

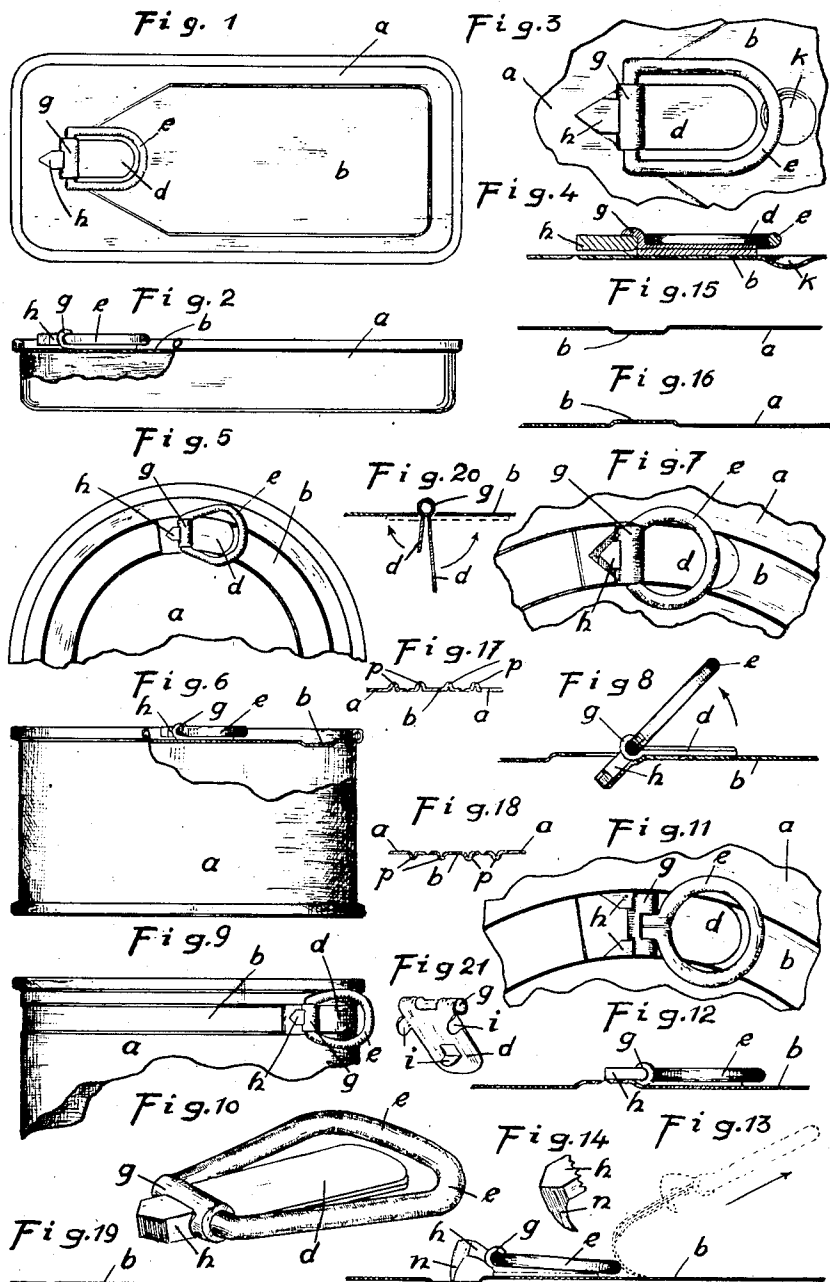
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OPENING DEVICE FOR SHEET METAL CANS AND BOXES

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UNITED STATES PATENT OFFICE

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OPENING DEVICE FOR SHEET-METAL CANS AND BOXES

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This invention relates to opening devices for sheet metal cans and boxes provided with a tearing strip integral with the body and marked off from the main portion of the body by weakened lines. Said tearing strip has to be ripped off for the purpose of opening the can or box.

The object of the invention is to provide an opening device by means of which the starting end of the tearing strip is easily freed and which does not require an additional can opener or other tool for removing the tearing strip.

The opening device of the hereinafter described invention can not only be used for sheet metal cans and boxes but also for other kinds of hermetically closed packings. By the simplicity of its construction it can be fixed to very small cans and boxes which usually are difficult to open by other means, without impairing the economical construction of such packings.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claim and in the drawings illustrative of preferred embodiments of the invention.

