

**TITLE OF INVENTION: MEMBRANE MODULE, MEMBRANE UNIT,
AND MEMBRANE SEPARATION DEVICE**

ABSTRACT

5 A membrane separation apparatus in which a membrane
clogging is moderated to lower a load to filtering. A plurality of
separation membranes 4 are stored vertical and parallel to each other
inside the a casing 6 formed with opening sections which respectively
open in upper and lower directions thereby configuring a membrane
10 module 3. In a flow passage through which treated water for the
membrane module 3 flows, a water flow guide 5 is provided such that an
opening area S_2 of the flow passage through which treated water
outflows is smaller than an opening area S_1 of the flow passage through
which treated water inflows. Additionally, a plurality of the membrane
15 modules 3 are stacked one upon another in a direction of height of a
casing thereby to configure a membrane unit 2. An air diffusing device 7
is disposed below this membrane unit 2 thereby configure a membrane
separation apparatus 1.

20 Fig. 1