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(54) **Method of manufacturing a shell mold.**

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Description

The present invention relates to a method of manufacturing a shell mold as referred to in the preamble of claim 1.

There is conventionally known a method of manufacturing a shell mold, in which a preheated mold is charged with molding material, such as silica sand mixed with phenolic resin as a caking agent, the molding material is solidified along the forming surface of the mold, the mold is turned over to shake off the excessive molding material and then heated to solidify the shell-shape molding material sticked to the mold, thereby to form a shell, and the shell is finally taken out from the mold, whereby a shell mold is produced.

According to such conventional manufacturing method, however, since the molding material is heatingly solidified, it is required to use, as a mold, a metal mold which is expensive and difficult to manufacture. Accordingly, such metal mold cannot be manufactured in a short period of time, so that prompt action cannot be taken even if an order is received. Furthermore, such expensive mold is not favorable in view of manufacturing economical efficiency.

According to the conventional method, since there is used a metal mold having a high coefficient of thermal expansion, the expansion and/or contraction of the metal mold reduce the dimensional precision of a shell mold, and energy consumption is disadvantageously increased.

Such conventional method requires operations in a high temperature and produces a great quantity of gas, thus causing trouble in view of environmental sanitation.

According to such conventional method, since molding material is merely put in a metal mold and sticked thereto in the shell shape, such solidified molding material in the shell shape is not so dense. Therefore, when the metal mold is turned over, peal-back easily takes place.

Furthermore, uneven thickness of the metal mold results in uneven heat capacity thereof, which easily causes the shell thickness to become uneven.

According to such conventional method, the molding material is limited to phenolic resin or the like, which can be heatingly solidified, with a narrow range of choice as to a caking agent. Thus, the use of expensive molding material is unavoidable.

A method of manufacturing a shell mold of the type referred to in the preamble of claim 1 is known by AT—B—338448, which describes a mold, having a predetermined forming surface, against which sheet material is pressingly held by negative pressure. As soon as the sheet material is firmly held at the forming surface a special flask is placed on top of it and covered by an additional cover sheet. A suction box surrounding the flask is used to hold the forming material and the sheet material in place. After the flask has been turned upside down the sheet material is dissolved and afterwards solidified to finish the shell mold. This method is very complicated and expensive, since it needs two suction boxes and a large amount of forming material as well as a sheet material soluble in a solvent. The forming material has to be solidified along the sheet material in a rather particular process.

It is an object of the present invention to provide a method of manufacturing a shell mold in which molding material can be solidified in a cold or warm atmosphere, without the necessity of heating a mold to a high temperature and without the need of a large amount of molding material. The shell mold should be suitable for a convenient use of a wooden, gypsum or resin mold, which are more economical than a metal mold and capable of being easily manufactured in a short period of time even if its shape is complicated, thus enabling to economically manufacture a shell mold in prompt response to an order received.

The problem of the invention is solved by the measures set out in the characterizing portion of claim 1.

The method of the invention advantageously provides a shell mold in which a mold is not deformed, i.e., expanded and contracted around solidification of molding material due to heat, therefore precision of the shell mold is greatly improved. Thereby a shell mold can be formed which has a substantial uniform thickness without the occurrence of any peel-back.

The present invention will be further described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a section view of a first step of the present invention, illustrating molding material put on an elastic member horizontally held under a mold;

Fig. 2 is a section view of a second step of the present invention, illustrating the molding material pressingly held and formed into a shell shape by the mold and the elastic member, with a negative pressure provided therebetween;

Fig. 3 is a section view of a third step of the present invention, illustrating the molding material solidified after the mold has been turned over;

Fig. 4 is a section view of a fourth step of the present invention, illustrating the shell taken out from the mold;

Fig. 5 is an enlarged section view of main portions in Fig. 1; and

Fig. 6 is an enlarged section view of main portions taken along the line VI—VI in Fig. 1.

The description hereinafter will discuss in detail a method of manufacturing a shell mold, with reference to the accompanying drawings.

