Oct. 5, 1971 G. W. A. MARTENS 3,610,076

CAN OPENER

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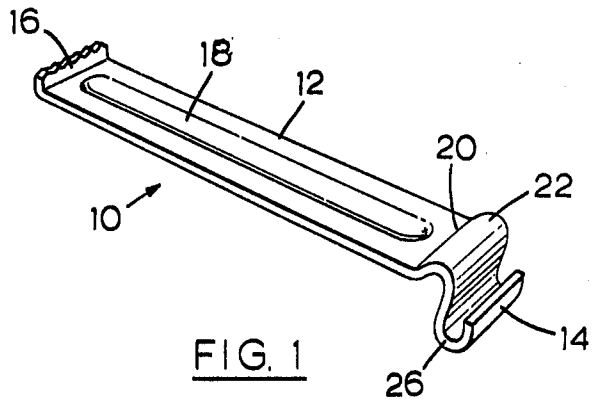


FIG. 1

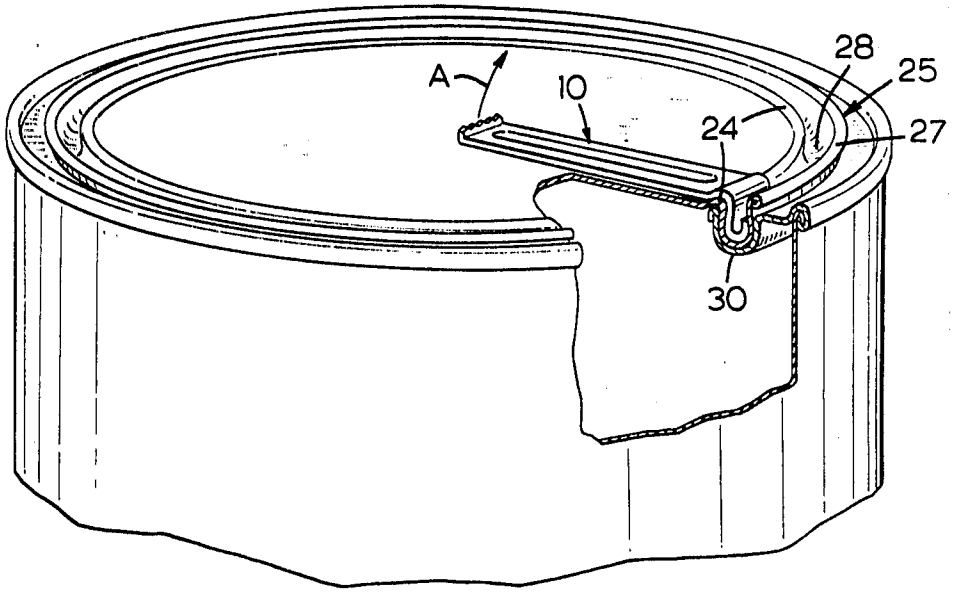


FIG. 2

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CAN OPENER

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ABSTRACT OF THE DISCLOSURE

The disclosure of the present application describes the lever type can opener device adapted to be storably mounted on the lid of a can of the type commonly known as a double-seal can and used frequently as a paint can lid. The opening device is formed from a substantially rectangular blank and consists of a substantially planar body portion which is formed with a tongue at one end adapted to engage the circumferentially extending groove formed in the can lid such that it may be mounted on the can lid in a position wherein the body portion extends radially inwardly of the can lid. The tongue means is formed by bending one end of the substantially rectangular blank upon itself to form a U-shaped projection adapted to fit within the U-shaped groove of the can lid. The U-shaped portion is connected to the body portion by an arch-shaped position which is adapted to provide clearance for the circumferentially extending ridge normally formed adjacent to the U-shaped channel of a double seal paint can lid. A lip means is preferably formed at the other end of the body and adapted to be inserted between the rim of the can lid and the can when the lid is in use.

BACKGROUND OF THE INVENTION

This invention relates to a lever type opening device for removing flanged press fit lids from paint cans and the like. In particular this invention relates to a can opening device adapted to be mounted for storage on a can lid in a position extending radially inwardly from adjacent the circumferential edge thereof. Can lids for paint cans and the like must close the can and effectively seal the contents against the ingress of air which would cause deterioration of the contents of the can. Commonly paint can lids are formed to be located in a circumferentially extending groove in the end of the paint can and provide what is commonly known as a double-seal closure. Because of the close fitting nature of this type of can lid difficulty has always been experienced in attempting to remove the lid and devices which multilate the can lid are undesirable as these lids are intended to be used to reclose the can after a portion of the contents have been removed. Various attempts have been made to temporarily secure an opening device to a container by attaching it to the container by making special provision for the attachment. These devices have not met with any commercial success due to the cost involved in incorporating them into standard cans such as paint cans.

