March 18, 1958 O. J. EDWARDS 2,826,767

SELF-INFLATING ARTICLES

Filed Nov. 15, 1954

FIG. 1

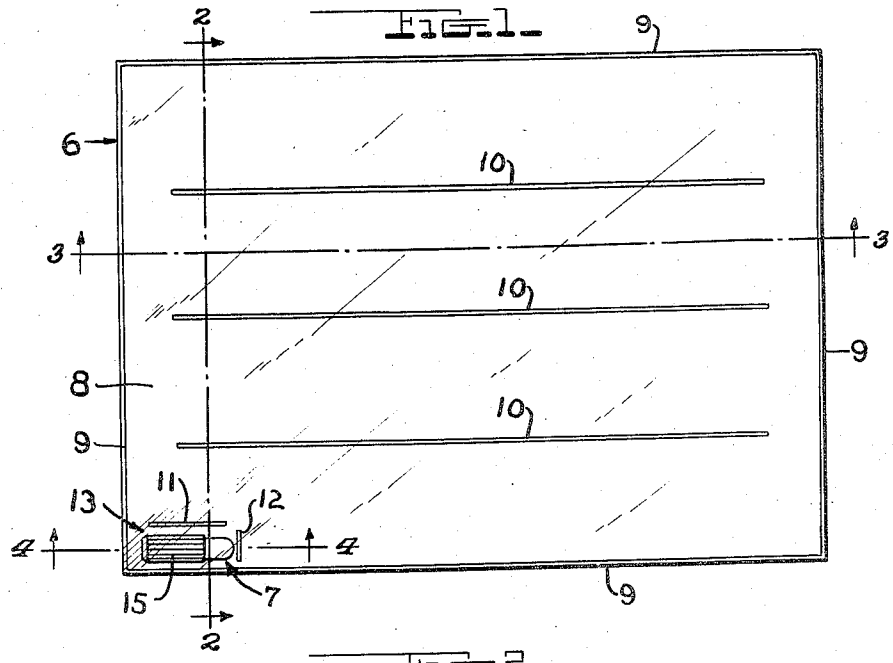


FIG. 2

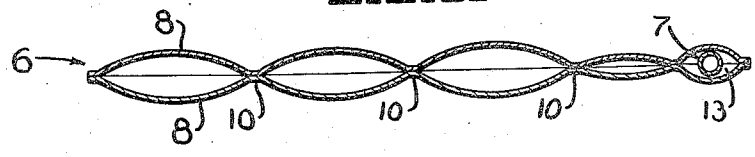


FIG. 3

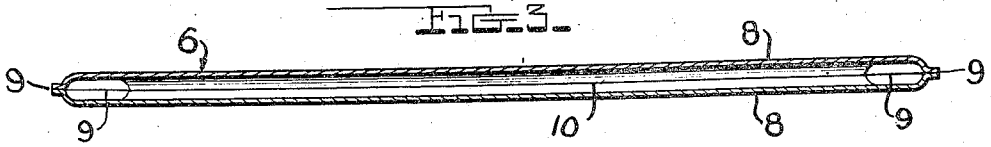


FIG. 4

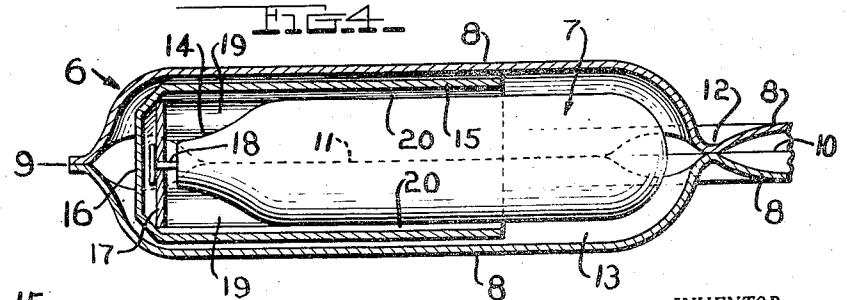
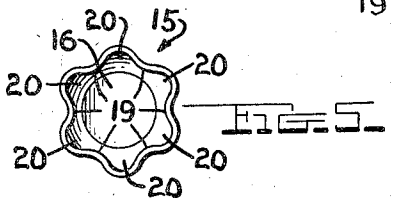


FIG. 5



INVENTOR.

Orley J. Edwards

BY Roy A. Plant

atty.

United States Patent Office 2,826,767 Patented Mar. 18, 1958

2,826,767

SELF-INFLATING ARTICLES

Orley J. Edwards, Battle Creek, Mich.

Application November 15, 1954, Serial No. 468,867

7 Claims. (Cl. 5—341)

The present invention relates broadly to self-inflating articles, and in its specific phases to a self-inflating disposable pillow.

