May 5, 1925.

1,536,822

E. DIETZE

CAR SEAL

Filed Aug. 21, 1923

Fig. 1.

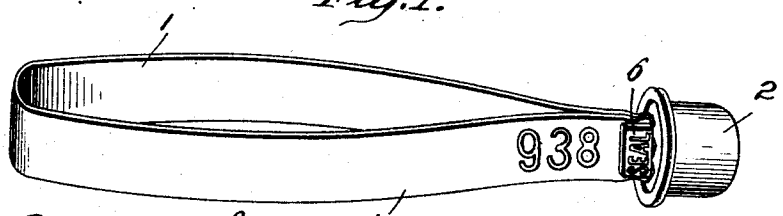


Fig. 2.

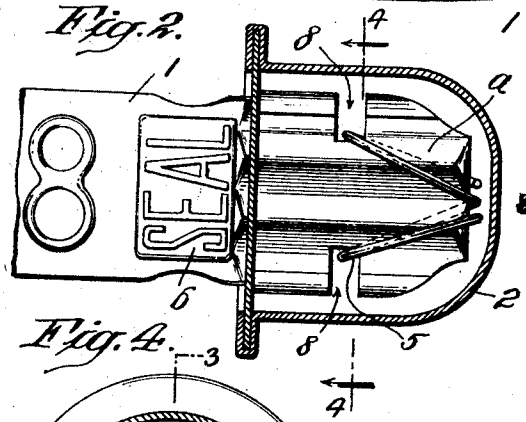


Fig. 3.

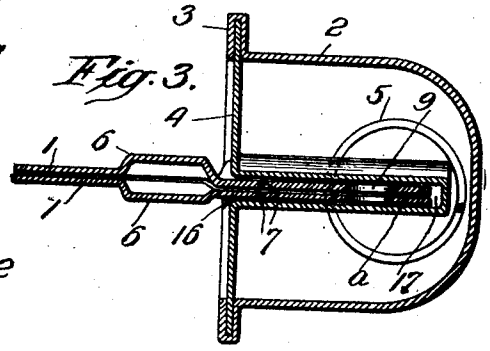


Fig. 4.

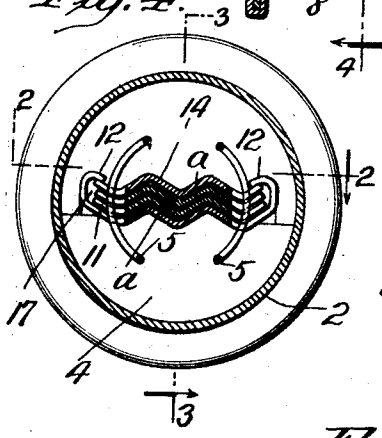


Fig. 5.

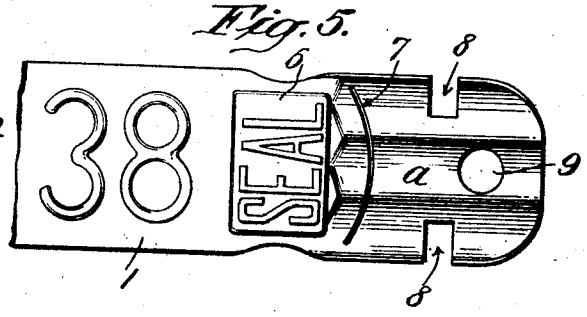
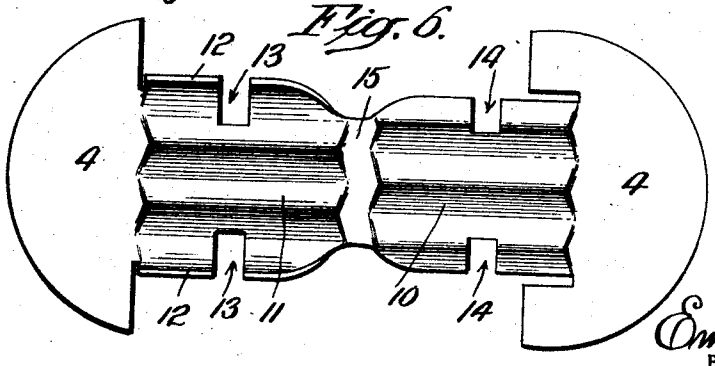


Fig. 6.



