

purposes, that it (the smoke) should be made to pass through a stratum of red hot coke or pumice stone ; but the draught becomes so much impeded in practice, by having to pass through any such stratum, that what might be gained in economy of fuel by robbing the smoke of all its carbon, etc., is otherwise more than compensated for by the diminished draught of the fire, and the cost of maintaining a stratum of coke or pumice stone by a jet of gas or other means in a state of incandescence. The consuming of the smoke is sometimes sought to be attained by causing it to pass directly downwards through the fuel on the fire grate ; but in practice the grate bars become so much clogged by the fuel especially when bituminous coals are used or wood that the draught becomes injuriously diminished—and in case of the least joint in the fire box or flues not being air tight the smoke will ooze through it into the air chamber and thence into the apartments to be supplied ; for it is evident that if any such joint (not air tight) exist and if the draught in the smoke flues is less than that in the air chamber, the smoke will seek a passage through the latter. Another consideration is that with a downward current in the smoke flue, the cold air at the bottom of