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KARER, Rainer [DE/DE]; Oskar-Schlemmer-Ring 48, 67657 Kaiserslautern (DE). **NIEKEN, Ulrich** [DE/DE]; Akazienweg 7, 67434 Neustadt a.W. (DE).

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(71) Applicant (for all designated States except US): BASSELL POLYOLEFINE GMBH [DE/DE]; Brühler Strasse 60, 50389 Wesseling (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): PENZO, Giuseppe [IT/IT]; Via Segantini, 16, Montana di Curtatone, I-46010 Mantova (IT). **AHMADZADE-YOUSSEFI, Cyrus** [DE/DE]; Hofweg 4, 22085 Hamburg (DE).

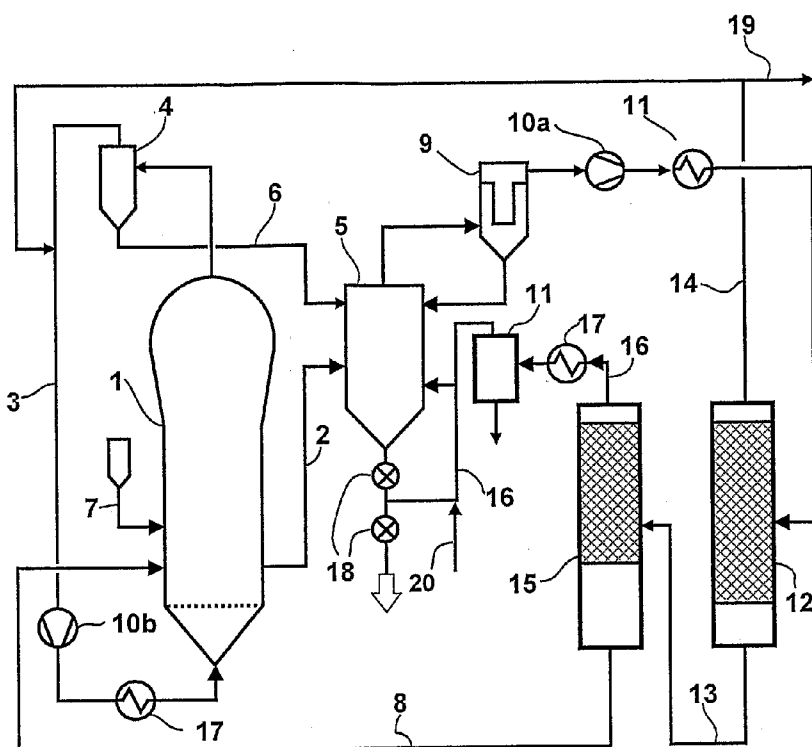
(74) Common Representative: BASSELL POLYOLEFINE GMBH; Intellectual Property, Industriepark Höchst - E413, 65926 Frankfurt (DE).

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(54) Title: PROCESS AND APPARATUS FOR THE POLYMERIZATION OF ETHYLENE



(57) Abstract: Process for the polymerization of ethylene or of ethylene with further 1-olefins, in which the ethylene is polymerized in the presence of a catalyst in a gas-phase reactor and reaction gas comprising propane and unpolymerized ethylene is circulated to remove the heat of polymerization, wherein the polymer particles are discharged continuously or discontinuously from the reactor, the polymer particles are separated from the major part of the concomitantly discharged gas and the polymer particles are degassed, the gas is freed of entrained fine particles and is separated from a low-boiling fraction comprising ethylene or from a high boiling fraction containing further 1-olefins or alkanes having from 4 to 12 carbon atoms in a first separation stage, a propane fraction is separated off in a second separation stage and this propane fraction is used for degassing the polymer particles discharged from the reactor, with the proportion of ethylene in the propane fraction being

less than 1 mol% and the proportion of 1-olefins and alkanes having from 4 to 12 carbon atoms in the propane fraction being less than 4 mol%, in each case based on the total propane fraction. Furthermore, an apparatus for carrying out the process. In this way, a high heat discharge from the reactor, satisfactory degassing of the discharged polymer particles and recovery of the reaction gas discharged together with the polymer particles and also the gas used for degassing the polymer particles are made possible.

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