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54 Method and device for manufacturing a cake of compound soap, cake of soap thus composed and elements of soap material.

57 The present invention relates to a method of manufacturing a compound cake of soap in which differently coloured part of material are joined, whereby into a first part of material to be formed is inserted a formed, cured second part of material so that by forming the first part of material the second part of material is enclosed on all sides by the first part of material, and to a device for manufacturing same comprising means for arranging a formed, cured second part of material in the first part of material to be formed.

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Short title: Method and device for manufacturing a cake of compound soap, cake of soap thus composed and elements of soap material.

The invention relates to a method of manufacturing a cake of compound soap, in which differently coloured parts of material are joined.

Such a method is known from Dutch Patent

- 5 Application 7810659. In this known method the formed, cured second part of material is put in a soap mould, into which the first part of material is subsequently poured. The ready cake of soap then has such a structure that an image of the second part of material is visible at the top and
- 10 bottom surfaces of the new cake of soap.

- In practice it is found that this known method of manufacturing a cake of compound soap is not satisfying because in pouring the first part of material into the mould the viscosity required for casting is so high that parts of
- 15 the formed, cured second part of material dissolve so that part of the form, which determines, in fact, the attractiveness of the cake of compound soap, gets lost.

The invention has for its object to provide a method of the kind set forth in the preamble, which enables the manufacture of a cake of compound soap, whilst the aforesaid disadvantages are avoided and the attractivity
5 of the compound cake is maintained. In accordance with the invention this is achieved in that into a first part of material to be formed a formed, cured second part of material is introduced so that in forming the first part of material the second part of material is enclosed on all sides by the
10 first part of material.

Research has shown that it is of essential importance for the second part of material to be completely enclosed by the plastic and hence deformable first part of material during the formation of the first part of material determining
15 the final circumferential shape of the compound cake, so that it is avoided that in forming by so-called stamping the formed, cured second part of material should come into contact with the stamp mould, which would result in a complete crushing of the cured second part of material.

20 When the first part of material to be formed is produced with a tubular cavity and the formed, cured second part of material is introduced into said cavity, this cavity need not be provided in a separate run so that the method is simplified.

25 Since in forming the first part of material, for example, by stamping the part of material has to flow into a space left free by a relief associated with the second part of material, it is preferred to set the position of the cavity in the first part of material in dependence on
30 a mould and/or the cake of soap to be manufactured.

The first part of material should have such a temperature that on the one hand the plasticity is sufficient to completely enclose the second material and to fill any spaces between a relief and on the other hand
35 the temperature should be such that at the contact with the second part of material this part of material does not dissolve partly. Moreover the temperature of the second part of material should be such that during the manufacture

of the compound cake of soap the second part of material is not deformed essentially. This can be ensured when in forming the first part of material the temperature difference between the first part of material and the second part of material received in the former is essential equal to 20°C to 60°C.

If it is desired for an image of the second, enclosed part of material to be visible at the first use of a compound cake of soap embodying the invention, it is preferred to remove such a portion of the first part of material subsequent to the formation thereof so that in the ready cake of soap the second part of material is visible from the outside.

Since it may be desired to use various complex signs and/or texts on the second part of material it is preferred to compose the second part of material by coupling a number of elements of material by means of moulds preventing a relative displacement at least in one direction.

The invention relates to and provides furthermore a device for manufacturing a cake of soap composed from differently coloured parts of material and is characterized by means for arranging a formed, cured second part of material in a first part of material to be formed.

When an extrusion unit producing the first part of material and leaving free therein a tubular cavity is used, said extrusion unit being preferably provided with positioning means for positioning the cavity inside the first part of material to be formed, additional means for providing cavities in the plastic soap mass consisting of the first part of material may be dispensed with.

Since in the device embodying the invention a formed, cured second part of material is used, the device embodying the invention may furthermore be characterized by a unit intended for curing the formed second part of material.

The invention furthermore relates to elements of material consisting of soap characterized by interengaging moulds preventing a relative displacement in at least one

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direction. In this way, when using a compound second part
of material it is prevented that during the formation of
the first part of material by stamping and the resultant flow
of the first plastic part of material the relative orientation
5 of the elements of material and hence the recognition of
the overall second part of material should change.

Finally the invention relates to a cake of soap
composed in accordance with the invention.

