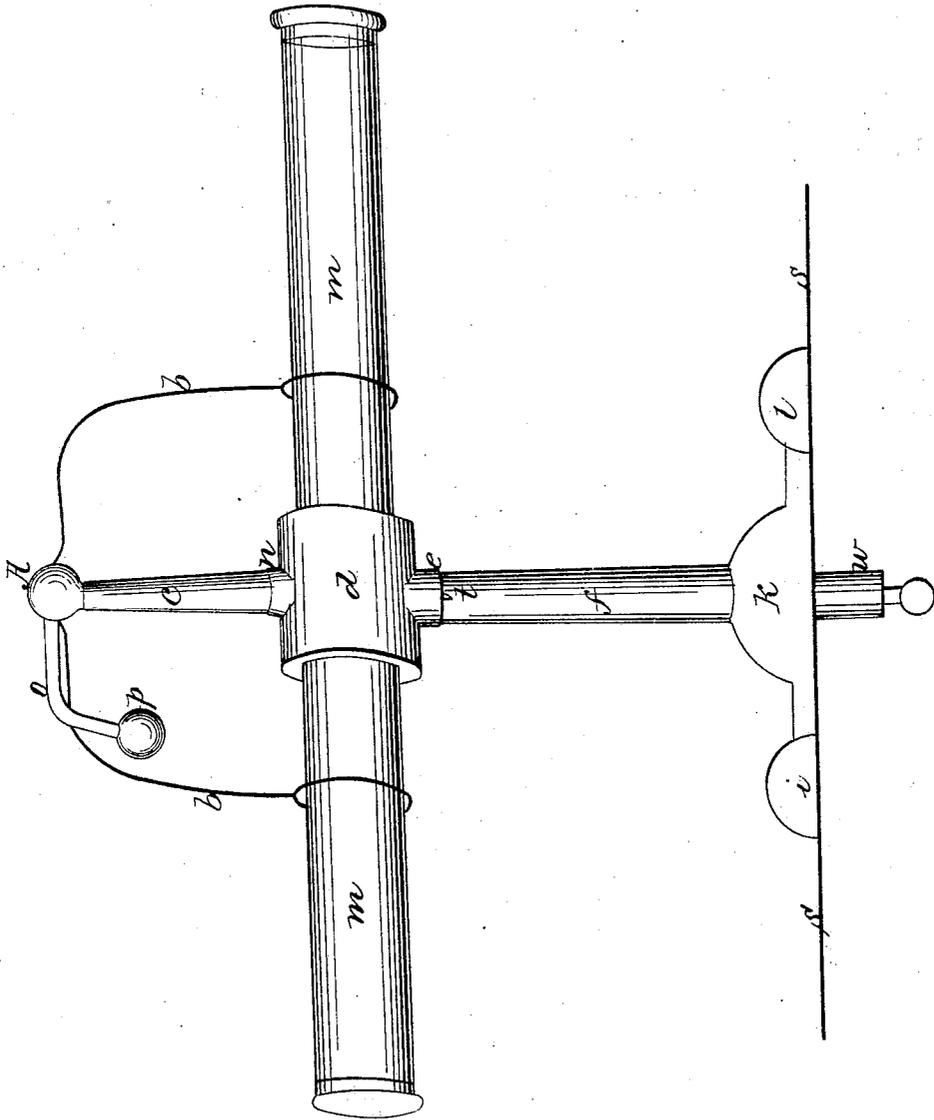


E. S. BLAKE.  
Electrical Apparatus.

No. 5,485.

Patented March 28, 1848.



# UNITED STATES PATENT OFFICE.

EDW. S. BLAKE, OF RESERVE TOWNSHIP, ALLEGHENY COUNTY, PA.

## IMPROVEMENT IN ELECTRICAL MACHINES.

Specification forming part of Letters Patent No. 5,485, dated March 28, 1848.

*To all whom it may concern:*

Be it known that I, EDWD. S. BLAKE, of Reserve township, in Allegheny county, of the State of Pennsylvania, have invented certain new and useful Improvements in the Apparatus for Exciting and Accumulating Electricity by friction; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, which drawing gives a perspective view of my improved apparatus.

The essential characteristic of my improvement consists in employing, for the electric, a tube or cylinder of glass supported by a fixed rubber which surrounds it, and in which it is to be moved back and forth in the direction of its axis, in distinction from the usual method of employing a glass cylinder or disk mounted upon gudgeons or journals supported in a frame and revolving about its axis. By means of this device I am enabled to reduce the several parts of the apparatus to such form that they can be made at much less expense and packed in a case of much smaller dimensions than the apparatus heretofore in use.

