Sept. 21, 1943. H. B. CRANSHAW 2,330,029

SPUTUM CUP

Filed Oct. 8, 1942 2 Sheets-Sheet 1

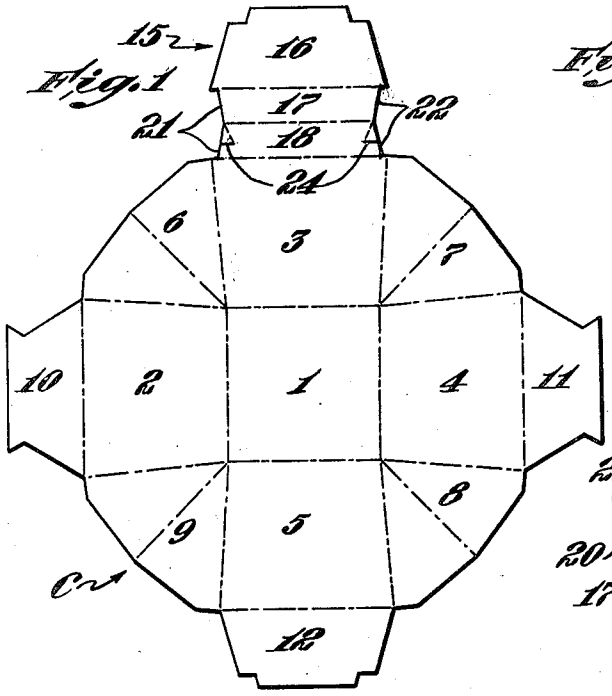



Fig. 1

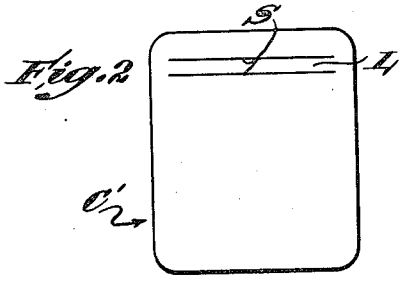



Fig. 2

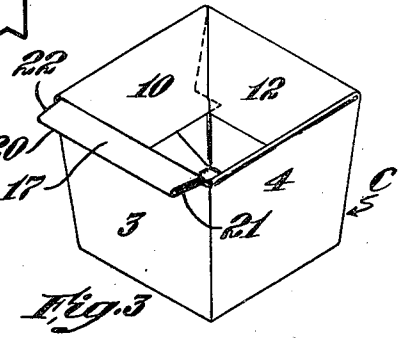



Fig. 3

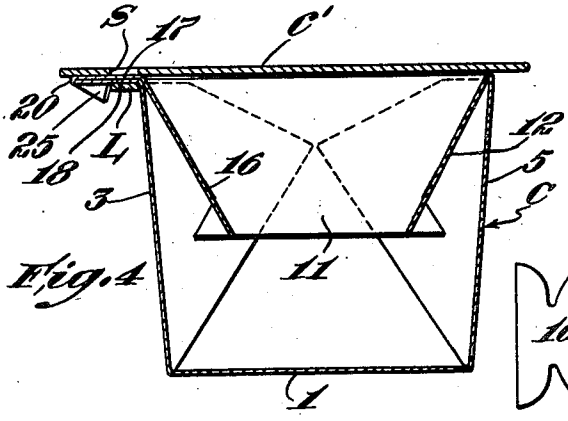



Fig. 4

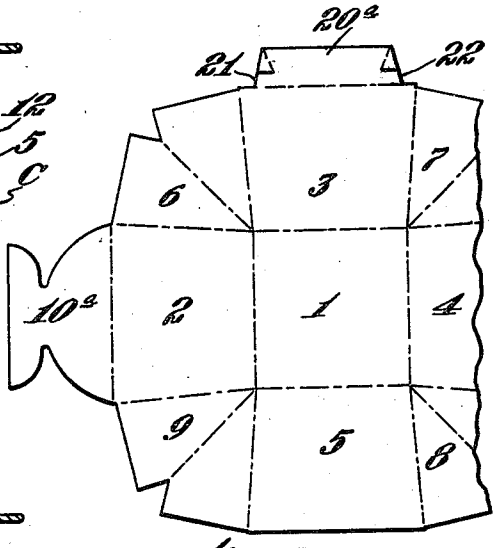



Fig. 5

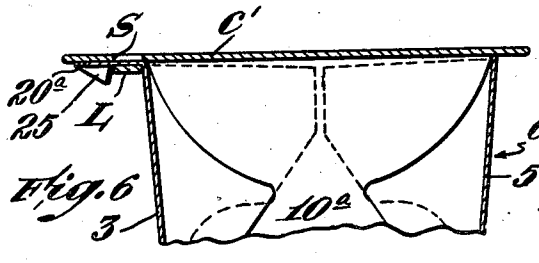



Fig. 6

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SPUTUM CUP

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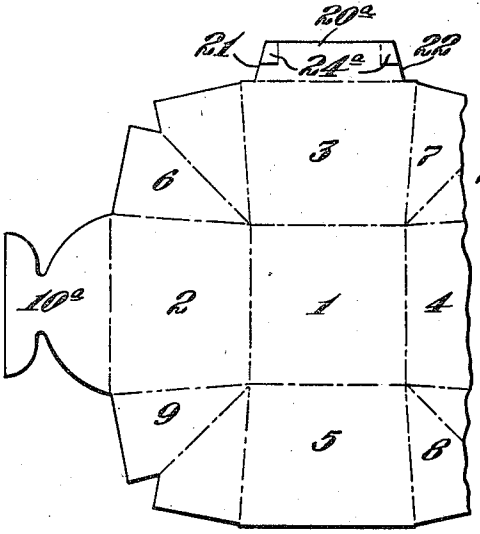



Fig. 7

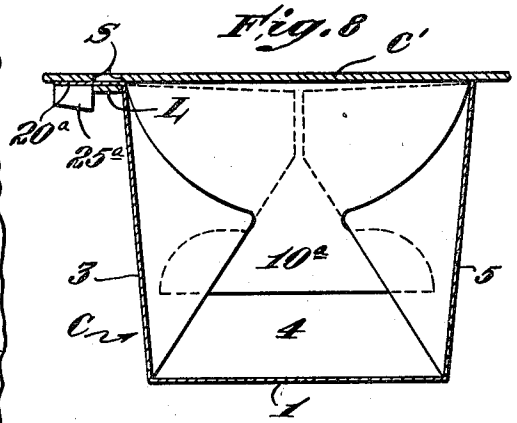