The above-mentioned and further features will be
10 explained with reference to a few non-limitative embodiments
with reference to the accompanying drawings, in which

Fig. 1 shows a production line for manufacturing
a compound cake of soap in accordance with the invention,

Fig. 2 shows on an enlarged scale detail II of
15 Fig. 1 of means embodying the invention for arranging a
formed, cured second part of material in the first part of
material to be formed,

Fig. 3 is a sectional view of detail III of Fig. 1,

Fig. 4 shows a device for manufacturing the
20 second part of material,

Fig. 5 shows detail V of Fig. 4,

Fig. 6 shows the relative orientation of the first
and second parts of material prior to the manufacture of the
cake of soap,

25 Fig. 7 shows a variant of detail VII of Fig. 6,

Fig. 8 illustrates the formation of a compound
cake of soap of the parts of material shown in Fig. 7,

Fig. 9 shows means for removing at least a
portion of the formed part of material and

30 Fig. 10 is an elevational view of the ready
product of Fig. 9.

Fig. 1 shows a device 1 for the manufacture of
a cake of soap 2 composed from differently coloured parts
of material 3, 4. In the direction of the process the
35 device comprises in order of succession an extrusion unit 5,
a cutting device 6, a stamping device 7 and a unit 8 in
which the manufactured, compound cake of soap is hardened,
packed and/or stored. The device 1 embodying the invention

is characterized by means 9 for introducing the formed, cured second part of material 4 into the first part of material 3 to be formed in the stamping device 7. Said means 9 embodying the invention will be described in greater detail hereinafter with reference to Fig. 2.

To the extrusion unit 5 are fed through a funnel 10 the constituents 11 of the first part of material, the funnel 10 opening out in a mixing chamber 12. In the mixing chamber 12 is rotatable an extrusion worm 13, which intimately mixes the constituents and conveys them along a stationary worm part 14 carrying a mandril 16 at its downstream end through an exchangeable nozzle 15 to a transport device 18. From the resultant string of material 19 are severed first parts of material 3 to be formed by means of the cutting device 6. The cutting device 6 comprises knives 20, which are moved with a translation speed matching that of the string of material 19 in a direction towards the transport device and thus the various first parts of material 3 cut from the string 19. Via a transfer roller 21 the first parts of material 3 to be formed get through a conveyor belt 22 into a shoot 23, which conveys the first parts of material to be formed to a positioning belt 24. On the positioning belt 24 the first part of material to be formed comes into contact with a stop 25 associated with the means 9 embodying the invention.

A unit 26 is intended for curing and, as the case may be, storing formed second parts of material 4. The unit 26 may form part, for example, of a boiler housing (not shown). From the unit 26 the second part of material 4 is passed on a conveyor belt 27 and a feeding funnel 28 into the means 9 embodying the invention.

After with the aid of the means 9 the formed, cured second part of material 4 is introduced into the first part of material 3 to be formed, displacement of a slide 29 releases an opening through which the first part of material 3 to be formed with the second part of material 4 is fed into the stamping unit 7.

The stamping device 7 comprises a stationary mould part 31 and a mould part 32 movable with respect to said mould part 31. After the first part of material is formed between the two mould parts 31 and 32, said first part of material 3 enclosing on all sides the second part of material 4 contained therein, the compound cake of soap 2 is conveyed with the aid of a rotatable arm 33 through a conveyor belt 34 into the unit 8.

Fig. 2 shows more in detail the means 9 for arranging the formed, cured second part of material 4 in the formed first part of material 3. Through an opening 36 in a stationary housing 35 the second part of material 4 gets into a shoot 37, which is slidable in the housing 35 and subsequently passed to the part of material 3 supplied by the conveyor belt 24, whilst a surface 38 bearing the part of material 4 is substantially coplanar with a surface 39 of a cavity 40 in the part of material 3. Subsequently with the aid of a slide 41 arranged slidably in the shoot 37 the part of material 4 is moved into the cavity 40. Since the slide 41 is provided with a stop 42 coming into contact with the part of material 3, the part of material 4 can be disposed at a predetermined place in the cavity 40.

