Jan. 13, 1959 K. J. GREELEY 2,868,408

DEVICE FOR OPENING CONTAINERS

Filed March 20, 1956

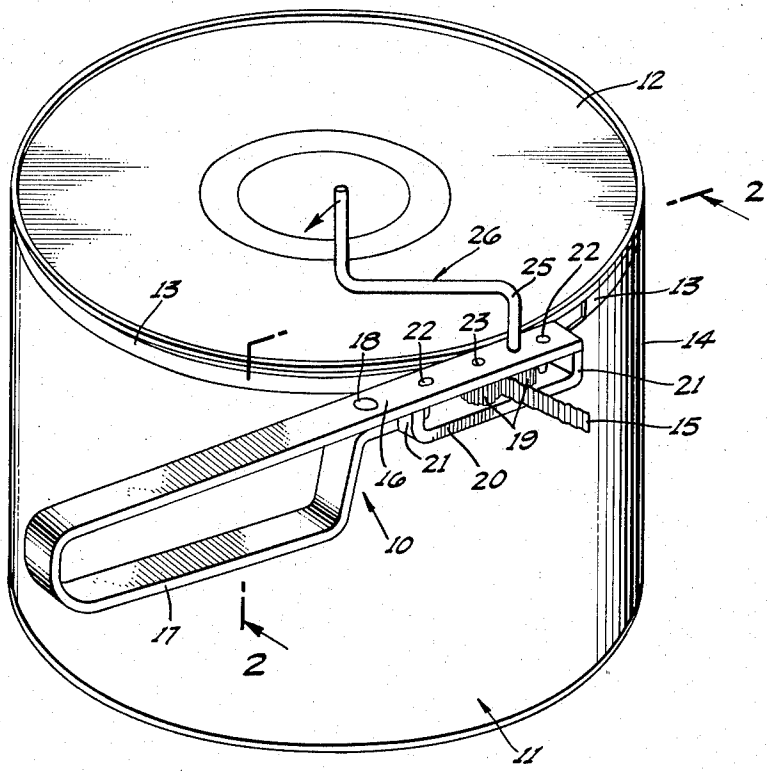


FIG. 1.

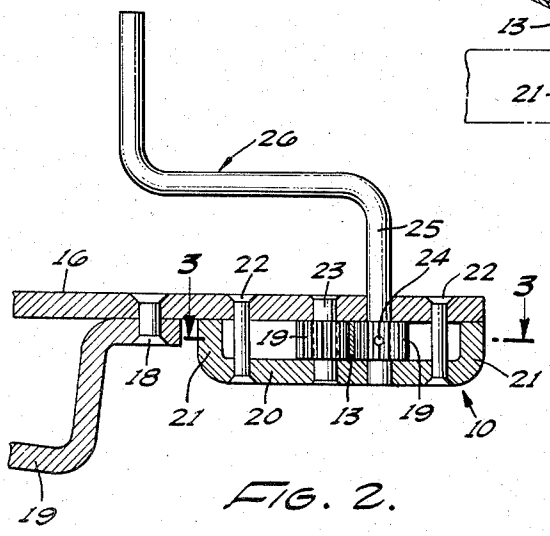


FIG. 2.

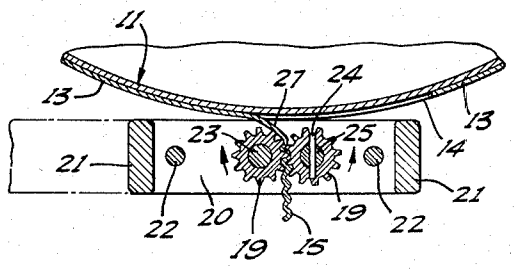


FIG. 3.

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United States Patent Office 2,868,408
Patented Jan. 13, 1959

2,868,408

DEVICE FOR OPENING CONTAINERS

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Application March 20, 1956, Serial No. 572,738

8 Claims. (Cl. 220—52)

This invention relates to a new and improved device for opening metal containers of the type employing a rip strip to seal the cover closed.