Fig. 8

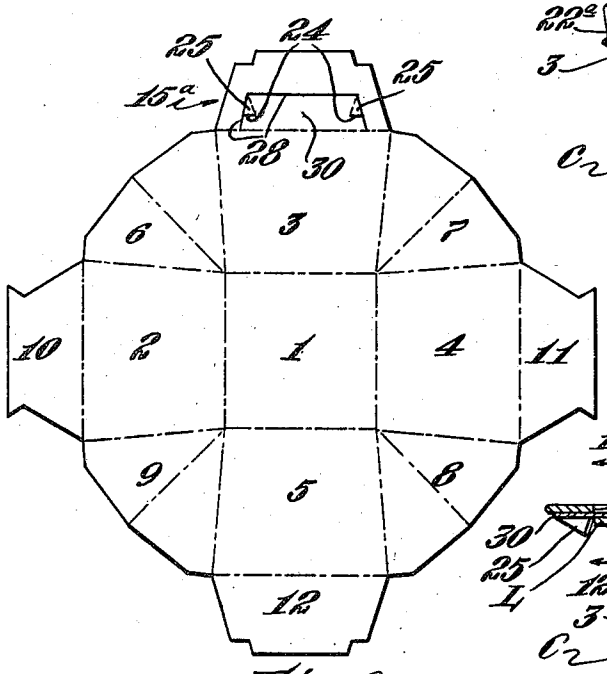



Fig. 9

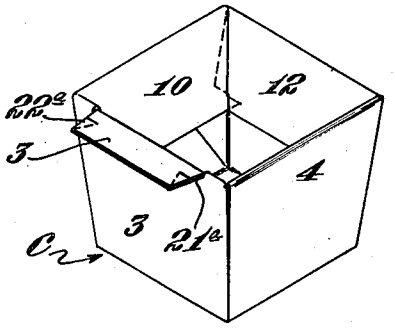



Fig. 10

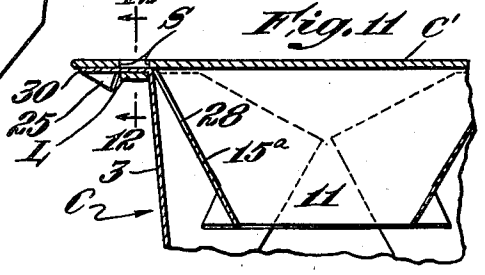



Fig. 11




Fig. 12

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# UNITED STATES PATENT OFFICE

2,330,029

## SPUTUM CUP

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Application October 8, 1942, Serial No. 461,271

18 Claims. (Cl. 4—271)

This invention relates to receptacles of the type made from sheet material, such, for example, as sputum cups and the like containers which are intended to be destroyed after use.