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Patented May 5, 1925.

1,536,822

UNITED STATES PATENT OFFICE.

EMIL DIETZE, OF RICHMOND HILL, NEW YORK, ASSIGNOR TO AMERICAN CASTING AND MANUFACTURING CORPORATION, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CAR SEAL.

Application filed August 21, 1923. Serial No. 658,566.

To all whom it may concern:

Be it known that I, EMIL DIETZE, a citizen of the United States, and resident of Richmond Hill, in the county of Queens, city of New York, and State of New York, have invented certain new and useful Improvements in Car Seals, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention refers to certain new and useful improvements in seals for railway cars, one object among many that might be mentioned being to simplify and make more perfect devices of this kind so that their manufacture may be less expensive and the locking effect produced by the interengagement of the parts may be very secure and strong, so as to effectually prevent any disengagement, or any unauthorized tampering with the parts.

The variety or class of seals with which this invention is primarily concerned employs a shackle of frangible material or sheet-metal, as tin, that is bent upon itself and carries a hollow head, bulb or housing into which both ends of the shackle are inserted and held against withdrawal by an automatic locking device within the head.

The invention may be said therefore to consist essentially in the construction, arrangement and combination of parts, substantially as will be hereinafter described and claimed.

In the annexed drawing illustrating my invention:

Figure 1 is a perspective view of my improved car seal, in its operative position with the shackle locked in the bulb or head, both the permanent and loose ends of the shackle being locked.

Figure 2 is an enlarged sectional plan view of certain of the parts on the line 2, 2, of Figure 4.

Figure 3 is a vertical sectional view of the head or bulb and both the ends of the shackle locked within the same, the sections being taken on the line 3, 3, of Figure 4.

Figure 4 is a cross section on the line 4, 4, of Figure 2.

Figure 5 is an enlarged detailed plan view of one end of the shackle shown outside of the head and before it is inserted into the latter for locking inter-engagement.

Figure 6 is a plan view of a blank cut out of tin or sheet-metal before it is bent into shape to form the channel piece.

Similar characters of reference designate like parts throughout the different figures of the drawing.

In my present seal device there are four main mechanical members, namely, the shackle, the channel piece, the spring catch or lock, and the head or bulb. The two ends of the shackle are introduced into the channel piece, which is located within the bulb, and the spring catch also in the bulb locks these shackle ends in said channel piece, one end of the shackle being permanently attached when the parts are originally assembled, and the other left loose for insertion when the seal is operatively applied for use.

1 denotes the shackle, which is of suitable material as sheet-metal, tin, for example, and easily breakable when desired, though when once broken it cannot be restored or reattached to the other parts. In applying my improved seal to a car or otherwise the two ends of the shackle 1 are bent around so as to be opposite each other, and are both inserted into the bulb or head 2, as shown in Figures 1 and 3.

The ends *a*, *a*, of the tin strap or shackle 1 are duplicates of each other, see Figure 5, and are both longitudinally corrugated with several corrugations, say three or four, the same being parallel ribs with channels between them, and the said two ends *a* being adapted to lie one upon the other, or to slide one upon the other when being placed in position, the corrugations engaging each other, as shown clearly in Figure 4. These corrugations or flutings are on the ends *a* only, and the remainder of shackle 1 is a flat band. The purpose of corrugating the ends *a* of the shackle is to make the shackle absolutely non-reinsertable into the channel piece, which latter is similarly and correspondingly corrugated as I shall show. These corru-

