

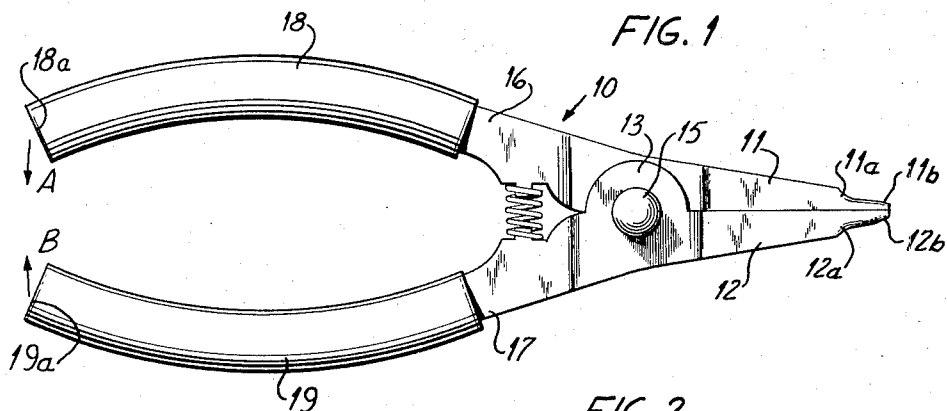
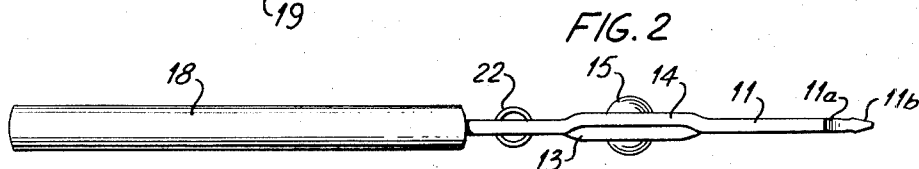
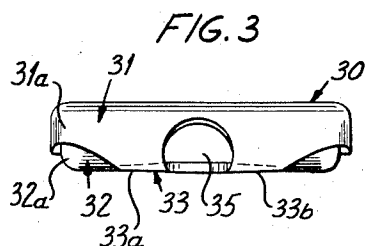
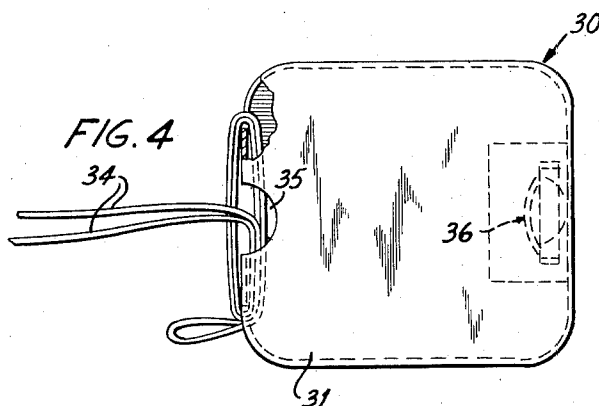
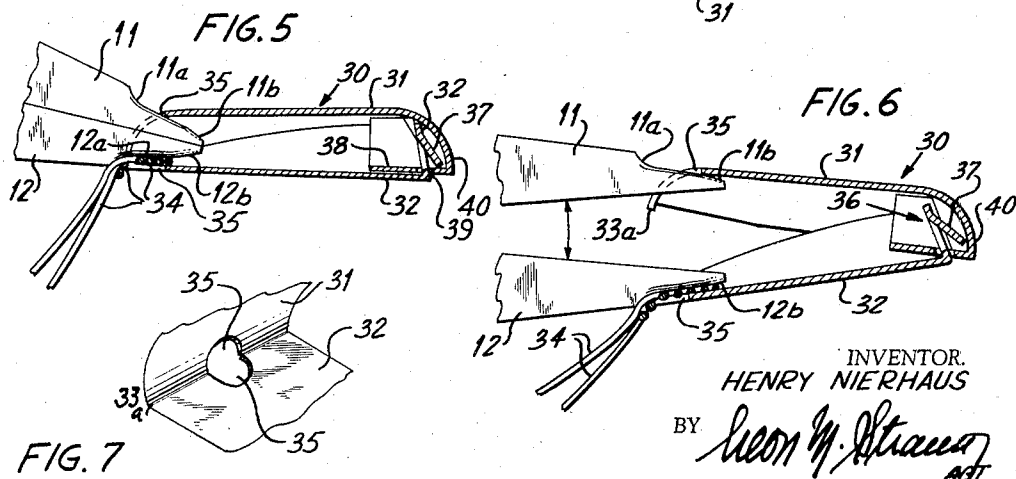
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SEAL STRUCTURES

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2,861,833

SEAL STRUCTURES

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Divided and this application November 10, 1953, Serial No. 391,157

1 Claim. (Cl. 292—322)

This invention relates generally to seals and more particularly opening locked seals.