Since it is desirable to set the cavity 40 in dependence on a mould 43, 44 of the cake of soap 2 to be manufactured, the extrusion unit 5, by which a tubular cavity 40 is left free, in the string of material 19, comprises positioning means 45 for positioning the cavity 40 inside the first part of material 3 to be formed. The positioning means 45 comprise set pins 46 and set plates 47, which may be arranged at the end 15 of the worm part 14 around the mandril 16. By varying the number of set plates 47 on both sides of the mandril the place of the cavity 40 in the string of material 19 and hence in the parts of material 3 can be varied and set. The nozzle 17 is releasably fastened to the extrusion unit 5 with the aid of fastening means 48 so that by varying the nozzles 17 the external shape of each part of material 3 can also be adapted to the final shape of the ready compound cake of soap 2.

Fig. 4 shows in detail a stamping device 30 to form a second part of material 4, which may have the shape 43 shown in Fig. 6. The mould part 48 has an apertured insert piece 49, in the openings 50 are guided pushing rods 52 connected with a base plate 51. The base plate 51 is urged by springs 53 towards stops 54. The orientation of the pushing rods 52 mainly corresponds with the orientation of the characters 55 of the mould 43. When the mould part 48 is removed in the direction of the arrow 50 a pin 58 fastened to the base plate 51 thrust against a stop 59. Thus the pushing rods 52 continue pressing against the character ring 55, whilst it is displaced upwardly out of the mould part 48 until a sufficiently large space is made between the mould part 48 and the part of material 4, so that adhesive forces have no longer any effect.

Fig. 5 shows more in detail the pushing rods 52. Since the pushing rods have a part 60 of larger surface at their free ends 59, the pushing rods 52 can be individually guided in an opening 50, whilst substantially full contact is made with the character ring 55 on the mould 43.

Fig. 6 shows the relative orientation of the mould parts 31 and 32 of the stamping device 7 with respect to the first part of material 3 to be formed with the cavity 40 and the cured second part of material 4 with, in this case, for example, the character ring 55. In this case the character ring 55 has to be directed towards the mould part 32, because therein an externally readable mark or pattern 61 is left free.

Fig. 7 shows the part of material 3 and a different second part of material 4 composed in this case from different elements of material 62 and 63. The elements of material have relatively corresponding shapes 64, for example, dovetail joints, bolt and nut joints and the like so that in at least one direction the elements of material 62, 63 are guarded against relative displacement and the character ring 55 arranged on the elements 62 is always maintained in the desired interengagement.

Fig. 8 clearly illustrates that also when different elements of material 62, 63 for the second part of material 4 are used, this part of material 4 is completely enclosed by the first part of material 3 when being formed between the mould parts 31 and 32 so that it is not externally readable in the ready cake of soap 2.

Fig. 9 shows means 65 for removing a portion 66 from the formed first part of material 3. The means 65 may be formed by a knife 67, which is heated by a heating helix 68. If desired, a further part 66' may be removed along the broken line of Fig. 9 so that the second part of material 4 is externally visible on both sides of the soap. The resultant product is shown in Fig. 10 in a perspective view.

As stated above, it is advisable in forming the first part of material 3 to maintain the temperature difference between the first and the second part of material inserted into the former substantially equal to 20° C to 60° C so that any running of the second part of material is avoided, whilst nevertheless the first part of material 3 has sufficient plasticity to completely enclose the second part of material 4.

For example, the first part of material may be white and the second part of material 4 may have a contrasting colour, for example, green. By using elements of material 62, 63 it is also possible to use different colours for the part of material 4.

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CLAIMS

1. A method of manufacturing a compound cake of soap (2) in which differently coloured parts of material (3, 4) are joined characterized in that into a first part of material (3) to be formed is inserted a formed, cured
5 second part of material (4) so that by forming the first part of material (3) the second part of material (4) is enclosed on all sides by the first part of material (3).

2. A method as claimed in Claim 1 characterized in that the first part of material (3) to be formed is
10 produced with a tubular cavity (40) and in that the formed, cured second part of material (4) is inserted into said cavity (40).

3. A method as claimed in Claim 2 characterized in that the position of the cavity (40) in the first part
15 of material (3) is set in dependence on a mould (43, 44) and/or on the cake of soap (2) to be manufactured.

4. A method as claimed in anyone of the preceding Claims characterized in that in forming the first part of material (3) the temperature difference between the first
20 and the second part of material held in the former is

substantially equal to 20° C to 60° C.