In opening containers held sealed by a rip strip, the customary practice is to sever the rip strip by means of a key detachably secured to the container wall. This key has an opening receiving the strip end so that rotation of the key is effective to coil the strip thereon and to sever it from the container. Although simple and inexpensive, the key is awkward to use and requires considerable skill to keep the expanding coil of stripping aligned with the unseveral portion as is necessary to prevent the coil from twisting out of tracking position. Once the coil becomes twisted great difficulty is experienced in severing the remainder of the strip from the container. Certain devices have been proposed as a substitute for the key but so fas as I am aware all are subject to certain disadvantages obviated by the present invention. Certain devices proposed as a substitute for the key-type remover are bulky and fail to provide positive and easily operated means for gripping the rip strip. Others require a positioning tab or the like engageable with the container rim to hold the opener properly aligned with the rip strip.

In view of the foregoing factors and conditions characteristic of can openers of the class described, it is an object of this invention to provide an improved strip removing device having a pair of meshing spur gears carried in a supporting handle and operable to maintain the strip under tension in a manner to sever it progressively from a container.

Another object of the invention is to provide a rip strip remover adapted to corrugate the strip and simultaneously tension it at a point closely adjacent the container wall.

A further object of the invention is to provide a simple rugged can opener requiring a minimum number of parts made to rough tolerances and yet operable to grip a container rip strip in a positive manner while severing it to release the container closure.

These and other objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is illustrated:

Figure 1 is a perspective view showing a can opener device in its proper operating position after a short length of a rip strip has been severed;

Figure 2 is a longitudinal sectional view through the forward end of the can opening device taken on line 2—2 of Figure 1; and

Figure 3 is a transverse sectional view taken on line 3—3 of Figure 2.

Again referring to the drawing and particularly to Figure 1, it will be seen that the can opener constituting the present invention generally designated **10** is shown in operative relationship to a metal container **11** having a cover **12** hermetically sealed to side wall **14** by a rip strip **13**. It will be understood that the rip strip is of

a conventional design having its opposite longitudinal edges defined by parallel grooves pressed into the inner surface of container wall **14** adjacent the rim of cover **12**. This strip is slightly longer than the circumference of the container and its overlapping free end **15** normally lies flush against the exterior of wall **14**.

Can opener device **10** comprises a main body **16** formed from a straight length of heavy gauge metal having one end bent into a flat loop to provide a handle **17**, the free end of the loop being preferably secured to body **16** by a rivet **18**. A pair of small diameter spur gears **19, 19** having an axial length approximating the width of the rip strip **13** is held assembled to one side of main body **16** by means including a U-shaped bracket **20** preferably formed from the same stock as the body of the opener, the flat ends of legs **21** being held assembled against body **16** as by a pair of rivets **22, 22**. One of gears **19** is rotatably supported on a shaft **23** having its ends supported in bracket **20** and body **16**, respectively, and the other gear is keyed by a pin **24** to shaft **25** of a crank **26** freely journaled in aligned openings in bracket **20** and main body **16**.

In using the opener device **10** to remove rip strip **13** from the container, the operator first bends the free end **15** of the strip outwardly from its normal position against the container wall. Holding handle **17** of the opener device **10** in one hand, strip end **15** is inserted between gears **19** as the operator uses his other hand to turn crank **26** in a direction to advance the strip between the gears, the teeth of which act upon the opposite sides of the thin malleable strip to crimp or corrugate it in the manner clearly illustrated in Figures 1 and 3. This progressive crimping of the strip enables the loosely meshing gears **19, 19** to provide a positive and powerful gripping action on the strip even though the spacing between the facing surfaces of the gears is appreciably greater than the thickness of strip **13**. As a result of this crimping, the short section **27** of the strip between the container wall and the crimped portion is highly tensioned at a sharp angle with the side wall of the container thereby placing the still bonded or unsevered lateral edges of the rip strip at the inner end of section **27** under high shearing stresses. This shearing stress is highly effective in severing the strip speedily and with ease. If the operator holds the opener stationary by means of handle **17**, the rotation of the crank acts on strip **13** to advance the container towards the gears as the strip is severed from the container.