As shown in Fig. 1, horizontally held under a mold 1 is an elastic member in the sheet or film form, for example a vinyl sheet 2. Fire-resisting granular molding material 3 is suitably put on this vinyl sheet 2.

The mold 1 comprises a hollow suction box 4 having an air intake port 4a connected to a suction means such as a vacuum pump (not shown), a

pattern plate 5 having a pattern 5a of predetermined shape and disposed below the suction box 4, and an outer frame 6 surrounding the circumference of the pattern plate 5. The pattern plate 5 has therein a suitable number of suction holes 7 which open in the forming surface 5b of the pattern plate 5 and communicate with the inside of the suction box 4. As shown in Fig. 5, each of the suction holes 7 has a filter 8 made of a net member or the like to prevent the molding material from entering into the hole 7.

As shown in Fig. 6, the outer frame 6 has in the entire lower periphery thereof a suction groove 9a and a suitable number of air holes 9b which open in the suction groove 9a and communicate with the inside of the suction box 4.

The vinyl sheet 2 has a circumference suitably larger than that of the outer frame 6 of the mold 1. The molding material 3 is put on the vinyl sheet 2 at the center portion thereof such that the circumference of the molding material 3 put on the vinyl sheet 2 is suitably smaller than the inner circumference of the outer frame 6. The molding material 3 put on the vinyl sheet 2 has a substantially uniform thickness.

The molding material 3 is constituted by silica sand to which 2 to 7% of sodium silicate is added as a caking agent. Such molding material 3 is adapted to be solidified by passing carbonic acid gas through the molding material 3 in an ambient temperature. As necessary, facing sand 3a may be put on the surface of the molding material 3 in order to obtain a good mold surface, as shown in Fig. 1

From the state shown in Fig. 1, the mold 1 is lowered such that the lower end of the outer frame 6 of the mold 1 comes in contact with that peripheral portion 2a of the vinyl sheet 2 on which the molding material 3 is not put. The pressure in the suction box 4 is reduced by operating the suction means (not shown) connected to the air intake port 4.

When the inside of the suction box 4 is thus sucked so that the pressure therein is reduced, as shown in Fig. 2 the peripheral portion 2a of the vinyl sheet 2 is held against the lower end of the outer frame 6 by a suction force acting on the suction groove 9a through the air holes 9b. A negative pressure is then produced in the space surrounded by the vinyl sheet 2 and the mold 1, through the suction holes 7. Thus, the molding material 3 is formed into a shell shape along the forming surface 5b of the mold 1. Namely, since a negative pressure is produced at the side of the molding material 3 on the vinyl sheet 2, the vinyl sheet 2 is extendingly pressed toward the forming surface 5b by the outside pressure. The molding material 3 is then pressingly held and formed by the mold 1 and the vinyl sheet 2 as shown in Fig. 2. In this step, the molding material 3 is compressingly formed into a shell shape having a substantially uniform thickness along the forming surface 5b.

With the molding material 3 maintained as it is, the mold 1 is turned over as shown in Fig. 3. Carbonic acid gas then passes through the molding material 3 by a suitable means. At this time, a shock or vibration may be applied to the molding material 3 by a vibrator or the like (not shown) such that the molding material 3 is further uniformly or evenly distributed.

When carbonic acid gas passes through the molding material 3, sodium silicate in the molding material 3 reacts to the carbonic acid gas to produce silica gel, thereby to solidify the molding material 3 to form a shell. Such solidification is generally called a CO_2 process.

As shown in Fig. 4, the shell is taken out from the mold 1 by a suitable means (not shown) and the vinyl sheet 2 is taken off from the shell, so that a desired shell mold 3' is obtained. It is to be noted that the vinyl sheet 2 may be taken off before carbonic acid gas passes through the molding material 3.

According to such method of manufacturing a shell mold, the molding material 3 is solidified as pressingly held and formed into a shell shape along the forming surface 5b, by the mold 1 and the vinyl sheet 2. Such solidification is made according to the CO_2 process above-mentioned which requires no heating step. This eliminates the necessity of using an expensive metal mold difficult to manufacture, as the mold 1 and in particular the pattern 5a of complicated shape. That is, there may be used an economical wooden, gypsum or resin mold easy to manufacture.

