

(No Model.)

L. M. ERICSSON.
MICROPHONE.

No. 548,748.

Patented Oct. 29, 1895.

Fig. 1

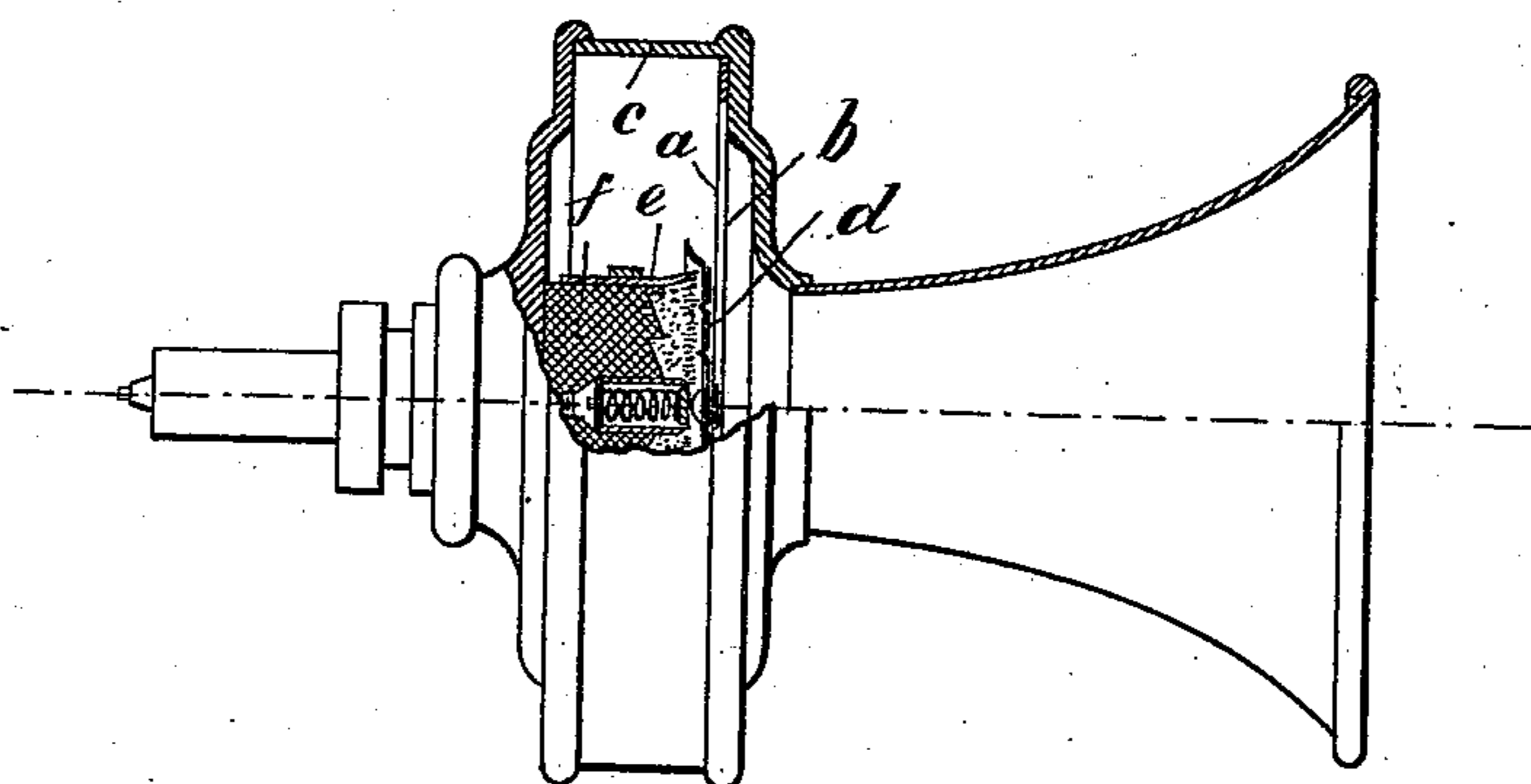
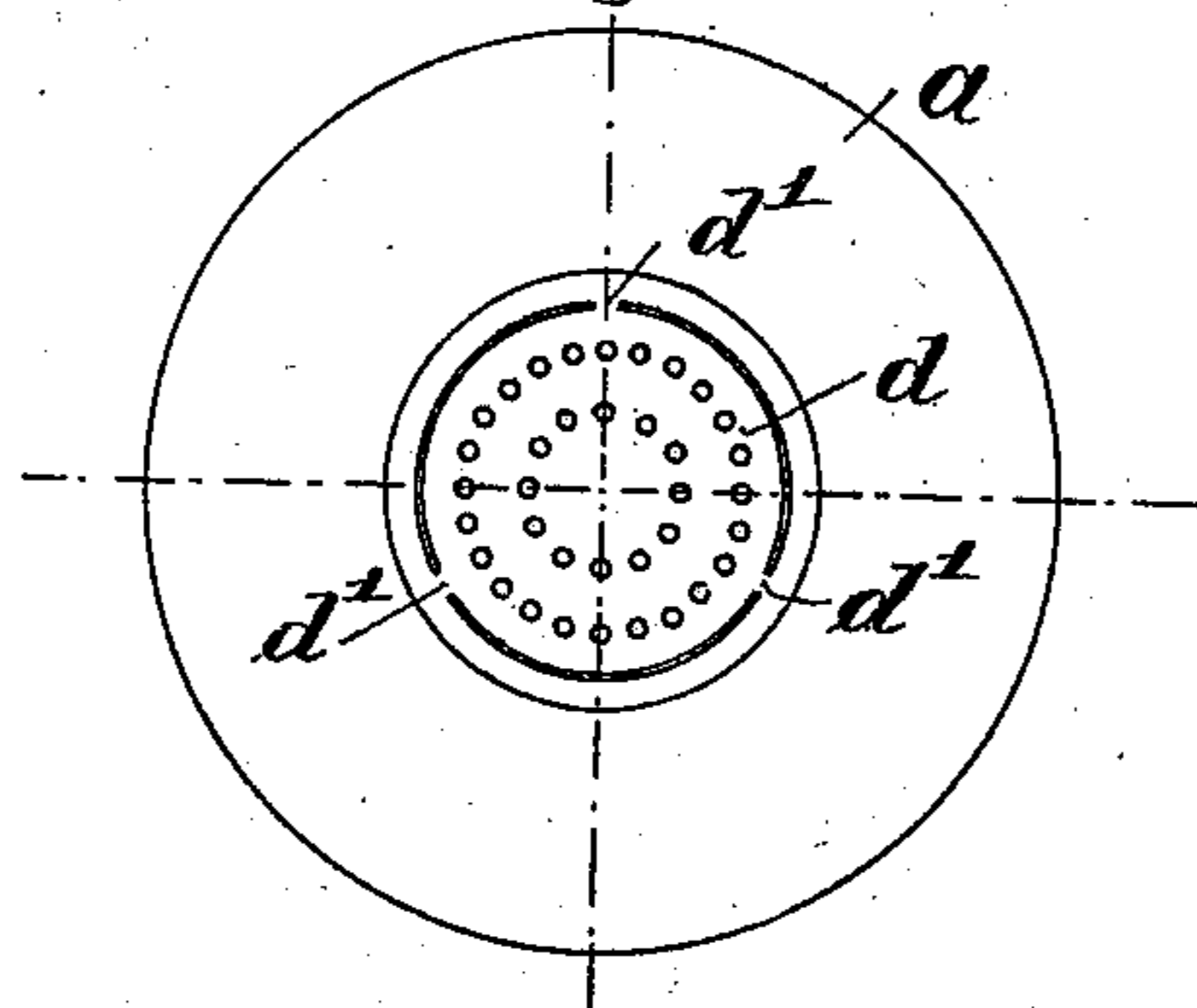


Fig. 2



Witnesses

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SPECIFICATION forming part of Letters Patent No. 548,748, dated October 29, 1895.

