

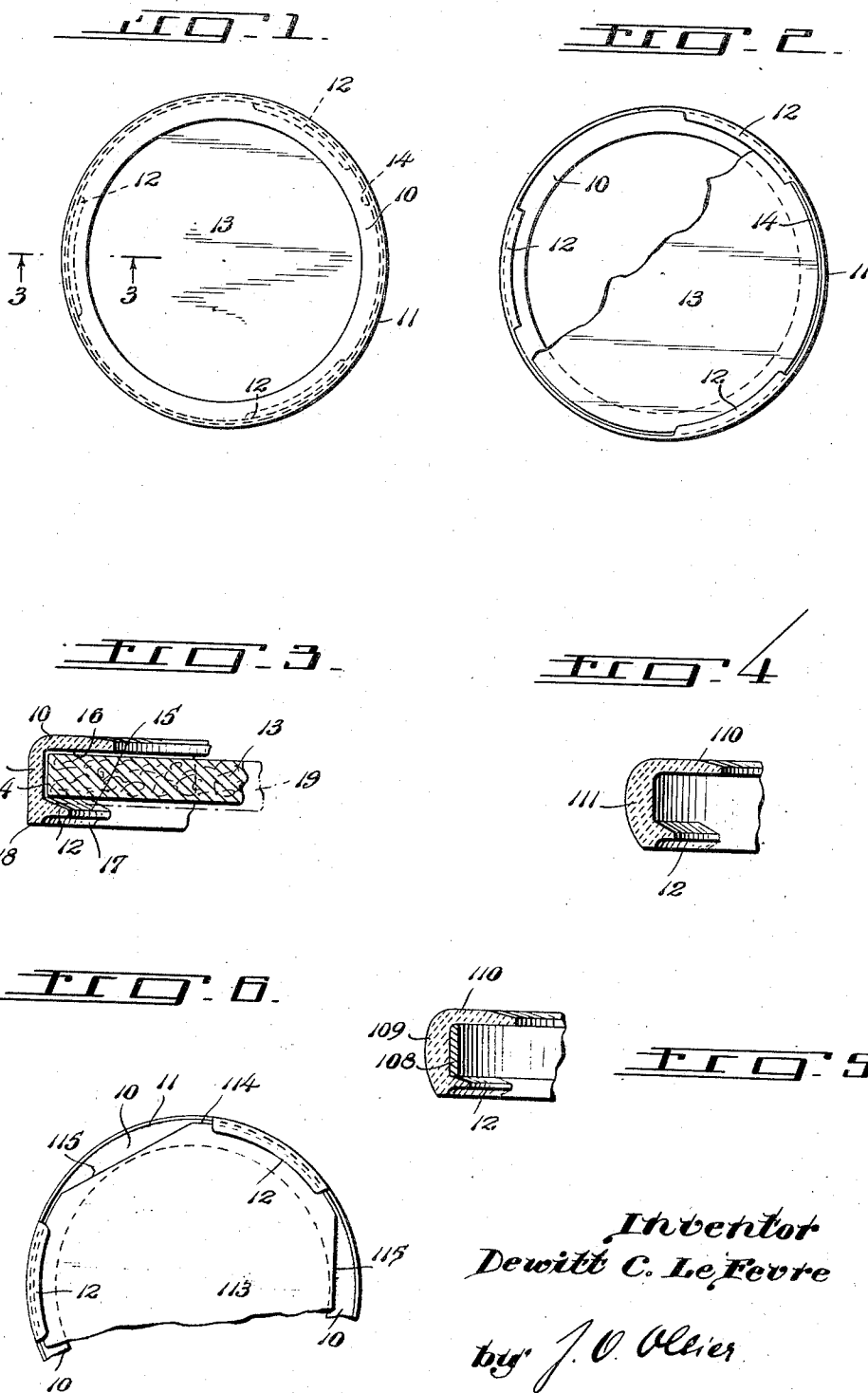
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COASTER FRAME

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COASTER FRAME

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2 Claims. (Cl. 65—53)

This invention relates to coasters and similar supports. In particular the invention relates to coasters for containers, such as bottles, glasses and tumblers for beverages and other liquids.

Coasters of this type have been made of a more or less porous and particularly fibrous material, such as card board, felt or the like. Inexpensive coasters are made of card board by casting or pressing paper pulp into a sheet of desired thickness, drying it and after solidification cutting or punching it into the desired shape. Circular, oval or angular shapes are preferred.

In cutting or punching individual coasters from a larger sheet of material, such as cardboard or felt, ragged edges unavoidably result which impair the appearance of the coaster.

In order to reduce the amount of material used for an individual coaster, they were manufactured as thin as it was possible without impairing their required rigidity. A liquid spilled on such a thin coaster penetrates rather quickly to its bottom and is apt to damage the support on which it is placed, such as a table cloth or table.

According to the invention a coaster of the type referred to above is inserted into a tightly fitting frame, preferably of thermoplastic material, such as cellulose ester and particularly acetyl cellulose-acetate. The frame is provided with two or more undercuts or projections on the inside firmly holding the coaster in place.

