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European Patent Office
Office européen des brevets

Publication number:

0 168 887
B1

12

EUROPEAN PATENT SPECIFICATION

45 Date of publication of patent specification: **06.06.90**

51 Int. Cl.⁵: **A 47 G 23/02, A 47 G 19/23,**
A 47 G 19/22

21 Application number: **85201122.0**

22 Date of filing: **08.07.85**

54 Set comprising a drinking cup and a holder accomodating same.

30 Priority: **19.07.84 NL 8402297**

43 Date of publication of application:
22.01.86 Bulletin 86/04

45 Publication of the grant of the patent:
06.06.90 Bulletin 90/23

24 Designated Contracting States:
BE DE FR GB NL

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Courier Press, Leamington Spa, England.

EP 0 168 887 B1

Description

The present invention relates to a set comprising a drinking cup and a holder accommodating same.

US—A—3 596 795 discloses a set according to the prior art of Claim 1 and 2 respectively. The set comprises a drinking cup and a holder therefore, both provided with matching means. The matching means of the drinking cup consists of circular recesses arranged in the outer drinking cup wall. The matching means of the holder consists of circular recesses arranged in the inner holder wall. In the accommodated form the circular projections of the holder are received in the circular recesses of the drinking cup.

GB—A—1 027 666 discloses a set of which the holder comprises projections which are circumferentially spaced apart over the inner holder wall. These projections support the drinking cup in the accommodated form and touch the imaginary exterior envelope of the outer drinking cup surface which avoids any wall structures.

CH—A—437 014 discloses a drinking cup having knobs circumferentially spaced apart over the outer drinking cup surface. These knobs serve two functions. In the first function the knobs snap under a circular projection in the inner holder wall to lock the drinking cup in the accommodated form. In the second function the knobs nested in other cups assure a clearance between adjacent drinking cup walls, so that a drinking cup is easily removed from a pile of nested drinking cups.

The invention has for its object to provide a set which can be assembled from only one type of holder and only one type of drinking cup. In a first aspect of the invention this is achieved with a set comprising a drinking cup and a holder accommodating the drinking cup, comprising mutually cooperating matching means comprising projections arranged circumferentially on a holder wall facing the drinking cup and recesses arranged in a drinking cup wall and suitable for receiving the projections characterized by the fact that the matching means and recesses are circumferentially spaced apart, and that the projections extend in the accommodated form through an imaginary exterior envelope through the undisturbed outer surface of the drinking cup into the recesses.

In a second aspect this is achieved according to the invention with a set comprising a drinking cup and a holder accommodating the drinking cup, comprising mutually cooperating matching means comprising projections arranged circumferentially in a drinking cup wall and recesses arranged in a holder wall facing the drinking cup suitable for receiving the projections characterized by the fact that the matching means and recesses are circumferentially spaced apart, and that the projections extend in the accommodated form through an imaginary interior envelope through the undisturbed inner surface of the holder into the recesses.

Particular embodiments of the invention are set out in Claims 3 to 10.

It should be remarked here that if the matching means extends only through the exterior envelope of the drinking cup, a drinking cup results which can be used not only in the set according to the invention but also in an appropriate holder without the means referred to above.

According to a first embodiment, the matching means comprises at least one recess arranged in the drinking cup wall and a projection arranged on the holder wall. If walls of the recess diverge in the direction towards the holder wall, whereby the walls of the projection preferably converge towards the drinking cup wall, means result which further assist a rapid assembly of the set of drinking cup and holder, because the projection and the recess have been given a self-aligned form.

If a large number of recesses are arranged in the drinking cup wall at mutual same rotation angles, a relative rotation between drinking cup and holder need be carried out over only a short distance in order to mutually align a projection and recess.

The least complex construction for the holder is obtained if the number of projections is equal to or smaller than the number of recesses.

In another embodiment of the matching means according to the invention, said means comprises at least one drinking cup wall surface which touches and lies at least partially outside the exterior envelope of the drinking cup, whereby said means preferably comprises a number of drinking cup wall surfaces which form an imaginary regular polygon.