In articles of this character it is essential that the receptacle be provided with a suitable cover which is normally closed and which may be conveniently opened, and it is the principal object of the present invention to provide a receptacle of this type having a normally closed cover member which is hinged to the receptacle without the use of fastening means other than those constituting an integral part of the cover and receptacle, and which is constructed so that the cover may be quickly and conveniently opened by a finger of the hand supporting or holding the receptacle.

Another object is to provide a covered receptacle formed of two parts, one part being adapted to form the cup and the other part the cover, both parts being formed with complementary interlocking means so designed that the receptacle may be quickly erected and assembled with the cover so that the parts are not subject to accidental separation.

Further objects will be apparent from a consideration of the following description and the accompanying drawings wherein:

Fig. 1 is a plan view of a blank from which a cup embodying the present invention is formed;

Fig. 2 is a plan view of the cover;

Fig. 3 is a perspective of the erected cup formed from the blank shown in Fig. 1;

Fig. 4 is an enlarged vertical section through the cup and cover;

Fig. 5 is a plan view of a blank from which a cup or modified construction is formed;

Fig. 6 is an enlarged vertical section through the erected cup formed from the blank shown in Fig. 5;

Figs. 7 and 8 are views, corresponding to Figs. 5 and 6, but illustrating a further modification;

Fig. 9 is a plan view of a blank illustrating another modification;

Fig. 10 is a perspective view of the erected cup formed from the blank shown in Fig. 9;

Fig. 11 is a vertical section through the assembled cup formed from the blank shown in Fig. 9; and

Fig. 12 is a section on the line 12—12 of Fig. 11.

Each of the embodiments herein shown comprises a cup C formed from a single piece of fiberboard or the like sheet material, and a cover C' (Fig. 2) formed with a pair of spaced slits S adjacent to one edge, which defines a depressible resilient strap L adapted to interlock with and frictionally grip a rearwardly extending tapered tongue formed integral with one wall of the cup in such a manner as hingedly to support the cover in a normally closed position.

In the embodiment shown in Figs. 1 to 3, the cup is formed from a blank B scored to provide lines of fold (indicated by the dot-and-dash lines of Fig. 1) and define a bottom 1, side walls 2, 3, 4 and 5 which are interconnected by foldable portions 6, 7, 8 and 9. The outer edges of the sides 2, 4 and 5 are formed with projections 10, 11 and 12 which are folded inwardly into interlocking relationship to form a part of a retaining flange which serves to prevent the escape of the contents of the cup should the latter be accidentally turned on its side or overturned.

The side wall 3 is formed with an extension 15 which is scored to provide lines of fold defining sections 16, 17 and 18. When the sections are folded, as shown in Figs. 3 and 4, the section 16 forms the remaining part of the retaining flange on the interior of the cup, and the sections 17 and 18 provide a tapered tongue 20 which is hinged to and extends outwardly from the upper edge of the side wall 3.

The tongue 20 extends through the slits S of the cover C' with its tapered edges 21 and 22 wedged against the ends of the slits and its body portion holding the resilient strap L in depressed position, as shown in Fig. 4. The strap L is thus effective to exert a frictional locking action on the tongue 20 and cooperates with the wedging action on the tapered edges 21, 22 so as pivotally to hold the cover C' in normally closed position on the cup C. In order to prevent accidental separation of the cup and cover, the lower section 18 of tongue 20 may be provided with transverse slits 24 (Fig. 1) defining locking tabs 25 (Fig. 4) which are bent downwardly so as to engage the strap L and thus provide an interlock which prevents the cover C' from being removed from the cup.

The embodiments shown in Figs. 5 to 12 are generally similar to that shown in Figs. 1 to 4 and the same or similar reference characters are applied to corresponding parts. In the embodiments in Figs. 5 and 6, the flaps 10a on side walls 2 and 4 interlock with the foldable portions 6—9, as shown in Fig. 6, to hold the cup in erected position, no provision being made for a retaining flange. Side wall 3 is formed with a tongue 20a having tapered edges 21 and 22 and transverse slits 24 which define locking tabs 25. The cup and cover are assembled in the same manner as in

the above described embodiment, with the tongue 20ª projecting through the slits S so as to underlie the cover. The tapered edges 21, 22 are wedged against the ends of slits S and its body portion holds strap L in depressed position. The tongue 20ª thus pivotally supports the cover in normally closed position and downwardly bent tabs 25 interlock with strap L to prevent separation of the cup and cover.

