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(54) Title: INTEGRATED HYDROTREATING AND STEAM PYROLYSIS PROCESS INCLUDING HYDROGEN REDISTRIBUTION FOR DIRECT PROCESSING OF A CRUDE OIL

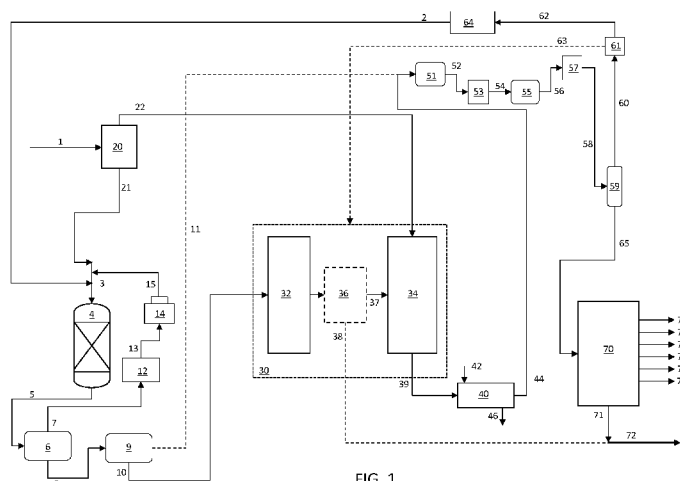


FIG. 1

(57) Abstract: A process is provided that is directed to a steam pyrolysis zone integrated with a hydroprocessing zone including hydrogen redistribution to permit direct processing of crude oil feedstocks to produce petrochemicals including olefins and aromatics. The integrated hydrotreating and steam pyrolysis process for the direct processing of a crude oil to produce olefinic and aromatic petrochemicals process comprises separating the crude oil into light components and heavy components; charging the heavy components and hydrogen to a hydroprocessing zone operating under conditions effective to produce a hydroprocessed effluent having a reduced content of contaminants, an increased paraffinicity, reduced Bureau of Mines Correlation Index, and an increased American Petroleum Institute gravity; charging the hydroprocessed effluent and steam to a convection section of a steam pyrolysis zone; d. heating the mixture from the convection section of a steam pyrolysis zone and passing it to a vapor-liquid separation section; removing from the steam pyrolysis zone a residual portion from the vapor-liquid separation section; charging light components from the initial separation step, a light portion from the vapor-liquid separation section, and steam to a pyrolysis section of the steam pyrolysis zone; recovering a mixed product stream from the steam pyrolysis zone; separating the mixed product stream; purifying hydrogen recovered from the mixed product stream and recycling it to the hydroprocessing zone; and recovering olefins and aromatics from the separated mixed product stream.



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