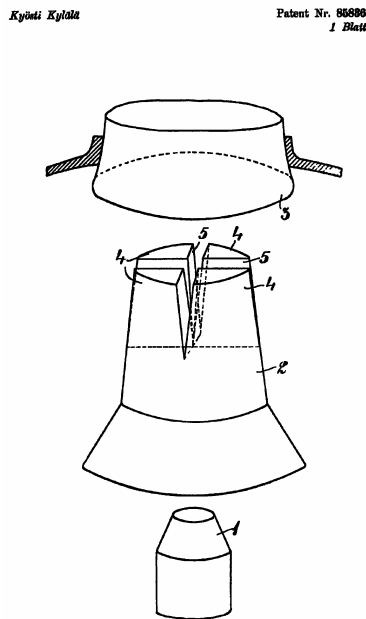


The contributors 1860-1919

The ratio of the chimney diameter to that of the orifice is linked to that of the ratio of the steam and the ejected amount of steam plus gases.

Why they did not venture into a calculation using momentum considerations, instead of re-using Goss' equations, is again one of the historical enigmas.

3.22 Kylälä Patent



The Finnish locomotive driver Kylälä took out patents³⁶ in different countries on the particular shape of a petticoat that he had invented, which subdivided the petticoat flow into four separate streams. The use of two sequential units was named as a possibility. He must have found some improvement while testing it, otherwise taking out patents would have made no sense. In view of the later use by Chapelon, see section 4.3, and others, the shape of the four orifices should be noted, pure circle segments, see Figure 3.15.

Figure 3.15 Kylälä patent³⁶

¹ Zeuner, Prof. Dr. G. *Das Lokomotivenblasrohr*, Zürich, Meyer & Zeller, 1863.

² Nozo, A. & Geoffroy O. *Expériences sur les conditions d'établissement des cheminées de locomotives*, Mémoires et Compte rendu des travaux de la Société des ingénieurs civils, 1863, 2 Sér. 16ann. 4 cah. 1863, pp. 446-469.

³ Prüsmann, A. *Die Konstruktion der Lokomotiv-Essen*, Organ für die Fortschritte des Eisenbahnwesens, 1865, pp. 97-138.

⁴ Prüsmann, *Ibid*, p. 108

⁵ Atkins, J. U.S.A. patent nr. 75511, 1868

⁶ Zeuner, Prof. Dr. G. *Ueber die Wirkung des Blasrohr-Apparates bei Lokomotiven mit conisch-divergenter Esse*, *Der Civil-Ingenieur*, 1871, Bd XVII, pp. 1- 21.

⁷ Colburn, Zerach. *Locomotive Engineering*. William Collins Sons & Cy. London & Glasgow, 1871, p. 230.

⁸ Heusinger von Waldegg, E. *Handbuch für specielle Eisenbahn-Technik*, Wilhelm Engelmann, Leipzig, 1875, Dritter Band, pp. 133-154.

⁹ Longridge, James Atkinson. *On the action of the Blast-pipe on Locomotive Engines*. Proceedings of the Institution of Civil Engineers. Vol. 52. 1877-1878. p. 129.

¹⁰ North of England Mining Engineers. *Transactions*, Vol. i., p. 71 et seq.

¹¹ Pettigrew, W.F. *A manual of LOCOMOTIVE ENGINEERING*, London, Charles Griffin & Co., 1899 pp. 232-233.

¹² *Ibid*. pp. 290-313

¹³ E.L. Ahrons, *The British Steam Locomotive 1825-1925*, Ian Allan, 1969, p. 284