

[54] **SECURITY SEAL**  
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[56] **References Cited**

**UNITED STATES PATENTS**

623,720	4/1899	Hyde .....	24/90 PR
1,577,678	3/1926	Behrman .....	292/307 R
2,548,104	4/1951	Frison.....	292/307 R
2,610,879	9/1952	Pope.....	24/208 A
3,128,114	4/1964	Nierhaus .....	292/320
3,416,200	12/1968	Daddona .....	24/208 A
3,214,808	11/1965	Litwin.....	24/16 AB

**FOREIGN PATENTS OR APPLICATIONS**

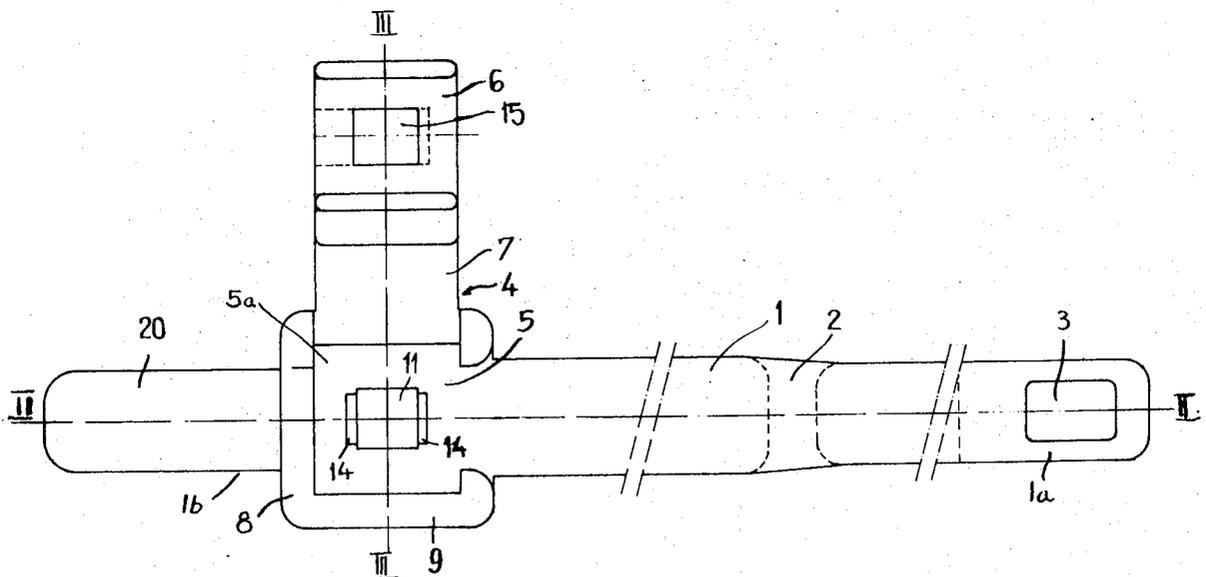
861,929 3/1961 Great Britain.....248/74 PB

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[57] **ABSTRACT**

A security seal having a flexible strip intended to be piercingly inserted through at least one opening of an article which is to be sealed, both ends of the strip after having been flexed over upon themselves being non-releasably connected with one another. To that end the flexible strip is provided at one end with at least a portion of a closure and at its other end either with the other portion of the closure or carries an element which can be engaged with the closure. The one closure portion of the aforesaid closure forms a container or receiver, at the base of which there protrudes a head constructed as a catch element and the other closure portion is formed by a plate which fits in the form of a cover in such container and has a locking element in the form of a recess into which extends shoulder means which, during closing of the seal and pressing of the head into such recess engages behind such head and in its inserted position non-releasably fixes same.

**16 Claims, 4 Drawing Figures**





## SECURITY SEAL

## BACKGROUND OF THE INVENTION

The present invention relates to a new and improved construction of security seal or security marker which is of the type incorporating a flexible strip intended to be piercingly inserted through an opening or number of openings of the article or object which is to be thusly sealed, the strip, after having been bent over upon itself, should have both ends of such bent-over strip non-releasably connected with one another.

Prior art constructions of security seals of this general type oftentimes consist of a number of components and are expensive to fabricate. A number of such seals require a tool in order that they can be closed; other prior art seal constructions heretofore known do not eliminate the possibility of undesired tampering or manipulations.

A seal of this species is known to the art wherein a sheet metal strip is drawn through the opening or openings of the article which is to be sealed, and after the sheet metal strip is flexed over upon itself it can be riveted at both of its ends by tongs or pliers. The rivet location is subsequently covered with a plastic cap. With this prior art construction of seal there is present the drawback that riveting of the sheet metal strip is not undertaken in a completely faultless manner and tampering or manipulations for the purpose of providing a false seal or giving the appearance that the article has in fact been sealed is possible.