5. A method as claimed in anyone of the preceding Claims characterized in that after the formation of the first part of material (3) such a portion (66) is removed therefrom that the second part of material (4) becomes externally visible in the ready cake of soap (2).

6. A method as claimed in anyone of the preceding Claims characterized in that the second part of material (4) is formed by coupling a number of elements of material (62, 63) having shapes (64) preventing at least in one direction a relative displacement.

7. A device (1) for manufacturing a cake of soap (2) composed from differently coloured parts of material (3, 4) as claimed in anyone of Claims 1 to 6 characterized by means (9) for arranging a formed, cured second part of material (4) in the first part of material (3) to be formed.

8. A device (1) as claimed in Claim 7 characterized by an extrusion unit (5) producing the first part of material (3) and leaving free therein a tubular cavity (40).

9. A device (1) as claimed in Claim 8 characterized in that the extrusion unit (5) is provided with positioning means (45) for positioning the cavity (40) in the first part of material (3).

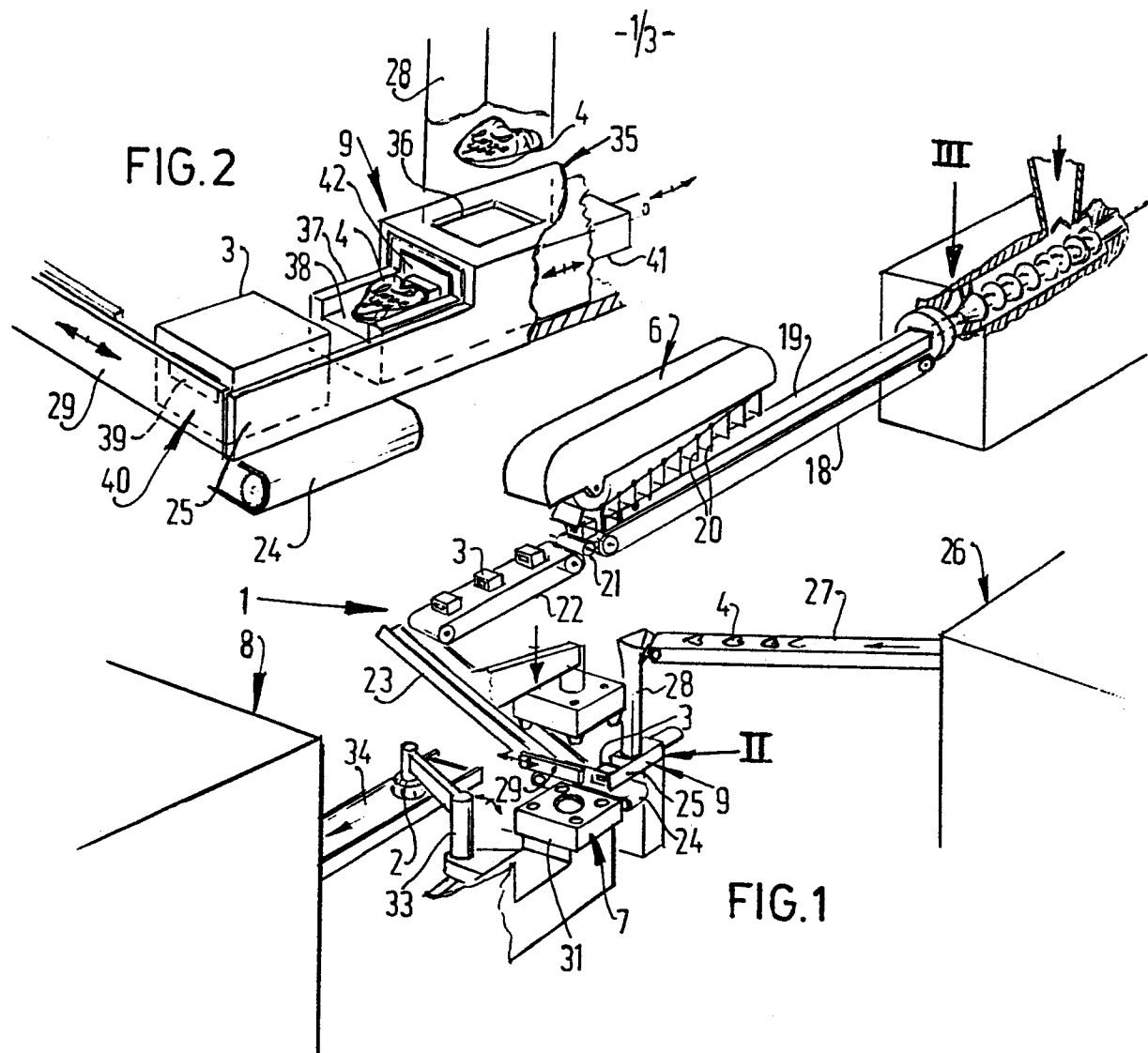
10. A device (1) as claimed in Claims 7 to 9 characterized by means (65) for removing at least a portion (66) from the formed first part of material (3).

