CLAIMS

1. A back pressure blocking sliding valve, comprising:

a valve body including: a fluid inlet part and a fluid outlet part provided in upper and lower parts of the valve body, respectively, with a fluid passing cavity defined between the fluid inlet part and the fluid outlet part;

a mover including a blocking plate seated thereon, the blocking plate functioning to block the fluid inlet part, the mover being shifted to the fluid passing cavity when it is required to block a fluid flow; and

a mover shifting unit shifting the mover,

wherein when a back pressure is generated, the mover shifting unit shifts the mover to a blocking position at which the blocking plate blocks the fluid inlet part, and the blocking plate seated on the mover floats due to a pressure difference produced by the back pressure inside the valve body, and closes the fluid inlet part, thereby blocking the back pressure.

2. The back pressure blocking sliding valve according to claim 1, wherein the mover shifting unit includes: a drive unit that is a pneumatic actuating cylinder or an electric motor; and a rotary shaft of the drive unit, the rotary shaft combined with the mover, so that the mover is shifted to the

blocking position by a rotation of the rotary shaft.

3. The back pressure blocking sliding valve according to claim 2, wherein the mover includes: a rotary shaft holding part combined with the rotary shaft; and a mover body on which the blocking plate is seated, with a circular opening provided in the mover body, wherein the circular opening has a diameter smaller than a diameter of the blocking plate, so that the blocking plate is seated on the circular opening of the mover body.

4. The back pressure blocking sliding valve according to claim 1, wherein the mover shifting unit includes: a drive unit that is a pneumatic actuating cylinder or an electric motor; and a link unit connected to the drive unit at a first end thereof and connected to the mover at a second end thereof, so that when the link unit extends in response to an operation of the drive unit, the mover is shifted to the blocking position.

5. The back pressure blocking sliding valve according to claim 4, wherein the mover includes: a mover body on which the blocking plate is seated, with a circular opening provided in the mover body; and a link unit holding part combined with the link unit, wherein the circular opening has a diameter smaller than a diameter of the blocking plate, so that the blocking

plate is seated on the circular opening of the mover body.

6. The back pressure blocking sliding valve according to claim 3 or 5, wherein the mover body is provided with a wheel for realizing easy movement of the mover body.

7. The back pressure blocking sliding valve according to any one of claims 1, 3, and 5, wherein the blocking plate has a circular disc shape, with an outer diameter of the blocking plate being larger than a diameter of the fluid inlet part, and a protrusion being provided on a lower surface of the blocking plate by protruding downward, so that when the blocking plate is seated on the mover, the protrusion limits a horizontal movement of the blocking plate.

8. The back pressure blocking sliding valve according to claim 7, wherein an O-ring is provided in the valve body at a location at which the valve body comes into contact with the blocking plate, so that the O-ring realizes a sealing effect when the blocking plate floats due to the pressure difference produced by the back pressure inside the valve body, and closes the fluid inlet part, and blocks the back pressure.

9. The back pressure blocking sliding valve according to claim 8, wherein a height (A) from a surface of the valve body

on which the O-ring is provided to an upper surface of the mover or a height (D) to the lower surface of the blocking plate from which the protrusion protrudes is set to be less than a sum of a thickness (B) of the blocking plate and a height (C) of the protrusion formed on the lower surface of the blocking plate, that is, A or D < (B + C).

10. The back pressure blocking sliding valve according to claim 1, wherein the valve body further includes: a powder inlet prevention cylinder; and a powder inlet prevention ring provided in the powder inlet prevention cylinder so as to move upward and downward by compressed air or compressed gas supplied from outside into the powder inlet prevention cylinder, so that the powder inlet prevention ring blocks inflow of powder into a cavity receiving the mover and the mover shifting unit.

11. The back pressure blocking sliding valve according to claim 10, wherein the powder inlet prevention ring has a cylindrical structure that is stepped twice, the powder inlet prevention ring moving upward and downward by the compressed air or the compressed gas supplied into the powder inlet prevention cylinder via a compressed air inlet part provided on the powder inlet prevention cylinder.

12. The back pressure blocking sliding valve according to claim 11, wherein a cavity having a predetermined thickness (t) is provided in a lower part of a mover body of the mover on which the blocking plate is seated, so that when the powder inlet prevention ring starts to be opened in response to a back pressure generation signal generated from outside, the cavity of the mover body allows the mover shifting unit to shift the mover to the blocking position at which the blocking plate blocks the fluid inlet part even before the powder inlet prevention ring is fully opened.

13. The back pressure blocking sliding valve according to claim 12, wherein the thickness (t) of the cavity provided in the lower part of the mover body is 1mm or more.

14. The back pressure blocking sliding valve according to claim 10, wherein a gas inlet part is provided on the valve body so as to supply powder absorption preventing gas from outside into the valve body, and a gas outlet part is provided on the valve body so as to allow the powder absorption preventing gas supplied from the gas inlet part to flow along an inner circumferential surface of the valve body, thereby preventing the powder from being absorbed on an inner circumferential surface of the powder inlet prevention ring or on the inner circumferential surface of the valve body.

15. The back pressure blocking sliding valve according to claim 14, wherein the gas outlet part has a circular path shape that allows the powder absorption preventing gas to flow along the inner circumferential surface of the valve body.

16. The back pressure blocking sliding valve according to claim 14, wherein a cylindrical gas guide ring having a diameter smaller than an inner diameter of the valve body is provided in the valve body, so that the gas guide ring guides the powder absorption preventing gas to the inner circumferential surface of the valve body when the powder absorption preventing gas is discharged from the gas outlet part.

17. The back pressure blocking sliding valve according to any one of claims 14 to 16, wherein the gas guide ring has a length greater than a length of a portion having the gas outlet part.

