CLAIMS

What is claimed is:

1. A molded product production device ~~adapted to be used~~ for producing a molded body by compression molding a molding material, comprising:

a molding die having ~~an inner circumferential surface defining~~ a cavity opened in~~with~~ upward~~per~~ and downward~~lower~~ directions and configured to be filled with~~openings, the cavity into which~~ the molding material ~~is to be filled~~;

a vertically movable lower punch provided so as to be inserted into the cavity from a~~the~~ lower end side~~opening~~ thereof ~~and vertically move~~, the lower punch having a lower punch surface and a lower punch release agent holding portion which is provided at a lower side of the lower punch surface and capable of holding a release agent;

a~~n~~ vertically movable upper punch provided so as to be inserted into the cavity from an~~the~~ upper end side~~opening~~ thereof ~~and vertically move~~, the upper punch having an upper punch surface; and

a lower punch release agent supply means which supplies the release agent to the lower punch release agent holding portion when the lower punch release agent holding portion is~~being~~ exposed outside the cavity.

2. The molded product production device as claimed in claim 1, wherein the lower punch release agent holding portion transfers the release agent held thereto to an~~the~~ inner circumferential surface of~~defining~~ the cavity as the lower punch moves inside the cavity.

3. The molded product production device as claimed in claim 1, wherein the lower punch release agent supply means supplies the release agent to the lower punch release agent holding portion when the lower punch release agent holding portion is~~being~~ exposed outside the cavity from the lower end~~opening~~ ~~there~~of the cavity.

4. The molded product production device as claimed in claim 1, wherein the lower punch release agent supply means supplies the release agent to the lower punch release agent holding portion when the lower punch release agent holding

portion is~~being~~ exposed outside the cavity from the upper end~~opening thereof~~ the cavity.

5. The molded product production device as claimed in claim 1, wherein the lower punch release agent supply means includes at least one nozzle which injects the release agent toward the lower punch release agent holding portion exposed outside the cavity.

6. The molded product production device as claimed in claim 1, wherein before the molding material is filled into the cavity, the release agent is applied to the lower punch release agent holding portion, and then the lower punch is temporarily moved so that an upper end of a region of the lower punch release agent holding portion, to which the release agent has been applied, reaches ~~in~~ the vicinity of the upper opening of the cavity.

7. The molded product production device as claimed in claim 1, wherein the lower punch release agent holding portion includes a plurality of concave portions and/or

convex portions formed in~~on an outer circumference of~~ the lower punch.

8. The molded product production device as claimed in claim 7, wherein each concave portion is a groove extending along the outer circumference of the lower punch in a horizontal direction.

9. The molded product production device as claimed in claim 1, further comprising: an upper punch release agent supply means having a function of applying a release agent to the upper punch.

10. The molded product production device as claimed in claim 9, wherein the upper punch release agent supply means has a function of applying the release agent onto each of the upper and lower punch surfaces.

11. The molded product production device as claimed in claim 9, wherein the upper punch release agent supply means also serves as the lower punch release agent supply means.

12. The molded product production device as claimed in claim 9, wherein the upper punch further includes an upper punch release agent holding portion which is provided at an upper side of the upper punch surface and capable of holding the release agent, and

wherein the upper punch release agent supply means has a function of supplying the release agent to the upper punch release agent holding portion.

13. The molded product production device as claimed in claim 1, wherein an average thickness of the release agent applied on each of the upper punch surface, the lower punch surface and the inner circumferential surface of~~defining~~ the cavity is in the range of 0.001 to 50 μm.

14. The molded product production device as claimed in claim 1, wherein the molding material is of a powdered state and contains a resin material.

15. The molded product production device as claimed in claim 14, wherein the resin material comprises an epoxy-based resin material.

16. The molded product production device as claimed in claim 14, wherein the release agent contains a silicone-based release agent.

17. A method of producing a molded product using the molded product production device defined by any one of claims 1 to 16, comprising:

a lower punch release agent supply step of supplying the release agent to the lower punch release agent holding portion in a state that the lower punch release agent holding portion is exposed outside the cavity;

a release agent transfer step of transferring the release agent held to the lower punch release agent holding portion to the inner circumferential surface of~~defining~~ the cavity as the lower punch moves inside the cavity;

a filling step of filling the molding material into the cavity; and

a compression molding step of compression molding the molding material filled into the cavity using the upper and lower punches.

~~18. A molded product produced using the molded product production device defined by claim 1.~~