Dec. 19, 1961 A. O. LUNING 3,013,688

COASTERS - MAGNETIC

Filed Oct. 14, 1957

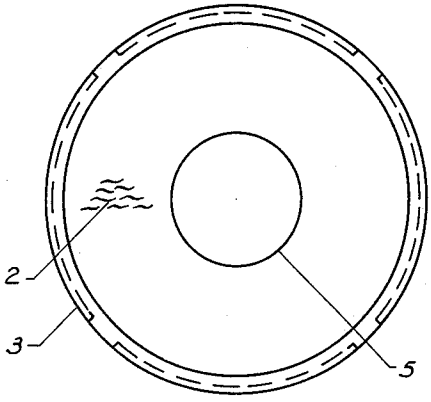


FIG 1

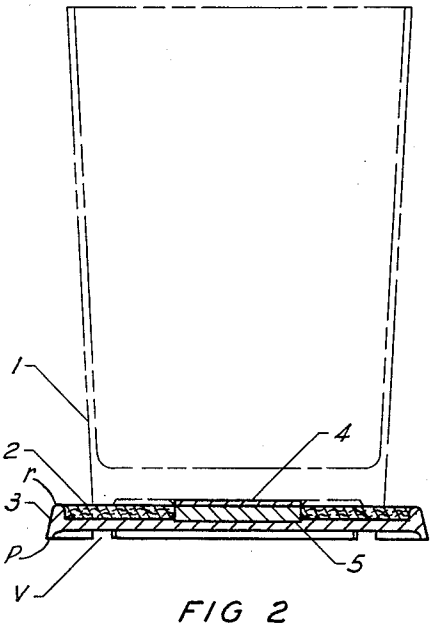


FIG 2

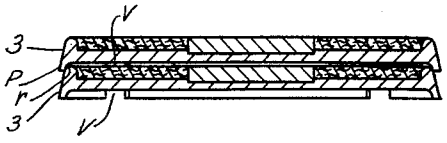


FIG 3

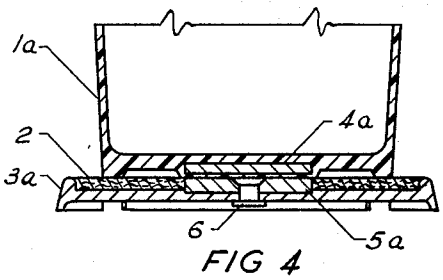


FIG 4

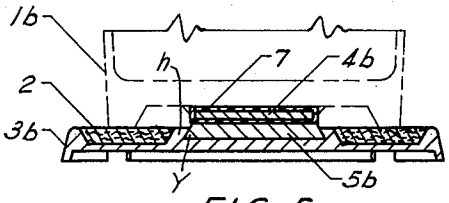


FIG 5

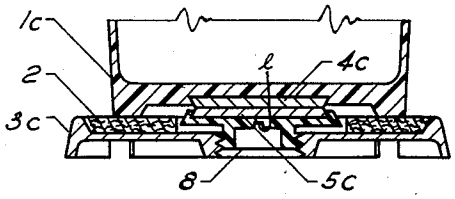


FIG 6

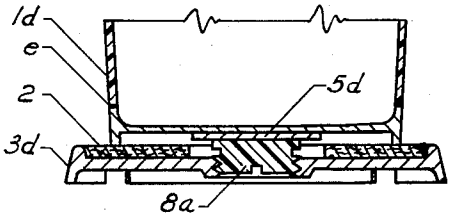


FIG 7

INVENTOR

Alfred O. Luning

BY

ATTORNEY

United States Patent Office

3,013,688

Patented Dec. 19, 1961

3,013,688

COASTERS—MAGNETIC

Alfred O. Luning, Riverdale, Md.
(2611 S. 8th St., Apt. 581A, Arlington 4, Va.)

Filed Oct. 14, 1957, Ser. No. 690,006
9 Claims. (Cl. 215—100.5)

This invention relates to coasters, trays, pads and similar objects used under drinking glasses, pitchers, dishes and the like. For convenience, for clarity and the purpose of illustration the words coaster and tumbler will be used hereinafter with reference to all of the broad category of objects into which these two articles fall, it being appreciated upon study of this specification, that this invention is applicable as much to other articles in the categories of each of these two articles as it is to the single representative articles chosen from each.