The drinking cup is adequately accommodated and held in place in the holder if the matching means comprises a ring arranged on the holder wall, the passage through which takes the form of the polygon.

The drinking cup and the holder accommodating same form a fitting set of the drinking cup and the holder along one of its upper portions make up a clamping connection at the bottom. It is therefore preferable that the matching means is situated in a central portion of the set.

Mentioned and other characteristics will be described on the basis of a number of non-limitative embodiments given by way of illustration, with reference to the annexed drawings, in which:

Fig. 1 is a perspective view of a drinking cup according to the invention;

Fig. 2 is a perspective partially broken view of a holder according to the invention;

Fig. 3 is a set comprising the drinking cup from fig. 1 and the holder from fig. 2 perspectively broken away along the line III—III from fig. 1 and 2;

Fig. 4, 5 and 6 are views corresponding to fig. 1, 2 and 3 respectively of an alternative embodiment of the drinking cup and holder according to the invention;

Fig. 7 is a section of a variant along the line VII—VII from fig. 6;

Fig. 8 shows schematically an apparatus for moulding the drinking cup according to the invention;

Fig. 9a—9e show the different positions of a shaping apparatus for the drinking cup according to the invention; and

Fig. 10 and 11 are each perspective views of a mould for shaping a drinking cup from fig. 1 and 2 respectively.

Fig. 1, 2 and 3 show respectively a drinking cup 1, a holder 2 and a set 3 comprising the drinking cup 1 and the holder 2.

A central portion 4 of the drinking cup 1 is provided with recesses 6 arranged in the drinking cup wall 5 around its circumference. The walls diverge in the direction towards the holder wall 11 of the holder 2. It should be mentioned that for the sake of clarity only six recesses are shown, but that in practice a large number of recesses at mutual same rotation angles are arranged in the cup wall 5.

The holder 2 is provided on its wall 11 with a number of projections 12, of which the walls 13—16 converge in the direction towards the drinking cup 1. The projections 12 are arranged around the circumference of the holder wall 11 with the same angular rotation compared to the recesses 6. The projection shape is moreover inherently complementary to a portion of the recess shape. By means of the divergent recess walls and the corresponding convergent projection walls, the drinking cup 1 can easily be accommodated in the holder 2 because of the resulting self-aligning effect.

Fig. 3 shows the set 3. It can be clearly seen here that the projections 12 extend through the exterior envelope 17 of the drinking cup 1 into the respective recess 6.

It is pointed out emphatically here that the ring shaped wall 28 only extends as far as this exterior envelope 17 and serves to fix a lower portion of the drinking cup 1 in the holder 2.

It will be apparent that if the drinking cup is provided with projections 12 and the holder with recesses 6, the same effect results, with the difference that in these circumstances the drinking cup 1 provided with projections cannot be used in other existing holders.

It should also be mentioned that the number of projections 12 can be smaller than the number of recesses 6. The number of recesses 6 should be as large as possible in order to limit as much as possible the angle of rotation when accommodating the drinking cup 1 in the holder 2.

The figures 4, 5 and 6 show a drinking cup 18, a holder 19 and a set 20 comprising same. In this embodiment the drinking cup 18 is provided with six drinking cup wall surfaces 21, which, as fig. 7 shows in more detail, touch and lie partially outside an exterior envelope 22 of the drinking cup 18.

The holder 19 is provided with projections 24 on its interior wall 23. These projections 24 lie, after the forming of the set 20, inside the envelope 25, whereby a projector surface 56 lies against the respective drinking cup wall surface 21. Once more it should be remarked that the ring shaped wall of the holder extends as far as the envelope 25.

Fig. 7 shows a holder 26 which is a variant of the holder 19. In this set comprising drinking cup 18 and holder 26, the drinking cup wall surfaces 21 lie against a passage 27 in a ring 29. The passage 27 takes the form here of a regular hexagon.

Fig. 8 shows schematically an apparatus 30 for manufacturing a drinking cup 1, 18 according to the invention. Polystyrene sheet 31 is softened in an infra-red unit 32 and the drinking cup form is shaped in the sheet 31 in a shaping unit 33. The drinking cups 1 are cut out of the sheet in a cutting unit 54.