Accordingly, the mold 1 may be economically manufactured in a short period of time, thus presenting an advantage that a prompt action can be taken when an order is received.

According to the present invention, since it is not required to heat the mold 1, the mold 1 is not deformed, i.e., neither expanded nor contracted. Thus, precision of the shell mold 3' may be greatly improved.

As shown in the embodiment discussed hereinbefore, with the use of the facing sand 3a, the mold surface 3'a of the shell mold 3' may be made fine, thereby to improve the mold surface.

Besides the CO_2 process, solidification of the molding material 3 may be made according to various methods to be applied in an ambient temperature, such as a cold box process. In such a case, besides sodium silicate, there may be suitably used other inorganic or organic caking agents.

According to another embodiment of the present invention, molding material formed by silica sand mixed with 2 to 7% of sodium silicate or 1 to 3% of a water solution of starch is pressingly held and formed into a shell shape in the same manner as above-mentioned.

Blown to the molding material is air which is warm to such extent as not to thermally impair the mold. Thus, moisture contained in the molding material is evaporated to solidify the molding material.

In order to accelerate solidification of the molding material 3, the mold 1 may be heated within

limits not thermally prejudiciary to the mold 1. Namely, the molding material 3 may be solidified by suitable means either in a cold atmosphere or a warm atmosphere, dependent on the characteristics of the mold 1. However, it is a matter of course that the foregoing does not prohibit the use of a metal mold.

According to the present invention, with the molding material 3 pressingly held and formed into a shell by the mold 1 and the vinyl sheet 2, the mold 1 is turned over and the molding material 3 is solidified. Therefore, a dense shell having a uniform thickness may be formed and no peel-back takes place.

According to the present invention, the molding material 3 is not required to be heated to a high temperature, but may be solidified in a cold or warm atmosphere. Therefore, gas is not generated, or even if generated, the amount is extremely small, and no operations in a high temperature are required, thus presenting an advantage in view of environmental sanitation. Even if gas should be generated, such gas may be quickly eliminated from the air intake port 4a of the suction box 4 through the suction holes 7.

While the vinyl sheet 2 is used as the elastic member in the embodiment discussed hereinbefore, an elastic sheet or film for example a rubber sheet may also be used.

It is not necessarily required to hold the elastic member 2 such as a vinyl sheet in a horizontal manner as shown in Fig. 1, but it is merely required to hold the elastic member 2 such that the molding material 3 put thereon does not flow down.

The molding material 3 is not limited to silica sand mixed with sodium silicate or a water solution of starch to be solidified according to the CO_2 process or the like, but can be suitably selected dependent on a selected solidification process.

The number of the pattern plates is not limited to one as done in the embodiment shown in Fig. 1, but a plurality of pattern plates may be disposed. Thus, various kinds of shell molds can be conveniently manufactured at the same time.

Although in the embodiment discussed hereinbefore, the molding material 3 is solidified after the mold 1 has been turned over, the molding material may be solidified in the step shown in Fig. 2 before the mold 1 is turned over.

In order to facilitate the removal of the shell mold 3' from the mold 1, a shell removing agent may be suitably applied to the forming surface 5b of the mold 1.

Claims

1. A method of manufacturing a shell mold comprising the steps of:

approaching a mold (1) having a predetermined forming surface (5b) towards said mold material (3) with a film or sheet member (2);

providing a negative pressure in a space between said mold (1) and said member (2), thereby to pressingly hold and form that molding material (3) along said forming surface (5b)

solidifying said molding material (3) according to a suitable process and taking it out from that mold;

characterized in that

said member (2) in the sheet of film form is an elastic member;

said molding material (3) is put on said elastic member (2) such that is has a suitable thickness;

the mold (1) is approached towards the molding material (3) from above and the peripheral portion (2a) of the elastic member (2) is held against the mold (1) by said negative pressure;

and the totality of said molding material (3) and said elastic member (2) are deformed to a shell shape (3') along the forming surface (5b).

