

March 14, 1933.

R. K. SPOTTS

1,901,065

MICROPHONE WINDSHIELD

Filed March 27, 1931

2 Sheets-Sheet 1

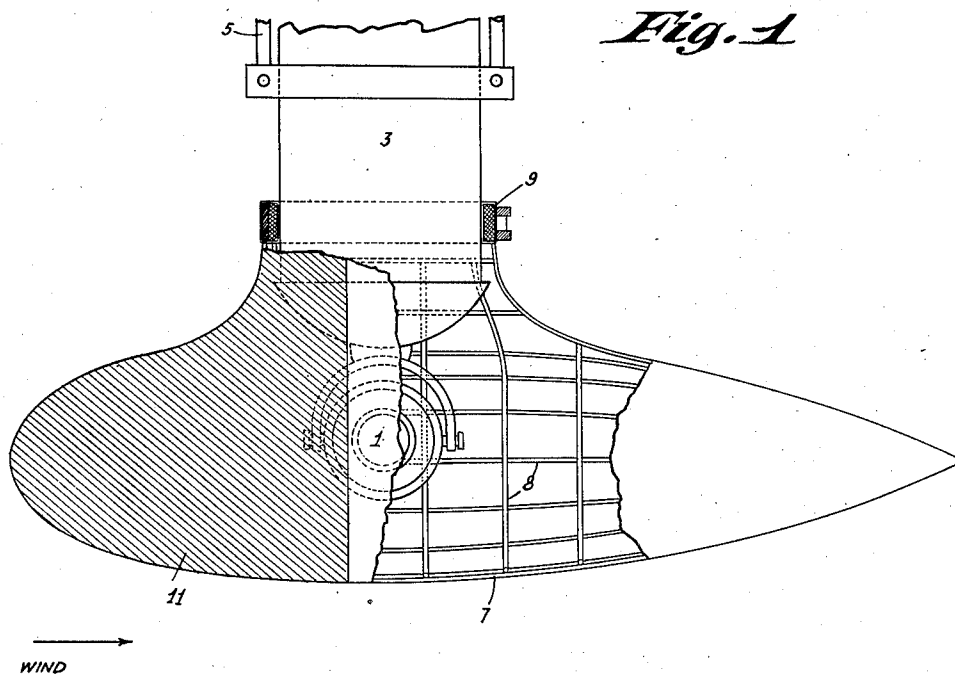
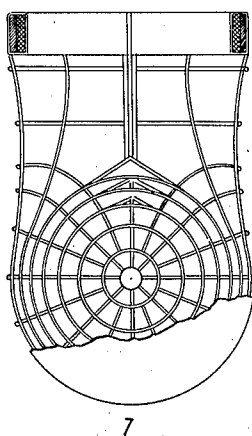


Fig. 2



INVENTOR
RALPH K. SPOTTS

BY

H. S. Grover
ATTORNEY

March 14, 1933.

