

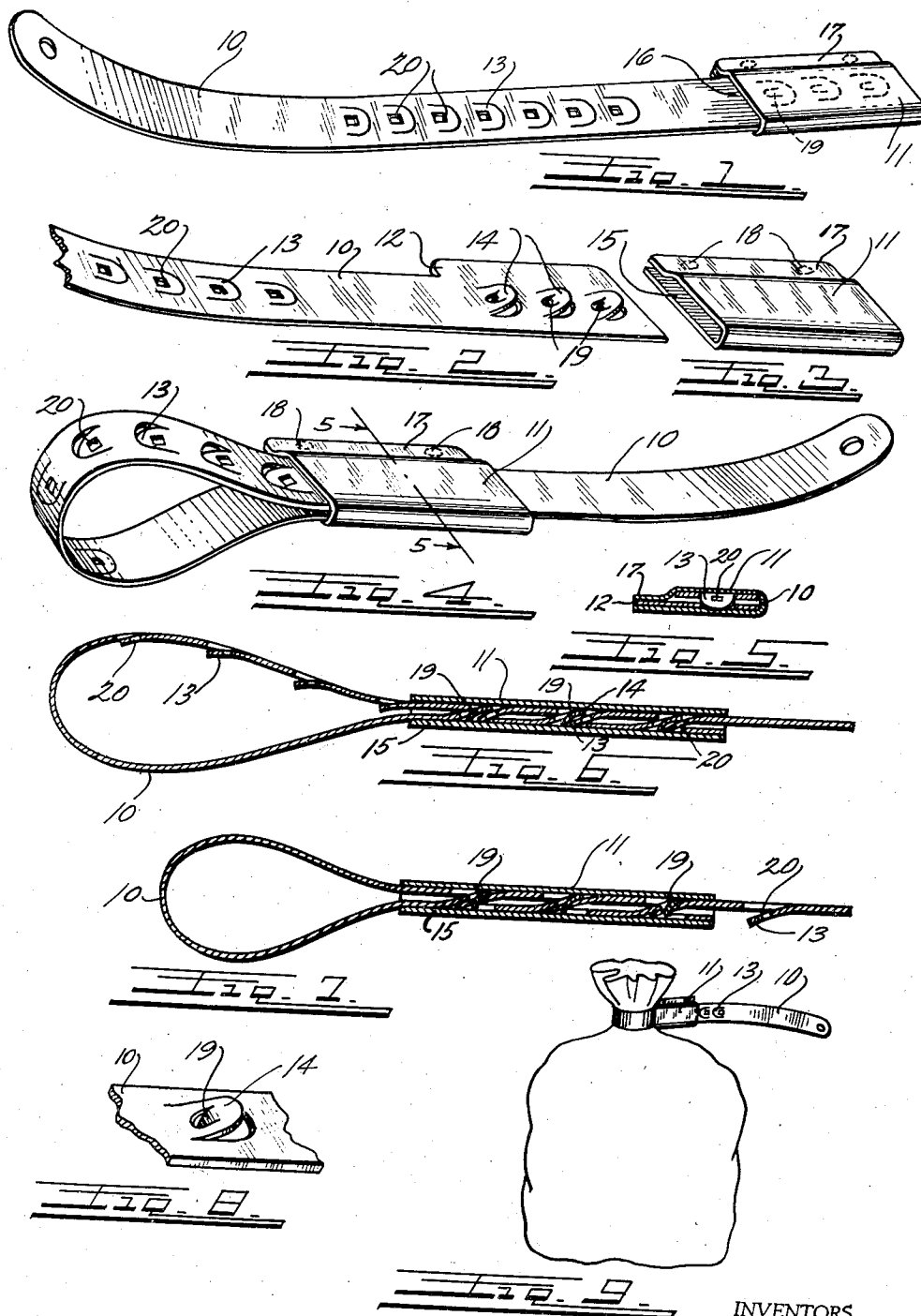
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CAR SEALING DEVICE

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CAR SEALING DEVICE

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3 Claims. (Cl. 292—317)

This invention relates to a safety sealing device and while more particularly designed for sealing freight cars it will be found valuable for any use where the detection of tampering is desired.

The principal object of the invention is to provide a metallic, strap-type seal in which the sealing strap can pass completely through the sealing mechanism to enable the loop to be pulled tight about any object regardless of how small the object may be; and to provide means for preventing movement of the strap in either direction after it has reached its final position.

Some of the present car seals consist of a flexible metal strap with a locking socket at one extremity into which the free extremity of the strap may be inserted and from which it cannot be withdrawn. The strap cannot pass completely through the locking socket however, so that the loop in the strap always remains the same size and hangs loosely from the door hasp. An experienced tamperer can cut the strap close to the socket and remove the same. He then can replace the seal and insert the cut extremity into the socket where it will be locked in place. The tampered seal is difficult to detect since the only change therein is a slightly smaller loop.

The above is impossible with this invention for the loop is originally pulled tight about the door hasp staple so that there is no excess material for reinsertion in the locking device.

Other types of present seals prevent reversal of the strap in the locking sleeve but can be removed and replaced by cutting the strap away from the locking sleeve and pulling it completely through the latter. The seal can be replaced by again securing the cut extremity of the strap to the sleeve by bending the former and then replacing the locking extremity therein. This cannot be done with the present invention for after the strap has reached its tight position, it cannot be moved in either direction through the locking mechanism even though the loop be cut.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a slightly enlarged perspective view of the complete seal in the open position.