2. The method of manufacturing a shell mold as set forth in Claim 1, wherein the molding material (3) is solidified in a cold or warm atmosphere according to the CO_2 process or the cold box process.

3. The method of manufacturing a shell mold as set forth in Claim 1, wherein there is used molding material (3) of silica sand mixed with a small amount of sodium silicate as a caking agent, and said molding material (3) is solidified by passing carbonic acid gas through said molding material (3).

4. The method of manufacturing a shell mold as set forth in Claim 1, wherein there is used molding material (3) of silica sand mixed with a small amount of sodium silicate as a caking agent, and after pressingly formed into a shell shape (3'), said molding material (3) is solidified by blowing a warm air into said molding material (3).

5. The method of manufacturing a shell mold as set forth in Claim 1, wherein there is used molding material (3) of silica sand mixed with a small amount of a water solution of starch as a caking agent, and after pressingly formed into a shell shape (3'), said molding material (3) is solidified by blowing a warm air into said molding material (3).

6. The method of manufacturing a shell mold as set forth in Claim 1, wherein facing sand (3a) is put on the surface of the molding material (3) which is put on the elastic member (2), said facing sand (3a) having a substantially uniform thickness.

7. The method of manufacturing a shell mold as set forth in Claim 1, wherein the mold comprises a hollow suction box (4) having an air intake port (4a) connected to suction means such as a vacuum pump, a pattern plate (5) having a pattern (5a) formed into a predetermined shape and disposed below said suction box (4), and an outer frame (6) surrounding the circumference of said pattern plate (5) below said suction box (4).

8. The method of manufacturing a shell mold as set forth in Claim 7, wherein there is used the mold (1) in which the pattern plate (5) has therein a plurality of suction holes (7) which open into the forming surface and communicate with the inside of the suction box (4).

9. The method of manufacturing a shell mold as set forth in Claim 8, wherein there is used the mold (1) in which each of the pattern plate suction holes (7) has a filter (8) capable of preventing the molding material (3) from entering into said each hole.

10. The method of manufacturing a shell mold as set forth in Claim 9, wherein there is used the mold (1) in which the outer frame (6) has in the peripheral lower end thereof a suction groove (9a) and a plurality of air holes (9b) which open into said suction groove (9a) and communicate with the inside of the suction box (4).

11. The method of manufacturing a shell mold as set forth in Claim 7, wherein the mold (1) has a plurality of pattern plates (5).

12. The method of manufacturing a shell mold as set forth in Claim 1, wherein a vinyl sheet is used as the elastic member (2).

13. The method of manufacturing a shell mold as set forth in Claim 10 or 12, wherein the elastic member (2) has an outer circumference (2a) larger than that of the outer frame of the mold.

14. The method of manufacturing a shell mold as set forth in Claim 13, wherein the molding material (3) is put on the elastic member (2) at the center thereof within an area smaller than the inner circumference of the outer frame (6) of the mold, said molding material having a substantially uniform thickness.

15. The method of manufacturing a shell mold as set forth in Claim 14, wherein the elastic member (2) is held horizontally or substantially horizontally.

16. The method of manufacturing a shell mold as set forth in Claim 1, wherein the mold (1) is turned over before the molding material (3) is solidified.

17. The method of manufacturing a shell mold as set forth in Claim 16, wherein a shock or vibration is applied to the molding material (3) before said molding material (3) is solidified.

18. The method of manufacturing a shell mold as set forth in Claim 1, wherein the elastic member (2) is taken off after the molding material (3) has been solidified.

19. The method of manufacturing a shell mold as set forth in Claim 2, wherein a wooden, gypsum or resin mold other than a metal mold is used as the mold (1).

20. The method of manufacturing a shell mold as set forth in Claim 1, wherein a suitable shell removing agent is applied to the forming surface of the mold.

