July 24, 1956 K. D. FRASER 2,756,084

SELF-LOCKING LID FOR CONTAINERS

Filed April 13, 1953

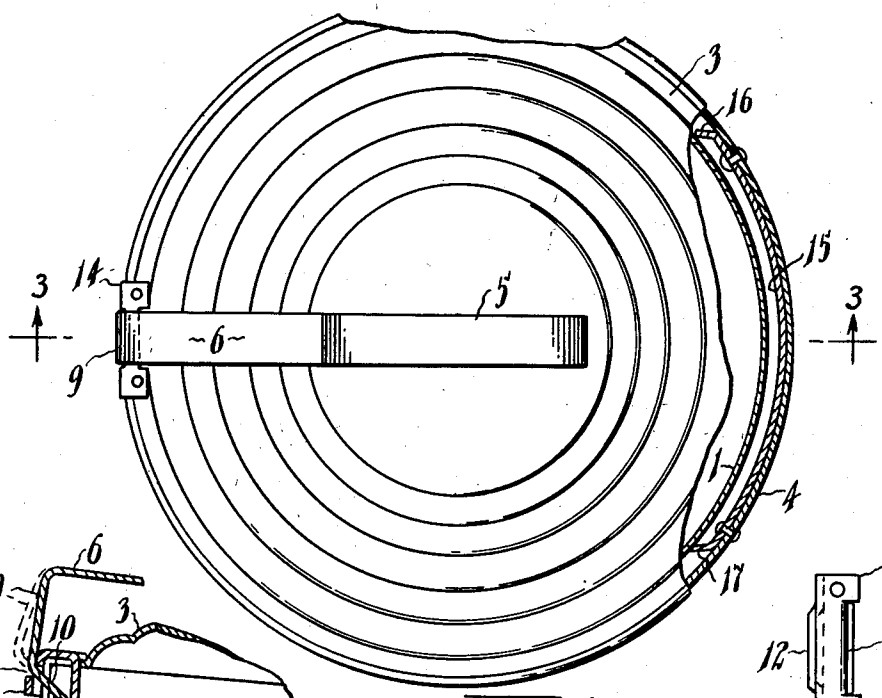


Fig. 1.

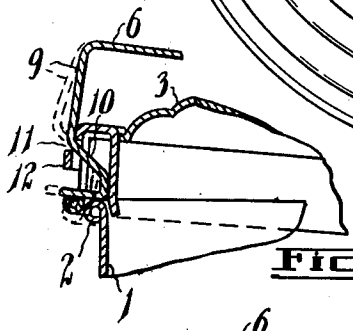


Fig. 5.

Fig. 6.

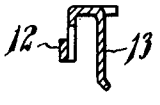


Fig. 7.

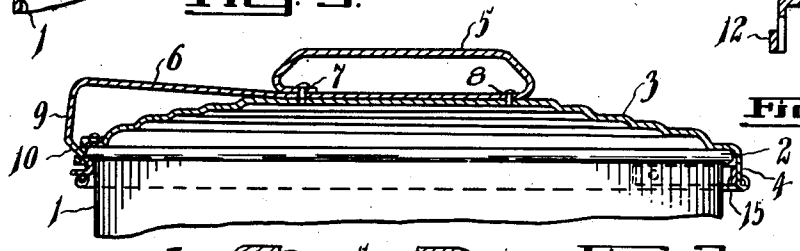


Fig. 2.

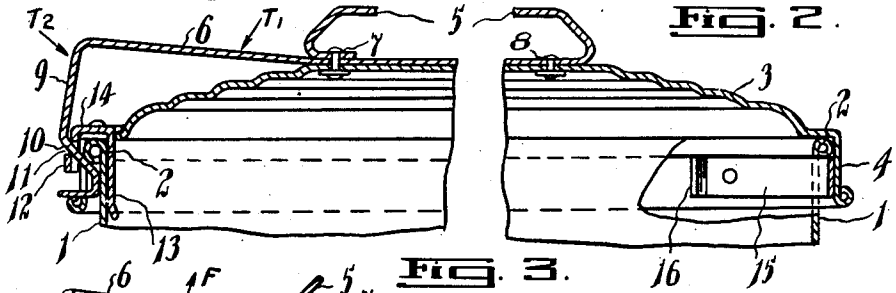


Fig. 3.