On trains and the like, it is customary to rent pillows to passengers, the pillows being left by the passengers to be later collected for removal of the used pillow cases, application of fresh cases, and storage in readiness for other passengers. This procedure entails quite an amount of inconvenience, requires a large storage space for the pillows, and necessitates expense for laundering the cases and replacing worn-out cases. This has led to some trains not having pillows to rent even though there is a demand for same. It was a recognition of this situation and the difficulties and shortcomings of the field which led to the conception and development of the present invention.

The present invention aims to provide a cheap yet serviceable self-inflating item, such as a pillow, to be sold at a reasonable price to the passengers, used for the one trip, and then thrown away. Thus, a great number of the pillows, in their normally deflated form, may be compactly folded and stored in a small space, and the expense and inconvenience previously incurred will be saved.

In carrying out the above end, a flexible gastight casing is provided and this casing contains a cartridge of highly compressed gas to expand and inflate the casing when released, and a further object of the invention is to provide finger-actuated puncturing means for the cartridge seal which may be easily operated when the pillow is to be inflated.

The puncturing means is in the form of a pointed pin, or tack, and a still further object is to make novel provision for holding this pin, or tack, in readiness for use and for minimizing the danger of accidental operation thereof.

Another object is to provide a sleeve to frictionally surround the cartridge and extend beyond the puncturable end of the latter, said sleeve having a closure spaced from said puncturable end of the cartridge, the puncturing pin, or tack, being mounted in the closed end of said sleeve and being operable by inwardly sliding said sleeve upon the cartridge, said sleeve having passages through which the released gas flows into the flexible pillow casing.

Yet another object is to provide a flexible pillow casing which, preferably, is sufficiently transparent to allow the user to see the cartridge and operate the puncturing means without difficulty.

A further object is to confine the cartridge in a novel pocket in a restricted portion of the flexible casing, preferably a corner thereof, the pocket however being in communication with the rest of the casing interior to allow the gas released into said pocket to inflate the casing.

Still further objects and advantages of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention then, consists of the means hereinafter

fully described and particularly pointed out in the claims, the annexed drawing, and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of various ways in which the principle of the invention may be used.

In the annexed drawing:

Figure 1 is a plan view of the pillow in deflated form.

Figure 2 is a sectional view on line 2—2 of Figure 1 looking in the direction of the arrows, the casing side walls being shown separated where not connected to each other.

Figure 3 is a sectional view on line 3—3 of Figure 1, looking in the direction of the arrows, the casing side walls being again separated where not connected to each other.

Figure 4 is an enlarged detail sectional view on line 4—4 of Figure 1, looking in the direction of the arrows, portions of the casing side walls not connected with each other being again shown separated.

Figure 5 is an end view of the cartridge surrounding sleeve, as seen from the open end of same.

The construction shown in the drawing will be specifically described, to facilitate understanding the principles involved, but it is to be understood that variations may be made within the scope and spirit of the invention as set forth.

A flexible casing **6** is provided, and may be of rubberized fabric of suitable type, but preferably it is formed from a relatively low cost modern tough plastic such as "cellophane," "Pliofilm," or "Vis Queen C." Clear or colored stock may be used but preferably it should have sufficient transparency to make the compressed gas cartridge **7** readily visible for operation. Two sheets **8** of the material are used and their edges are seamed together as shown at **9**. Also, the two sheets **8** are preferably seamed together along longitudinal lines **10** terminating inwardly of the casing ends. Then, too, while the cartridge **7** may be left loose in casing **6**, I prefer to have these sheets further seamed together on lines **11** and **12** to provide a pocket **13**, preferably, in one corner of the casing, and in which pocket the cartridge **7** is confined. Where the sheets **8** are of plastic, such as "cellophane," all of the seams **9**, **10**, **11**, and **12** may be accomplished by heat and pressure as is well known in fabricating various articles from plastics.

The cartridge **7** is of the commonly known form and contains a highly compressed and highly expansible gas, such as CO_2. This cartridge has the usual puncturable seal in the reduced size end **14** and when this seal is punctured the gas is released and expands to inflate the casing **6**. For a pillow meeting the present requirements, a conventional 250 cubic inch CO_2 cartridge is satisfactory and the pillow gas capacity should be such as will be satisfactorily inflated by this amount of gas.

A sleeve **15** frictionally surrounds the cartridge **7** and extends beyond the sealed end **14** thereof. This extended end of the sleeve **15** has an end wall **16** spaced from the cartridge **7**. A disk **17** is fitted into the closed end of the sleeve and carries a pin **18** for puncturing the seal of cartridge **7**. This pin is preferably formed by an ordinary thumb tack forced centrally through the disk **17**, and this disk may well be of cardboard or the like.