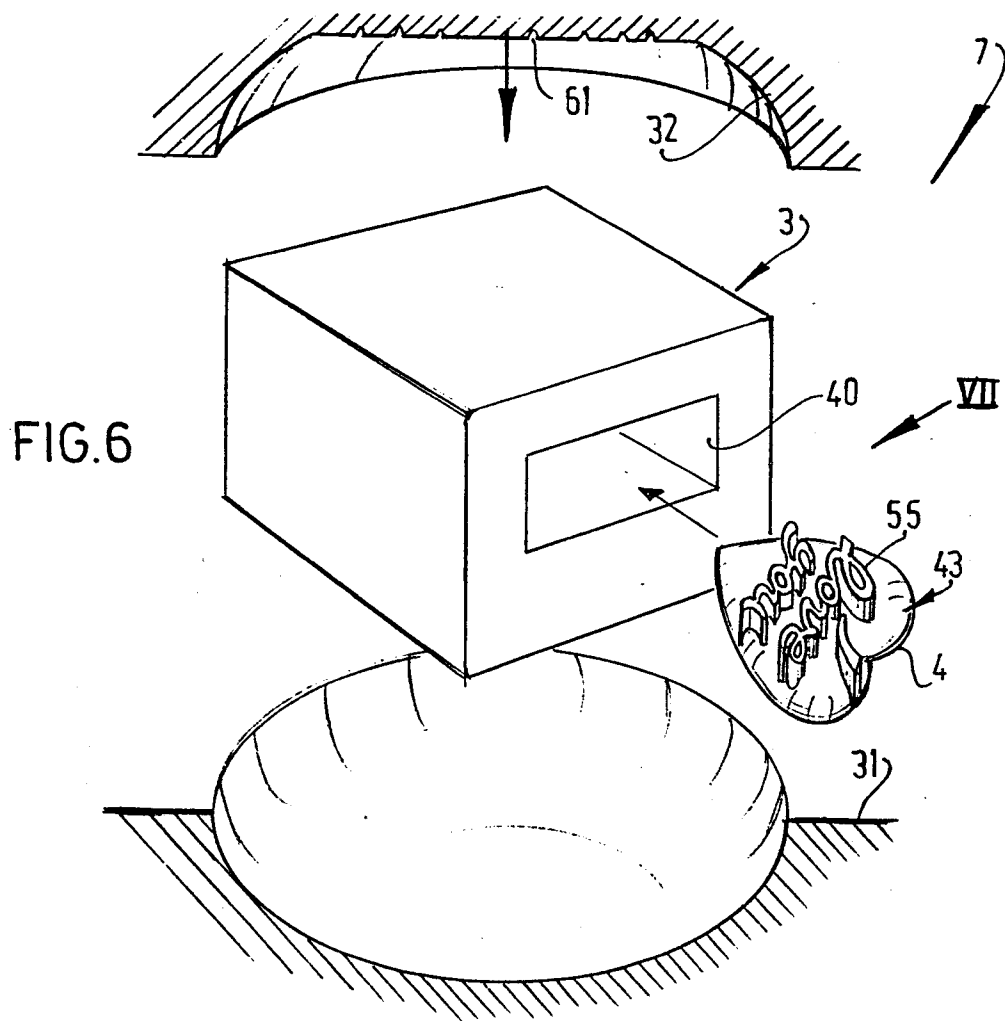
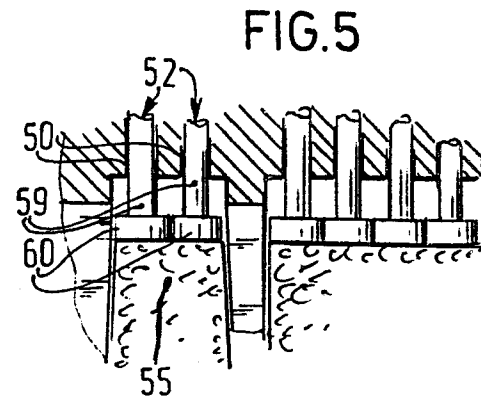
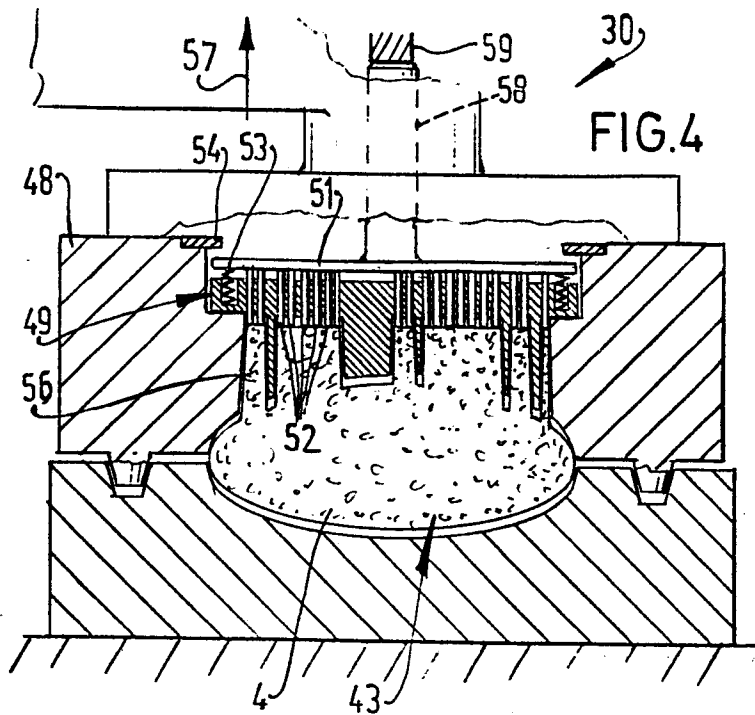
11. A device (1) as claimed in Claims 7 to 10 characterized by a unit (26) for composing the second part of material (4) from different elements of material (62, 63).