This application is a Division of application Serial Number 166,721, filed June 7, 1950, and which application is now abandoned.

It has been found in cases where a seal is used for attachment to a string which, for instance, closes a bag, that it became necessary that authorized persons should break open the locked seal for replacement by another seal which may be of the same or of different type. The replacement seal may bear an indicia different from that of the seal which was thus replaced.

Some other instances may be that a seal originally applied to a string or wire was placed thereon in error and has to be removed without opening the bag or replacing the string which ordinarily closes the bag.

In this and other cases it appeared in practice of particular advantage to readily discard the undesired seal without damaging the cord, string or wire and/or the bag with which the seal was connected.

It is, therefore, one of the advantages of this invention to provide means affording ready and speedy removal of an applied seal from a string or cord whereby the seal is destroyed and incapable of being re-used.

It is another object of the present invention to provide means facilitating the insertion of a tool into a part of a locked or closed seal for opening the same with least possible effort.

A still further object of the present invention is to provide means rendering possible the deformation of a locked seal for the purpose of weakening and/or perforating such seal and subsequently to pry the same open for the purpose of inspecting sealed merchandise or for other reasons when a previously applied seal must be replaced by another seal "after inspection."

With the above and other objects in view, the invention will be hereinafter more particularly described and the combination and arrangement of parts will be shown in the accompanying drawing and pointed out in the claims which form part of the specification.

Reference will now be had to the drawing wherein like numerals of reference designate corresponding parts throughout the several views.

In the drawing:

Fig. 1 is a top plan view of a tool or similar means used in connection with this invention;

Fig. 2 is an end view of the tool of Fig. 1;

Fig. 3 is a rear-elevational view of a seal in locked condition;

Fig. 4 is a top plan view of the seal of Fig. 3 with parts broken away;

Fig. 5 is a central sectional view of the seal in Fig. 4 with the tool of Fig. 1 applied to the locked seal, only the forward portion of the tool being illustrated and as seen in inoperative position;

Fig. 6 is a view similar to that of Fig. 5 but with the tool in operative position and with the seal broken open; and

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Fig. 7 is a fragmentary view of the forward end of the seal shown in Fig. 5.

Referring now more particularly to the drawing and specifically to Figs. 1 and 2, there is shown a tool 10 in the form of a pair of pliers having two flat jaws 11, 12. Jaw 12 is provided with a lug 13 whereas jaw 11 has lug 14, both said lugs being connected by a rivet 15 passing through suitable openings of said lugs. Tool 10 has further the handles 16, 17 which, in this particular instance, are covered by rubber tubes 18, 19 to improve the gripping facilities of the handles. Intermediate inwardly turned projections 20, 21 is placed a spring 22 adapted to space the handle ends 18a, 19a apart. Projections 20, 21 are adapted to guide and retain spring 22 in operative and inoperative positions, respectively. Jaws 11 and 12 taper toward and terminate at a point spaced from its extremity to define a first pair of converging bearing surfaces 11a, 12a, the jaws being further tapered from said point toward and terminating at said extremity to define a second pair of converging bearing surfaces 11b, 12b at an angle to the surfaces 11a, 12a.

Tool 10 may be used in connection with a seal 30, as seen in Figs. 3 to 6, inclusive. This seal 30 comprises an upper flap section 31 and a lower flap section 32 connected to and abutting each other along a weakened hinge or bending line 33. This weakening of the hinge can be effectuated by small perforations or by reduction of material along hinge line 33, as it is well known in the art. In the particular seal shown, there has been provided in the rear wall approximately midway of and at right angles to hinge 33 of flaps 31, 32 an arcuate opening 35 which extends from the hinge line 33 in end wall 31a of flap 31 and is adapted, as can be seen from Fig. 4, for the introduction of wires or cords 34 which may be wound around hinge 33 before closing and locking seal 30.

