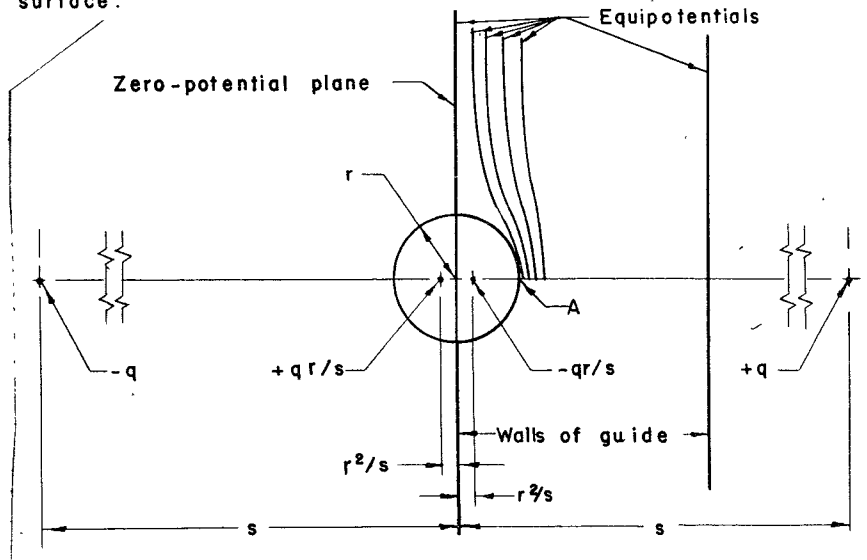(a) The electrostatic solution for a spherical surface.

(b) The electrostatic analog to the hemispheric bump.

Fig. 5 -- The electrostatic approximation.

A ROTARY JOINT FOR TWO MICROWAVE TRANSMISSION CHANNELS
OF THE SAME FREQUENCY BAND

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This dual-channel rotary joint consists of two pairs of rectangular waveguide terminals, a circular waveguide which transmits both channels and coupling elements between the rectangular waveguide terminals and the circular waveguide which convert the rectangular H_{10} mode into the circular H_{01} and E_{01} modes. If pure H_{01} and E_{01} modes can be excited, perfect separation of the channels as well as constant amplitudes and phases can be obtained when the joint rotates. While the conversion into the circular E_{01} mode is performed by a conventional method, a new method had to be developed for the conversion of the rectangular H_{10} mode into the circular H_{01} mode.

(Abstract)

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