It is an object of this invention to provide a simple, inexpensive, self-attaching, moisture-absorbing, and/or insulating coaster consisting of a base designed to accommodate tumblers of various sizes such as those used for holding hot and cold liquids, solids, and foods that the coaster remain affixed to the tumbler when the latter is transported about or is left at rest upon supporting objects as tables, counters, etc., in order to protect the supporting objects from damage due to direct contact with heat, cold, moisture and liquids originating upon and/or emanating from said tumbler.

Another object of this invention is to provide a coaster and tumbler of the character described which have as their attaching device simple, permanent magnets, or a combination of magnets on either article with unmagnetized steel elements on the other, that when brought into close proximity with each other they are attracted and held together by magnetic force.

Another object of this invention is to provide a coaster as described in which the coaster magnet is mounted in a movable, threaded screw part to permit axial motion of the magnet in a corresponding threaded portion of the coaster body, thereby enabling the coaster to be adjusted to accommodate tumblers with bottoms having different size recesses in them.

Another object of this invention is to provide a coaster in which projections on its bottom are so located and positioned as to permit dry-stacking when stored one against the other, that the moisture-absorbent material of one coaster, if wet, does not contact or wet the underside of a neighboring coaster such that the bottom of the latter would require drying off to avoid wetting any support upon which it was subsequently placed.

Another object is to make the projections just described also serve to space several coasters when stored to allow free circulation of air around them to insure quick drying and to preclude the growth of mold or mildew formations from otherwise incipient dampness.

Another object of this invention is to provide a coaster in which the moisture absorbent and/or heat resistant material may be formed integral with the coaster body or may be separable from said body being capable of attachment thereto by use of bonds, adhesives, rivets, screws, by the use of interlocking ridges, grooves, lips, tabs, and the like or by combinations of these methods.

Another object of this invention is to provide an attachable and detachable coaster and tumbler set in which the attaching mechanism, coacting magnets and magnet attracting elements, are completely hidden from view when the set is attached, thereby enhancing its appearance when used and contributing substantially to its appeal—an essential consideration to be given articles of this kind.

Another object of this invention is to provide a coaster and tumbler which by virtue of remaining attached, one

to the other, preclude the dripping off of atmospheric condensation and/or other liquids that chance to form or collect upon them when they are brought to the lips as in drinking or are otherwise tilted as in pouring.

Other objects will become apparent from the following description of the invention and the accompanying illustrations.

FIG. 1 is a plan view of the coaster of this invention.

FIG. 2 is an embodiment of this invention illustrating a coaster and a tumbler upon it as the two articles would normally be used together in this invention.

FIG. 3 is a sectional view of two coasters of this invention stacked top to bottom to illustrate, when stored, a self-centering, interlocking feature, a non-wetting feature and an aeration feature incorporated in their design.

FIG. 4 is a second embodiment of the coaster of this invention whereby a magnet or a magnet-attracting element is encased within the bottom of a tumbler to prevent the magnet from becoming tarnished and to prevent dislodgement of the magnet from the tumbler.

FIG. 5 is a third embodiment of this invention in which a magnet or a magnet-attracting element is protectively encased within a resilient substance like plastic and affixed to the tumbler to compensate for unequal expansion and contraction of tumbler and magnet.

FIG. 6 is a fourth embodiment of this invention in which a magnet or a magnet-attracting element is rendered axially adjustable on a coaster that the coaster accommodate to tumblers having various size recessed bottoms.

FIG. 7 is a fifth embodiment of this invention in which the entire bottom of a tumbler or substantial part thereof is a magnet or a magnet-attracting element.

FIG. 2, a cross-section of FIG. 1, is intended to show an arrangement of typical parts of this invention. FIGS. 1 and 2 are the preferred embodiment of this invention. Item 1 in outline is a drinking tumbler shown resting upon a moisture-absorbent and/or heat-insulating material, item 2 on the top of the coaster body; item 3 is the body of the coaster which is platelike in form and which may be made of a variety of materials including metals, woods, plastics and the like. Items 4 and 5 are mutually coacting flat circular magnets, item 4 being cemented or bonded to the bottom of tumbler, item 1, while item 5 is similarly attached to the top of coaster body, item 3. On top of item 3 at its outer periphery is a projection *r* and on the bottom of 3 are intermittent projections *p*. It can be appreciated also, to effect magnetic attraction, that either of items 4 and 5 may be a magnet while the other is a piece of unmagnetized iron or steel. Magnets 4 and 5 are aligned and in close proximity to keep coaster and tumbler together at all times while item 2 absorbs atmospheric condensation formed on the container and other liquids that might run down its sides.