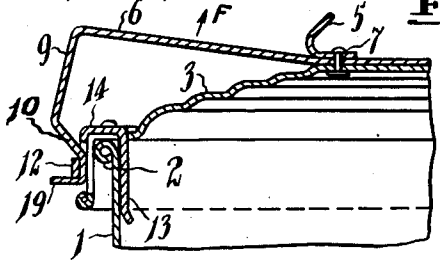


Fig. 4.

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SELF-LOCKING LID FOR CONTAINERS

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3 Claims. (Cl. 292—87)

My invention relates to receptacles of the cannister type and particularly to safety covers or lids used therewith.

The prior art has presented the public with a considerable number of designs of safety lids but all such suffer from two major deficiencies. Firstly, the constructions are complex and include protruding levers or other sharp extensions which catch upon clothing or other objects with which they may come into contact: such events tend to unlatch the cover at undesired times. Secondly, the latches of prior art agencies of the type indicated, suffer the deficiency that they are relatively insecure, per se, and are of such design that they can be unlatched by the random and unorganized effort of animals. This deficiency is particularly unfortunate when a cannister is used as the receptacle for garbage or the like.

It is the principal object of this invention to provide a receptacle and cover therefor which is of enduring construction and which requires an intelligence at human level in order to unlatch the said cover, and which is at the same time easy to put in position and is self-latching.

According to the present teachings the method of constructing such a safety-latched cannister comprises fitting the said cannister with an externally extending lip, fitting the said cover along an overlapping side wall with three uniformly positioned inwardly extending fingers, tending to space the cover and cannister in overlapped relation and in locked-on condition by virtue of the said fingers locking under the edge of said externally extending lip, and providing one of said fingers with resilient inwardly urging means capable of being manually retracted to disengage said one finger so as to release said cover from the said spaced and locked-on condition.

A construction according to my teachings providing a cannister and self latching safety cover therefor, comprises a receptacle having a beaded lip, a cover including a lip terminating a side wall portion capable of overlapping the top wall section of said receptacle, inwardly extending lugs positioned along an inner edge of said side wall, an aperture in said side wall positioned diametrically opposite a transverse centre line common to said lugs, a handle fixed at one end near the centre of said cover and extending radially and then downwardly over the outer face of said wall portion, a latch member terminating the other end of said handle and having a reentrantly formed portion passing through said aperture, a stop bar transversely positioned at said aperture and fixedly positioned to limit the excursion of said latch member, and limited resilient means for urging the said latch member inwardly through said aperture.

An example of construction in accordance with these teachings will now be described, the recitation being further assisted by reference to the accompanying drawings wherein:

Figure 1 displays a top view of a cannister lid according to my teachings with a section disclosing the position of the catch bar.

Figure 2 is a side view of the top portion of a cannister with the latching lid of the invention shown in latched attitude, said latching lid being sectionalized.

Figure 3 is an enlarged fragmentary and sectionalized view of parts of Figure 2 along the lines 3—3 of Fig. 1 showing details of a latch and catch bar, the latch being in effective attitude.

Figure 4 shows the latch portion of Figure 3 with the latch sprung outwardly to the ineffective attitude.

Figure 5 depicts the latch and cover in the attitude of release, the latch sprung back to rest position and the cover at the point of separation from the cannister.

Figures 6 and 7 depict two views of a stop bar of a preferred type.

Referring now to these drawings, **1** is a cannister, for example, a garbage can having a beaded or piped lip **2**. A reinforced cover or lid **3** has a beaded or piped side wall **4**, and may include a conventional lifting bail **5**.

A latch-forming strap **6**, which may be formed from one piece of material integrally with bail **5**, is fastened near the centre of the lid **3**, at point **7**, by a rivet or by spot welding or brazing methods. The example shows said latch-forming strap and bail made from a single strip of metal riveted at **7**, and again at **8**, to the lid **3**.

The latch-forming strap **6** extends radially toward the outer edge of the lid **3**, and then downwardly along its portion **9**, to terminate in a re-entrant form **10**, which forms a latch member. This latch member protrudes inwardly through an aperture **11**, in the side wall **4**, of lid **3**, and, in the latched attitude, bears upon the beaded or piped edge **2** of cannister **1**. A stop bar **12**, positioned transversely of aperture **11** below the latch part **10**, acts to prevent undesired excursion of latch **10**, and to further prevent said latch-forming strap **6** from being pulled away from the lid to an undesirable extent by careless or rough handling.

Said latch-forming strap **6** is made of resilient material or is rendered resilient by hard-forming, and is pre-tensioned to urge the latch member **10** inwardly.

