What is claimed is:

1. A urinal comprising:

a bowl surface adapted to receive urine of a user and to be cleaned by a flush water;

a flush water discharging device provided at its upper region on the bowl surface for discharging the flush water onto the bowl surface such that the flush water spreads on the bowl surface in leftward and rightward directions;

said upper region of the bowl surface on which said flush water discharging device is provided being formed by only a front face portion which faces the user, said front face portion being formed by a concavely curved surface which extends continuously in the leftward and rightward direction.

2. The urinal according to claim 1, wherein said flush water discharging device is configured to discharge the flush water such that it spreads diagonally upwardly on the bowl surface in the leftward and rightward directions,

said front face portion of the upper region of the bowl surface is configured to incline rearwardly from the upper end to lower direction of the bowl surface.

3. The urinal according to claim 1, wherein said front face portion of the upper region of the bowl surface is configured to back gradually and continuously decrease radii of curvature from the upper end to lower direction of the bowl surface.

4. The urinal according to claim 1, wherein said bowl surface is configured such that left and right side edges which project forwardly as they proceed toward the lower direction.

5. The urinal according to claim 1, wherein said upper region of the bowl surface which is formed by only the front face portion is provided

within an area of a distance of at least 200 mm from the upper end of the bowl surface.

6. The urinal according to claim 1, wherein said front face portion in the upper region of the bowl surface is configured so that tangent lines defined in the vicinity of the left and right side edges of the bowl surface forwardly extend outwardly, as viewed in the horizontal section.

7. The urinal according to claim 1, wherein said bowl surface is formed by a concavely curved surface which extends continuously in the leftward and rightward direction so as to spread the flush water toward the left and right side edges direction on the bowl surface, and

said bowl surface is arranged so as to situate between a line segment connecting the left and right side edges and an arcuate segment of a circle having a diameter corresponding to said line segment, as viewed in the horizontal section through the flush water discharging device.

8. The urinal according to claim 7, wherein an angle between the line segment connecting the left and right side edges and tangent lines defined at the left and right side edges of the bowl surface is defined to be greater than 0° and equal to or smaller than 60°.

9. The urinal according to claim 7, wherein an angle between the line segment connecting the left and right side edges and tangent lines defined at the left and right side edges of the bowl surface is defined to be equal to or greater than 10° and equal to or smaller than 45°.

10. The urinal according to claim 7, wherein a depth of the bowl surface is in the range of 40 mm to 55 mm, as viewed in the horizontal section through the flush water discharging device.

11. The urinal according to claim 7, wherein the bowl surface includes a ledge extending downwardly from left and right sides of the bowl surface to forward side , the ledge guides forwardly a portion of the flush water on the bowl surface.

12. The urinal according to claim 11, wherein said ledge is formed downwardly of a location near the middle height of the bowl surface.

13. The urinal according to claim 7, wherein said single radius of curvature of the bowl surface, as viewed in the horizontal section through the flush water discharging device is within the range from 200 mm to 500 mm.

14. The urinal according to claim 7, wherein said bowl surface is configured such that a radius of curvature of the concavely curved surface as viewed in the horizontal section continuously decreases downwardly from the upper end of the bowl surface.

Claims

1. A urinal comprising:

a bowl surface adapted to receive urine of a user and to be cleaned by a flush water;

an automated toilet flushing unit including a proximity sensor for detecting the presence of the user and a flush water discharging device, the flush water discharging device provided at its upper region on the bowl surface for discharging the flush water onto the bowl surface such that the flush water spreads on the bowl surface in leftward and rightward directions;

a housing part including a chamber of space formed at the top end of the urinal for housing the automated toilet flushing unit;

said upper region of the bowl surface on which said flush water discharging device is provided being formed by only a front face portion which faces the user, said front face portion being formed by a concavely curved surface which extends continuously in the leftward and rightward direction, the concavely curved surface continuously extending along an arc,

a lower region of the bowl surface formed by the front portion and side faces,

the normal to the tangential line of the concavely curved surface of the front face portion extending toward the user standing in front of the bowl surface,

wherein said front face portion of the upper region of the bowl surface is configured to back gradually and continuously decrease radii of curvature from the upper end to lower direction of the bowl surface and wherein the upper region of the bowl surface is formed by only a front face portion without a side face portion.

2. The urinal according to claim 1, wherein said flush water

discharging device is configured to discharge the flush water such that it spreads diagonally upwardly on the bowl surface in the leftward and rightward directions,

said front face portion of the upper region of the bowl surface is configured to incline rearwardly from the upper end to lower direction of the bowl surface.

3. The urinal according to claim 1, wherein said bowl surface is configured such that left and right side edges which project forwardly as they proceed toward the lower direction.

4. The urinal according to claim 1, wherein said upper region of the bowl surface which is formed by only the front face portion is provided within an area of a distance of at least 200 mm from the upper end of the bowl surface.

5. The urinal according to claim 1, wherein said front face portion in the upper region of the bowl surface is configured so that tangent lines defined in the vicinity of the left and right side edges of the bowl surface forwardly extend outwardly, as viewed in the horizontal section.

6. The urinal according to claim 1, wherein said bowl surface is formed by a concavely curved surface which extends continuously in the leftward and rightward direction so as to spread the flush water toward the left and right side edges direction on the bowl surface, and

said bowl surface is arranged so as to situate between a line segment connecting the left and right side edges and an arcuate segment of a circle having a diameter corresponding to said line segment, as viewed in the horizontal section through the flush water discharging device.

7. The urinal according to claim 6, wherein an angle between the line segment connecting the left and right side edges and tangent lines defined at the left and right side edges of the bowl surface is defined to be greater than 0° and equal to or smaller than 60°.

8. The urinal according to claim 6, wherein an angle between the line segment connecting the left and right side edges and tangent lines defined at the left and right side edges of the bowl surface is defined to be equal to or greater than 10° and equal to or smaller than 45°.

9. The urinal according to claim 6, wherein a depth of the bowl surface is in the range of 40 mm to 55 mm, as viewed in the horizontal section through the flush water discharging device.

10. The urinal according to claim 6, wherein the bowl surface includes a ledge extending downwardly from left and right sides of the bowl surface to forward side , the ledge guides forwardly a portion of the flush water on the bowl surface.

11. The urinal according to claim 10, wherein said ledge is formed downwardly of a location near the middle height of the bowl surface.

12. The urinal according to claim 6, wherein ~~said~~ a single radius of curvature of the bowl surface, as viewed in the horizontal section through the flush water discharging device is within the range from 200 mm to 500 mm.

13. The urinal according to claim 6, wherein said bowl surface is configured such that a radius of curvature of the concavely curved surface as viewed in the horizontal section continuously decreases downwardly from

the upper end of the bowl surface.