

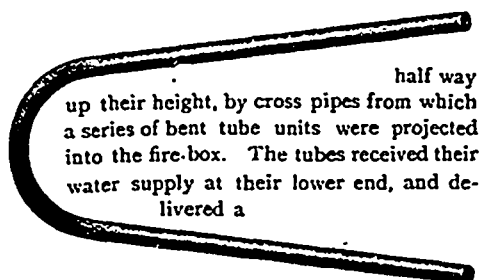
# The Bent Tube

THE BENT TUBE, ITS ENDS CONNECTED WITH STEAM AND WATER SPACE

*Continuation of "Facts about Boilers" from last issue.*

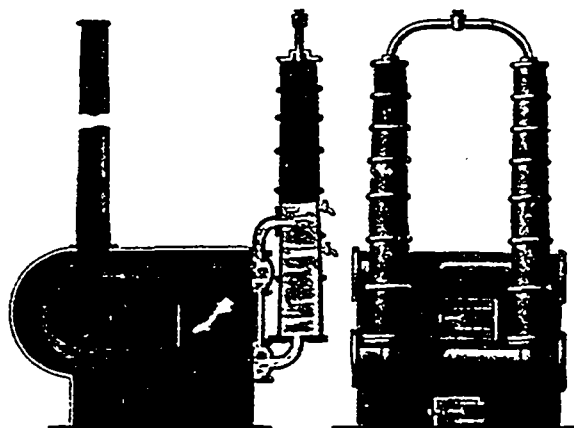
This embraces all forms short of circular or box coils, the particular form given it by various inventors being simply a matter of degree. All are inaccessible for cleaning.

GOLDSWORTHY GURNEY, an English inventor, was the originator of this unit, using it in the boiler of a steam road carriage in 1826. A pair of vertical steam and water reservoirs were connected at their bottom, and about

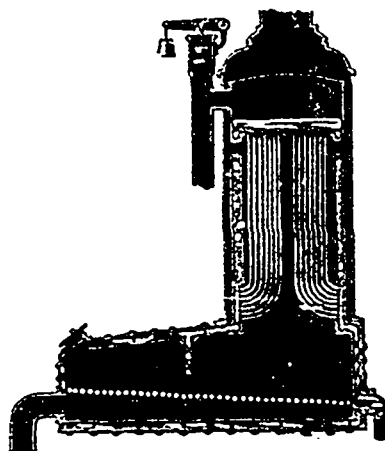


half way up their height, by cross pipes from which a series of bent tube units were projected into the fire-box. The tubes received their water supply at their lower end, and delivered a

mixed current of steam and water at about the water line, in a continuous round of circulation. The lower row of tubes served as grates.

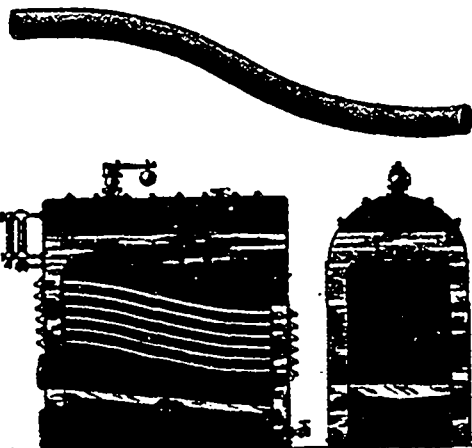


NO. 17. 1826.—LUKE HEBERT'S CYCLOPEDIA, LONDON, 1828.



NO. 18. 1832—LONDON "ENGINEER,"  
AUG. 17TH, 1894.

STEPHEN WILCOX was the first person to use inclined tubes connecting water spaces, front and rear, with an overhead steam and water reservoir. The tubes were bent at a slightly reversed curve, extending over nearly the whole length of the tube, but were inaccessible for cleaning.



NO. 19. 1856.—"STEAM," 1889.

ROWAN introduced a boiler made up of a series of units placed side by side, each unit consisting of an upper and a lower horizontal drum connected by a series of bent-ended heating tubes, and at their ends outside the setting, with down-take pipes of large diameter.



CHURCH built a boiler for a road carriage, with a locomotive fire box having a vertical cylindrical extension at one end, filled with bent tubes, connecting the sides of the fire-box with the crown sheet, and with side openings in the shape of fire-tubes extending through the shell at the top, for taking off the gases.



NO. 20. 1865—BRITISH PATENT, 1865.