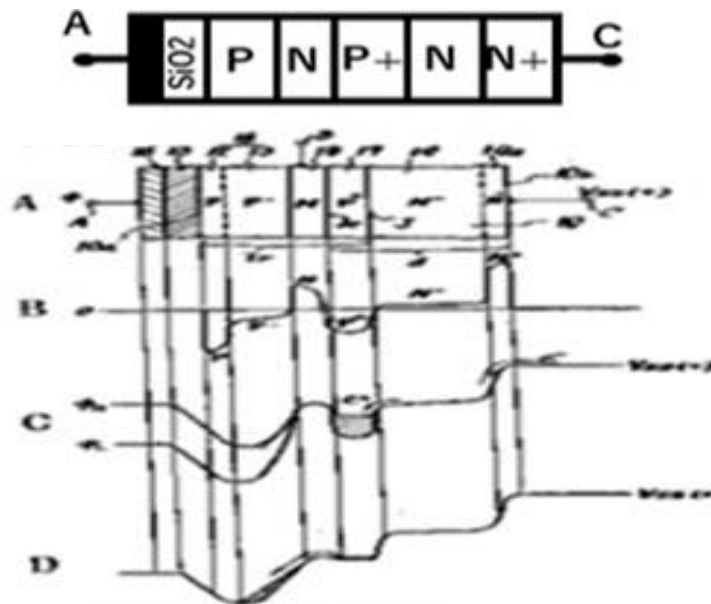
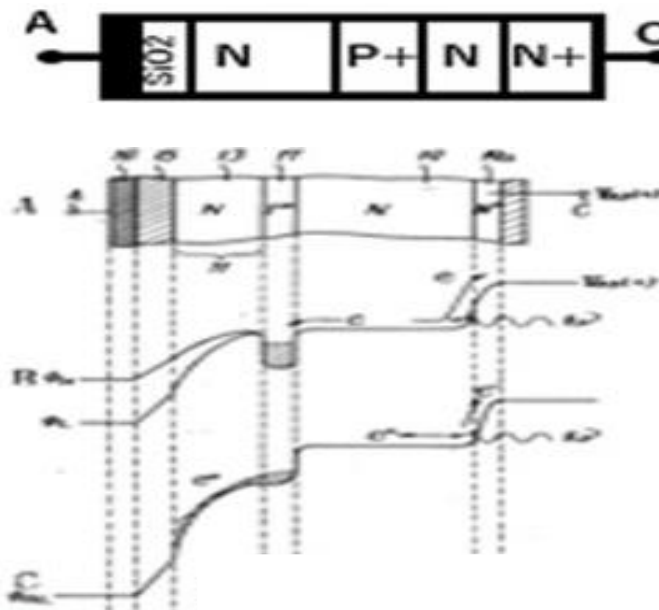


# Who invented Pinned Photodiode ?

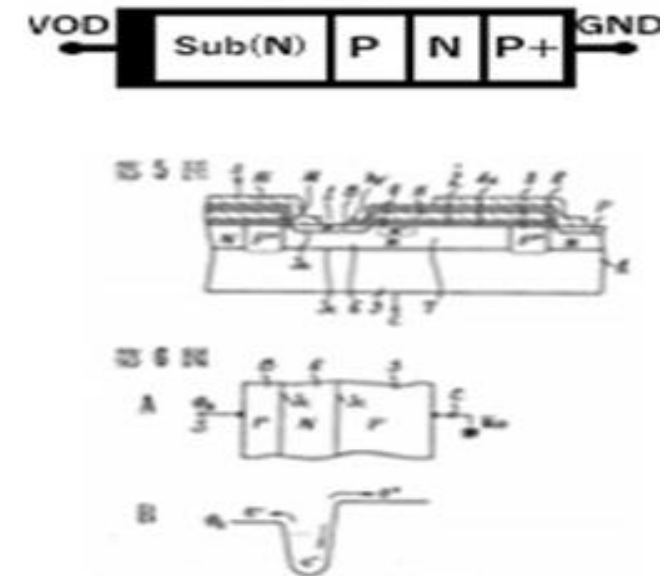
Hagiwara at Sony invented Pinned Photodiode in 1975. The evidence is given by the three Japanese patent applications, JPA1975-127646, JPA1975-127647 and JPA1975-134985. The first Pinned Photodiode was defined in October 23, 1975 as the N+NPNP triple junction (in Fig. 7 of JAP1975-127646) type and the N+NPN double junction type (in Fig. 7 of JAP1975-127647) type photodiodes with the N+ type pinned surface and the P type buried photo charge storage region with the complete charge transfer capability and the no-image-lag feature. The photo charge is transferred and drained to the CCD/MOS type charge storage buffer memory quickly by the strong punch-thru action. The second Pinned Photodiode was defined in November 10, 1975 as the PNP double junction (in Fig. 6 of JAP1975-134985) type photodiode with the vertical overflow drain action also with the complete charge transfer capability and the no-image-lag feature as evidence the empty potential well of the buried photo charge storage, completely depleted of the charge.



JPA1975-127646 Fig. 7



JPA1975-127647 Fig. 7



JPA1975-134985 Fig. 6