A frame of that particular material is non-breakable, insoluble in water and other liquids used as beverages, and in particular non-attackable by alcohol, acids and alkalis present in beverages.

A frame of this type can also be made somewhat flexible in order to facilitate insertion and removal of the coaster plate proper.

The frame is shaped so as to keep the coaster at a distance from a support which is sufficient to prevent a liquid penetrating the coaster to contact and thereby damage the support.

The frame may also be provided with an upper rim which covers completely the rim of the coaster making ragged edges invisible and thereby improving the appearance of the assembled coaster. On the upper side of the rim names or advertisements may be printed.

The frame can be made of any desired color blending in with the coaster proper which further improves its appearance.

An object of the invention is therefore to provide as a new article of manufacture a coaster composed of a somewhat absorbent and rigid plate and a frame into which the plate is clamped,

the frame covering at least the side rim of the plate.

Another object of the invention is to provide as a new article of manufacture a coaster of card-board or similar somewhat absorbent and rigid, fibrous material clamped into a frame having undercuts or projections slightly spacing the coaster plate from a support.

Still a further object of the invention is to provide as a new article of manufacture a coaster composed of a plate of cardboard, pressed into a frame of desired color and shape covering the rim of the plate, and provided with a number of undercuts or projections which due to their shape hold the plate firmly in place, clamp it within the frame, and space it from a support.

Still a further object of the invention is to provide as a new article of manufacture a coaster composed of a plate of cardboard, pressed into a somewhat flexible frame of moldable plastic material covering the rim of the plate and provided with a number of undercuts or projections which due to their shape permit insertion of the plate when the frame is somewhat slightly bent and clamp the plate firmly into place when inserted, and also space it from a support below.

Still another object of the invention is to provide as a new article of manufacture a coaster composed of a plate of cardboard of such a shape that it can be freely inserted into a frame provided with a number of undercuts or projections, and upon turning the plate within the frame the undercuts or projections clamp the plate firmly within the frame and space it from a support.

These and other objects of the invention will be more clearly understood when the specification proceeds with reference to the drawing in which Fig. 1 shows a top view and Fig. 2 a view from below with parts broken away of a coaster with frame according to the invention; Fig. 3 a cross-section along line 3—3 in Fig. 1; Fig. 4 a cross-section through a part of an unbendable frame; Fig. 5 a cross-section through a part of a frame reinforced by an insert; and Fig. 6 a view from below with parts broken away of a coaster of particular configuration inserted and turned within a frame to be clamped by its undercuts or projections.

Like reference numbers identify similar parts in different figures.

Referring first to Figs. 1, 2 and 3, the coaster consists of a circular frame composed of a ring shaped top wall 10, a cylindrical side wall 11 and undercuts or projections 12.

In this exemplification of the invention, a cir-

cular coaster plate 13 having a rim 14 is inserted into the frame. It is to be understood however that any other configuration of the coaster plate and therefore frame, such as an oval, angular etc. configuration can be used, without deviating from the underlying idea of the invention.

Three undercuts or projections 12 are shown in this example. It should be understood that a smaller number, two as a minimum, or a larger number can be used; the undercuts are to be spaced from each other so as to facilitate manufacture and insertion of the coaster plate. They are to be provided at such places on the inside of side wall 11 that the coaster plate 13 is properly held in position.

As to be seen from Fig. 3, the undercuts or projections 12 are provided with a sloping or inclined upper surface 15. Coaster plates produced in the way described above, i. e. cut or punched out of a solidified larger sheet of paper pulp or other fibrous or non-fibrous material, vary slightly as to thickness due to unavoidable inaccuracy in manufacture. Furthermore, the diameters vary slightly due to unavoidable inaccuracies in cutting or punching. Sometimes also slight variations as mentioned above are brought about intentionally so as to vary the weight and cost of the coaster plate.

Taking a sheetlike cardboard material from which the plate is cut, its thickness may be e. g. from .070" to .113" and its diameter may vary by .001" to .032".

Though the frame can be made almost exactly to measure, small deviations in the distance between the upper inner surface of the undercut or projections and the inner surface of the top ring 10 may occur, amounting to a few thousandths of an inch.

In order to secure the use of such a frame of given but slightly varying dimensions for coaster plates the thickness and diameter of which may also vary within the small range exemplified above, the sloping or inclined surface 15 is provided for. When the coaster plate is pressed into the frame, the plate, due to a slight resiliency, slightly gives and can be clamped between the sloping surface 15 and the inner surface 16 of top ring 10. It will be appreciated that due to the wedgelike action of the sloping surface 15, a somewhat thicker or thinner coaster will be equally clamped between those surfaces. It is further to be understood that the distance between those surfaces is to be chosen so that a coaster of any thickness within a contemplated range will securely be held in place. The inner diameter of the side wall 11 is to be chosen so that coaster plates of greatest diameter fit into the frame; though plates of somewhat smaller diameter than that of the frame will not contact its side wall, they will be held firmly in place by the wedging action of the projections 12.

In Fig. 3 a coaster plate 13 is shown in full lines and another plate 19 of slightly different thickness and diameter in dotted lines to illustrate the above effects.