SUMMARY OF THE INVENTION

The present invention provides a can opening device adapted to be mounted for storage on a can lid of the type having a rim at the outer circumferential edge thereof and a circumferentially extending channel formed adjacent the rim. The can opening device comprises a body having tongue means formed at one end thereof adapted to engage portions of the lid forming said circumferentially extending channel to mount the opener on the lid with the body extending radially inwardly from the channel to rest on the disc portion of the lid.

The invention will be more clearly understood after

reference to the following detailed specification read in conjunction with the drawings, wherein:

FIG. 1 is a pictorial view of a can opening device according to an embodiment of the present invention, and

FIG. 2 is a pictorial view showing the manner in which the can opening device is mounted on a double-seal can lid.

Referring to the drawings the reference numeral **10** refers generally to a can opening device according to an embodiment of this invention. The opening device **10** is formed from an elongated rectangular blank having a substantially planar body portion **12** extending in a generally longitudinal plane and a tongue portion **14** at one end thereof and a lip portion **16** at the other end thereof. The body portion **12** is preferably formed with a longitudinally extending depression **18** which increases the rigidity of the lever. The tongue portion **14** is formed by bending the blank upon itself as shown at **20** in a first direction upwardly from the plane of the body portion of the blank and in a second direction towards and beyond the plane of the blank to form an arch-shaped bridge portion **22** adapted to conform to the curvature of the annular rib **24** formed on the can lid **25**. The portion of the body which extends beyond and downwardly from the plane of the body is again bent upon itself to form a U-shaped portion **26** which is adapted to fit within the U-shaped channel **28** formed in the lid **30**. It will be noted that the terminal edge **32** of the tongue portion **14** is located at a level below the plane of the body portion **12** thereby permitting the U-shaped portion **26** to rotate in the channel **28** in response to movement in the direction of the arrow A thus simplifying the removal of the opening device from the lid.

The can lid **25** is of the type commonly known as a double-seal lid. This type of lid is formed with a rolled circumferential rim **27** and a substantially U-shaped groove or channel **28**. The rib **24** which is formed at the inner edge of this groove or channel **28** is commonly used in the structure of this type of lid.

The lip **16** is formed by bending a short end portion of the body in an upward direction and it has a sufficient extent to enter the narrow gap formed between the edge of the can and the lid whereby the lever may be pivoted to pry the lid out of the groove **28**.

The cost of producing the opening device according to the embodiment of the invention described above is sufficiently low to enable one opening device to be mounted in each paint can lid. The low cost is related to the simplicity of manufacture and the small amount of material required. The amount of metal required is minimal and the bending operations are such that they may be successfully carried out in a single pressing operation. In a mass production process these openers may be produced by a blanking and pressing operation from a coil of material such as mild steel of the required width.

When the opener is mounted on a can in a storage position the U-shaped tongue portion **26** is located within the U-shaped groove **28** of a can lid and firmly embraces the side walls of the U-shaped groove **28**. The arch-shaped bridge portion **20** extends over the rib **24** and the body portion **12** extends radially inwardly of the can lid. When in this position the only portion of the opener which extends above the level of the can lid is the small portion which extends over the lip **24**. However when the can is in use it has been found that one can may be stacked on top of the other without the alignment of the cans being disrupted by the thickness of the arch-shaped bridge portion **22**. The lip portion **16** does not extend upwardly from the body portion **12** of the blank to a height greater than the height of the arch-shaped portion **22** and consequently does not interfere with the stacking of the cans one on

top of the other. To remove the opener from its storage position it is only necessary to lift the lip end **16** upwardly away from the surface of the can lid in the direction of the arrow A which will cause rotation of the U-shaped portion of the lip in the channel **28** and eventually release of the U-shaped portion of the tongue from the groove **28**. As previously described the lip portion **16** may, after removal of the opener from the storage position, be used to remove the lid. When the can is reclosed by the lid the opening device may be replaced in the storage position as previously described such that it will be available for removing the lid when it is necessary to reopen the can.

It will be noted that by mounting the device in such a position that the body extends radially inwardly of the can there is no portion of the device projecting beyond the circumference of the container with the result that no difficulty is experienced in arranging a plurality of cans in a side-by-side relationship. Similarly as previously described no difficulty is experienced in arranging the cans stacked one on top of the other. In addition by providing a lip portion at the opposite end of the lever from the mounting tongue the mounting tongue does not become mutilated or deformed by the pressures applied to open the can and it is, therefore, possible to relocate the opening device on the can after the can has been opened by removing the lid. These and other advantages will be apparent to those skilled in the art.

