A Comparative Study of Mouth Organ and Beating Bell (Ghanta) from the Perspective of Cantilever

DK PATTANAIK[1], NK SHARMA[2]*, AP SAHU[3], SK SARANGI[4],
S PUROHIT[5], M SAHU[6], D PARIDA[7]

[1,2] SOA Deemed to be University, Bhubaneswar, India
[3-7]Centurion University of Technology & Management, Bhubaneswar, India

*nachiketasharma@soa.ac.in

Abstract. Neither a mouth organ nor a ghanta (beating bell) appear to be connected even remotely to a mechanical device like either a cantilever or a beam. Earlier we have shown that by treating each plate associated with a particular note in a mouth organ as a cantilever, the frequency bears a ratio of two small integers with the experimental value of the corresponding note. And here, this approach is applied to the common musical instrument Ghanta whose frequency is derived by treating it as a bent beam, i.e., two cantilevers joined together. This has application in selecting different frequencies of the octave while building musical instruments in which circular plates are used or construction of circular roofs. It can be matched with a frequency monitor and from this and various parameters the Young's modulus can also be measured and this can be a promising experiment. Another important limitation is that the formula may not be valid for large bending as Hooke's law is no longer valid.

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