R. K. SPOTTS

1,901,065

MICROPHONE WINDSHIELD

Filed March 27, 1931

2 Sheets-Sheet 2

Fig. 3

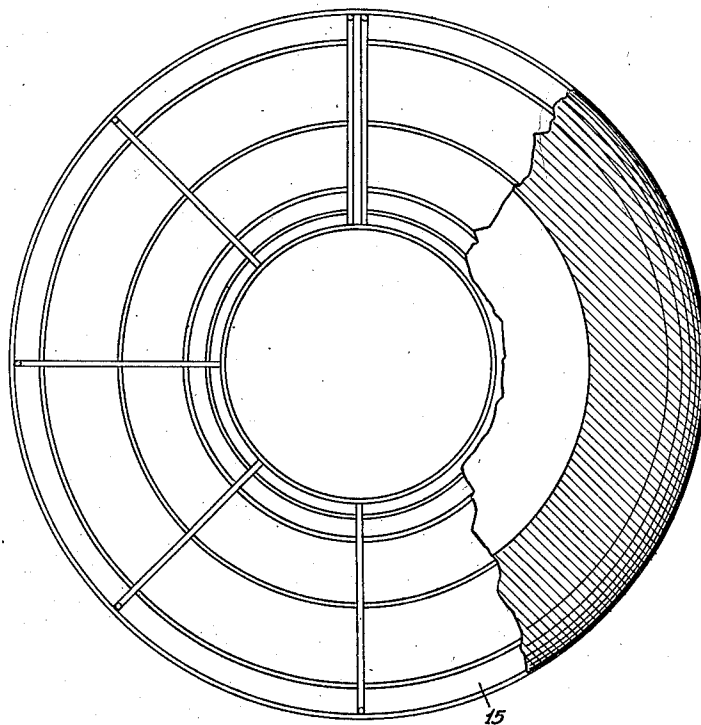
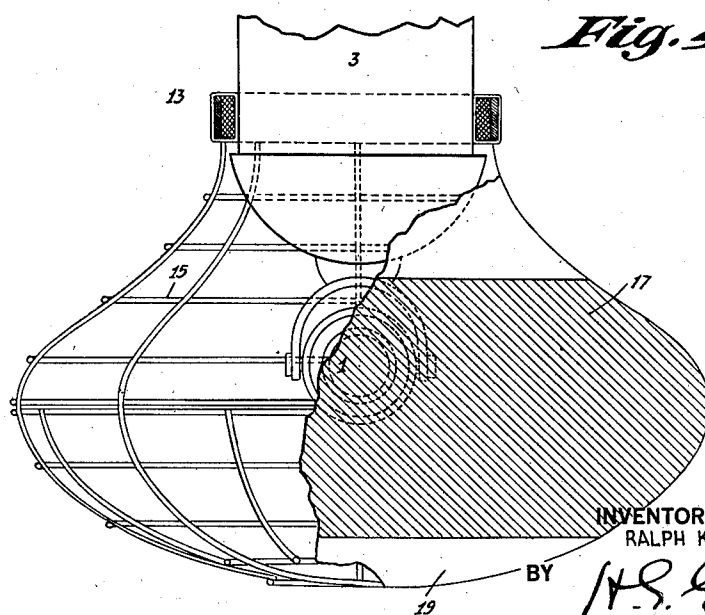


Fig. 4



UNITED STATES PATENT OFFICE

RALPH K. SPOTTS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO RADIO-KEITH-
ORPHEUM CORPORATION, A CORPORATION OF MARYLAND

MICROPHONE WINDSHIELD

Application filed March 27, 1931. Serial No. 525,716.

The present invention relates to a system and apparatus for shielding a microphone used for pick-up work in connection with sound recording or transmission from wind or pressure disturbances.

In using a microphone in the open for any pick-up purpose, and particularly when making a record of sounds, it may be that the wind, or the motion of the microphone through the air in the case it is located on a moving vehicle, will cause unpleasant sounds to be picked up and recorded. The strength of these sounds in fairly moderate winds may exceed that of the sound it is desired to pick up and record, which fact frequently precludes the making of combined sound pictures under otherwise ideal conditions. This imposes a considerable additional limitation upon the time during which talking movies may be made.

It is the object of the present invention to produce a new and improved method and apparatus for sound recording.

It is a further object of this invention to provide a means for recording sounds in a wind.

An additional object of this invention is to produce a device for shielding a microphone, adapted to be used in the open, from air currents.

It is also an object of this invention to provide an apparatus for producing improved sound effects.

These and other objects of my invention will become apparent from the following specification taken in connection with the appended drawings.

In accomplishing the objects of my invention, I provide a wind-shield around the microphone used for pick-up purposes, as, for instance, in connection with sound recording apparatus as in talking motion picture productions. The wind-shield is preferably of a streamline type which completely encloses the microphone. The head of the wind-shield is of wind proof material and the remainder of the wind-shield is streamlined and of sound transparent material. The design is carefully made to prevent differences of pressure or eddy currents resulting inside

the enclosure of the wind-shield, as such differences in pressure or air eddy currents cause the unpleasant noises in connection with the use of the microphone. The head of the wind-shield is packed with some light material to prevent resonances which would produce undesired noises in the output of the microphone. The sound transparent material is stretched to avoid flapping.