In order to put a coaster plate in place, the frame as well as the coaster plate are slightly bent so that the diameter of the plate is somewhat reduced where the plate is to be slipped above the projections 12 while the latter by slightly bending the frame are bent outwardly and/or downwardly. After the plate has been slipped into the frame above projections 12, the pressure for bending the plate and frame is released and they resume their original shape so

that the sloping surface 15 clamps the rim of the plate firmly against the inner surface 16 of top ring 10. In order to accomplish this result, frame 11 has to be somewhat flexible or bendable, and this can be accomplished by the use of suitable material, e. g. ordinary plastic, particularly thermoplastic material, provided the walls are sufficiently thin.

As is to be understood, frames of this type should be made with the smallest possible amount of material, and thus the requirement for flexibility conforms with in-expensive manufacture.

The upper side of top ring 10 is flat so that printing or stamping can be easily done on it; for instance the name of the manufacturer, the dealer, or an advertisement for a beverage can thus be printed on or pressed into this conspicuous part of the coaster frame.

As can be further seen from Fig. 3 the lower surface 17 of the undercut or projection 12 is somewhat spaced from the lowermost surface 18 of the frame. This is an additional feature of the invention securing desired spacing of the pressed in plate 13 from a support. However, such spacing of the coaster plate from a support can also be accomplished if the lower surface 17 of projection 12 lies flush with surface 18 of the frame, or even if projection 12 with its lower surface 17 projects somewhat downwardly beyond surface 18 to form a kind of foot.

It will be appreciated that the coaster plate thus clamped into the frame is firmly held in position. It can easily be exchanged for another plate, and the frame therefore be used over and over again for a long period of time.

All practical differences or variations in dimensions of the frame and the coaster plate in mass production are taken care of by the shape of the projections or undercuts.

Referring to Fig. 4, there a cross-section is shown through a frame provided with undercuts 12 and top-ring 110 of the same purpose and principal design as in Fig. 3. Side wall 111 is, however, considerably thicker than top-ring 110 or side wall 11 in Fig. 3 in order to reduce or prevent flexibility of the frame. It has been found that in manufacturing frames of great flexibility the frames sometimes warp when ejected from the molding machine. In order to save reshaping them in a press, by slightly increasing the thickness of the side wall such warping can be avoided. However, also very flexible frames reshape themselves satisfactorily when the coaster plate is inserted, and reshaping them in a press does not materially increase the cost in mass production.

Fig. 5 shows another feature of the invention, which prevents or removes warping of the frame. According to this feature of the invention an expansion ring 108, preferably of metal, is inserted inside of side wall 109 and serves to stiffen and straighten out the frame before the coaster plate is inserted. Expansion ring 108 may either be inserted in the mold and the frame molded around it, or it may be inserted into the molded frame after the latter has been ejected from the mold.

In cases where stiffer frames are used, such as shown in Figs. 4 and 5, it is preferable to apply a coaster plate as shown in Fig. 6. This plate is partly cut along lines 115, and can be slipped into the frame in a position where projections 12 register with the cut-off portions of the plate. After fully inserting the plate into the frame

the former is turned into the position shown in Fig. 6. There full portions of the plate are aligned with the projections 12 and readily clamped by them against the interior surface of top-ring 10 which covers the cut-off portions of the plate so that they are invisible from above when the assembled coaster plate is used.

Coaster plates 113, of a shape as shown in Fig. 6, can easily be manufactured by punching or cutting them out in final shape as shown from the sheet of cardboard or other preferably porous material. Though the cut-off portions may be of any other shape and design so as to permit slipping of plate 13 over the projections 12 substantially without bending the frame or coaster plate, the shape shown is preferable because the dies necessary for cutting the plate along lines 115 can easily be made and arranged in the punching or cutting machine.

As pointed out above, the invention substantially consists in a frame which covers the rim of the coaster plate and also keeps it in some distance from a support, into which the coaster plate is clamped so as to take care of slight variations as to thickness and diameter of the coaster plate. It will be appreciated, however, that the wedging action produced by the sloping surface of the undercuts or projections can equally be obtained by making the inner surface of ring 10 sloping in opposite direction to the sloping surface of projection 12, and that both arrangements can be combined without devi-

ating from the idea underlying the invention which is to be derived in its broadest aspect from the appended claims.

What I claim is:

- 5 1. As a new article of manufacture a frame for a coaster plate to be clamped into said frame, said frame comprising a side wall, a top rim projecting to the inside of said side wall, and projections spaced from each other and said top rim on the inside of said side wall, the surface of said projections opposite the inside surface of said top rim sloping to the inside of said side wall away from said top rim, the shortest distance between said surfaces of said projections and top rim being less than the thickness of a coaster plate to be pressed between them.
- 10 2. As a new article of manufacture a frame for a coaster plate to be clamped into said frame, said frame substantially consisting of moldable plastic material and comprising a side wall, a top rim projecting to the inside of said side wall, and projections spaced from each other and said top rim on the inside of said side wall, the surface of said projections opposite the inside surface of said top rim sloping to the inside of said side wall away from said top rim, the shortest distance between said surfaces of said projections and top rim being less than the thickness of a coaster plate to be pressed between them.
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