In a preferred embodiment, the stop bar is aided by a stop-tongue **13**. This combination, depicted in Figures 6 and 7, may be made from a metal stamping **14**, which may be clamped onto the edge of the lid after the latch is in position, and then riveted or welded into fixed relation with the lid **3**. The stop-tongue is spaced from the stop bar by a distance which enables the tongue to also act as a guide when placing the lid in position over the cannister. It also acts to prevent the latch from being urged inward too far by the tension of parts **6**, **9**; that is, to prevent an event which would cause the lower edge of the latch **10** to jam on the edge of the cannister lip.

The catch bar **15**, with its two end portions **16**, **17**, is riveted or welded along the inner edge of the wall portion of lid **3**. It is positioned so that its transverse centre line and that of the aperture **11**, are on opposite points at a diameter of the lid. The lugs **16**, **17**, contact the wall of cannister **1**, and are set at an angle so as to be slightly resilient. In conjunction with tongue **13**, and latch **10**, they provide a rugged and positive snug fit for the lid **3**, on cannister **1**, in spite of any likely deformations to the assembly which would result from rough handling. The body portion of the catch bar helps to reinforce the contour of the lid side wall and to maintain a three-point contact between lid and can, thus ensuring that the latch member will always be urged against the rim when in locked attitude as shown in Figures 2 and 3.

The tensions T1 and T2, which are ironed into the latch-forming strap **6**, when it is made urge the latch inwardly at all times.

An upwardly exerted force F, applied to the latch-forming strap **6**, causes the sloping portion **18**, of latch **10**, to slide off the rim **2**, and the bottom portion **19**, of the latch member then catches on the stop bar **12**, which

limits further outward movement of the latched end of latch-forming strap 6. Further application of force F then lifts the cover off the receptacle 1.

It will be evident that this novel construction provides a positive self-locking latch for a receptacle and cover which has no sharply protruding parts and which can be unlatched only by the intelligently selective act of lifting the latch-forming strap 6. The lifting of handle 5, alone will not release the latch and so the handle 5, can be used as a bail for lifting the closed cannister without fear of the lid coming off, since the lugs 16, 17, on the one hand and the latch member 10, on the other, are firmly intruded under the outwardly extending bead or piping of the cannister.

It is believed that the self-locking action will be understood from the preceding description. Obviously, when an attempt is made to pry or push off the lid without pulling on the grip portion 6 of the latching bar the catch element 18 is positively locked against being moved outwardly away from the bead 2 by the forceful abutment of the stop bar 12 with the downwardly sloping outer surface of this catch element. It is therefore held in a jammed locking position. In this way it coacts with the lugs 16 and 17 in precluding displacement of the lid.

It is evident that various modifications of the invention can be made without departing from the broad spirit of my teachings. For example, the stop-bar 12 might be simply a bar of metal welded or riveted to the lid after the latch is in position. The tongue 13 could be made separate from bar 12 or could be omitted altogether without departing from my teachings in their broad aspect. The lugs 16, 17, in an inferior construction could be struck out from the wall 4, thereby eliminating the valuable but not indispensable catch bar 15, except in the spirit of its association with lugs 16, 17. Such variations come within the scope of the invention and all such constructions are therefore to be regarded as lying within the ambit of the appended claims.

What is claimed is:

1. A self-latching safety cover for a receptacle having an outwardly beaded opening, said cover having a depending rim-forming side wall loosely surrounding said beaded opening to provide an intervening clearance space between said beaded opening and said rim-forming side wall in the fitted position of the cover, said cover further having a resilient latch-forming strap extending radially thereover and secured thereto at its inner end, the outer end of said latch-forming strap being bent downwardly alongside of said cover side wall and provided with a latch part which slopes inwardly and downwardly through an aperture provided in said side wall for engaging under the bead of said beaded opening in the normal attitude of said latch-forming strap, the improvement comprising a stop bar disposed across said aperture and below said sloping latch part, and a horizontal bottom element on the lower end of said sloping latch part for abutting said bead to cause the sloping latch part to move upwardly and outwardly to admit said beaded mouth in the application of the cover.

2. A structure as defined in claim 1, in which the bottom element includes an outwardly extending portion.

3. A structure as defined in claim 1, in which the stop bar divides the aperture in the cover side wall into an upper opening and a lower opening, and in which the sloping latch part extends through said upper opening and in which the said horizontal bottom element extends outwardly through said lower opening.

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