Having thus briefly described my invention, attention is invited to the accompanying figures in which;

Figs. 1 and 2 represent a side elevation and front view respectively, partially in cross section, illustrating the preferred form of my invention; and,

Figs. 3 and 4 are top and side views respectively, of an alternative form of wind-shield embodying the present invention.

Referring now more particularly to Fig. 1, the microphone 1, attached to the usual microphone amplifier 3 and suspended by means of the hanger 5 in the usual manner, is completely surrounded by a zeppelin shaped wind-shield generally indicated at 7. The wind-shield 7 consists of a light framework 8 suitably covered as will be explained hereinafter and is clamped to the barrel of the amplifier 3 by means of a clamping ring 9, surrounding the barrel thereof, adapted to be secured by any appropriate fastening. The microphone is completely enclosed, and the form thereof is as nearly a perfect streamline as it is possible to construct. The material of the covering is composed of two parts; part 11 covering the nose of the wind-shield being of wind proof material which is sufficiently rigid and dead as to avoid flapping. The material of this portion of the wind-shield may be the same as that covering the rest of the body as described hereinafter, but doped to render it wind proof. The air is forced aside by this nose portion and flows around the remainder of the body, the surface of which, because it is almost exactly in line with the flow of air need be only sufficiently impervious to prevent eddies passing there-through. The porous material does not permit the passage of air as there is never sufficient pressure or vacuum created next to it

to force the air through it. China silk or fine muslin is sufficiently sound transparent to permit the making of a very satisfactory pick-up by a microphone enclosed in the wind-shield of my invention. The interior of the nose portion 11 is filled with a sound absorbent material to prevent any possible resonance in this air tight portion.

It is obvious that the microphone wind-shield shown in Figs. 1 and 2 must be at all times turned to point into the wind and that it would be ineffective to prevent undesired wind noises being picked up by microphone 1 unless it is so pointed. Therefore, this type of wind-shield is not satisfactory for use in gusty or uneven winds, although when the wind is steady, or the pick-up apparatus is being used on a moving vehicle, where the effect of the motion of the vehicle greatly exceeds that of the actual wind, this type of wind-shield is most satisfactory.

However, under the condition of shifting winds, I find it desirable to use the modification shown more particularly in Figs. 3 and 4 to which attention is now invited. In this modification, the wind-shield generally indicated at 13 completely surrounds the microphone 1 connected to the amplifier 3. A ring 13 similar to that of Figs. 1 and 2 serves to secure the windshield to the amplifier. The wind-shield is constructed of framework 15 covered by the covering material. The streamline permitted by this form is necessarily not nearly as perfect, but the doped portion of the covering material is in the form of a ring adapted to act as both the nose or pressure area, and the tail or vacuum area depending upon the direction of the wind. The windproof zone is indicated at 17. The bottom portion 19, through which the sound passes to the microphone, is quite accurately streamlined. The interior of the ring portion may be filled with sound absorbent material to prevent resonances, which filling, however, will not affect the passage of sound through the sound transparent covering 19 to the microphone.

It is obvious that whereas the nose portion 11 of the wind-shield of Figs. 1 and 2 and the zone 17 of the mushroom type shown in Figs. 3 and 4 are described as wind proof, these portions may be partially or wholly sound opaque as desired.

Having thus described my invention, attention is invited to the fact that various modifications may be devised coming within its scope, and I am therefore not to be limited to the specific embodiments shown and described for the purpose of illustration only, but by the actual scope of my invention as set forth and determined in the appended claims.

I claim:

1. A sound pick-up device including a streamlined wind-shield assembly, and a

microphone mounted within said assembly with its sound wave receiving surface parallel to the streamlining of said assembly.

2. A streamlined wind-shield assembly including sound opaque and sound transparent portions, a microphone arranged within said wind-shield to receive the sound transmitted through said transparent portion, and means whereby the relation between said microphone and said wind-shield may be adjusted.

3. A sound pick-up device including an amplifier, a streamlined wind-shield assembly mounted upon said amplifier, and a microphone mounted within said wind-shield and connected to said amplifier.

4. A sound pick-up device including an amplifier, a streamlined wind-shield assembly adjustably mounted on said amplifier, and a microphone mounted within said wind-shield and connected to said amplifier.

RALPH K. SPOTTS.