

CLAY MOLDING DEVICE

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a clay molding device for molding a predetermined figure by filling up clay in a mold.

Description of Related Art

Conventionally, a clay molding device for molding a predetermined figure by filling up clay in a mold is known. Such a clay molding device includes an integrated type of entire mold and a type of two split molds.

According to a clay molding by using such a mold, it is possible to obtain a molded thing having a predetermined figure easily.

In the former, i.e., the integrated type of entire mold, it is required that the mold itself comprises a material having a flexibility to a certain degree. The reason for this is that deformation of the mold to a certain degree is required when taking a molded clay out of the mold. However, there is a problem that if the molded thing is taken out of the mold before the clay becomes hard sufficiently, the molded thing itself gets out of shape to a certain degree by deformation of the mold when taking the molded clay out. Further, in

the integrated type of entire mold, if putting the clay into the mold at a stretch, air is enclosed in the bottom of depressed places in the cavity of the mold. Accordingly, the clay cannot bring into contact with all the corners of the inner surface of the cavity of the mold because of existence of air, so that it is not possible to provide a molded thing having the predetermined figure.

In the latter, i.e., the type of two split molds, even if the molded thing is taken out of the mold just after molded, the molded thing does not gets out of shape because the mold itself can be made of a hard material and the split molds are divided when taking the molded thing out. If there is a small gap between the parting surfaces of the split molds, even when putting the clay into the mold at a stretch, it may not enclose air in the mold, in comparison with the integrated type of an entire mold. However, in the case that there is a irregularity on the inner surface of the mold 40, when putting the clay into the mold 40 at a stretch, there is a large possibility that air stays at recess portions, as shown in FIG. 4A. Although the air staying in the recess portion is compressed according to filling-up of the clay, the air does not go out of the recess portion. Accordingly, because clay cannot reach the bottom of the recess portion, there was a problem that the molded thing 5 itself gets out of shape at this portion, as shown

in FIG. 4B.

SUMMARY OF THE INVENTION

The invention has been made in view of the above problems.

It is an object of the invention to provide a clay molding device which can make a clay molded thing keeping in shape.

In accordance with an aspect of the present invention, the clay molding device is one for molding a predetermined figure by filling up clay in a mold through an opening thereof, wherein a small air hole is formed at a recess portion which exists on an inner surface of the mold.

According to the clay molding device, because a small air hole is formed at a recess portion which exists on an inner surface of the mold, air passes through the air hole when filling up clay in the mold. Therefore, air does not stay at the recess portion which has the air hole formed. Consequently, it is possible to provide a clay molding device which can make a clay molded thing keeping in shape.

In accordance with another aspect of the present invention, the clay molding device is one for molding a predetermined figure by filling up clay in a mold which comprises a plurality of split

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molds through an opening of the mold, wherein a small air hole is formed at a recess portion which exists on inner surfaces of the mold splits.

According to such a clay molding device, because a small air hole is formed at a recess portion which exists on inner surfaces of the mold splits, air passes through the air hole when filling up clay in the mold. Therefore, air does not stay at the recess portion which has the air hole formed. Accordingly, it is possible to provide a clay molding device which can make a clay molded thing keeping in shape.

Preferably, the clay molding device further comprises: a mold mounting portion for mounting the mold thereto detachably, which has a clay filling-up opening formed at a position in the mold mounting portion corresponding to the opening of the mold to be mounted, a clay pressing-out member provided in the clay filling-up opening, which is movable toward an exit of the clay filling-up opening, and a operating member for moving the clay pressing-out member toward the exit of the clay filling-up opening so that the clay is pressed into the mold through the opening thereof.

The operating member for moving the clay pressing-out member includes a member which moves the clay pressing-out member by using an electric motor and a member which moves the clay pressing-out member manually. As the operating member for moving

the clay pressing-out member manually, various types of members, e.g., a lever acting like a seesaw, as shown in FIG. 2, a rod which is disposed in the rear side of the clay pressing-out member and is movable to push the clay pressing-out member toward the clay filling-up hole 21, and the like may be used.

According to the clay molding device, it is not required that a person fills clay up into the mold directly. Because the clay can be filled up into the mold uniformly, it is possible to improve the uniformity of the molded figure and the products quantity in a mold, in comparison with the case of manual filling of clay.