FIG. 3 illustrates two coasters stacked nested one within the other, as they might be when stored; it is intended to show in one way how the outer peripheral portions of the coaster body projections *r* and *p* of item 3, may be shaped and aligned to coact, overriding and circumscribing one another so that the coasters center themselves and interlock upon stacking and support one another in spaced relationship that the bottommost surfaces of one do not touch any part of the moisture-absorbent material, item 2, of its neighbor, thereby making possible dry stacking of the coasters notwithstanding the absorbent material may be soaking wet with moisture or other liquids in use. The possibility of stacking wet coasters and maintaining dry their lowermost supporting surfaces avoids the nuisance of having to wipe off these areas were they otherwise designed that contact of them could not be avoided in stacking.

Air ventilation holes, the intermittent cuts V in the

bottom of item 3, allow free circulation of air around the moisture-absorbent material when the coasters are stacked allowing the material, if wet, to dry, thus precluding the formation of mold or mildew on the coaster. Also, the intermittent air slots V along the bottom support ridge projections *p* of the coaster, item 3, allow ventilation underneath the coaster when in normal use and thus preclude the formation of moisture or condensation rings that might otherwise form on tables or supports upon which the coaster was placed.

Thus it can be seen that the coaster described, as used under a common drinking glass to which has been attached a magnet, avoids moisture rings on tables, and precludes the dripping off of moisture from the bottom of the drinking glass when tilted and placed to the lips coaster attached, and eliminates the necessity for placing the glass down always in the same place as the case would be when using a common nonattachable coaster.

FIGS. 4, 5, 6, and 7 illustrate some possible variations in the design of coaster and tumbler that would extend their usefulness and augment their manufacturing possibilities.

FIG. 4 is provided to show how a special tumbler, item 1*a*, might be designed with an attracting element, item 4*a*, formed to fit into its base. Item 5*a*, the coaster magnet, is shown riveted, item 6, to item 3*a*, the coaster base, while item 2 is the moisture-absorbent or insulating material. In this embodiment the magnet is protected from tarnish and firmly secured within the tumbler bottom.

FIG. 5 is provided to illustrate how the attracting element, item 4*b*, could be first thinly encased in plastic, item 7, or other suitable resilient material to facilitate its adhesion to the bottom of a tumbler, item 1*b*, while at the same time offering a measure of flexibility between the two to compensate for unequal expansion that could otherwise crack or break the tumbler when used, or when cleaned in scalding water. Encasement, item 7, also serves to protect attracting element 4*b* from tarnish and rust and precludes the necessity for this element to be made of stainless steel, for instance, or to be plated, painted, surface-treated or otherwise dealt with to preserve its appearance or facilitate its attachment. Items 4*b* and 5*b*, the attracting elements, could be made of materials of different colors and shapes to increase the eye appeal of tumbler and coaster, a necessary consideration to be given articles of this sort. Also, the attracting elements, incased or otherwise, could be made and distributed in kits with a suitable waterproof adhesive so that anyone could cement the elements to containers they possessed and so obviate the necessity for buying special tumblers with magnets preattached or other containers in order to utilize the magnet coaster. Item 2 is the moisture-absorbent and/or heat-resistant material. Item 3*b*, the coaster base, is shown with a magnet, item 5*b*, locked in it by virtue of the closed angle *y* of the housing projections *h* surrounding the magnet. Magnet 5*b* could be inserted and captivated in the coaster after the coaster is formed if the coaster were made of a pliable resilient material such as polyethylene or rubber whereby the coaster could be flexed downward at opposite sides of the periphery to open projection *h*, or could be forcibly opened by deflection to admit magnet 5*b*.

FIG. 6 illustrates the possibility of employing a coaster magnt that is axially adjustable in the coaster to make possible adapting the coaster to a variety of containers having bottoms with different size recesses. Item 1*c* is a specially made tumbler, in the bottom of which is interlocked an attracting element, item 4*c* in manner, similar to magnet 5*b* of FIG. 5. In coaster 3*c* is magnet 5*c* secured to a threaded holder, item 8, capable of axial adjustment in the coaster to bring magnet 5*c* sufficiently close to magnet 4*c* that coaster and tumbler are attracted and held together. The thread fit between the coaster and the magnet support should be one of slight interference or employ other methods for introducing friction that the magnet support stay, without slipping, at any relative position it is adjusted to. Item 8 could be adjusted by hand or by a screwdriver applied to a slot *l* in its bottom. Item 2 is the heat-resistant and/or moisture-absorbent material previously described.