12. A device (1) as claimed in Claims 7 to 10 characterized by a unit (26) intended for curing the formed second part of material (4).

13. Elements (62, 63) of soap material characterized by shapes (64) engaging one another and guarding against relative displacement.

14. A compound cake of soap (2) manufactured by the method claimed in anyone of Claims 1 to 11.





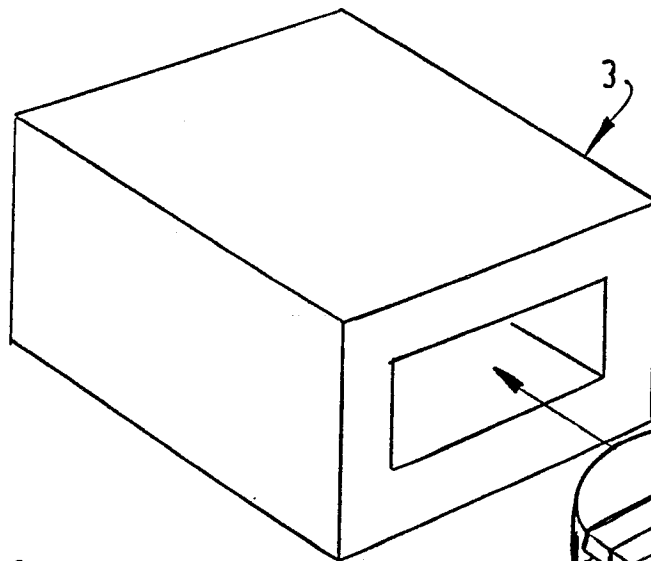


FIG. 7

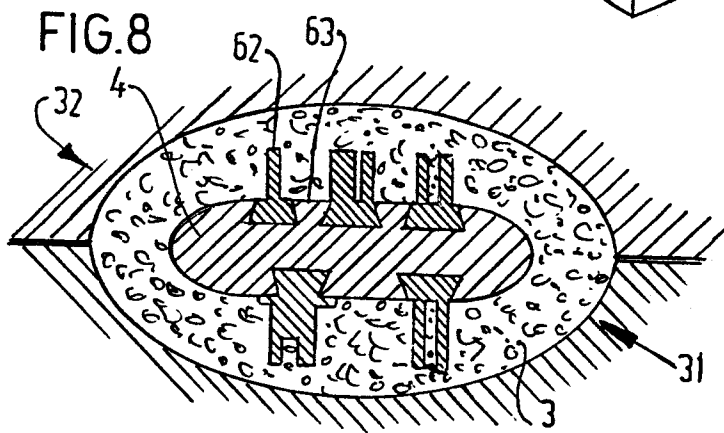
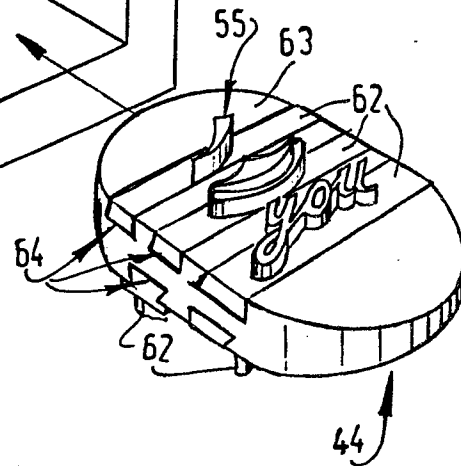


FIG. 8

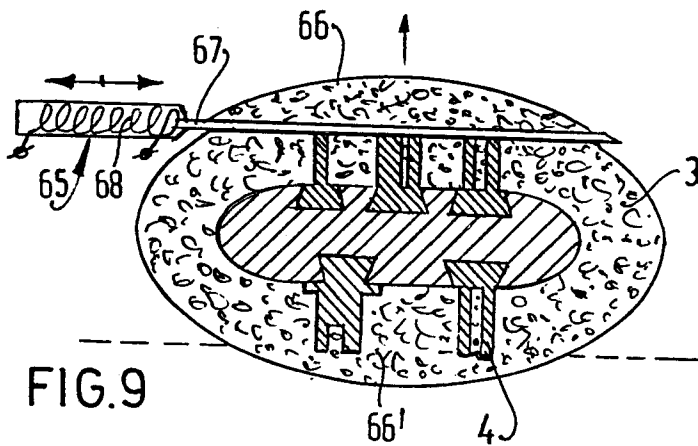


FIG. 9

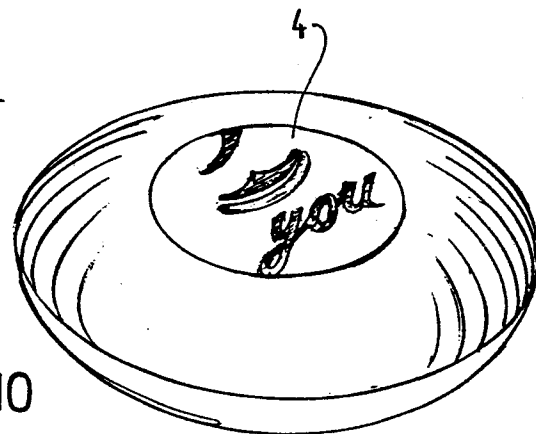


FIG. 10



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	AT-B- 367 793 (BLENDAX-WERKE) * Whole document *	1-6	C 11 D 13/16 C 11 D 13/28 C 11 D 13/08 C 11 D 13/18
Y	US-A-2 563 839 (R.R. HOOPES) * Whole document *	1-14	
Y	FR-A-1 551 437 (A. KAPPUS) * Whole document *	1-14	
D,A	NL-A-7 810 659 (J. VAN VILSTEREN)		
A	FR-A-2 187 904 (P. LANCRI)		
A	AT-B- 367 792 (BLENDAX-WERKE)		TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	FR-A-2 364 268 (P. FABRE)		C 11 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13-12-1984	Examiner GOLLER F.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	