(No Model.)

S. H. BARTLETT & H. E. WAITE.

GRINDING ELECTRODES FOR MICROPHONES.

No. 422,174. Patented Feb. 25, 1890.

Fig. 1.

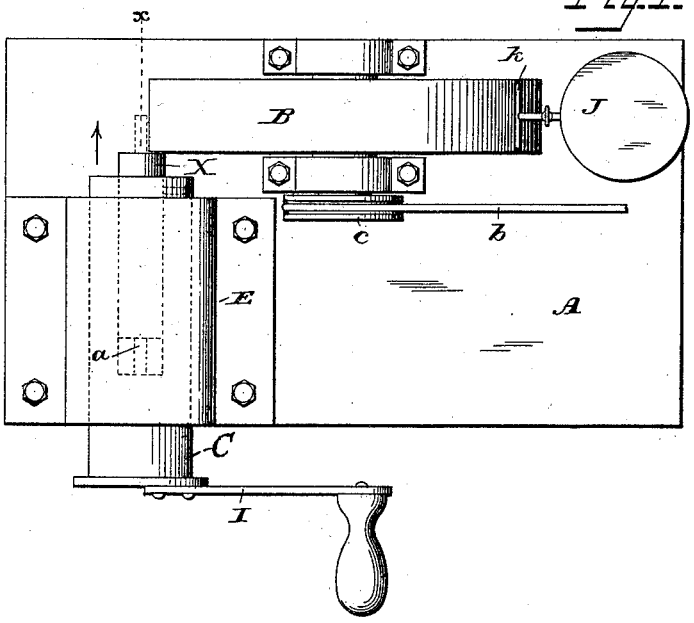


Fig. 2.

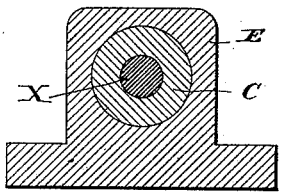


Fig. 3.

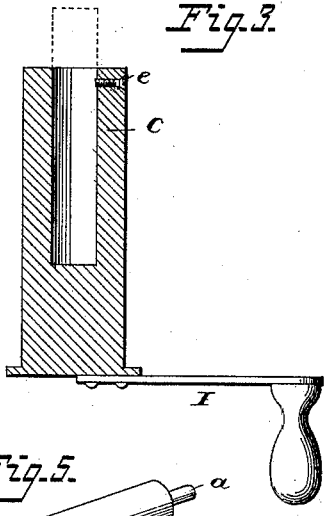


Fig. 4.

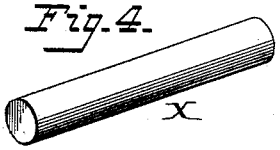
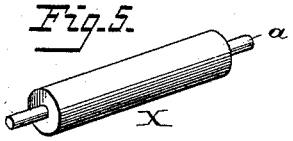


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL H. BARTLETT AND HENRY E. WAITE, OF NEW YORK, N. Y., ASSIGNORS TO THE WAITE & BARTLETT MANUFACTURING COMPANY, OF SAME PLACE.

GRINDING ELECTRODES FOR MICROPHONES.

SPECIFICATION forming part of Letters Patent No. 422,174, dated February 25, 1890.

Application filed June 9, 1884. Serial No. 134,352. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL H. BARTLETT and HENRY E. WAITE, citizens of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Grinding Electrodes for Microphones, of which the following is a specification.

Our invention relates to the grinding of electrodes for microphones; and it consists in subjecting a cylinder of carbon to the operations hereinafter fully set forth, so as to rapidly reduce the ends to any desired extent and without danger of fracture.

Our invention further consists of apparatus for effecting the desired operations upon the cylinder.

In the accompanying drawings, Figure 1 is a plan of apparatus which we employ in the manufacture of microphone-electrodes. Fig. 2 is a section on the line 1 2, Fig. 1. Fig. 3 is a longitudinal section of the holder. Fig. 4 is a perspective view of the carbon blank. Fig. 5 is a perspective view of the completed electrode.

It is usual in some classes of microphones to employ electrodes of carbon consisting of cylinders or pencils with terminal stems or fingers, as illustrated in Fig. 5. The manufacture of these electrodes each from one blank of carbon has proved to be difficult and expensive, as they must be made from cylinders or blanks of carbon of the shape of the blank X, Fig. 4, and the reduction of the blank at the ends to form the fingers *a*, owing to the hardness of the carbon, is difficult and apt to result in the fracture of the blank, and when such fracture ensues after a great part of the labor has been performed there is a considerable loss of time and labor, and consequent expense. The fracture is most apt to result as the electrode approaches completion, when the fingers have been reduced in size, as the cutter must bear upon the thin stems with sufficient force to cut away the surface without breaking them away from the main cylinder. Heretofore no mode of operation has been devised that would effect this result with certainty.

We have discovered that by using an emery-wheel traveling at the periphery at a high speed and supplied with water to keep it moist, and by cutting the blank in the direction of its length, we are enabled to cut the carbon with rapidity without subjecting the same to such pressure as to result in fracturing the material. The use of dry wheels will not effect the purpose; but we have found that when the wheel is moistened it has a peculiar capacity and special adaptability for acting upon carbon, and will cut it with great ease and rapidity. The carbon block is presented to the edge of the wheel and revolved and moved toward the wheel until reduced to the desired extent. An apparatus which we have found to be effective in these operations is shown in the drawings.

A is the frame, of suitable shape to support the bearings of the emery-wheel B, and of a sliding and rotating holder or cylinder C. The shaft of the wheel B is provided with a pulley *c*, receiving the driving-belt *b*, and the holder C fits a cylindrical socket or recess in the bearing-block E, and is provided with a handle or crank I, so that it may be both revolved and slid longitudinally in the bearing. The holder has an axial socket adapted to receive the carbon blank X, and a set-screw *e* serves to secure the blank in its position in the holder, in which case the axial line *x* of the blank, Fig. 1, will be a distance from the face of the wheel B equal to the radius of the stem or finger *a* to be formed at the end of the blank.

After the blank has been secured in the holder the latter is pushed longitudinally until its end is brought against the side of the wheel B, as shown in Fig. 1, and the longitudinal movement is then continued and a rotary movement also imparted, so that the cutting-pressure is mainly in the direction of the length of the blank, rather than radial, and there is less tendency to force the thin finger laterally from its connection with the block. A water-reservoir J is provided with a spout *k*, extending over the wheel B, so as to constantly supply the wheel with water. After one finger is cut at one end of the blank

the latter is reversed and the opposite end reduced in like manner. We have found that by this means the blanks can be cut with certainty and dispatch and with but little liability of breaking, so that the manufacture of the electrodes is rapidly and economically effected.

We do not limit ourselves to the use of the precise appliances shown and described, as it will be obvious that other means of presenting the blank to the wheel and moving it may be employed, and that the blank may be revolved and fed laterally instead of longitudinally, although the latter is much preferable.

We claim—

1. In the manufacture of electrodes for microphones, the method of which consists in presenting the end of a carbon cylinder to the side of a revolving wet abrading-wheel, with the axis of the carbon beyond the periphery of said wheel, and revolving and feeding the blank longitudinally, substantially as described.

2. In the manufacture of electrodes for microphones, the method of which consists in revolving and feeding a cylinder of carbon longitudinally with part of its end against the side of a revolving abrading-wheel, the axis of the cylinder being substantially parallel to the axis of the wheel and to one side of the periphery, substantially as and for the purpose described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL H. BARTLETT.
HENRY E. WAITE.

Witnesses:
WM. H. WOODHULL,
C. SPARMAN.