Preferably, the operating member comprises a lever for moving the clay pressing-out member by an action like a seesaw.

According to the clay molding device having such a structure, because the clay pressing-out member is moved by an action like a seesaw, operation for the clay pressing-out member can be easily carried out by making the length of the arm in the operational side of the lever larger than that of the arm in the other side.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are

given by way of illustration only, and thus are not intended as a definition of the limits of the present invention, and wherein;

FIGS. 1A to 1C show a clay molding device including a clay filling-up member, a mold and a plastic knife, according to an embodiment of the invention, wherein FIG. 1A is a perspective view of the clay filling-up member, FIG. 1B is a perspective view of the mold comprising a pair of split molds, and FIG. 1C is a perspective view of the plastic knife;

FIG. 2 is a vertical sectional view of the clay filling-up member shown in FIG. 1A;

FIG. 3A is a vertical sectional partial view of the mold used in the clay molding device according to the invention, containing filled-up clay therein, and FIG. 3B is a perspective view of the clay figure molded by using the mold shown in FIG. 3A; and

FIG. 4A is a vertical sectional partial view of a conventional mold containing filled-up clay therein, and FIG. 4B is a perspective view of the clay figure molded by using the mold shown in FIG. 4A.

PREFERRED EMBODIMENT OF THE INVENTION

FIGS. 1A to 1C show a clay molding device 1 according to an embodiment of the invention. The clay molding device 1 comprises a clay filling-up

member 2, as shown in FIG. 1A, a mold 3 which comprises a pair of split molds 3a and 3b, as shown in FIG. 1B, and a plastic knife 4, as shown in FIG. 1C.

From the upper portion of the main body 20 of the clay filling-up member 2 to the inside thereof, a clay filling-up cylindrical hole 21 is formed by a cylindrical wall which extends downward, as shown in FIG. 2. In the clay filling-up hole 21, a clay pressing-out member 22 is provided to be movable up and down while being guided by the cylindrical wall. To the lower end portion of the clay pressing-out member 22, a pin 23 is attached to engage with a long hole 26 which is formed in an arm 25a of a lever 25. The lever 25 can swing around a shaft 24 which is supported by the main body 20, like a seesaw. Almost the other arm 25b of the lever 25 projects out of the main body 20. This arm 25b functions as an operating portion. The clay pressing-out member 22 is biased downwardly by an extension spring 27 through the lever 25. That is, the lever 25 is biased by the extension spring 27 in a direction to raise the top of the arm 25b.

On the main body 20 around the clay filling-up hole 21, hook-shaped portions 28a, 28b and 28c each having a hooked upper top and almost the same height, which directs inwardly are provided. The hook-shaped portions 28a, 28b and 28c function as a portion for mounting the mold. The hook-shaped

portion 28a is arranged at a forward position (opposite to the other arm 25b with respect to the hole 21) on the main body 20, and the hook-shaped portions 28b and 28c are arranged at both sides of the main body 20 to oppose to each other.

The mold 3 comprising the split molds 3a and 3b is for forming a Christmas tree as a figure to be molded, in the embodiment, as shown in FIG. 1B. On the inner surface of the split mold 3a, positioning pins 30 are provided at positions in both sides. Correspondingly, on the inner surface of the split mold 3b, pin holes (not shown) for receiving the positioning pins 30 therein are formed at positions in both sides.

The split mold 3b is provided with a claw 31, and the split mold 3a is provided with a claw hole 32 which engages with the claw 31. The mold 3 is formed by facing the inner surface sides of the split molds 3a and 3b to each other, engaging the claw 31 with the claw hole 32, and then engaging the pins 30 with the corresponding pin holes. The mold 3 has a flange at the bottom, which has a diameter and a thickness so that the bottom flange fits into the spaces between the hook-shaped portions 28a to 28c and the upper surface of the main body 20.

At each recess portion which exists on an inner cavity surface of each of the split molds 3a and 3b, a small air hole with a diameter of about 1 mm, which passes through each split mold is formed

for removing air in the recess of the cavity, as shown in FIG. 3A. In the embodiment, the small air holes are formed at the tops of the branches of the fir which constitutes a Christmas tree.