CLAIMS

1. A back pressure blocking sliding valve, comprising:

a valve body including: a fluid inlet part and a fluid outlet part provided in upper and lower parts of the valve body, respectively, with a fluid passing cavity defined between the fluid inlet part and the fluid outlet part;

the valve body further including: a powder inlet prevention cylinder; and a powder inlet prevention ring provided in the powder inlet prevention cylinder so as to move upward and downward by compressed air or compressed gas supplied from outside into the powder inlet prevention cylinder, so that the powder inlet prevention ring blocks inflow of powder into a cavity receiving the mover and the mover shifting unit;

a mover including a blocking plate seated thereon, the blocking plate functioning to block the fluid inlet part, the mover being shifted to the fluid passing cavity when it is required to block a fluid flow; and

a mover shifting unit shifting the mover,

in which when a back pressure is generated, the mover shifting unit shifts the mover to a blocking position at which the blocking plate blocks the fluid inlet part, and the blocking plate seated on the mover floats due to a pressure difference produced by the back pressure inside the valve body, and closes the fluid inlet part, thereby blocking the back pressure.

2. A back pressure blocking sliding valve according to Claim 1, in which the mover shifting unit includes: a drive unit that is a pneumatic actuating cylinder or an electric motor; and a rotary shaft of the drive unit, the rotary shaft combined with the mover, so that the mover is shifted to the blocking position by a rotation of the rotary shaft.

3. A back pressure blocking sliding valve according to Claim 2, in which the mover includes: a rotary shaft holding part combined with the rotary shaft; and a mover body on which the blocking plate is seated, with a circular opening provided in the mover body, in which the circular opening has a diameter smaller than a diameter of the blocking plate, so that the blocking plate is seated on the circular opening of the mover body.

4. A back pressure blocking sliding valve according to Claim 1, in which the mover shifting unit includes: a drive unit that is a pneumatic actuating cylinder or an electric motor;

and a link unit connected to the drive unit at a first end thereof and connected to the mover at a second end thereof, so that when the link unit extends in response to an operation of the drive unit, the mover is shifted to the blocking position.

5. A back pressure blocking sliding valve according to Claim 4, in which the mover includes: a mover body on which the blocking plate is seated, with a circular opening provided in the mover body; and a link unit holding part combined with the link unit, in which the circular opening has a diameter smaller than a diameter of the blocking plate, so that the blocking plate is seated on the circular opening of the mover body.

6. A back pressure blocking sliding valve according to Claim 3 or 5, in which the mover body is provided with a wheel for realizing easy movement of the mover body.

7. A back pressure blocking sliding valve according to any of Claims 1, 3 or 5, in which the blocking plate has a circular disc shape, with an outer diameter of the blocking plate being larger than a diameter of the fluid inlet part, and a protrusion being provided on a lower surface of the blocking plate by protruding downward, so that when the blocking plate is seated on the mover, the protrusion limits a horizontal movement of the blocking plate.

8. A back pressure blocking sliding valve according to Claim 7, in which an O-ring is provided in the valve body at a location at which the valve body comes into contact with the blocking plate, so that the O-ring realizes a sealing effect when the blocking plate floats due to the pressure difference produced by the back pressure inside the valve body, and closes the fluid inlet part, and blocks the back pressure.

9. A back pressure blocking sliding valve according to Claim 8, in which a height (A) from a surface of the valve body on which the O-ring is provided to an upper surface of the mover or a height (D) to the lower surface of the blocking plate from which the protrusion protrudes is set to be less than a sum of a thickness (B) of the blocking plate and a height (C) of the protrusion formed on the lower surface of the blocking plate, that is, A or $D < (B + C)$.

10. A back pressure blocking sliding valve according to Claim 9, in which the powder inlet prevention ring has a cylindrical structure that is stepped twice, the powder inlet prevention ring moving upward and downward by the compressed air or the compressed gas supplied into the powder inlet prevention cylinder via a compressed air inlet part provided on the powder inlet prevention cylinder.

11. A back pressure blocking sliding valve according to Claim 10, in which a cavity having a predetermined thickness (t) is provided in a lower part of a mover body of the mover on which the blocking plate is seatedt so that when the powder inlet prevention ring starts to be opened in response to a back pressure generation signal generated from outside t the cavity of the mover body allows the mover shifting unit to shift the mover to the blocking position at which the blocking plate blocks the fluid inlet part even before the powder inlet prevention ring is fully opened.

12. A back pressure blocking sliding valve according to Claim 11, in which the thickness (t) of the cavity provided in the lower part of the mover body is 1mm or more.

13. A back pressure blocking sliding valve according to Claim 9, in which a gas inlet part is provided on the valve body so as to supply powder absorption preventing gas from outside into the valve body, and a gas outlet part is provided on the valve body so as to allow the powder absorption preventing gas supplied from the gas inlet part to flow along an inner circumferential surface of the valve body, thereby preventing the powder from being absorbed on an inner circumferential surface of the powder inlet prevention ring or on the inner circumferential surface of the valve body.

14. A back pressure blocking sliding valve according to Claim 13, in which the gas outlet part has a circular path shape that allows the powder absorption preventing gas to flow along the inner circumferential surface of the valve body.

15. A back pressure blocking sliding valve according to Claim 13, in which a cylindrical gas guide ring having a diameter smaller than an inner diameter of the valve body is provided in the valve body, so that the gas guide ring guides the powder absorption preventing gas to the inner circumferential surface of the valve body when the powder absorption preventing gas is discharged from the gas outlet part.

16. A back pressure blocking sliding valve according to any of Claims 13 to 15, in which the gas guide ring has a length greater than a length of a portion having the gas outlet part.