The figures 9a—9e show the different operating positions of the shaping unit 33. The softened sheet 31 is inserted in the unit 33 and clamped under pressure between two rings 34 and 35 arranged under spring bias on either side of the sheet 31. A mould 36 with an inherently smooth surface subsequently presses a basic drinking cup shape in the sheet 31 (fig. 9c). Using compressed air, the pre-stretched sheet is then pressed against the walls of the mould 37. Air present in the space between sheet and mould 37 can escape via passages 39 (fig. 9d).

After a short cooling period, the mould portions 40 and 41 are moved relative to one another, whereby a mould portion part 42 is moved relative to the remaining part 43 of the mould portion 40 over a distance *a* towards the shaped drinking cup 1 so that same is released from the mould portion 40 (fig. 9e).

The figures 10 and 11 show in more detail and on a larger scale the mould parts 44 and 45 respectively used for shaping drinking cups 1 and 18. The structure 46 is complementary to the projection 12 and the structure 47 is complementary to the wall surface 21.

It will be apparent that, using the matching means according to the invention which consist of the co-operating recesses 6 and the projections 12, respectively the wall surfaces 21 and the projections 24 or the ring 29, unique sets, 3 and 20 respectively, are formed, while the drinking cups, 1 and 18 respectively, can be used in known holders, but known drinking cups cannot be used in the holders 2 and 9 respectively.

Claims

1. Set (3, 20) comprising a drinking cup (1, 18) and a holder (2, 19, 26) accommodating the drinking cup (1, 18), comprising mutually cooperating matching means (12, 6; 24, 21; 29, 21) comprising projections (12, 24, 29) arranged circumferentially on a holder wall (11) facing the drinking cup (1, 18) and recesses (6, 21) arranged in a drinking cup wall (5) and suitable for receiving the projections (12, 24, 29) characterized by the fact that the matching means (12, 6; 24, 21; 29, 21) are circumferentially spaced apart, and that the projections (12, 24, 29) extend in the accommodated form through an imaginary exterior envelope (17, 25) through the undisturbed outer surface (5) of the drinking cup (1, 18) into the recesses (6, 21).

2. Set (3, 20) comprising a drinking cup (1, 18)

and a holder (2, 19, 26) accomodating the drinking cup (1, 18), comprising mutually cooperating matching means (12, 6; 24, 21; 29, 21) comprising projections arranged circumferentially in a drinking cup wall (5) and recesses arranged in a holder wall (11) facing the drinking cup (1, 18) suitable for receiving the projections characterized by the fact that the matching means (12, 6; 24, 21; 29, 21) are circumferentially spaced apart, and that the projections extend in the accomodated form through an imaginary interior envelope (17, 25) through the undisturbed inner surface (11) of the holder (2, 19, 26) into the recesses.

3. Set (3) as claimed in claim 2, characterized in that walls of the recesses (6) diverge in the direction towards the holder wall (11).

4. Set (3, 20) as claimed in claim 3, characterized in that walls (13—16) of the projections (12, 24) converge towards the drinking cup wall (5).

5. Set (3, 20) as claimed in claims 2—4, characterized in that a large number of recesses (6, 21) are arranged in the drinking cup walls (5) at mutual same rotation angles.

6. Set (3, 20) as claimed in claim 5, characterized in that the number of projections (12, 21, 29) is equal to or smaller than the number of recesses (6, 21).

7. Set (20) as claimed in claim 1, characterized in that the matching means (24, 21) comprises at least one drinking cup wall surface (21) which touches and lies at least partially outside the exterior envelope (25) of the drinking cup (18).

8. Set (20) as claimed in claim 7, characterized in that the matching means (29; 21) comprises a number of cup wall surfaces (21) which form an imaginary regular polygon.

9. Set (20) as claimed in claim 8, characterized in that the matching means (29; 21) comprises a ring (29) arranged on the holder wall (23), the passage (27) through which takes the form of the above polygon.