The sleeve **15** is normally so positioned on the cartridge **7** that there is no danger of the pin **18** accidentally puncturing the seal of said cartridge. However, by forcibly sliding the sleeve **15** further in on the cartridge by thumb or finger pressure, the pin **18** punctures the seal and the gas is released to inflate the casing **6**.

This sleeve **15** has gas-escape passages into the pocket **13** and this pocket communicates at the ends of the seams

11 and 12 with the rest of the casing interior. In a preferred construction, the sleeve 15 is longitudinally corrugated to provide internal cartridge-engaging ribs 19 and gas-escape passages 20 between said ribs.

The cartridge and its sleeve, if desired, may be readily visible through the casing 6 and the purchaser need only know that end wall 16 is to be pressed firmly against the end of cartridge 7 to puncture the sealant to cause the inflation of the casing. This instruction may be imparted by printed matter on or associated with the casing, or orally at the time of purchase.

Normally, the device is entirely deflated and folded into compact form, allowing storage of a large number in small space. This is of great advantage to those who have the devices for sale. Also, the purchaser may conveniently place the folded deflated article in a hand bag or garment pocket until its use is required. It is then a simple matter to remove and inflate the device into a comfortable pillow, and when this pillow has served its function, it may be thrown away.

From the foregoing, it will be seen that a novel and desirable article which may be in the form of an inflatable pillow or other item, even toys, has been disclosed for the desired purposes. However, attention is again invited to the possibility of making variations without departing from the spirit and scope of the invention as herein set forth.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the self-inflating article and combinations herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A self-inflating article in the form of a pillow, which comprises a flexible gastight casing having relatively closely spaced but large area opposite side walls, a puncturable cartridge of highly compressed gas to be punctured only at the time of inflating said casing, a puncturing pin for puncturing said cartridge, and a relatively freely slidable sleeve means considerably shorter than said cartridge and fitting over the puncturable end of same, said sleeve having a gas-escape means and also mounting said pin in cooperative relation with same in readiness for puncturing of said cartridge when said means slidably fitting said cartridge is manually forced into puncturing position on the latter, said cartridge, pin and the slidable mounting means for same being assembled into a single inflating unit, said unit being disposed for movement in various directions entirely within said casing.

2. A structure as specified in claim 1; wherein said inflating unit is disposed and held in one corner of said casing which is sufficiently transparent to make said inflating unit visible for ease of operation.

3. A structure as specified in claim 1; together with means uniting restricted portions of the opposite side walls of said casing and providing a pocket in which said inflating unit is loosely confined, the interior of said pocket being in open communication with the rest of the casing interior.

4. A structure as specified in claim 1; wherein said casing is formed of pliable sheet plastic, the opposed side walls of said casing being seamed together on spaced relatively short angularly related lines to provide a pocket with openings into the interior of said casing and in which pocket said inflating unit is loosely confined, said side walls being also seamed together on spaced parallel relatively long lines terminating short of the edges of said casing to provide a relatively large but moderately thin externally ribbed form for the article when inflated.

5. An inflating unit adapted for reception within a flexible casing or the like, said unit consisting of an elongated cartridge of highly compressed gas, said cartridge having a readily puncturable end, and a sleeve frictionally held on and surrounding an end portion of and which is endwise slidable in either direction at all times on said cartridge prior to puncturing same, said sleeve having one end extending beyond said puncturable end of said cartridge, an end wall closing said extending end of said sleeve, and a puncturing pin mounted within the closed end of said sleeve in cooperable relation with the puncturable end of said cartridge, said puncturing pin being operable by forcibly sliding the closed end portion of said sleeve further onto said unpunctured cartridge, said sleeve having gas-escape means therein for the gas released from said cartridge when same is punctured.

6. A structure as specified in claim 5; said pin mounting means consisting of a disk closely fitting the sides of said sleeve in the closed end of same and substantially perpendicular to its axis, said puncturing pin being in the form of a tack, said tack being forced through said disk and having its head disposed between said disk and end wall and its point in position for puncturing the puncturable end of said cartridge when said sleeve is forcibly pushed in puncturing direction onto said cartridge.

7. A structure as specified in claim 5; said sleeve being longitudinally corrugated for resilient frictional holding of said sleeve on said cartridge and to provide it with a multiplicity of longitudinal internal passages, said passages constituting said gas-escape means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,084,636	Fromm	June 22, 1937
2,118,165	Christoper et al.	May 24, 1938
2,128,423	Manson	Aug. 30, 1938
2,369,736	Hurt	Feb. 20, 1945
2,701,886	Ivie	Feb. 15, 1955
2,716,245	Desjarlais et al.	Aug. 30, 1955