What I claim is:

1. In combination, a can opening device releasably mounted for storage on a can lid of the type having a rim at the outer circumferential edge thereof and a circumferentially extending channel formed adjacent said rim, said opening device having a substantially planar body, tongue means formed at one end of said body releasably secured in said channel of said lid with said body extending radially inwardly from said channel and can opening means insertable between said lid and a can in use.

2. The combination as claimed in claim **1**, wherein the channel in said lid is substantially U-shaped and said tongue is formed with a complementary U-shaped portion for insertion into said channel.

3. The combination as claimed in claim **2**, wherein said body has a substantially planar lever portion extending in a generally longitudinal plane and said U-shaped tongue is disposed outwardly from said longitudinal plane on one side of said body.

4. The combination as claimed in claim **3**, wherein said tongue portion has a free end disposed outwardly from and extending towards said longitudinal plane of said body in a plane extending substantially normal to said longitudinal plane, said free end terminating short of said longitudinal plane.

5. The combination as claimed in claim **4**, wherein said opening means comprises lip means at the other end thereof adapted to be inserted between said rim and said can whereby said lip means may be employed by movement of said lever to remove said lid from a can in use.

6. The combination as claimed in claim **5**, wherein said lip means projects substantially normal to the plane of said body and is disposed on the opposite side of said longitudinal plane to that of said tongue.

7. The combination as claimed in claim **6**, wherein said U-shaped portion of said tongue is connected to said body portion by an arch-shaped bridge portion which projects on said opposite side of said longitudinal plane to provide clearance for a circumferentially extending ridge normally formed in the lid of a can of the type commonly known as a double seal lid.

8. In combination, a can opening device releasably mounted on a can lid of the type consisting of a disc having a rim formed at the outer circumferential edge thereof, a circumferentially extending U-shaped channel depression formed adjacent the rim and a circumferentially extending raised rib formed inwardly of and adjacent said channel, said opening device consisting of an elongated rectangular blank having a substantially planar body portion extending in a generally longitudinal plane and a tongue portion at one end of said blank, said tongue portion being formed by bending said blank upon itself in a first direction upwardly from said longitudinal plane of said blank and in a second direction towards and beyond said plane to form an arch-shaped bridge portion conforming to the curvature of said circumferentially extending rib of said lid, the portion of said tongue extending beyond said plane of said body extending a distance substantially equal to the depth of said U-shaped groove of said lid, said tongue being again bent upon itself to provide a U-shaped end portion having a pair of opposed legs disposed substantially normal to said plane of said body and a base portion substantially parallel to said plane of said body, said U-shaped portion of said tongue being inserted into said U-shaped channel of said lid to firmly engage the wall of said channel to retain said opener on said lid in a storage position with said body portion extending radially inwardly from said channel to overlie said lid, lip means formed at the other end of said body, said lip means being insertable between said rim of said lid and said can when said lid is in a position closing said can such that said lid means may be employed by movement of said body to remove said lid.

9. A can opening device adapted to be mounted for storage on a can lid of the type having a rim at the outer circumferential edge thereof, and a circumferentially extending substantially U-shaped channel formed adjacent said rim, said opening device comprising: a substantially planar body having U-shaped tongue means formed at one end thereof, said U-shaped tongue means being adapted to engage the portions of said lid forming said Ushaped channel of a lid to mount the opener on the lid with the body portion thereof extending radially outwardly from said channel, said body having a substantially planar lever portion extending in a generally longitudinal plane and said U-shaped tongue being disposed outwardly from said longitudinal plane on one side of said body, said tongue portion having a free end disposed outwardly from and extending towards said longitudinal plane of said body in a plane extending substantially normal to said longitudinal plane, said free end terminating short of said longitudinal plane, and can opening means insertable between said lid and a can in use.

10. A can opening device as claimed in claim **9**, wherein said opening means comprises lip means at the other end thereof adapted to be inserted between said rim and said can whereby said lip means may be employed by movement of said lever to remove said lid from a can in use.

11. A can opening devicse as claimed in claim **10**, wherein said lip means projects substantially normal to the plane of said body and is disposed on the opposite side of said longitudinal plane to that of said tongue.

12. A can opening device as claimed in claim **11**, wherein said U-shaped portion of said tongue is connected to said body portion by an arch-shaped bridge portion which projects on said opposite side of said longitudinal plane to provide clearance for a circumferentially extending ridge normally formed in the lid of a can of the type commonly known as a double seal lid.

References Cited

UNITED STATES PATENTS

597,286	1/1898	Horswill	81—3.46 X
1,963,007	6/1934	Week	81—3.46

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