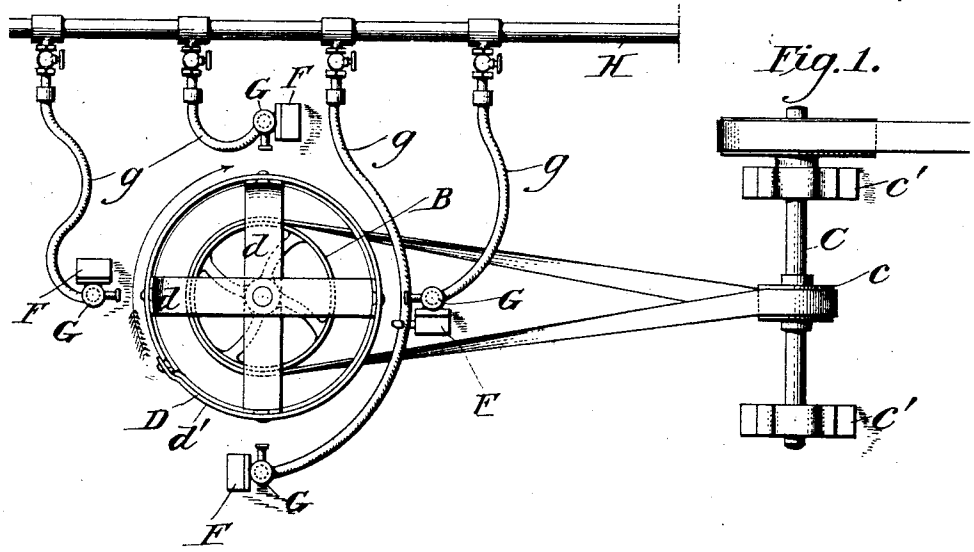
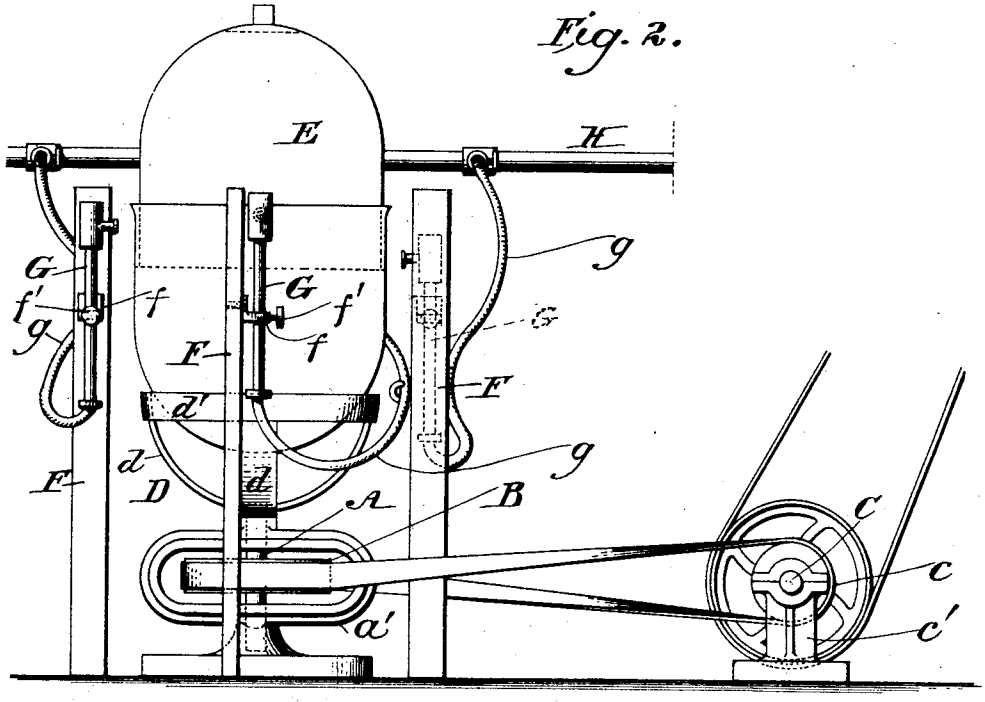


Fig. 2.



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THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

(No Model.)

G. A. ROLLINS.

COMMUTATOR.

No. 513,533. Patented Jan. 30, 1894.

Fig. 2.

