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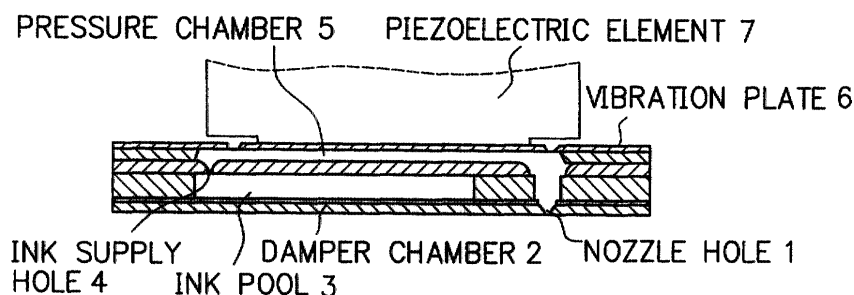
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(54) **Ink jet printing head, nozzle plate and manufacturing method thereof**

(57) A nozzle plate (21) of an ink jet printing head is formed so that its surface facing toward the ink drop discharge direction will have protruding parts (40) around each of its nozzle holes (1). Each protruding part (40) is formed in the shape of a circle that is concentric with a corresponding nozzle hole (1), and the outer edge (41) of the protruding part (40) is formed so as to have an appropriate slope. Due to the configuration of the nozzle plate (21), a wiper blade (30) can make good contact with the surface (protruding parts (40)) of the nozzle plate (21) around the nozzle holes (1) and ink around the nozzle holes (1) can be cleaned successfully in wip-

ing operation, thereby the ink drop discharge properties of the ink jet printing head can be stabilized and improved. Such a configuration of the nozzle plate (21) is realized by electrodeposition without using a photoresist. Therefore, the shape of the nozzle hole (1) is not affected by the coating status of the photoresist, the precision of a patterning image which is used for the exposure and development, the precision and life of a mask, etc. Therefore, the dimensional accuracy (diameter, roundness, etc.) of the nozzle holes (1) can be improved, manufacturing yield of the ink jet printing heads can be increased, manufacturing costs can be reduced, and high quality printing can be realized.

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EP 00 12 2792

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Y			
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 August 2001	Examiner Didenot, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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