10. Set (3, 20) as claimed in any of the preceding claims, characterized in that the matching means (12, 6; 24, 21; 29, 21) is situated in a central portion (4) of the set (3, 20).

Patentansprüche

1. Vorrichtung (3, 20) bestehend aus einem Trinkgefäß (1, 18) und einem das Trinkgefäß (1, 18) aufnehmenden Halter (2, 19, 26) versehen mit paarweise ineinanderpassenden Formteilen (12, 6; 24, 21; 29, 21), die ihrerseits als umfänglich an der Halterwand (11) angeordnete, dem Trinkgefäß (1, 18) zugewandte Vorsprünge (12, 24, 29) und als in der Trinkgefäßwand (5) angeordnete, zur Aufnahme der Vorsprünge (12, 24, 29) passende, nutartige Ausnehmungen (6, 21) ausgeformt sind, dadurch gekennzeichnet, daß die passenden Formteile (12, 6; 24, 21; 29, 21) mit Zwischenräumen seitlich auf dem Umfang angeordnet sind, und daß die Vorsprünge (12, 24, 29) in zusammengefügttem Zustand durch eine imaginäre äußere Mantelhüllfläche (17, 25) und durch die undurchbrochene Außenfläche (5) des Trinkgefäß-

ßes (1, 18) in die nutartigen Ausnehmungen (6, 21) hineinragen.

2. Vorrichtung (3, 20) bestehend aus einem Trinkgefäß (1, 18) und einem das Trinkgefäß (1, 18) aufnehmenden Halter (2, 19, 26) versehen mit paarweise ineinanderpassenden Formteilen (12, 6; 24, 21; 29, 21), die ihrerseits als umfänglich an der Trinkgefäßwand (5) angeordnete Vorsprünge (12, 24, 29) und als in der Halterwand (11) angeordnete, zur Aufnahme der Vorsprünge passende, nutartige Ausnehmungen (6, 21) in die dem Trinkgefäß (1, 18) zugewandte Halterwand (11) eingeformt sind, dadurch gekennzeichnet, daß die passenden Formteile (12, 6; 24, 21; 29, 21) seitlich auf dem Umfang mit Zwischenräumen angeordnet sind, und daß die Vorsprünge (12, 24, 29) in zusammengefügttem Zustand durch eine imaginäre innere Mantelhüllfläche (17, 25) und durch die undurchbrochene innere Oberfläche (11) des Halters (2, 19, 26) in die nutartigen Ausnehmungen (6, 21) hineinragen.

3. Vorrichtung (3) nach Anspruch 2, dadurch gekennzeichnet, daß die Seitenwände der nutartigen Ausnehmungen (6) in Richtung auf die Halterwand (11) auseinanderlaufen.

4. Vorrichtung (3, 20) nach Anspruch 3, dadurch gekennzeichnet, daß die Stirnseiten (13, 15, 16) der Vorsprünge (12, 24) in Richtung auf die Trinkgefäßwand (5) zusammenlaufen.

5. Vorrichtung (3, 20) nach einem der Ansprüche 2, 3 oder 4, gekennzeichnet durch eine große Anzahl von nutartigen Ausnehmungen (6, 21) in den Trinkgefäßwänden (5) mit beiderseitig gleichen Umdrehungswinkeln.

6. Vorrichtung (3, 20) nach Anspruch 5, dadurch gekennzeichnet, daß die Anzahl der Vorsprünge (12, 21, 29) kleiner oder gleich der Anzahl der nutartigen Ausnehmungen (6, 21) ist.

7. Vorrichtung (20) nach Anspruch 1, dadurch gekennzeichnet, daß die passenden Formteile (24, 21) mindestens eine die äußere Mantelhüllfläche (25) des Trinkgefäßes (18) berührende und wenigstens teilweise außerhalb dieser liegende Trinkgefäßwandoberfläche (21) beinhalten.

8. Vorrichtung (20) nach Anspruch 7, dadurch gekennzeichnet, daß die passenden Formteile (29; 21) eine einen imaginären, regelmäßigen Polygonzug beschreibende Anzahl von Trinkgefäßwandoberflächen (21) umfassen.