Fig. 2 is a fragmentary detail view of one extremity of the sealing strap.

Fig. 3 is a detail view of the enclosing sleeve member.

Fig. 4 is a perspective view of the seal in the looped position.

Fig. 5 is a cross section through the seal taken on the line 5—5, Fig. 4.

Fig. 6 is a magnified longitudinal section through the seal as it appears when the loop is being tightened.

Fig. 7 is a similar section illustrating the seal in the fully locked position.

Fig. 8 is an enlarged detail perspective view of one of the locking tabs employed in the strap.

Fig. 9 illustrates a use for the seal in sealing bags of material.

The improved seal consists of only two simple parts: a flexible strap 10 and a relatively flat sleeve 11. Both portions are preferably, but not necessarily, made of relatively thin, resilient steel.

The strap is formed with a projecting ear 12 along one edge and at one extremity thereof which widens this extremity beyond the width of the remainder of the strap. In the widened extremity a plurality of locking tongues 14 are cut from the metal of the strap. A plurality of similar locking tabs 13 are cut from the metal of the strap intermediate its extremities. The free ends of all the tongues and tabs face toward the enlarged extremity of the strap as illustrated in Fig. 1. The tabs 13 do not normally project beyond the surfaces of the strap unless the latter is bent as shown in Fig. 2. The tongues 14, however, are permanently bent upward as shown.

The sleeve 11 is formed from a single piece of sheet metal and is turned back on itself to form a flat bottom portion 15, of a width and length equal to the width and length of the widened extremity of the strap, and a raised top to form an open passage 16 entirely through the length of the sleeve. Both the top and bottom portions of the sleeve terminate in an open side bordered by two flaps 17 corresponding in contour to the contour of the ear 12.

In assembling the seal, the sleeve of Fig. 3 is slipped over the enlarged end of the strap of Fig. 2. The flaps 17 are pressed against the opposite faces of the ear 12 and spot welded thereto as indicated at 18. This secures the strap permanently in place in the sleeve against the bottom thereof.

To use the device, the strap is simply placed

about the article to be sealed and pulled through the channel in the sleeve as shown in Fig. 4. The opposed flaps and tongues engage each other within the sleeve and prevent withdrawal of the strap. In order to make the seal tamper proof, however, it is necessary to prevent the strap from being pulled further through the sleeve after it has reached its locked position. This is accomplished by placing oppositely facing auxiliary tongues in either the tabs or sleeve and having coacting openings in the remaining tabs or sleeves.

As illustrated, auxiliary tongues 19 are cut in the tongues 14, similar to but considerably smaller than the main tongues. The free ends of the auxiliary tongues face away from the free ends of their respective main tongues and turn slightly downward therefrom as shown in Fig. 8. A perforation 20 is formed in each of the tabs 13 of sufficient size to receive one of the auxiliary tongues 19.

As the strap is initially drawn through the sleeve passage, the tabs snap over the tongues as shown in Fig. 5. If, however, the strap is stopped and given a slight backward movement, the auxiliary tongues 19 snap into the perforations 20, as shown in Fig. 7, and permanently lock the tabs and tongues together so that the strap cannot be moved in either direction without completely destroying the seal.

In Fig. 9 the seal is shown being used to seal a bag, a use for which it is admirably adapted since it can be drawn sufficiently tight to prevent access and removal.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

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

1. A strap type sealing device comprising: a flat sleeve member; a flexible strap secured to and projecting from said sleeve member; said sleeve member having a flat longitudinal passage for the reception of the free extremity of said strap when the latter is turned back on itself to form a loop, said passage being completely open at both extremities to allow said loop to be drawn to the smallest desired diameter; ratchet tongues within said sleeve member directed away from said loop; ratchet tabs on said strap positioned so that when

within said sleeve member they will be directed toward said loop to engage said tongues to prevent withdrawal of said strap toward said loop; and secondary locking means operable by a limited reverse movement of said strap to prevent further movement of said strap away from said loop.

2. A strap type sealing device comprising: a flat sleeve member; a flexible strap secured to and projecting from said sleeve member, said sleeve member having a flat longitudinal passage for the reception of the free extremity of said strap when the latter is turned back on itself to form a loop, said passage being completely open at both extremities to allow said loop to be drawn to the smallest desired diameter; ratchet tongues within said sleeve member directed away from said loop; ratchet tabs on said strap positioned so that when within said sleeve member they will be directed toward said loop to engage said tongues to prevent withdrawal of said strap toward said loop; and secondary locking means positioned between the engaging faces of said tongues and said tabs for locking the tongues to the tabs, said latter means being positioned to be brought into locking engagement by a limited reverse movement of said strap.

3. A strap type sealing device comprising: a flat sleeve member; a flexible strap secured to and projecting from said sleeve member, said sleeve member having a flat longitudinal passage for the reception of the free extremity of said strap when the latter is turned back on itself to form a loop, said passage being completely open at both extremities to allow said loop to be drawn to the smallest desired diameter; ratchet tongues within said sleeve member directed away from said loop; ratchet tabs on said strap positioned so that when within said sleeve member they will be directed toward said loop to engage said tongues to prevent complete withdrawal of said strap toward said loop; and auxiliary locking tongues formed in said ratchet tongues and directed in the opposite direction therefrom, said auxiliary tongues being positioned so that a limited withdrawal movement of said strap will cause them to engage openings in said tabs to prevent withdrawal of said tabs from said tongues.

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