Application filed July 6, 1895. Serial No. 555,100. (No model.)

To all whom it may concern:

Be it known that I, LARS MAGNUS ERICSSON, manufacturer, a subject of the King of Sweden and Norway, and a resident of Thulegatan 5, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Microphones, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to microphones, and has for its object to arrange them so as to prevent moisture to enter into the microphone-casing through the speaking-funnel. Further, the invention has for its object to facilitate the vibrations of the diaphragm.

Figure 1 shows a side view of a microphone arranged according to this invention, while Fig. 2 shows a rear side view of the diaphragm.

For preventing moisture, especially the moisture contained in the breath, from entering beyond the diaphragm in the casing in which the diaphragm and other parts of the microphone are situated—the so-called “diaphragm-casing”—a thin disk *b* is placed in front of the diaphragm *a*—that is to say, between the diaphragm and the speaking-funnel. The border of the disk *b*, as well as that of the diaphragm *a*, is close to the wall *c* of the diaphragm-casing. The disk *b*, which must be elastic, so that it can be caused to vibrate in the same way as the diaphragm *a*, has no disadvantageous influence upon the microphone in acoustic regard, the effect of the same being rather the contrary; but if it is properly arranged and of a suitable quality it completely prevents the moisture from entering through the speaking-funnel into the diaphragm-casing or to the diaphragm itself with the breath during the speaking, which evidently is of great importance for the life of the microphone parts. Specially in carbon-grain microphones it is important to prevent moisture from entering into the diaphragm-casing, because the moisture causes a baking together of the carbon grains, so that the microphone will be unserviceable in a relatively short time. It has proved that caoutchouc is no suitable material for the disk, as it easily breaks; also, disks made of other materials—for instance, of glimmer—

have proved less suitable, among other reasons, because it is necessary to have a packing-ring of caoutchouc at their border, in which ring-fissures arise. A suitable material for the disk *b* is, for instance, silk impregnated with lacquer or another substance, which, when dry after the impregnation, causes the silk to form solid elastic disks. The impregnating material must be of such a nature that it does not become hard when it has dried, because if it hardens it is liable to crack and break, and in such event the moisture is no longer prevented from entering into the microphone-casing. It is to be observed that in the employment of these disks it is not necessary to have special packing-rings at their borders, but only to apply so much of the impregnating material in the forward corner inside the casing that a tight joint is obtained round the disk.

The arrangement for facilitating the vibrations of the microphone-diaphragm consists of the metal plate *d*, mounted on the rear side of the diaphragm, and the backwardly-bent rim of which surrounds the fore part of the soft ring *e* on the carbon block *f* and serves to prevent the carbon grains from falling out of the said ring *e*, which latter may be made of ripped-up felting. This rim of the plate *d* causes a stiffening of the plate, and thus, also, of the middle part of the diaphragm to which the plate is fixed, which stiffening would, if not provided for, prevent the diaphragm from vibrating with the desired degree of sensitiveness. For avoiding this inconvenience the plate is cut or slit at the joint between its central portion and its rim along the whole length excepting at the points *d'*, which form the connection between the central portion and the rim. In this manner the stiffening of the plate *d* by the rim is avoided, which in its turn has for consequence that the diaphragm can vibrate without hinderance on account of the stiffness of the rim.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A microphone comprising the casing, the vibrating diaphragm and a supplemental pro-

tecting diaphragm between the vibrating diaphragm and the mouth piece consisting of silk impregnated with lacquer or like substance, substantially as described.

- 5 2. A microphone comprising the casing, the diaphragm, the carbon grains, the ring for holding the same and the plate on the rear of the diaphragm having a backwardly bent rim surrounding the ring, said plate being slit or
10 cut at the joint between the rim and the cen-

tral portion of the plate, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LARS MAGNUS ERICSSON.

Witnesses:

CARL P. GERELL,
ERNST SVANGVIST.