Next, how to use the clay molding device 1 will be explained as follows.

First, clay is filled up into the clay filling-up hole 21 sufficiently. Then, the mold 3 is set in the clay filling-up member 2. In the setting of the mold 3, the flange portion of the mold 3 is inserted between the hooked portions 28b and 28c and directed toward the hooked portion 28a, and after the mold 3 is brought into contact with the hooked portion 28a, the mold 3 is rotated so that the parting line of the mold 3 is at the position of the hooked portions 28b and 28c. Thereby, setting of the mold 3 is completed.

Thereafter, by pressing down the arm 25b of the lever 25, the clay filled in the clay filling-up hole 21 is pressed out of the clay molding device 1 and is filled up into the mold 3. After the clay is filled up in the mold 3 sufficiently, the hand is separated from the arm 25b of the lever 25. Then, the mold 3 is taken out of the clay filling-up member 2. At the time, excess clay is removed by using the knife 4. By opening the mold 3, a clay molded thing 5 having a figure of Christmas tree can be taken out.

According to the clay molding device 1, because a small air hole 33 is formed at a recess portion which exists on an inner surface of the split molds 3a and 3b, no air stay in the recess portion which has the air hole 33, as shown in FIG. 3A. Consequently, it is possible to make a clay molded figure which has a sharp edge and keeps in shape, as shown in FIG. 3B.

On the contrary, according to the conventional split molds 40, the clay molded figure 5 gets out of shape at the edge portion, as shown in FIG. 4B.

Although some embodiments of the invention have been explained as described above, it should also be understood that the present invention is not limited to the embodiments and that various changes and modifications may be made to the invention without departing from the gist thereof.

For example, although only a clay molding device in which air holes 33 are formed at positions except the parting surfaces of the split molds 3a and 3b is explained in the above embodiment, a trench for removing air out of the cavity may be formed in the parting surfaces of the split molds 3a or 3b.

Although only the case of using the split molds 3a and 3b is explained in the above embodiment, it is of course that the present invention can be applied also to the case of using an integrated type of mold.

According to the clay molding device, because a small air hole is formed at a recess portion which exists on an inner surface of the mold, air passes through the air hole when filling up clay in the mold. Therefore, air does not stay at the recess portion which has the air hole formed. Consequently, it is possible to provide a clay molding device which can make a clay molded thing keeping in shape.



What is claimed is:

1. A clay molding device for molding a predetermined figure by filling up clay in a mold through an opening thereof, wherein a small air hole is formed at a recess portion which exists on an inner surface of the mold.

2. A clay molding device as claimed in claim 1, further comprising:

a mold mounting portion for mounting the mold thereto detachably, which has a clay filling-up opening formed at a position in the mold mounting portion corresponding to the opening of the mold to be mounted,

a clay pressing-out member provided in the clay filling-up opening, which is movable toward an exit of the clay filling-up opening, and

an operating member for moving the clay pressing-out member toward the exit of the clay filling-up opening so that the clay is pressed into the mold through the opening thereof.

3. A clay molding device as claimed in claim 2, wherein the operating member comprises a lever for moving the clay pressing-out member by an action like a seesaw.

4. A clay molding device for molding a predetermined figure by filling up clay in a mold which comprises a plurality of split molds through



an opening of the mold, wherein a small air hole is formed at a recess portion which exists on inner surfaces of the mold splits.

5. A clay molding device as claimed in claim 4, wherein the air hole comprises at least a through trench formed in at least one of parting surfaces of the split molds.

6. A clay molding device as claimed in claim 4, further comprising:

a mold mounting portion for mounting the mold thereto detachably, which has a clay filling-up opening formed at a position in the mold mounting portion corresponding to the opening of the mold to be mounted,

a clay pressing-out member provided in the clay filling-up opening, which is movable toward an exit of the clay filling-up opening, and

a operating member for moving the clay pressing-out member toward the exit of the clay filling-up opening so that the clay is pressed into the mold through the opening thereof.

7. A clay molding device as claimed in claim 6, wherein the operating member comprises a lever for moving the clay pressing-out member by an action like a seesaw.