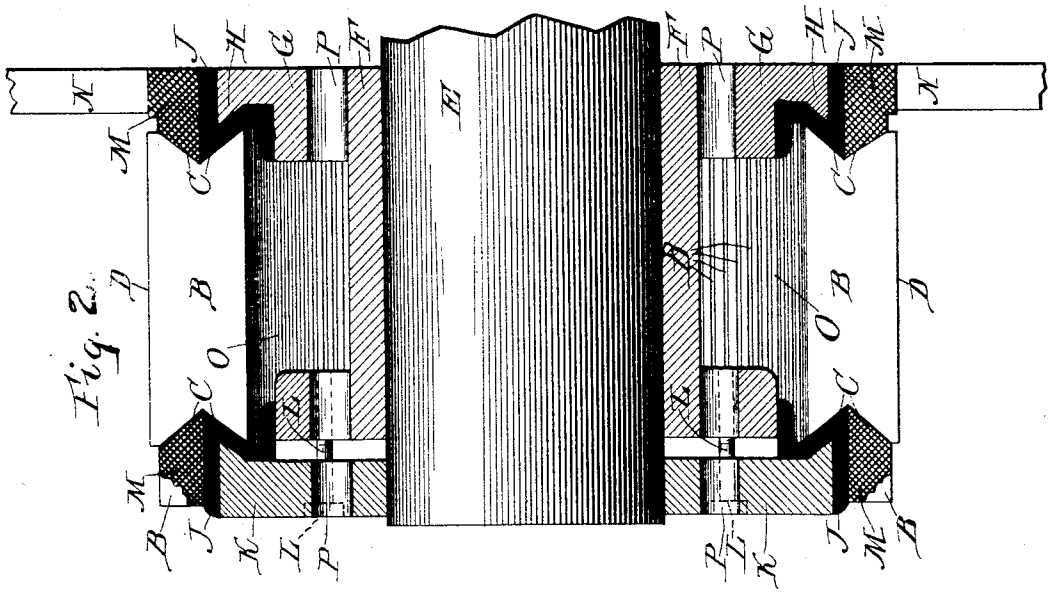
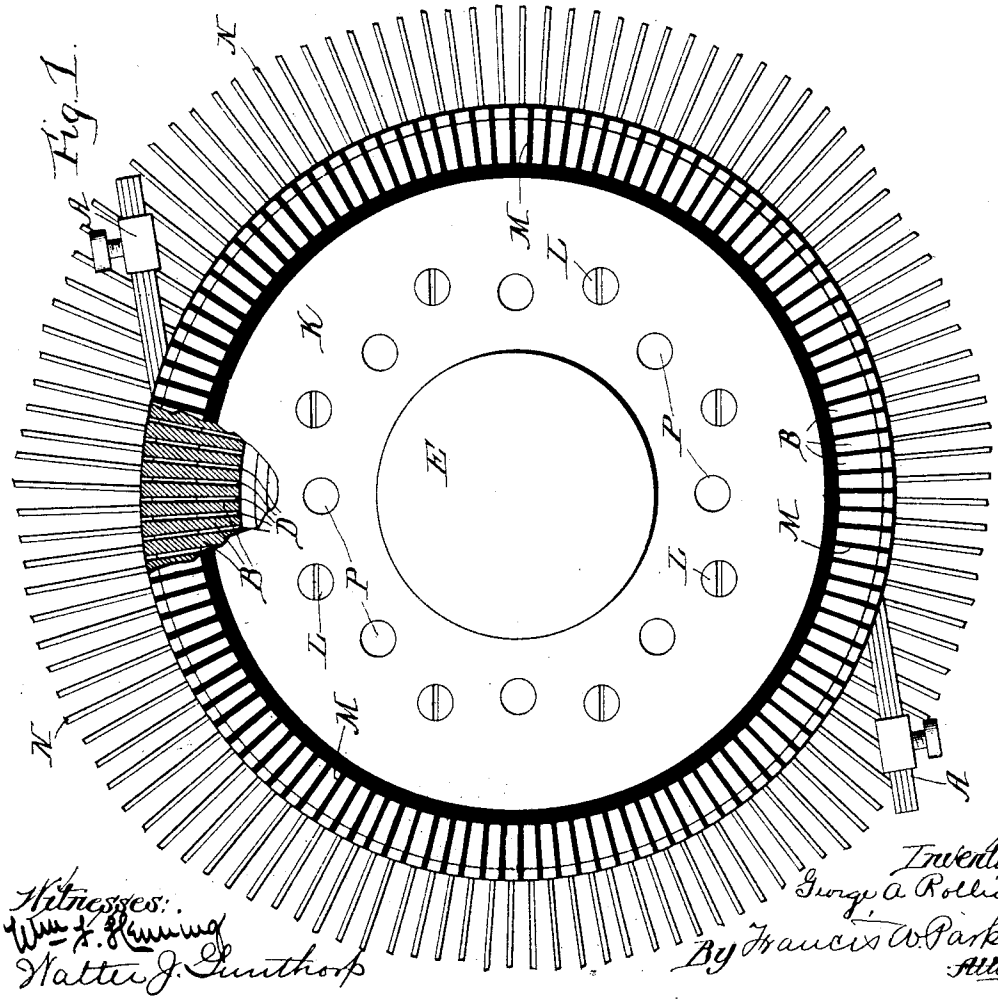