According to another state-of-the-art construction of seal of the previously mentioned type, both ends of the flexible strip have associated therewith rather bulky closure elements. Consequently, this construction of seal cannot be employed in those instances in which the opening or openings of the article to be sealed is small, especially in conjunction with slot-shaped openings. Further, with this construction of seal the catch element and the locking element, even when the seal is closed, are freely accessible so that it is easy to provide a false or improper seal at the article.

## SUMMARY OF THE INVENTION

Hence, from what has been explained above it should be apparent that the prior art is still in need of security seals which are not associated with the aforementioned drawbacks and limitations. It is therefore a primary object of the instant invention to provide a security seal which effectively and reliably fulfills the existing need in the art.

Another and more specific object of the present invention relates to a new and improved construction of security seal which, while retaining all of the advantages of the heretofore known constructions of such seals of the previously mentioned type, still can be easily connected and closed without the need of a tool, no longer can be opened without permanent damage to the seal, is relatively inexpensive to manufacture, and indicates both optically as well as acoustically proper closing of the seal.

Now, in order to implement these and still further objects of the invention, which will become more readily apparent as the description proceeds, the security seal of this development embodies a flexible strip intended to be piercingly inserted through an opening or number of openings of the article or object to be sealed

and both ends of the strip, after folding same back over upon themselves, can be non-releasably connected with one another. According to important aspects of the inventive seal structure the flexible strip carries at one end at least a portion or component of a closure and at its other end the other portion or component of the closure or an element which can be engaged with the closure. The one closure portion of the aforementioned closure forms a container or receiver, at the base of which there protrudes head member constructed as a catch element and the other closure portion is formed by a plate which fits as a cover into this container. This other closure portion possesses a locking element in the form of a recess into which extends shoulder means which, upon closing the seal, and thus pressing the head member into the recess engages behind such head member and non-releasably fixes such head member in its inserted position.

## BRIEF DESCRIPTION OF THE DRAWING

The invention will be better understood and objects other than those set forth above, will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawing wherein:

FIG. 1 is a top plan view of a preferred constructional form of inventive security seal prior to use thereof;

FIG. 2 is a cross-sectional view of the security seal depicted in FIG. 1, taken substantially along the line II—II thereof;

FIG. 3 is a cross-sectional view of the security seal depicted in FIG. 1, taken substantially along the line III—III thereof; and

FIG. 4 is a cross-sectional view, similar to the showing of FIG. 3, but in this case showing the security seal in its closed position.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the invention in greater detail, there is illustrated by way of example in the drawings a so-called "Mink seal" that is to say a seal by means of which mink skins, and of course, in analogous fashion also other fur skins, can be marked as concerns quality and origin. While for the purpose of explaining the invention the security seal thereof will be considered in conjunction with this environment of use, it should of course be clearly understood that other articles can be equally marked with such seal.

The breeders of fur bearing animals are oftentimes members of an association. The individual fur breeder identifies his skins with a certain marking provided thereat and delivers such to a central collecting station or deposit location. There the skins are classified according to their different quality. Indication of such quality occurs by changing the relevant skin marking.

In the case of mink breeders, this occurs for instance in the following manner: The breeder marks each of his skins by means of a sheet metal strip prior to delivering such to the collecting location. This sheet metal strip is drawn through the eye opening or socket of the skin and after folding such strip back upon itself both ends are riveted to one another by tongs or pliers. The breeder number is embossed in the sheet metal strip.

The rivet location is subsequently covered with a plastic cap which has a flap. In the case of those skins which do not fulfill the minimum requirements for top quality, the skin checker i.e. the person who inspects the skins at the collecting location, removes the flap from the plastic cap.

This system only then operates faultlessly if safeguards are present to insure that the marking is positively retained at the skin, and that it is not possible to remove such marking from the skin without being detected and, for instance, again secure such to a different skin of lesser quality.

The above described prior art procedures do not fulfill these requirements in a number of cases, and specifically in the first instance because oftentimes riveting of the sheet metal strip by the breeder is not without defect. So as to be able to counteract the danger of possible tampering, oftentimes a majority of the received skins must be additionally provided with a seal at the collecting station.

