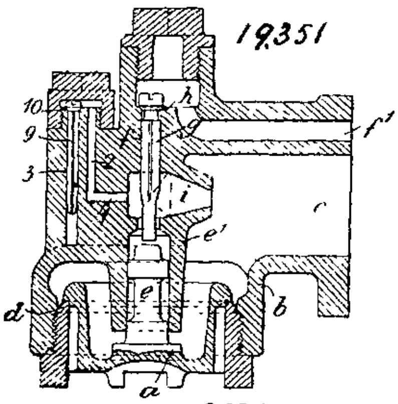
ABRIDGMENTS OF INTERESTING PATENT SPECIFICATIONS.

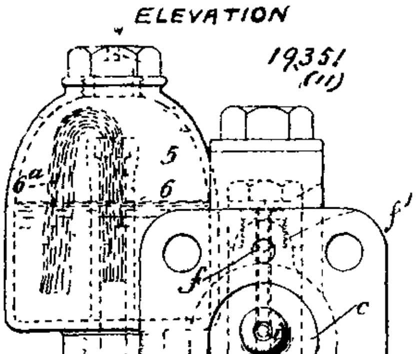
No. 19,351, dated September 8th, 1904, W. M. Smith.—Lubricating locomotive cylinders.—In order to prevent a vacuum being formed in the working cylinders of locomotive engines when running with steam shut off, provision has been made for the admission of air or steam to the cylinders usually through the steam chests This invention has reference to means for also admitting



VERTICAL SECTION

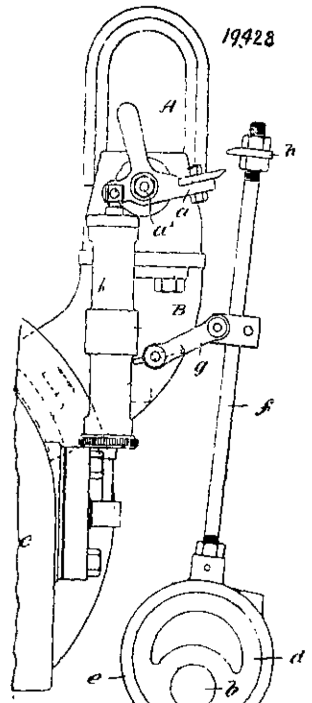
lubricant to the cylinders when they are running with steam shut off. In the drawings (a) is a valve sliding in a casing (b) the interior of which communicates by a branch (c) with the steam space of the steam chest of the locomotive. The valve (a), which closes on a seat (d), is subject on its outer side to the pressure of the atmosphere, and on its inner side to the pressure of the steam chest. The stem (e) of the valve slides in a guide (e1) in line with a steam inlet passage (f) connected by a passage (f1) to the steam space of the boiler., (g) is a valve closing on a seat at (h) and extending almost into contact with the end of a valve stem (e); when the valve (g) is opened steam passes through the passage (f) and nozzle (i) into the branch (c). Connected with the nozzle (i) through passages 1, 2, 3 and 4 is a lubricant-containing chamber (5); the passage (4) connects with the bottom of an upwardly extending open-ended tube (6) within the chamber (5) into which lubricant is syphoned by a wick (6a). When the pressure in the steam chest becomes less than the atmospheric pressure owing to the regulator being shut while the engine is running, the air valve (a) will open, admitting air, and will force from its seat the steam valve (g), which will allow steam from the boiler to pass through the passages (f and f1) into

ELEVATION

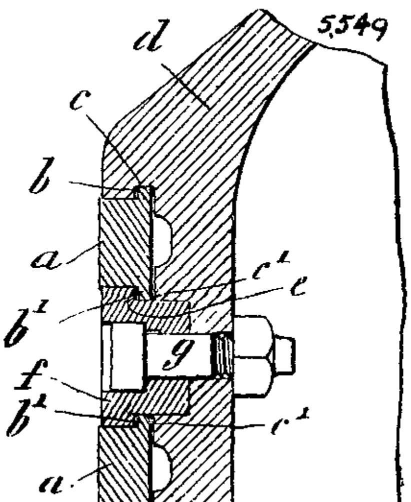


the nozzle (i) at the same time the lubricant contained in the tube (6) will be forced, by the pressure of the atmosphere through the passages (4 and 3) past the valve (9), which will be lifted from its seat and thence through the passages (2 and 1) into the nozzle (i), where it will mix with the steam.

No. 19,428, dated September 9th, 1905. A. R. Bellamy.—Ignition mechanism.—The oscillation of the trip lever (a) of the magneto-generating machine is effected as follows:—On the side shaft (b) of the stationary gas engine, an eccentric (d) and strap (e) are mounted, the strap having a rod (f) which is connected at some part of its length to a link (g) pivoted to a bracket (B). The upper end of the eccentric rod (f) carries its tappet (h) adjustable on the rod. As the sheave of the eccentric revolves with the shaft (d) the upper end of the rod, owing to its connection with the link (g), describes a closed curve, the curve being towards the trip lever (a) on its downward stroke and away from it on its upward stroke. Suitable buffer springs are provided in the casing (k).