The embodiment shown in Figs. 7 and 8 is substantially the same as that of Figs. 5 and 6 except that its tapered tongue 20ª is provided with transverse slits 24ª defining rectangular-shaped locking tabs 25 which are bent at right angles to the face of the tongue to provide an interlock for preventing the cover from being separated from the cup.

The embodiment shown in Figs. 9 to 12 is substantially the same as that of Figs. 1 to 4, except that the extension 15ª is provided with a U-shaped cut 28 defining a tapered tongue 30 which is bent outwardly from the upper edge of the cup to form a supporting hinge. The tongue 30 extends through slits S with its tapered edges 21ª and 22ª wedged against the frictionally held ends of the slits, and its body portion holds the strap L in depressed position. Transverse slits 24 formed in the tongue 30 define tabs 25 which interlock with strap L to prevent separation of the cup and cover.

In each embodiment the gripping action of the depressed strap L (Fig. 12) serves to hold the cover on the receptacle, the tongue projecting straight through the slits wholly below the level of the cover with its edges pinched between the cover and the depressed strap. In each embodiment the tongue on the receptacle which passes through the slits in the cover may have parallel sides but is preferably tapered to facilitate insertion and to wedge tightly against the ends of the slits. While the locking tabs may be omitted in each embodiment, they serve to hold the cover in place more positively. It will also be noted that the marginal portion of the cover overlying the supporting tongue provides a lever-like handle by means of which the cover may be conveniently swung open when the cup is held in the hand. By depressing the strap as aforesaid, it is arched downwardly. Thus when it is pressed against the back of the cup in opening the cover, the arched portion is compressed and its resiliency tends to start the cover toward closed position when the cover is released. By locating the strap L in juxtaposition to the back of the box, it flexes the back inwardly when the cover is opened, and this also yieldingly urges the cover toward closed position when the cover is released.

From the foregoing it will be evident that in one aspect an important feature of the invention consists in that shoulders are provided on the aforesaid tongue to engage the edge of one of the slits in the cover, thereby to restrain the tongue from pulling out of the slits. Thus in the illustrations the edges 24 and 24a of the tabs 25 constitute shoulders which engage the edge of the rear slit in the cover.

While I have shown and described different desirable embodiments of the invention, it is to be understood that this disclosure is for the purpose of illustration and that various changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover provided with a pair of spaced slits defining a depressible resilient locking strap outside one edge of the cup, said tongue projecting straight through said slits wholly below the level of the cover with its edges pinched between the cover and the depressed strap, the width of said slits being negligible and the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue tends to return the cover to closed position.

2. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, said tongue having a tapered portion, and a cover provided with a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting through said slits with its tapered edges wedged against and frictionally held by the ends of the slits, said locking strap being held in depressed position by said tongue so as frictionally to grip the tongue and thus cooperate with the wedging action in holding the cup and cover in assembled relation.

3. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, said tongue pivotally supporting the cover in normally closed position and having a downwardly bent portion engageable with said strap to form an interlock effective to hold the cup and cover in assembled relation, the width of said slits being negligible and the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue tends to return the cover to closed position.

4. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, said tongue having a tapered portion, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover with its tapered edges wedged against and frictionally held by the ends of the slits, said strap being held in depressed position by said tongue and being pivotally supported in normally closed position, said tongue having a downwardly bent portion engageable with said strap to form an interlock effective to hold the cup and cover against accidental separation.

5. A receptacle of the class described comprising a cup having a side wall formed with an extension bent outwardly and folded forwardly upon itself to provide a supporting tongue, the end of said extension terminating in a down-

wardly extending portion within the interior of said cup, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said supporting tongue extending through said slits and holding said strap in depressed position, said strap exerting a frictional locking action on said tongue to hold the cup and cover in assembled relation, the width of said slits being negligible and the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue tends to return the cover to closed position.

6. A receptacle of the class described comprising a cup having a side wall formed with an extension having a tapered portion, said extension being bent outwardly and folded forwardly upon itself to provide a tapered supporting tongue, the end of said extension terminating in a downwardly extending portion within the interior of said cup, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said supporting tongue extending through said slits with its tapered edges wedged against the ends of the slits and its body portion holding said strap in depressed position, said strap exerting a frictional locking action on said tongue to hold the cup and cover in assembled relation.

7. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, said tongue pivotally supporting the cover in normally closed position having transversely extending cuts defining locking tabs which interlock with the edge of one of said slits, the width of said slits being negligible and the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue tends to return the cover to closed position.

8. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, said tongue having a tapered portion, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting through said slits with its tapered edges wedged against and frictionally held by the ends of the slits, said locking strap being held in depressed position by said tongue so as frictionally to grip the tongue, said tapered portion having transversely extending cuts defining locking tabs which are bent downwardly to interlock with said strap and prevent separation of the cup and cover.

9. A receptacle of the class described comprising a cup having a side wall formed with an extension bent inwardly to provide a downwardly inclined flange within the interior of the cup, said flange having a U-shaped cut defining a tongue which is bent outwardly from the upper edge of the cup to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, in which position said tongue pivotally supports the cover in normally closed position, the width of said slits being negligible and the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue tends to return the cover to closed position.

10. A receptacle of the class described comprising a cup having a side wall formed with an extension bent inwardly to provide a downwardly inclined flange within the interior of the cup, said flange having a U-shaped cut defining a tapered tongue which is bent outwardly from the upper edge of the cup to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible locking strap, said tongue projecting outwardly through said slits with its tapered edges wedged against and frictionally held by the ends of the slits, said locking strip being held in depressed position by said tongue, in which position said tongue pivotally supports a cover in a normally closed position.

11. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to form a hinge, a cover interconnected with the tongue, so as to swing with the hinge, and means for interconnecting the tongue and cover including a part projecting below the plane of the tongue in juxtaposition to a part of said side wall, one of the parts being flexed when the cover is opened, whereby the cover when released is yieldingly urged toward closed position.

12. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, said tongue pivotally supporting the cover in normally closed position and having shoulders engageable with the forward edges of one of said slits to restrain the tongue from pulling out of the slits, the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit, the tongue having integral cuts in its lateral edges to form said shoulders.

13. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover provided with a pair of spaced slits defining a depressible resilient locking strap outside one edge of the cup, said tongue projecting straight through the slits immediately below the level of the cover with the strap depressed thereunder and the depressed strap being located in juxtaposition to said side wall so that it flexes the wall inwardly when the cover is opened, whereby the cover when released is yieldingly urged toward closed position.

14. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover provided with a pair of

spaced slits defining a depressible resilient locking strap outside one edge of the cup, said tongue projecting straight through said slits wholly below the level of the cover with its edges pinched between the cover and the depressed strap, the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit and the portion of the tongue in each slit having a width approximating the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue holds the strap in depressed position with its edges pinched in the ends of the slits.

15. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, said tongue pivotally supporting the cover in normally closed position and having a downwardly bent portion engageable with said strap to form an interlock effective to hold the cup and cover in assembled relation, the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit and the portion of the tongue in each slit having a width approximating the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue holds the strap in depressed position with its edges pinched in the ends of the slits.

16. A receptacle of the class described comprising a cup having a side wall formed with an extension bent outwardly and folded forwardly upon itself to provide a supporting tongue, the end of said extension terminating in a downwardly extending portion within the interior of said cup, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said supporting tongue extending through said slits and holding said strap in depressed position, said strap exerting a frictional locking action on said tongue to hold the cup and cover in assembled relation, the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit and the portion of the tongue in each slit having a width approximating the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue holds the strap in depressed position with its edges pinched in the ends of the slits.

17. A receptacle of the class described comprising a cup having a side wall formed with a projecting tongue which is bent outwardly to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, said tongue pivotally supporting the cover in normally closed position having transversely extending cuts defining locking tabs which are bent downwardly so as to interlock with said strap and prevent separation of the cup and cover, the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit and the portion of the tongue in each slit having a width approximating the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue holds the strap in depressed position with its edges pinched in the ends of the slits.

18. A receptacle of the class described comprising a cup having a side wall formed with an extension bent inwardly to provide a downwardly inclined flange within the interior of the cup, said flange having a U-shaped cut defining a tongue which is bent outwardly from the upper edge of the cup to provide a hinge, and a cover having adjacent to its rear edge a pair of spaced slits defining a depressible resilient locking strap, said tongue projecting outwardly through said slits so as to underlie the cover and hold said strap in depressed position, in which position said tongue pivotally supports the cover in normally closed position, the portion of the tongue projecting through each slit having a maximum width which is no greater than the length of the slit and the portion of the tongue in each slit having a width approximating the length of the slit, whereby the tongue can be inserted through the slits without folding the tongue merely by depressing the strap and the tongue holds the strap in depressed position with its edges pinched in the ends of the slits.

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