In the accompanying drawing, *s s* is the section of a common table on which the machine is supposed to stand, and to which it is secured by means of the common screw-clamp *w*.

*i k l* is the base or pedestal of the machine. This pedestal consists of a piece of wood or other material of sufficient length and breadth to insure the requisite stability, and is firmly secured to the upper jaw of the clamp which is let into its under side.

*f* is the insulating supporter of the rubber, consisting of a strong piece of glass rod or tubing the lower end of which is inserted and firmly cemented into the pedestal. *d* is the rubber. This consists of a band of thin metal, about three-fourths of an inch larger in diameter than the electric. A suitable quantity of elastic stuffing is placed around the inside of the band to produce the requisite pressure upon the electric, and the whole is then covered inside and outside, first with cloth, and then with silk, and the silk is coated with the usual amalgam. The band is provided with a socket, *e*, to receive the upper end of the supporter, *f*, which is firmly cemented into this socket. It is also provided with another socket, *n*,

into which a piece of glass tubing, *c*, is inserted and firmly cemented. The tube *c* serves as the insulating supporter of the conducting-wires, prime conductor, &c.

*m m* is the electric, which consists of a piece of common glass tubing, having its ends closed by stoppers cemented in, for the purpose of excluding dust, &c.

*A* is a brass ball provided with a projecting pivot, which is inserted and cemented into the upper end of the supporter *c*. This brass ball is perforated horizontally, in a direction parallel to the electric. The conducting-wire *b b* is passed through this perforation. It is of such size as to turn freely in it, and a short bend is made in the wire on each side of the ball to prevent it from moving longitudinally. Each end of the wire is bent downward, and made to terminate in a coil surrounding the electric, and at the distance of about two inches from the rubber. The coil is of about one-half an inch greater diameter than the electric, and is wound with thread or tape to keep it from rattling upon or scratching the electric. If preferred, the ends of the wire may be brought to an acute point and bent down so as to hang very near the surface of the electric. The brass ball *A* is also semi-perforated horizontally in a direction transverse to the electric, for the purpose of receiving the stem or pivot of the prime conductor.

*p o* is the prime conductor, consisting of a brass ball, *p*, into which the wire *o* is inserted, and secured at one end. The other end is screwed into the last named perforation in the ball *A*. The ball *A* is also semi-perforated vertically from the top, for the purpose of receiving the standard of an electrometer, or the pivot of a larger prime conductor, made in the usual form, if desired.

*t* is a loop upon the socket *e* to receive the chain which conveys the electricity to the rubber from the floor. (or outside of the jar) in accumulating positive electricity, or from an insulated body in electrifying negatively.

To operate this machine, the electric is to be held by the hand at one end, and passed back and forth from six to ten inches through the rubber, the chain being arranged in the usual manner in reference to the state of electrical excitement to be produced, whether positive or negative.

Having thus described my improved elec-

trical machine, I will now add that I have contemplated furnishing an insulating handle to the electric. I have contemplated regulating the pressure of the rubber upon the electric, by making the rubber-band in two pieces to be drawn toward each other by screws or otherwise, or by employing one or more curved pieces of metal interposed between the band and stuffing, which may be pressed upon the stuffing by screws passing through the band, or by other suitable means. I have also contemplated the insertion of wire into the caliber of the supporter *f*, in such manner that one end may be in contact with the rubber band, and the other with the screw-clamp, but so that it can be readily removed at pleasure. Then, in electrifying positively, the chain may be hooked into the head of the screw of the clamp, and in electrifying negatively the inserted wire is to be removed, and the chain is to be hooked into the loop *t*, as before described. I have also contemplated the employment of two or more separate rubbers at the distance of about twelve inches asunder, each sustained upon a separate insulating supporter inserted into the same or different pedestals, for the purpose of increasing the effect, and of preserving more

perfectly the linear direction of the motion of the electric.

In stating my claim, I am aware that in electrical experiments it has been common to use a glass tube to excite electricity by holding it in the hand, and passing it back and forth through a rubber held in the other hand. I am also aware that fixed rubbers and conducting-wires are used in conjunction with cylindrical electrics revolving on their axes in common electrical machines. I do not, therefore, claim these things, severally, as my invention in the above-described machine, but—

What I do claim, and wish to secure by Letters Patent, is—

The employment of a tubular or cylindrical electric moving in the direction of its axis, in combination with a fixed rubber, embracing, supporting, and guiding the same, and in further combination with the conducting-wires, the same being constructed and operating substantially as herein described.

EDW. S. BLAKE.

Witnesses:

JNO. E. PARKE,  
HENRY HANNEN.