No. 5,549, dated March 16th, 1905. Gordon and McKechnie, of Messrs. Vickers, Sons and Maxim.—Piston rings for pistons made in one piece.—Each ring (a) split in any usual way has flanges (b, b1), of which b fits in a groove (c) in the side of the recess in the piston (d) while b1 fits in a like groove (c1) formed between the flange (e) of the retaining ring (f) and the recessed portion of the piston. The ring



is preferably of cast iron, and is made in two or more sections, each bolted to the piston by two or more bolts such as g, the nuts of which are locked in any suitable manner. The clearance of flanges (b, b1) in the grooves (c, c1) respectively is sufficient to allow radial movement of the piston rings, but insufficient to allow of the rings being forced against the inner surface of the cylinder more than is advantageous.

No. 17,172, dated August 5th, 1905.—Radiator.—W. H. Kitto and another.—The radiator is of the

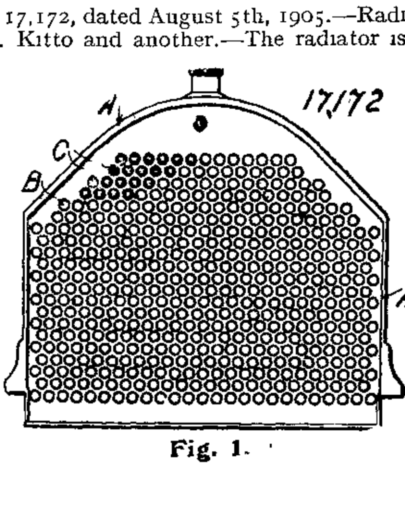


Fig. 1.

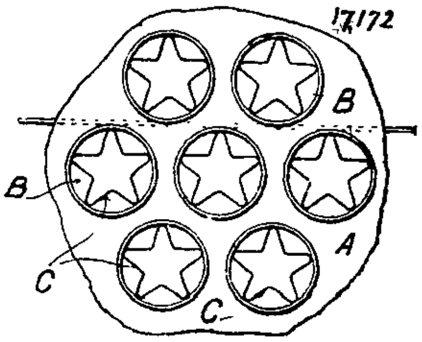


Fig. 2.

well-known type in which a number of tubes (B) are situated in a chamber (a), through which the liquid to be cooled is circulated whilst air passes through the tubes. To render the tubes (b) more effective a crimped or corrugated strip of metal is placed within each tube, as shown at c. Fig. 2 is an enlarged view of several of the tubes.

Niagara's Drying Up.

As to the possibility of the destruction of Niagara Falls, a lecturer stated that in 1885 Mr. Evershed thought he was taking a very safe line in saying that for power purposes no more than 4 per cent. would be required. If 150,000 h.p. were produced, the daily demand would be 11,000 cubic feet per second, which was 5 per cent. of the mean flow, or not 7 per cent. of the minimum flow. The development of 650,000 h.p. demanded 48,000 cubic feet per second, or 21½ per cent. of the mean flow and 30 per cent. of the minimum flow. It was obvious that when the whole of the machinery was in working order the alteration in the appearance of the falls would be striking. Taking into account the water used for the Welland Canal and Chicago drainage and other canals projected, the total diversion of water would be at least 41 per cent. of the minimum flow. Nor was the end of projects for the diversion yet in sight, so that there seemed likely to be a fulfilment of Lord Kelvin's prophecy that before long Niagara would be a dry ravine.

A wind pressure indicator for railway use has been introduced. The event leading to its invention occurred during a gale in February, 1903, when a train was blown over on Levens Viaduct, on the Furness line, England. Now there is an instrument which will automatically warn the signalmen on duty at Cark and Plumpton when there is a wind pressure of sufficient force to be dangerous. The indicator consists of a combined wind-pressure gauge and recorder, and is connected with an electric arrangement, by means of which bells are set in motion at distant signal cabins. These bells will continue to ring as long as the velocity of the wind on the viaduct is dangerous to passing trains.

The Stolze gas turbine was invented by Dr. Stolze as far back as 1873, and the principal underlying its construction consists in compressing atmospheric air to, say, one and one-half atmospheres above atmospheric pressure, and in heating this compressed air so as to cause it to assume a two or two-and-one-half fold volume, with the same tension, after which the air tension is allowed to drop again to atmospheric pressure. The excess of work performed over the absorbed energy is thus due to the increase in volume resulting from the heating. Two sets of turbines of different designs are mounted on a common shaft. One of these serves as an air compresser, while the other drives the shaft by means of the heated air. Each set consists of several rows of guiding vanes, fitted to the engine casing, and of several rows of running vanes of a corresponding design, secured to a common rotating cone, which turns with the shaft. One of these turbine systems draws in the fresh air, compresses it to a given tension through a pre-heater (heated with exhaust gases), and drives the greater part of it into a chamber lined with refractory material. The smaller is conveyed beneath the grate of a producer, where it serves to volatilise the fuel. The gas thus formed penetrates into the chamber mentioned, to be burnt there by the compressed air in suitable burners and converted into carbonic acid and water vapour, while evolving large amounts of heat. These gases next enter the second turbine system, where they are allowed to expand in traversing the various steps, thus performing useful work. The process is thus analogous to the cycle performed in all internal combustion engines. A distinguishing feature is, however, that the mixing takes place after compressing.