The inventive security seal effectively prevents all of these drawbacks. The entire illustrated seal of this development is constructed as a single-piece or unitary plastic injection molded member or part, rendering possible really inexpensive manufacture for such mass produced and throwaway articles. By referring now more specifically to the drawings it will be understood that this injection molded part possesses a flexible strip 1 which is intended to be piercingly inserted through the eye socket or opening of a skin, or when used in a different environment, in analogous manner through an opening or number of openings of the article or object which is to be thusly sealed. After bending back both ends 1a and 1b of this strip 1 upon one another, it is possible to secure the seal to the skin or the object to be sealed by fixing these ends in a manner to be described hereinafter. So as to insure that both ends of the strip 1 will simultaneously arrive at the correct relative position, for performing the sealing operation, during bending back or folding over of the strip 1 as above described, this strip 1 is provided at approximately its central region with a preformed resilient bending location 2 which forms a thin bend area or weakened location. The strip 1 is equipped with an opening 3 at the one end 1a. At its other end 1b this strip 1 carries a closure means, generally designated by reference character 4, and at which for the purpose of closing the seal, the flexed-back strip portion 1 with the opening 3 can be engaged. Thus, the end 1a of strip 1 provided with the opening 3 can be considered as constituting an element or means engageable with the closure means 4. The closure means 4 consists of a component or portion 5 and a component or portion 6, the component 6 being connected with the component 5 by means of a flexible connection band 7 which extends transverse to the lengthwise axis of strip 1.

At the region of the closure component or portion 5, defining a container or receiver, two walls 8 and 9 delimit a compartment or space 5a which, when the seal is closed, is closed at all sides by the strip 1 which can enter into and out of such compartment at the third side, and at the fourth side this compartment is closed by the flexed-back or bent-over connection band 7.

This compartment or space 5a is closed at its bottom by the end 1b of the strip 1 which is opposite the open-

ing 3, this end 1b of the strip 1 forming the bottom surface 10 of such space, as seen by referring to FIG. 2. Bottom or floor surface 10 is provided with a head member 11 which extends in protruding fashion out of the central region of the surface 10. As best seen by referring to FIGS. 3 and 4, head member 11 is constructed to possess a substantially wedge-shaped configuration having the undercut surfaces 12. Head member 11 is seated upon a neck portion 13, the connection of which with the bottom surface 10 is constructed as an intended or reference fracture location 14, as best seen by referring to FIG. 2.

On the other hand, the component or portion 6 of the closure means 4, the outer dimensions of which are calculated such that it just fits in the space bounded by the walls 8 and 9, possesses a recess portion or recess 15 consisting of a conically tapering portion 16 and a compartment 17. The mutual spacing of both shoulders 18 from one another, which shoulders or shoulder means form the end of the conical tapered portion 16, is somewhat smaller than the largest dimension of the head member 11 in this direction, so that upon introducing the head member 11 into the recess 15 such, upon passing the shoulders 18, is somewhat elastically deformed at its hook-like wings or nose members 19, and the head member 11 can no longer be withdrawn without destruction of the closure. Any possible efforts in this regard are immediately thwarted by the undercut surfaces 12, the head member 11, by the reference fracture location 14, and by virtue of the fact that the catch element formed by the head member 11 and the locking element of the closure 4 formed by the recess 15 are closed at all sides as well as at the top and bottom when the closure is in its closed or shut condition.

Now during use of the described security seal, in the open condition thereof as depicted in FIGS. 1 and 2, the flexible strip 1 is piercingly inserted with the end 1a carrying the opening 3 leading through the eye socket or opening of a skin which is to be marked. Thereafter the piercingly inserted portion of the strip 1 is flexed back upon itself about the prevailing bend location 2 and onto the remaining portion of the strip 1. As a result, the opening 3 of the strip 1 comes to bear over the head member 11. The head member 11 is now pressed through this opening 3, whereafter by bending over the closure portion 6 about the connecting band 7 the recess 15 is brought over the head member 11. Upon pushing together both closure portions 5 and 6 the head member 11 enters the compartment 17 to assume the position depicted in FIG. 4. Entry of the head member 11 into the compartment 17 is associated with a sound which can be acoustically detected without difficulty. The closure resembles that of a snap-fastener with the difference that the components, once they have been brought into their closed position, can no longer be separated without damaging them. The acoustically detectable snapping-in action provides an acoustical signal for the correct functioning of the security seal. This very simple acoustical control is accompanied by a still further optical control in that if the seal is not properly closed the strip 1 and/or band 7 resiliently moves back into its open position.

At an optional location of the illustrated seal, for instance at the strip 1, it is possible to impress the

designation or marking for the relevant breeder. For purposes of quality designation there can be provided in the usual manner, for instance by molding, a flap 20 at the closure portion, which flap can then be broken-away, cut-off or otherwise separated in a convenient and simple fashion. Flap 20 serves to carry information, for instance in the form of a printed label, cardboard disk or otherwise, conveniently indicated by reference character 20a.