Fig. 1.



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UNITED STATES PATENT OFFICE.

GEORGE A. ROLLINS, OF CHICAGO, ILLINOIS.

COMMUTATOR.

SPECIFICATION forming part of Letters Patent No. 513,533, dated January 30, 1894.

Application filed April 11, 1893. Serial No. 469,950. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. ROLLINS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Commutators, of which the following is a specification.

My invention relates to commutators for dynamo-electric machines, and has for its object to provide means for insulating the commutator bars, and otherwise, to produce a cheap, simple, convenient and cool-running commutator. It is illustrated in the accompanying drawings, wherein—

Figure 1 represents a side elevation; and Fig. 2, a cross-section.

Like parts are indicated by the same letters in both the figures.

A A are the brushes, resting upon the commutator bars.

B B are the commutator bars preferably composed of copper, having each a V-shaped end, as indicated at C, and an elevated or projecting central portion D, through the greater part of its length.

E is a shaft on which the commutator is mounted; F, the hub of the commutator composed of the central cylindrical portions and the side rings G G.

H H are the projecting flanges on one of the rings G adapted to receive the insulation ring or portion J, which supports the hub of the commutator from the bars.

K is a ring at the opposite end of the commutator, and secured by screws, L, L, to the hub or the ring G so as to draw the parts all tightly together.

J J are insulation rings or parts separating the ring K from the commutator bars. The commutator bars are thus held securely in position by the engagement of the fiber with their V-shaped ends. They are separated at their outer extremities by insulation strips M M.

N N are the radial strips connected with the commutator bars, and making connection with the armature windings. By this means, it will be observed that the commutator bars are separated by apertures between them, which spaces have commonly been filled by some sort of solid insulation. I prefer the air insulation. It will also be observed that there is an annular space inside the ring of commutator bars, and outside the hub F. This space is indicated by the letter O. Transverse apertures P P opening into this annular chamber are drilled through, preferably from both sides, through the rings and hub portions so as to admit air from outside into the annular chamber.

I do not lay any stress upon the proportions, sizes, or numbers of the several parts, as of course these may be greatly varied without departing from the spirit of my invention.

The use and operation of my invention are as follows: Assuming that the parts are constructed substantially as shown, the air will enter through the several transverse apertures into the annular chamber O, and will pass thence between the several commutator bars, escaping in all directions and furnishing an effectual air insulation between the several commutator bars at the points where the brushes engage them. In this manner the bars are thoroughly insulated and the commutator itself is kept cool.

I claim as my invention the following:

1. In a commutator for dynamo electric machines, the combination of a series of commutator bars arranged on the circumference of a cylindrical commutator and secured and insulated at their ends and separated from each other along their middle portions by air spaces, with a supporting hub and annular air chamber therein, back of the commutator bars, and openings entering such annular chamber longitudinally with the axis of the commutator.

2. In a commutator for dynamo electric machines, the combination of a hub with a ring at one end, a series of commutator bars engaged between the hub at one end and a ring at the other; insulation to separate and support the ends of the commutator bars; an annular chamber between the hub and the inside of the bars; air spaces between the bars, and air apertures leading into the annular air chamber.

3. In a commutator for dynamo electric ma-

chines, the combination of a flanged hub, with a ring at one end; commutator bars V shaped at their ends, and secured between the flange and the ring; insulation strips and parts whereby the ends of the commutator bars are supported and insulated, and an air space consisting of passages which surround the hub, lead from outside into the hub, and lead between the several commutator bars.

GEORGE A. ROLLINS.

Witnesses:
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