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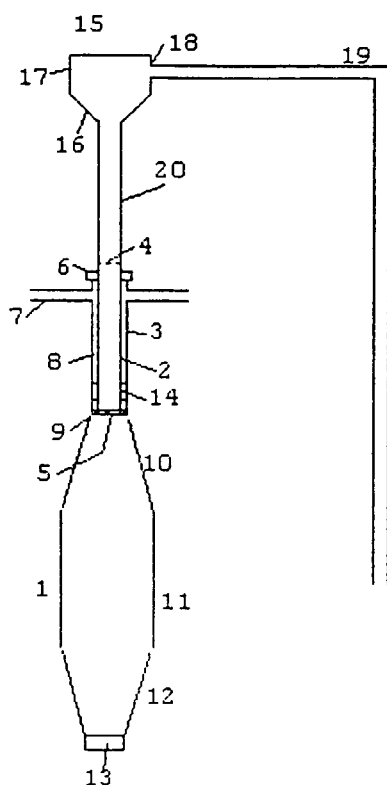
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(54) Title: APPARATUS AND PROCESS FOR VAPORIZING A HEAVY HYDROCARBON FEEDSTOCK WITH STEAM



(57) Abstract: Apparatus for the vaporisation of a heavy hydrocarbon feedstock with steam, said apparatus comprising: (a) a first tubular element which is open at both ends; (b) a second tubular element which is open at one end and surrounds the first tubular element to form an annular space, said first and second tubular element having substantially coinciding longitudinal axes and having open ends at their downstream ends arranged in a plane perpendicular to said coinciding longitudinal axes; (c) feed inlet means for introducing a heavy hydrocarbon feedstock into the first tubular element; (d) steam inlet means for introducing superheated steam into the annular space; and (e) a frusto-conically shaped element, which at one end is connected to the open end of the second tubular element and diverges in a direction away from the second tubular element and which has an axis which is substantially coinciding with the longitudinal axes of the tubular elements, characterised in that the feed inlet means are connected to a device capable of forcing a swirl pattern onto the liquid part of the heavy hydrocarbon feedstock when entering said device, thereby pressing said liquid part against the inner wall of the feed inlet means in such a way that an annular flow pattern is established inside the first tubular element.

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