Fig. 1 shows a top plan view of a shallow box and Fig. 2 a partly sectional side view of the same box. Fig. 3 is an enlarged plan view of the opening device and Fig. 4 a longitudinal section thereof. Fig. 5 represents part of a top plan view of another can and Fig. 6 a side view of the same can partly in section. Fig. 7 is an enlarged plan view of the opening device and Fig. 8 a side view thereof. Fig. 9 represents a side view of another can with the opening device on its side wall. Fig. 10 is an illustration of one preferred embodiment of the invention. Fig. 11 is a plan view of another preferred embodiment of the opening device and Fig. 12 is a side view thereof. Fig. 13 is a side view of yet another preferred embodiment of the opening device in two different positions and Fig. 14 a view of a part of this construction. Figs. 15-18 show different cross sections of the tearing strip. Fig. 19 shows a longitudinal section of the tearing strip with the

weakened place from where the ripping off commences. Fig. 20 is a cross section of one preferred construction of the bearing to be fastened to the tearing strip and Fig. 21 a view of another preferred construction of this bearing.

Similar numerals of reference denote corresponding parts in the several figures.

In all views the can or box is marked *a*, the tearing strip *b*, and *h*, *e*, *g* and *d* refer to the opening device.

The tearing strip *b* bounded by scratched in, fluted, or otherwise produced weakened lines may occupy the major portion of the top or lid of the can (Figs. 1 and 2) or, in the shape of a circular band be located in the side wall or top of the can as illustrated in Figs. 5, 6 and 9.

The cross section of the tearing strip may be on a level with the parts of the can surrounding it or above or below them as shown in Figs. 15 and 16. Figs. 17 and 18 illustrate other cross sections of the tearing strip with grooves *p*, running parallel to the weakened lines, either on one or on both sides of them.

To the opening device belongs bearing *g* which with its parts *d* is soldered on to the tearing strip *b*. Parts *d* may be fixed to the surface of the tearing strip *b* as, for instance is shown in Fig. 8, whereby by the use of one or two rivets or through corresponding corrugation or grooving of the parts to be soldered together an especially secure fastening is obtained, or, they can be introduced into the can or box as shown in Fig. 20. Here they are bent in the directions indicated by the arrows and soldered to the interior wall of the can. Parts *d* may also be provided with flange shaped attachments *i* as shown in Fig. 21 which are inserted into the can and there soldered to its wall.

To strengthen bearing *g* it may be made out of a double layer of sheet-metal. In it a ring of any desired shape, *e*, or a handle turns, which on its base carries a rigid tongue, *h*, projecting through an opening in bearing *g*.

Handle *e* when not used lies flat on can *a*. A depression for its reception may be provided in the lid or wall of the can so that the

handle will be on a level with the adjoining parts of the can.

To enable the finger to get hold of handle *e* without difficulty, it is expedient to provide the can under the apex of the ring with a depression as illustrated in Figs. 3 and 4.

Handle *e* and tongue *h* act like a double armed lever, tongue *h* of handle *e* being preferably constructed with angular edges, which when handle *e* is raised cut into the metal of the can (Fig. 8) and thereby produce a wedge shaped incision clearly shown in Fig. 7.

To facilitate the production of this incision the metal of the can should be provided with weakened lines in this place. These weakened lines may be located on the interior of the can body as shown in Fig. 4 or on the exterior of the can body as shown in Fig. 19. By pulling on handle *e* the wedge shaped incision is enlarged and gradually the whole tearing strip ripped off.

Tongue *h* may be divided into two parts adjoining the edges of the tearing strip as shown in Figs. 11 and 12. This tongue produces also a wedge shaped incision which points in the direction of the tearing strip.

An absolute secure connection between handle *e* and the tearing strip is obtained when tongue *h* is provided with a downward bent point *n* as illustrated in Figs. 13 and 14. When now handle *e* is drawn in the direction of the arrow as indicated with dotted lines, this point grips from below into the tearing strip and the parts *d* fastened to it. The entering place should be weakened, for instance by providing parts *d* with corresponding holes. Besides this, the metal of the can may be provided with suitable perforations which can be soldered up.

I wish to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

In a can or box having a tearing strip bordered by weakened lines, the combination of a bearing fastened to the tearing strip, a handle permanently fastened to the bearing of the tearing strip adapted for catching hold of and ripping off the tearing strip, turning in said bearing and having a sharp edged tongue adapted to produce an incision across the tearing strip when the handle is raised.

In testimony whereof I affix my signature.
GUSTAF LAMBERT ERICSSON.