Patentansprüche

1. Ein Verfahren zur Herstellung einer Schalenform mit den Verfahrensschritten:

Annähern einer Form (1) mit einer vorbestimmten Formoberfläche (5b) an das genannte Formmaterial (3) mit einem Schicht- oder Blattelement (2);

Anlegen eines negativen Drucks in einem Gebiet zwischen der genannten Form (1) und dem genannten Element (2), um so das Formmaterial (3) fest gegen die genannte Formoberfläche (5b) zu pressen und zu formen;

Erstarrenlassen des genannten Formmaterials (3) und aus der Form entnehmen;

dadurch gekennzeichnet,

daß das genannte Element (2) in Form eines Blattes oder einer Schicht ein elastisches Element ist;

daß das genannte Formmaterial (3) auf das genannte elastische Element (2) so aufgebracht wird, daß es eine geeignete Dicke aufweist;

daß die Form (1) von oben an das Formmaterial (3) angenähert wird und der Randteil (2a) des elastischen Elements (2) durch den genannten negativen Druck gegen die Form (1) gehalten wird;

und daß die Gesamtheit des genannten Formmaterials (3) und des genannten elastischen Elements (2) längs der Formoberfläche (5b) in eine Schalenform gebracht werden.

2. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem das Formmaterial (3) in einer kalten oder warmen Atmosphäre zu Erstarren gebracht wird, entsprechend dem CO_2 Verfahren oder dem Kalten-Behälter-Verfahren (cold box).

3. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem Formmaterial (3) aus Siliciumdioxidsand verwendet wird, der mit einer geringen Menge von Natriumsilicat als Bindemittel gemischt ist und das genannte Formmaterial (3) zum Erstarren gebracht wird, indem Kohlendioxidgas durch das genannte Formmaterial (3) geschickt wird.

4. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem Formmaterial (3) aus Siliciumdioxidsand verwendet wird, der mit einer geringen Menge von Natriumsilicat als Bindemittel gemischt ist und bei dem das genannte Formmaterial (3) nach einer Preßformung in eine Schalenform (3') zum Erstarren gebracht wird, indem warme Luft in das genannte Formmaterial (3) geblasen wird.

5. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem Formmaterial (3) aus Siliciumdioxidsand verwendet wird, der mit einer geringen Menge einer wässrigen Stärkelösung als Bindemittel gemischt ist und bei dem das genannte Formmaterial (3) nach Preßformung in eine Schalenform (3') zum Erstarren gebracht wird, indem warme Luft in das genannte Formmaterials (3) geblasen wird.

6. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem Formsand (3a) auf die Oberfläche des auf das elastische Element (2) gegebenen Formmaterials (3) gegeben wird, wobei der Formsand (3a) eine im wesentlichen gleichförmige Dicke aufweist.

7. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem die Form ein hohles Sauggehäuse (4) aufweist, das eine Luftzufuhröffnung (4a) enthält, die mit Saugvorrichtungen wie z. B. einer Vakuumpumpe verbunden ist, eine Musterplatte (5) mit einem Muster, das in eine

verbestimmte Gestalt geformt ist und unter dem genannten Sauggehäuse (4) angeordnet ist, und einen äußeren Rahmen (6), der den Umfang der genannten Musterplatte (5) unter dem genannten Sauggehäuse (4) umgibt.

8. Das Herstellverfahren für eine Schalenform nach Anspruch 7, bei dem die Form (1) verwendet wird, in der die Musterplatte (5) eine Vielzahl von Sauglöchern (7) aufweist, die sich in die Formoberfläche erstrecken und mit dem Inneren des Sauggehäuses (4) in Verbindung stehen.

9. Das Herstellverfahren für eine Schalenform nach Anspruch 8, bei dem die Form (1) verwendet wird, in der jedes der Sauglöcher (7) in der Musterplatte einen Filter (8) aufweist, der verhindern kann, daß das Formmaterial (3) in jedes der genannten Löcher eintritt.