A more simple constructional form of the described closure could be realized in that at the end 1a of the flexible strip 1, instead of the opening 3, there is provided one of the closure portions, for instance the closure portion 6, and at the other end, as in the illustrated embodiment, the closure portion 5. This has been schematically indicated in FIG. 1 by the phantom lines 6' representing the closure portion 6. With this variant construction the one closure portion must of course be pushed through the opening of the article to be marked, requiring a considerably larger opening than for merely piercingly inserting the free end 1a of the relatively thin strip 1 with its opening 3, as was the case for the illustrated embodiment.

Both embodiments, however, fulfill the originally indicated requirements with regard to a marking or indicator seal which is inexpensive to fabricate, wherein it is impossible to lose any of the individual parts, which can be easily and positively applied and closed without the need for a tool, wherein there is provided sufficient space for applying markings regarding origin or other pertinent information, data or the like, and at the same time contains a simple quality indicator, and finally wherein the seal only can be opened if it is damaged.

By virtue of the prepared reference or intended fracture location 14 at the base of the catch element, wherein upon rupture thereof the head member 11 drops in inaccessible fashion into the recess 15 there is practically rendered impossible false- or putative sealing operations.

According to a further embodiment of the invention, and as briefly previously mentioned, the flap member 20 could be constructed as a support or carrier for further information or data concerning the articles which are sealed with the inventive seal. It can be constructed for instance as a label support for supporting a label which has been adhesively bonded or attached thereto or it can also be constructed as a flat plate surrounded by a raised edge, in the recess of which there can be adhesively connected or injected a printable cardboard- or paper disk. With the last-mentioned embodiment it is not absolutely necessary to construct the thus designed flaps 20 so as to be detachable.

The inventive security seal is exceptionally suitable for sealing articles or objects which cannot be throughbored or provided with a hole or wherein the existing hole for passing therethrough a strip of the seal structure is not at least as large as the smaller closure portion of the seal. Since namely the free end of the flexible strip 1 in the one embodiment disclosed above does not carry any closure portion, this free end can be guided through very narrow slot-shaped openings, for instance the eye openings or eye socket of skins or also through small button holes and the like.

While there is shown and described present preferred embodiments of the invention, it is to be

distinctly understood that the invention is not limited thereto but may be otherwise variously embodied and practiced within the scope of the following claims.

What is claimed is:

1. A security seal comprising a flexible strip intended to be piercingly inserted through at least one opening of an article which is to be provided with such seal, and following bending over of the strip both ends of said strip can be non-detachably connected with one another, said flexible strip being provided at one end thereof with at least a portion of a closure means, said one closure portion of said closure means forming a container having a floor portion, a head member constructed as a catch element protruding from said floor portion, said closure means including a further closure portion formed by a plate which fits as a cover into said container, said plate having a locking element in the form of a recess, shoulder means extending at the region of said recess, and upon closing the seal and thus insertably pressing said head member into said recess said shoulder means engaging behind said head member and non-releasably fixedly holding said head member in its inserted position.

2. The security seal as defined in claim 1, wherein the other end of said flexible strip is provided with an element cooperating with said head member.

3. The security seal as defined in claim 2, wherein said element provided at the other end of said flexible strip comprises means defining an opening engageable with said head member.

4. The security seal as defined in claim 2, wherein said element provided at the other end of said flexible strip defines said further closure portion.

5. The security seal as defined in claim 2, wherein said element includes an opening at the flexible strip and through which, prior to closing the seal, the head member forming the catch element can be inserted.

6. The security seal as defined in claim 1, wherein said security seal is constructed as an integral injection molded plastic part.

7. The security seal as defined in claim 1, wherein said flexible strip incorporates a prepared bending location.

8. The security seal as defined in claim 1, wherein said head member is connected with said strip at an intended fracture location.

9. The security seal as defined in claim 1, further including a flexible band for interconnecting both closure portions.

10. The security seal as defined in claim 1, wherein both closure portions are arranged at the end regions of said flexible strip.

11. The security seal as defined in claim 1, wherein said one closure portion carries a flap member.

12. The security seal as defined in claim 11, wherein said flap member can be detached from said closure portion.

13. The security seal as defined in claim 12, wherein said flap member can be detached by cutting.

14. The security seal as defined in claim 12, wherein said flap member can be detached by rupture.

15. The security seal as defined in claim 11, wherein said flap member serves as a carrier for information.

16. The security seal as defined in claim 11, wherein said flap member is provided with a surface which can bear writing.