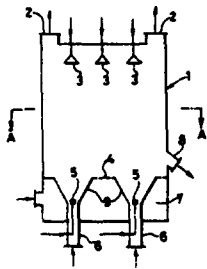


Disclosed is a granulating process which comprises the steps of providing a plurality of spouted bed granulation zones arranged in series and one or more fluidizing zones for cooling and drying purposes each disposed between two adjacent ones of the granulation zones, introducing priming granules of a particulate material into the first-stage granulation zone while spraying thereinto an adherent and solidifiable liquid together with a gas stream to enlarge the priming granules, cooling and drying the enlarged granules in the succeeding fluidizing zone, passing the resulting granules through the other granulation zones and fluidizing zones successively, and withdrawing the granules enlarged to a desired particle size from the last-stage granulation zone. Also disclosed is an apparatus for carrying out this granulating process.

4353709

GRANULATION PROCESS

Susumu Nioh; Hiroshi Hirayama; Tetsuzo Honda; Takashi Nagahama; Masaki Naruo assigned to Mitsui Toatsu Chemicals Incorporated; Toyo Engineering Corporation



There is disclosed a process of granulation comprising dropping as liquid droplets the melt of a substance solidifiable by cooling or drying through a zone having a sufficient vertical distance to allow solidification of the droplets, forming a fluidized bed of the solidified droplets on the bottom of the said zone, spraying the same or a different melt from the above mentioned substance as fine liquid grains along with a gas stream into the fluidized bed thereby forming a spouted bed of the solidified droplets in the fluidized bed, coating and enlarging the solidified drop-

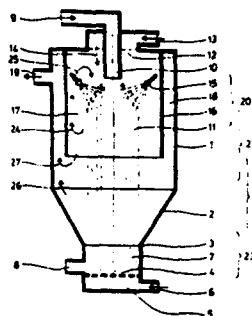
lets with the fine liquid grains inside the spouted bed, and discharging the obtained large sized granules from the fluidized bed. There is also disclosed an apparatus for practicing the process.

4352718

METHOD FOR TREATING PARTICULATE MATERIAL

Gusta Grun assigned to Claudius Peters AG

There is disclosed a method and apparatus for treating particulate material. The said material is injected into a chamber. The material subsequently thereto is sprayed with a moistening material. At



the same time gases are introduced at the top of the chamber and at the bottom thereof whereby the moisture on the particulate material is evaporated at a controlled rate. The parameters are such that the applied moisture has an opportunity to penetrate the particulate material for a short period of time to achieve some agglomeration before the moisture is evaporated. A fluidized bed is maintained at the bottom of the chamber and the treated particulate material is removed in this fashion.

4351861

DEPOSITION OF COATINGS FROM VAPORIZED REACTANTS

Vern A Henery assigned to PPG Industries Inc

A method is provided for fluidizing and vaporizing particulate solid coating reactants by first establishing a fluidized bed of dispersed particulate solid coating reactants and thereafter drawing a volume of fluidizing gas and suspended particulate solid coating reactant to a vaporizer while mixing an additional volume of gas therewith and then vaporizing the dispersed particulate solid coating reactant in the reactant-gas mixture. The reactant-gas mixture is then directed into contact with a substrate to be coated in order to deposit a film thereon.

4351773

PREPARATION OF MALEIC ANHYDRIDE FROM BUTANE USING FLUIDIZED VANADIUM-PHOSPHOROUS-OXIDE CONTAINING CATALYSTS

Ernest C Milberger; Michael F Lemanski; Gregory G Spitnale assigned to The Standard Oil Company

A process is provided for the preparation of fluid bed oxidation catalysts containing the mixed oxides of vanadium and phosphorus, comprising the steps of preparing the catalyst precursor, comminuting the precursor, introducing the precursor into water to form an aqueous slurry and

spray drying the slurry. The resulting microspheroidal particles are excellent fluid bed catalysts for the preparation of maleic anhydride from 4-carbon atom hydrocarbons.

4351646

CYCLIC PROCESS FOR PRODUCING METHANE FROM CARBON MONOXIDE WITH HEAT REMOVAL

Albert Frost; Chang-le Yang assigned to Union Carbide Corporation

Carbon monoxide-containing gas streams are converted to methane by a cyclic, essentially two-step process in which said carbon monoxide is disproportionated to form carbon dioxide and active surface carbon deposited on the surface of a catalyst, and said carbon is reacted with steam to form product methane and by-product carbon dioxide. The exothermic heat of reaction generated in each step is effectively removed during each complete cycle so as to avoid a build up of heat from cycle-to-cycle, with particularly advantageous techniques being employed for fixed bed, tubular and fluidized bed reactor operations.

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