10. Das Herstellverfahren für eine Schalenform nach Anspruch 9, bei dem die Form (1) verwendet wird, in der der äußere Rahmen (6) in seinem äußeren unteren Ende eine Saugrille (9a) und eine Vielzahl von Luftlöchern (9b) aufweist, die sich in die genannte Saugrille (9a) öffnen und mit dem Inneren des Sauggehäuses (4) in Verbindung stehen.

11. Das Herstellverfahren für eine Schalenform nach Anspruch 7, bei dem die Form (1) eine Vielzahl von Musterplatten (5) aufweist.

12. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem ein Vinylblatt als elastisches Element (2) verwendet wird.

13. Das Herstellverfahren für eine Schalenform nach Anspruch 10 oder 12, bei dem das elastische Element (2) einen äußeren Umfang (2a) aufweist, der größer ist als der des äußeren Rahmens der Form.

14. Das Herstellverfahren für eine Schalenform nach Anspruch 13, bei dem das Formmaterial (3) auf das elastische Element (2) in dessen Mitte innerhalb eines Gebiets aufgebracht wird, das kleiner ist als der innere Umfang des äußeren Rahmens (6) der Form, wobei das Formmaterial eine im wesentlichen gleichförmige Dicke aufweist.

15. Das Herstellverfahren für eine Schalenform nach Anspruch 14, bei dem das elastische Element (2) horizontal oder im wesentlichen horizontal gehalten wird.

16. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem die Form (1) umgedreht wird, bevor das Formmaterial (3) erstarrt ist.

17. Das Herstellverfahren für eine Schalenform nach Anspruch 16, bei dem ein Stoß oder eine Vibration auf das das Formmaterial (3) ausgeübt wird, bevor das genannte Formmaterials (3) erstarrt ist.

18. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem das elastische Element (2) abgenommen wird, nachdem das Formmaterial (3) erstarrt ist.

19. Das Herstellverfahren für eine Schalenform nach Anspruch 2, bei dem als Form (1) eine aus Holz, Gips oder Harz bestehende Form statt einer Metallform verwendet wird.

20. Das Herstellverfahren für eine Schalenform nach Anspruch 1, bei dem auf die Formoberfläche der Form ein geeignetes Mittel zur Entfernung der Schale aufgebracht wird.

Revendications

1. Procédé de fabrication d'un moule carapace comprenant les opérations consistant à approcher un moule (1) comportant une surface en forme prédéterminée (5b) d'une matière à mouler (3) avec un organe en forme de feuille ou de pellicule (2), à créer une pression négative dans un espace compris entre le moule (1) et l'organe (2) pour maintenir et mettre en forme par pression la matière à mouler (3) contre la surface en forme (5b), à solidifier la matière à mouler (3) par un procédé approprié et à la sortir du moule, caractérisé en ce que l'organe (2) en forme de feuille ou de pellicule est un organe élastique, que la matière à mouler (3) est déposée sur ledit organe élasque (2) de telle façon qu'elle ait une épaisseur appropriée, que le moule (1) est approché de la matière à mouler (3) par le haut, que la partie périphérique (2a) de l'organe élastique (2) est maintenue contre le moule (1) par ladite pression négative, et que la totalité de la matière à mouler (3) et de l'organe élastique (2) sont déformés pour leur donner la forme d'une carapace (3') épousant la forme de la surface en forme (5b).

2. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que la matière à mouler (3) est solidifiée dans une atmosphère froide ou chaude par le procédé au CO_2 ou le procédé à boîte froide.

3. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que la matière à mouler (3) est du sable siliceux mélangé à une petite quantité de silicate de soude servant d'agent agglomérant et que ladite matière à mouler est solidifiée en y faisant passer du gaz carbonique.

4. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que la matière à mouler (3) est du sable siliceux mélangé à une petite quantité de silicate de soude servant d'agent agglomérant et qu'après avoir été mise sous la forme d'une carapace (3') par application d'une pression, ladite matière à mouler est solidifiée en y faisant passer de l'air chaud.

5. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que la matière à mouler (3) utilisée est du sable siliceux mélangé à une petite quantité d'une solution aqueuse d'amidon servant d'agent agglomérant et qu'après avoir été mise sous la forme d'une carapace (3') par application d'une pression, ladite matière à mouler est solidifiée en y faisant passer de l'air chaud.

6. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que du sable pour couche de contact (3a) est déposé sur la surface de la matière à mouler (3) déposée elle-même sur l'organe élastique (2), ladite couche de sable de contact ayant une épaisseur pratiquement uniforme.

7. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que le moule (1) comprend une boîte à dépression (4) munie d'un raccord d'aspiration (4a) raccordé à un moyen d'aspiration tel qu'une pompe à vide, une plaque modèle (5a) de forme prédéterminée et disposée sous ladite boîte à dépression et un cadre extérieur (6) entourant la périphérie de ladite plaque modèle sous la boîte à dépression.

8. Procédé de fabrication d'un moule carapace selon la revendication 7, caractérisé en ce que le moule (1) et la plaque modèle (5) comportent un certain nombre de trous d'aspiration (7) qui débouchent dans la surface en forme (5a) à une extrémité et dans la boîte à dépression (4) à l'autre extrémité.

9. Procédé de fabrication d'un moule carapace selon la revendication 8, caractérisé en ce que chacun des trous d'aspiration (7) de la plaque modèle (5) montée dans le moule (1) est muni d'un filtre (8) pour empêcher la matière à mouler (3) de pénétrer dans ce trou.

10. Procédé de fabrication d'un moule carapace selon la revendication 9, caractérisé en ce que le cadre extérieur (6) du moule (1) comporte une gorge d'aspiration (9a) à sa partie périphérique inférieure et un certain nombre de trous de passage d'air (9b) qui débouchent dans ladite gorge à une extrémité et dans la boîte à dépression (4) à l'autre extrémité.

11. Procédé de fabrication d'un moule carapace selon la revendication 7, caractérisé en ce que le moule (1) porte un certain nombre de plaques modèle (5).

12. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que l'organe élastique (2) est une feuille de vinyle.

13. Procédé de fabrication d'un moule carapace selon la revendication 10 ou 12, caractérisé en ce que l'organe élastique (2) a une périphérie (2a) plus grande que celle du cadre extérieur (6) du moule (1).

14. Procédé de fabrication d'un moule carapace selon la revendication 13, caractérisé en ce que la matière à mouler (3) est déposée sur l'organe élastique (2), au centre de celui-ci, dans une zone plus petite que la périphérie intérieure du cadre extérieur (6) du moule (1), ladite matière à mouler formant une couche d'épaisseur pratiquement uniforme.

15. Procédé de fabrication d'un moule carapace selon la revendication 14, caractérisé en ce que l'organe élastique (2) est maintenu horizontal ou presque horizontal.

16. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que le moule (1) est retourné avant que la matière à mouler (3) soit solidifiée.

17. Procédé de fabrication d'un moule carapace selon la revendication 16, caractérisé en ce que des chocs ou des vibrations sont appliqués à la matière à mouler (3) avant qu'elle soit solidifiée.

18. Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce que l'organe élastique (2) est enlevé après que la matière à mouler (3) ait été solidifiée.

19. Procédé de fabrication d'un moule carapace selon la revendication 2, caractérisé en ce que le moule (1) est un moule en bois, en plâtre ou en résine ou un autre moule non métallique.

20 Procédé de fabrication d'un moule carapace selon la revendication 1, caractérisé en ce qu'un agent de démoulage approprié est appliqué sur la surface en forme (5b) du moule (1).