Seal 30 has the inner locking means 36 consisting of a tongue or catch 37 and a locking plate 38 with guide slot 39 forming part of the extension 40 of top flap 31. Tongue or catch 37 is cut out of wall 32a of bottom flap 32 and deformed so as to spring back into locking position (as seen in Fig. 5) with a snapping sound after wall 32a has passed through slot 39 to locking position. To prevent tampering of unauthorized persons with the seal after it is attached to an article, bag and the like by means of string 34, weakened score line portions 33a, 33b of reduced length are provided. However, these score lines are still sufficiently strong to withstand hinge movement of upper flap 31 with respect to bottom or lower flap 32 when locking the seal 30.

As hereinabove mentioned, flaps 31, 32 are hinged at 33 and are both provided with complementary arcuate central opening portions 35 one of which extends into downwardly extending end wall 31a of flap 31. This end wall 31a has further two arcuate-shaped cut-outs at the extremities located adjacent the hinge or bend line 33, as more clearly seen in Fig. 3. Thus, opening 35 and the aforementioned two cut-outs define two hinge line portions 33a, 33b aligned with each other, but separated from each other as shown. Into opening portions 35 may be inserted a cord or string 34 which is subsequently guided around hinge 33 and upon locking of seal 30 tightly held and clamped between the downwardly extending end wall 31a adjacent hinge line 33 of flaps 31 and 32.

As shown in the drawing, in particular in Fig. 3 the extent of the opening 35 at the hinge or bending line 33 corresponds substantially to each of the hinge line portions 33a or 33b.

If it is desired to inspect any merchandise which is closed in a bag by means of cord 34 or for any other purpose, locked seal 30 must be forced open. To this end, tool 10 according to the invention is introduced and

wedged into said opening 35 as illustrated in Fig. 5. Upon movement of handles 18, 19 in the direction of arrows A, B the seal 30 may then be broken open along the separated weakened hinge line portions 33a, 33b, as clearly apparent from Fig. 6.

Cord 34, as may be realized from the drawing, will be protected from any damage or cut and can subsequently be re-used in connection with another seal which may bear, for instance, the legend "inspected by"

It is, of course, well understood that tool 10 is so shaped and equipped with suitable bearing surfaces 11a, 11b and 12a, 12b as to exert equal pressure against the flap portions 31, 32. In the event that an imperforated and locked seal is to be forced open, the jaws 11, 12 of the tool 10 may be further equipped with cutting edges (not shown) which may first cut or slit the ends of flaps 31, 32 before the tool 10 is inserted into a corresponding slot or opening. It is also possible to construct tool 10 with a suitable pointed sharp end which is adapted to be forced into the material adjacent hinge 33 of seal 30 so as to provide an opening similar to that indicated by numeral 35 and to then pry said seal open in a manner as hereinabove explained.

It can thus be seen that there has been provided according to the present invention means permitting the forcing open locked seals having a hinge line connecting upper and lower flaps of said seal and having further an opening within and centrally of said hinge line; to this end one proceeds by first inserting frustro-conical means into said opening, and then applying pressure against the walls defining said opening to thereby pry open said locked seal from said opening along said hinge line. It is understood that said opening may also be located substantially symmetrical with respect to said hinge line.

The invention further provides for a tool to execute the aforesaid method to open locked seals including two flaps hinged to each other along a hinge line and provided with a perforation located in said hinge line; said tool comprising two movable jaws extending in abutting relation to each other, spring means forcing said jaws in abutting relation, said jaws being provided with complementary pointed end portions, each end portion being

tapered towards its extremity whereby said end portions may be wedged into said perforation of said locked seal and upon movement of said jaws away from each other will cause said locked seal to be pried open along said hinge line.

As many possible embodiments may be made of the above invention, and as many changes might be made in the embodiment above set forth, it is to be understood that all matters hereinbefore disclosed or shown in the accompanying drawing are to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

In a seal made of sheet material; two flap sections hingedly connected to each other in abutting relation along a bending line, respective interengageable means adjacent the free ends of said sections for closing said seal, each of said sections being provided with an arcuate-shaped and centrally located rupture-opening spanning said bending line intermediate the outer ends of the latter, said opening extending in a direction substantially at right angles to said bending line to thereby admit the insertion of a tool in said opening after closing of said seal for the purpose of rupturing the latter at said bending line, the outer ends of one of the sections at said bending line being sufficiently cut off, so that said bending line is reduced to two bending line portions separate from, but aligned with each other with said opening located between said bending line portions, the extent of said opening at said bending line corresponding to either of said two bending line portions to ensure sufficient rigidity of the flap sections at said bending line.

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