FIG. 7 is provided to show the possibility of making a tumbler 1*d*, or other container, of more than one part (connected at *e*) such that, for example, its entire bottom, or a large portion of the bottom is formed of steel so that it is mutually attractive to the coaster magnet 5*d*.

Upper portions of the tumbler may be made of various materials other than steel with connection made to the bottom section by bonding, brazing and other means. Item 3*d* is the coaster body upon which is attached the insulation or absorbent material 2.

Item 5*d*, the coaster magnet, is shown as a separate disk affixed to the top of an adjusting screw, 8*a*, that the coaster be adaptable for adjustment and use under containers having bottoms with different size recesses as also shown in FIG. 6.

It is to be appreciated that the attracting elements, though shown as circular flat disks, can be made of innumerable sizes and shapes, and that they can be protected from tarnishing or rusting by a number of ways including plating, painting, coating with various materials and by applying various treatments to their surfaces; also the elements themselves can be made of rustproof stainless steel. It can be appreciated further that many various combinations could be made of the features explained herein to attain the results described in this invention. It can be appreciated also that more than one attracting element could be employed on either coaster or tumbler and further that the entire body of the coaster could be a magnet or magnet-attracting element. Another object of this invention, apparent from the illustrations attached, is to provide a coaster which can be adapted to a range of different size tumblers that it be useful, in the capacity and for the purposes described herein, under more than one size tumbler.

To maintain clarity and continuity, the word "coaster" will be used in the claims to signify broadly any tray, pad, saucer or object similarly used; and the word "tumbler" will be employed to encompass drinking glasses, cups, pitchers, bowls and containers under which the coaster described in this invention would be useful.

Having thus described my invention I make the following claims:

1. A cooperable coaster and tumber, said coaster comprising a platelike body having intermittent supporting projections upon the bottom thereof at the outer peripheral portions, a moisture absorbent and insulating material on top of said body, means to nest a plurality of said coasters one upon the other in aired, spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in cooperation of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein said projections of the former override and overhang said peripheral portions of the latter, and wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster and said tumbler attachable one to the other by magnetic means, said means comprising a magnet secured upon the top of said coaster and a magnet-attracting element secured to the underside of said tumbler, said magnet and said magnet-attracting element positioned in coacting alignment on said coaster and said tumbler wherein said tumbler placed upon the top of said coaster is attached thereto, and vice-versa, by virtue of magnetic attraction of said magnet and said magnet-attracting element.

2. A coaster attachable to a tumbler as claimed in claim 1 wherein means is provided to adjust and to sustain inadjustment said magnet relative to said coaster, said means comprising a male member secured to said

magnet, said male member cooperating with a hole in said coaster body, said hole oriented in the top of said coaster body parallel to the axis of said coaster, friction means between said male member and said hole in said cooperation thereof wherein said male member is adaptable to adjustment in an axial direction in said hole and wherein said male member is sustained by virtue thereof in said adjustment.

3. A coaster attachable to a tumbler as claimed in claim 1 wherein means is provided to adjust in an axial direction said magnet relative to said coaster and to sustain in adjustment said magnet thereon, said means comprising a male threaded member secured to said magnet, said male member cooperating with a threaded hole in said coaster body, said hole oriented in the top of said coaster body parallel to the axis of said coaster, friction means between said threaded male member and said threaded hole in said cooperation thereof wherein said male member is adaptable to adjustment in an axial direction in said hole and wherein said male member is sustained in said adjustment by virtue of said friction.

4. A coaster comprising a platelike body having a top and a bottom, intermittent supporting projections upon the bottom thereof at the outer peripheral portions, a moisture absorbent and insulating material on top of said body, means to nest a plurality of said coasters one upon the other in aired spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in cooperation of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein said projections of the former override and overhang said peripheral portions of the latter, and wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster attachable to a tumbler by magnetic means said means comprising a magnet secured upon the top of said coaster and a magnet-attracting element secured to the underside of said tumbler, said magnet on said coaster positioned in coacting alignment with said magnet-attracting element secured to said tumbler wherein said tumbler placed upon the top of said coaster is attached thereto, and vice-versa, by means of magnetic attraction of said magnet and said magnet-attracting element, means to protect said magnet and said magnet-attracting element from tarnish, means to compensate for unequal expansion and contraction between said tumbler and said magnet-attracting element said means residing in the interposition of a yielding material between said magnet-attracting element and said tumbler.