Of particular significance is the fact that the described opener is self-aligning with respect to the unsevered portion of the rip strip. This feature will be best understood by reference to Figures 2 and 3 showing the opposite edges of tensioned section **27** passing in close contact, respectively, with the facing surfaces of bracket **20** and body **16** of the opener. In consequence of the mutual cooperation between the taut section **27** and the described guide surfaces, it is quite impossible for the opener to become misaligned with the rip strip. This important advantage is obtained without additional or specially formed parts and adds appreciably to the utility and overall effectiveness of the opener. It will be recognized from the foregoing that the described can opener is effective to grip a rip strip firmly and positively despite variations in the tolerances of the component parts of the opener or variations in the thickness of container rip strips. Additionally, the few parts of the device are seen to be of rugged construction capable of withstanding abusive use without adversely affecting the operating efficiency of the opener.

While the particular device herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently

preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

I claim:

1. A can opener of the class described comprising a handle, a pair of loosely meshing spur gears rotatably supported in journals fixed with relation to one another in one end of said handle, and manually operable means for rotating at least one of said gears to pull a tear strip from a can as the strip is corrugated between said spur gears.

2. A can opener of the class described comprising a one-piece handle, means supporting a pair of loosely meshing spur gears supported in journals fixed with relation to one another in one end of said handle, and crank means operatively connected to one of said gears and operable thereby to rotate said gears in opposite directions to grip and to corrugate a container rip strip therebetween.

3. A can opener of the class described comprising an elongated member, a pair of loosely meshing spur gears rotatably supported in predetermined spaced relation near one edge of said member, said spur gears being adapted to receive between the meshing teeth thereof the rip strip of a metal container and to corrugate the same crosswise thereof as said gears are rotated, and means for rotating said spur gears.

4. A can opener of the class described comprising a pair of loosely meshing spur gears rotatably mounted in predetermined space relation in a rigid frame, a crank secured to one of said gears and journaled in said frame, said gears being operable when rotated by said crank to receive the end of the rip strip of a metal container and corrugate said strip as the same is positively fed between said crank driven spur gears.

5. A can opener of the class described comprising a stiff metal strip formed to provide a hand grip portion at one end thereof, a pair of small diameter meshing spur gears rotatably supported in predetermined spaced relation on said strip adjacent said hand grip, said gears having a length corresponding substantially to the width of a container rip strip, and means for driving said gears to feed a container rip strip therebetween in a positive manner by corrugating said rip strip.

6. A can opener of the class described adapted to remove a rip strip from the side wall of a metal container held closed thereby, said opener comprising a mounting frame for a pair of loosely meshing spur gears journaled about axes fixedly spaced from one another, said frame having open sides along diametrically opposed faces of said gears for the passage of a rip strip transversely of said frame through said open sides, and means for driving said gears to feed a rip strip therebetween, said gears being operable to corrugate the rip strip and feed the same between the meshing teeth thereof in a positive manner.

7. A can opener of the class described adapted to apply tension to a container rip strip in a direction substantially normal to the container side wall to sever the strip from the container, said opener comprising a stiff metal strip having a looped end providing a handle and a straight portion extending from one end of said handle, a U-shaped member secured against one face of said straight portion and cooperating therewith to support two short shafts spaced longitudinally of said straight portion, a pair of meshing spur gears mounted on said shafts, one of said shafts extending beyond the exterior face of said opener and forming a handle for rotating said gears to feed a container rip strip therebetween.

8. An opener for containers provided with a tear strip, said opener comprising: a frame having two substantially parallel side walls spaced apart a distance sufficient to receive said tear strip flatwise therebetween, a pair of parallel rollers rotatably journaled in said side walls in fixed spaced relation to each other, said rollers each having gear-like teeth thereon, the teeth of one roller loosely meshing with the teeth of the other roller, means for rotating one of said rollers, wherein upon rotation of the rollers said strip may be gripped by said teeth and ripped from the container.

References Cited in the file of this patent

UNITED STATES PATENTS

100,929	Roys	Mar. 15, 1870
777,817	Stolp	Dec. 20, 1904
1,018,399	Livingston	Feb. 20, 1912
2,068,597	Dazey	Jan. 19, 1937