

(12) 按照专利合作条约所公布的国际申请

(19) 世界知识产权组织
国际局

(43) 国际公布日
2022 年 7 月 28 日 (28.07.2022)



(10) 国际公布号
WO 2022/156495 A1

(51) 国际专利分类号:

C30B 25/14 (2006.01) *C23C 16/40* (2006.01)
C30B 29/36 (2006.01) *H01J 37/32* (2006.01)
C23C 16/455 (2006.01) *H01L 21/02* (2006.01)

(21) 国际申请号: PCT/CN2021/141995

(22) 国际申请日: 2021 年 12 月 28 日 (28.12.2021)

(25) 申请语言: 中文

(26) 公布语言: 中文

(30) 优先权:

202110093628.0 2021 年 1 月 22 日 (22.01.2021) CN

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(54) Title: GAS INLET ASSEMBLY OF PROCESS CHAMBER, GAS INLET APPARATUS, AND SEMICONDUCTOR PROCESSING EQUIPMENT

(54) 发明名称: 工艺腔室的进气组件、进气装置及半导体加工设备

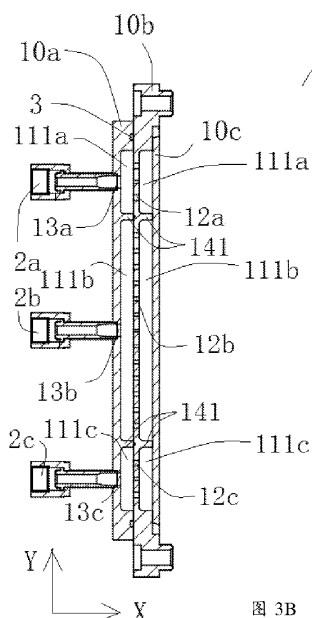


图 3B

(57) Abstract: A gas inlet assembly (1) of a process chamber (7) in semiconductor processing equipment, a gas inlet apparatus, and semiconductor processing equipment. The gas inlet assembly (1) is used for delivering a process gas into a gas inlet pipe (5) in communication with the process chamber (7), a plurality of gas mixing cavities (11a-11e) are provided in sequence in the gas inlet assembly (1) along the gas inlet direction, and any two adjacent gas mixing cavities (11a-11e) are in communication with each other; the gas inlet assembly (1) comprises a gas inlet connector (2), the gas inlet connector (2) is in communication with the gas mixing cavity (11a) located at the most upstream of the gas inlet direction, the gas mixing cavity (11e) located at the most downstream of the gas inlet direction is in communication with the gas inlet pipe (5); and the gas outlet direction of the gas inlet assembly (1) is the same as the gas inlet direction. The gas inlet assembly (1), gas inlet apparatus and semiconductor processing equipment can fully mix the process gas and make the process gas uniform, so that not only the distribution uniformity of the components of the process gas can be improved, but also the difference in gas flow velocities between different regions of the gas inlet pipe (5) can be reduced, thereby improving the process stability.

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CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,
IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT,
RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI,
CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。

本国际公布：

— 包括国际检索报告(条约第21条(3))。

(57) 摘要：一种半导体工艺设备中工艺腔室(7)的进气组件(1)、进气装置及半导体加工设备，该进气组件(1)用于将工艺气体输送至与工艺腔室(7)连通的进气管(5)中，进气组件(1)中沿进气方向依次设置有多个混气腔(11a-11e)，任意相邻的两个混气腔(11a-11e)互相连通，进气组件(1)包括进气接头(2)，该进气接头(2)与位于进气方向最上游的混气腔(11a)连通，位于进气方向最下游的混气腔(11e)与进气管(5)连通；进气组件(1)的出气方向与进气方向相同。该进气组件(1)、进气装置及半导体加工设备可以对工艺气体进行充分混合和匀气，从而不仅可以提高工艺气体的组分分布均匀性，而且还可以减小进气管(5)不同区域之间的气流速度差异，从而提高工艺稳定性。