5. A cooperable coaster and tumbler said coaster comprising a platelike body having intermittent supporting projections upon the bottom thereof at the outer peripheral portions, a moisture absorbent and insulating material on top of said body, means to nest a plurality of said coasters one upon the other in aired, spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in cooperation of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein said projections of the former override and overhang said peripherals portions of the latter, and wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster and said tumbler attachable one to the other by magnetic means said means comprising a magnet-attracting element secured upon the top of said coaster and a magnet secured to the underside of said tumbler, said magnet and said magnet-attracting element positioned in coacting alignment on said coaster and said tumber where said tumbler placed upon the top of said coaster is attached thereto, and vice-versa, by virtue of magnetic attraction of said magnet and said magnet-attracting element.

6. A coaster comprising a platelike body having a top and a bottom, intermittent supporting projections upon the bottom thereof at the outer peripheral portions, a

moisture absorbent and insulating material on top of said body, means to nest a plurality of said coasters one upon the other in aired spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in cooperation of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein said projections of the former override and overhang said peripheral portions of the latter, and wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster attachable to a tumbler by magnetic means said means comprising a magnet-attracting element secured upon the top of said coaster and a magnet secured to the underside of said tumbler, said magnet-attracting element on said coaster positioned in coacting alignment with said magnet secured to said tumbler wherein said tumbler placed upon the top of said coaster is attached thereto, and vice-versa, by means of magnetic attraction of said magnet and said magnet-attracting element, means to protect said magnet and said magnet-attracting element from tarnish, means to compensate for unequal expansion and contraction between said tumbler and said magnet said means residing in the interposition of a yielding material between said magnet and said tumbler.

7. A coaster and cooperating tumbler said coaster comprising a platelike body having intermittent supporting projections upon the bottom thereof at the outer peripheral portions, a moisture absorbent and insulating material on top of said body, means to nest a plurality of said coasters one upon the other in aired, spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in cooperation of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein said projections of the former override and overhang said peripheral portions of the latter, and wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster and said tumbler attachable one to the other by magnetic means, said means comprising a magnet secured upon the top of said coaster said magnet cooperable magnetically with the bottom of said tumbler wherein the entire bottom of said tumbler or substantial portion thereof is a magnet-attracting element.

8. An attachable coaster and tumbler said coaster comprising a body platelike in form of moisture-absorbent and insulating material having intermittent supporting projections upon the bottom thereof at the outer peripheral portions, means to nest a plurality of said coasters one upon the other in aired, spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in cooperation of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster and said tumbler attachable one to the other by magnetic means, said means comprising a magnet secured upon the top of said coaster and a magnet-attracting element secured to the underside of said tumbler, said magnet and said magnet-attracting element positioned in coacting alignment on said coaster and said tumbler wherein said tumbler placed upon the top of said coaster is attached thereto, and vice versa, by virtue of magnetic force between said magnet and said magnet-attracting element.

9. A cooperable coaster and tumbler, said coaster comprising a flexible resilient body platelike in form having intermittent supporting projections upon the bottom thereof at the outer peripheral portions, a moisture absorbent and insulating material on top of said body, means to nest a plurality of said coasters one upon the other in aired, spaced alignment to preclude wetting of one coaster by an adjacent coaster, said means residing in coopera-

tion of said intermittent supporting projections upon the bottom of one coaster with the peripheral portions on top of an adjacent coaster wherein said projections of the former override and overhang said peripheral portions of the latter, and wherein the bottommost bearing surfaces of said projections avoid contact with said adjacent coaster, said coaster and said tumbler attachable one to the other by magnetic means, said means comprising a thin flat magnet secured upon the top of said coaster and a magnet-attracting element positioned in coacting alignment on said coaster and said tumbler wherein said tumbler placed upon the top of said coaster is attached thereto, and vice-versa, by virtue of magnetic attraction of said magnet and said magnet-attracting element, means to secure said magnet to said coaster body, said means

comprising means integral with said resilient coaster gripping the sides of said magnet.

References Cited in the file of this patent

UNITED STATES PATENTS

407,477	Ezell	July 23, 1889
2,158,230	Godfrey	May 16, 1939
2,217,514	Henry	Oct. 8, 1940
2,564,834	Devine et al.	Aug. 21, 1951
2,589,967	Sawyer	Mar. 18, 1952
2,641,911	Raymond et al.	June 16, 1953
2,755,644	Watson	July 24, 1956

FOREIGN PATENTS

566,125	Germany	Sept. 9, 1933