9. Vorrichtung (20) nach Anspruch 8, dadurch gekennzeichnet, daß die passenden Formteile (29; 21) aus einem an der Halterwand (23) angeordneten Ring (29) bestehen, der durch die Öffnungen (27) die Form des obengenannten Polygonzuges annimmt.

10. Vorrichtung (3, 20) nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die passenden Formteile (12, 6; 24, 21; 29, 21) in der Umfangsmitte (4) der Vorrichtung (3, 20) angeordnet sind.

Revendications

1. Ensemble (3, 20) comprenant un gobelet (1, 18) et un support (2, 19, 26) logeant le gobelet (1,

18), comprenant des dispositifs d'adaptation (12, 6; 24, 21; 29, 21) qui coopèrent mutuellement et qui comprennent des saillies (12, 24, 29) disposées circonférentiellement sur une paroi du support (11) tournée vers le gobelet (1, 18) et des cavités (6, 21) formées dans la paroi du gobelet (5) et permettant le logement des saillies (12, 24, 29), caractérisé par le fait que les dispositifs d'adaptation (12, 6; 24, 21; 29, 21) sont espacés circonférentiellement, et que les saillies (12, 24, 29) pénètrent à travers une enveloppe externe imaginaire (17, 25) passant par la surface externe globale (5) du gobelet (1, 18) et dans les cavités (6, 21), lorsque le gobelet est logé dans le support.

2. Ensemble (3, 20) comprenant un gobelet (1, 18) et un support (2, 19, 26) logeant le gobelet (1, 18), comprenant des dispositifs d'adaptation (12, 6; 24, 21; 29, 21) qui coopèrent mutuellement et comprenant des saillies placées circonférentiellement dans une paroi (5) du gobelet et des cavités disposées dans une paroi (11) du support tournée vers le gobelet (1, 18), les cavités pouvant loger les saillies, caractérisé par le fait que les dispositifs d'adaptation (12, 6; 24, 21; 29, 21) sont espacés circonférentiellement, et que les saillies pénètrent à travers une enveloppe interne imaginaire (17, 25) de la surface interne globale (11) du support (2, 19, 26) et dans les cavités, lorsque le gobelet est logé dans le support.

3. Ensemble (3) selon la revendication 2, caractérisé en ce que les parois des cavités (6) divergent vers la paroi (11) du support.

4. Ensemble (3, 20) selon la revendication 3,

caractérisé en ce que les parois (13—16) des saillies (12, 24) convergent vers la paroi (5) du gobelet.

5. Ensemble (3, 20) selon les revendications 2 à 4, caractérisé en ce qu'un grand nombre de cavités (6, 21) sont disposées dans les parois (5) du gobelet, à de mêmes intervalles angulaires.

6. Ensemble (3, 20) selon la revendication 5, caractérisé en ce que le nombre de saillies (12, 21, 29) est égal ou inférieur au nombre de cavités (6, 21).

7. Ensemble (20) selon la revendication 1, caractérisé en ce que les dispositifs d'adaptation (24, 21) comportent au moins une surface (21) de paroi de gobelet qui touche l'enveloppe externe (25) du gobelet (18) et qui se trouve au moins partiellement à l'extérieur de cet enveloppe externe.

8. Ensemble (20) selon la revendication 7, caractérisé en ce que les dispositifs d'adaptation (29; 21) comportent un certain nombre de surfaces (21) de paroi de gobelet qui forment un polygone régulier imaginaire.

9. Ensemble (20) selon la revendication 8, caractérisé en ce que les dispositifs d'adaptation (29; 21) comportent une bague (29) formée sur la paroi (23) du support, le passage (27) dans cette paroi ayant la forme du polygone précité.

10. Ensemble (3, 20) selon l'une quelconque des revendications précédentes, caractérisé en ce que les dispositifs d'adaptation (12, 6; 24, 21; 29, 21) sont placés dans une partie centrale (4) de l'ensemble (3, 20).

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