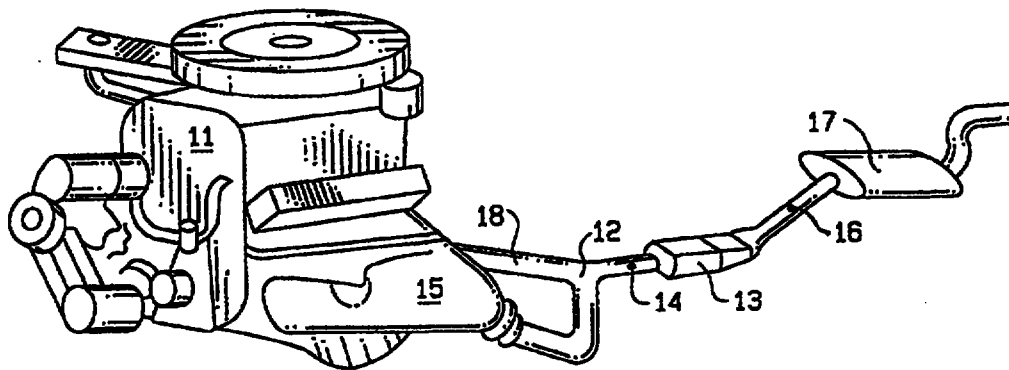




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(54) Title: METHOD AND APPARATUS FOR USING FREE RADICALS TO REDUCE POLLUTANTS IN THE EXHAUST GASES FROM THE COMBUSTION OF A FUEL



(57) Abstract

The present invention is an apparatus, and a method for the reduction of pollutants in the exhaust stream of a combustion engine (11). Radicals are produced using a corona discharge (23, 30, 110) in the combustion gas stream (18) of the engine (11), either in the pre-combustion gas stream or from water in the exhaust gas. When the radicals are produced from the exhaust gas stream (18), the radicals may be produced using a corona discharge (23, 30) placed directly in the exhaust stream leading to a catalytic converter (13), or a portion of the exhaust stream (21) may be diverted to a remote corona discharge radical generator (23). The corona discharge (23) in the generator produces radicals in the diverted exhaust gas (21), and the exhaust gas containing radicals is then conveyed to the exhaust gas stream (24) at a point upstream of the catalytic converter (13).