Fig.1

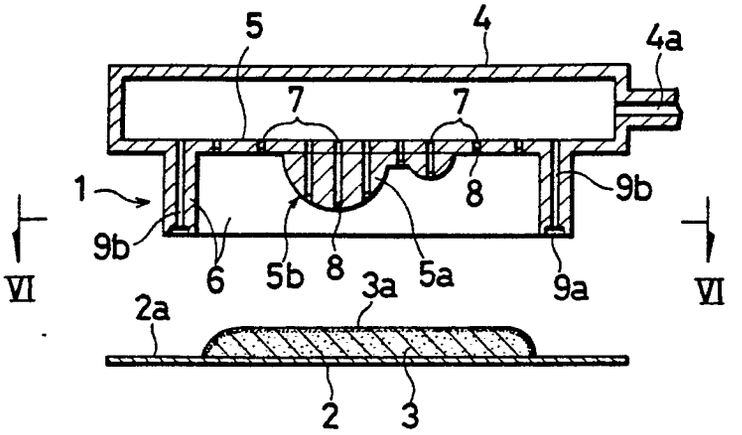

Fig.2

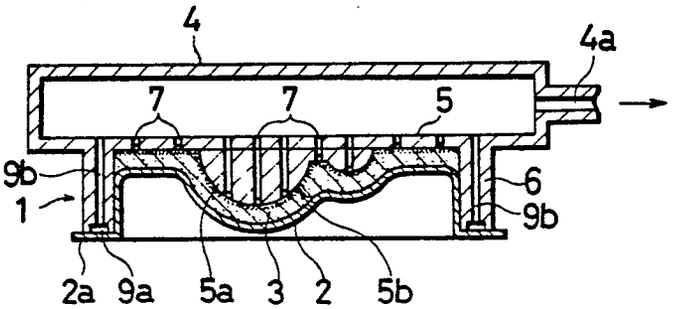

Fig.3

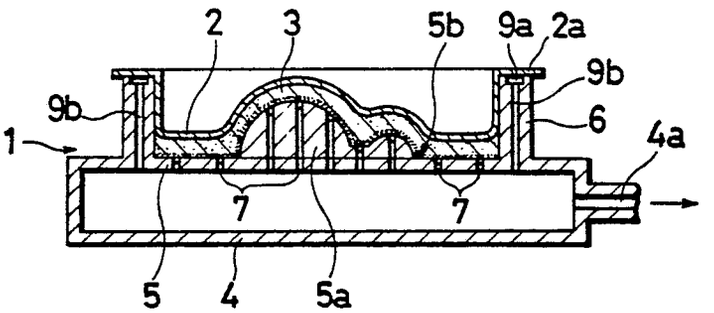

Fig.4

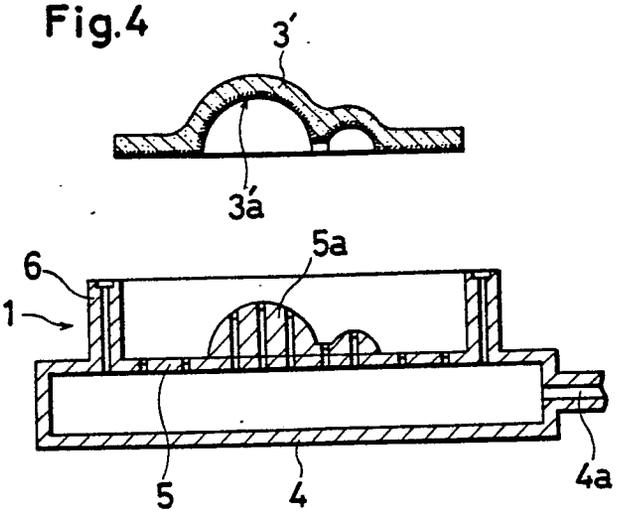

Fig.5

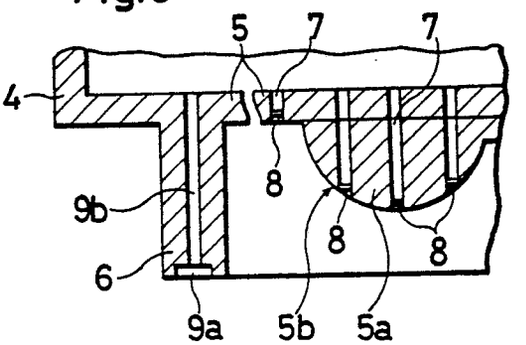

Fig.6