gated ends *a* also fit more tightly in the corrugated throat or channel of the channel piece, and as the channel is also corrugated the construction prevents any attempt to pilfer by the use of a knife or any common pick or instrument. The shackle may carry any kind of an inscription, as the name of a railroad or other company, a number or other legend. One end of the shackle is permanently attached in assembling the parts, while the other end is left loose until the seal is in use, when it will be locked inside the head. Further, each end *a* is provided at a suitable point in the flat portion just before the beginning of the corrugations with a raised projection 6 preferably stamped out of the metal, and having the word "Seal" or other legend stamped thereon, the same acting as a stop to prevent the shackle ends *a* from being pushed too far into the channel piece, and to provide also a prominent feature carrying the word seal and indicating that the device is sealed and must not be broken or tampered with in any way. The word "Seal" is put on so that if a shackle is broken at the weakened point, as 7, and an attempt is afterwards made to force the broken end again into the opening in the channel of the seal, this important word would have to be mutilated, which would show clear evidence of pilfering.

The bulb or housing 2 is made in a single integral piece, like a cap or thimble, with a flange 3 around its open end, which flange is caused to fit tightly over the circular edge of the bottom plates 4 of the channel piece. The mode of connecting the parts 2 and 4 together may vary greatly, but if the edge of the bulb 2 is grooved and flanged so that it can be bent over members 4 as shown in Figure 3, it will securely hold the said plate members 4 of the channel piece so that there will be a very firm union of these parts; and no means of entrance into the bulb after these parts are united can be had except through the mouth 16 found at the bottom of said channel piece and admitting to the channel 17 as shown in Figure 3, which channel 17 runs axially into the bulb 2 and is supported therein and effectually protected thereby.

This channel or channel piece, as I term it, is preferably formed by first cutting out a sheet metal blank, an example of which is shown in Figure 6 and then bending said blank into the channeled shape shown in Figures 3, 4 and 5. This blank has the two main sections 10 and 11, divided at the point 15, each of these sections being formed with a semi-circular end portion 4, situated at the ends of said sections 10 and 11, the two sections 10 and 11 being bent about point 15 so as to lie alongside of and substantially parallel to each other, while the semicircular parts 4, 4, are bent at right angles to the sections 10 and 11 and together form the circular base of the channel piece, which base is connected to the end 3 of bulb 2, as already explained. The section 10 is somewhat narrower than the other section 11, the wider one having right-angled side flanges 12 that are adapted to overlap the edges of section 10 when the sections 10 and 11 are folded alongside of each other to form the channel 17 as seen in Figure 3, and said flanges 12 keep the parts 10 and 11 separated from contact with each other so as to leave the channel 17 free and clear for the entrance of the shackle ends *a*, and preserve an open throat or channel which cannot collapse or be pressed together or obstructed at any time. The sections 10 and 11 are corrugated in a manner similar to the corrugations of shackle ends *a*, so that when the throat is formed its sides will be corrugated and will closely and tightly receive therein the shackle ends *a*, as shown in Figure 4. The section 10 has slots or notches 14 in its edges, and the section 11 has similar notches or slots 13 therein, the slots or notches coinciding with each other after the blank is folded and also coinciding with notches or slots 8 in the shackle ends *a* after the ends are inserted into the channel.

It will thus be seen that the two ends of the shackle 1 can be inserted into the channel piece alongside of each other, as shown in Figure 3. In Figure 1 the two ends are shown inside the bulb which is closed. In Figure 3 they are shown as inserted and locked therein. One end *a* will be inserted first, for this is a permanent attachment made in assembling the parts, and will be pushed in through mouth 16 into throat 17 until the raised seal stop 6 abuts against the bottom 4 of the channel piece and keeps this shackle end *a* from going in any further. Although the raised member 6 need not necessarily perform a stop function, as the shackle when inserted in channel will be locked as soon as the locking spring in the bulb is engaged. Then when the seal is used the other end *a* will be inserted alongside of the first one until its stop 6 abuts against the bottom 4 of channel piece and prevents the end from a further advance, or until this end engages the locking spring in the bulb. With this construction therefore it is impossible to insert anything into the channel piece except the two ends of the shackle; the channel piece is so made that it cannot be spread open to allow anything else to enter thereinto; and if the shackle is broken the broken end cannot be reinserted into the channel, for the broken piece will be inside, locked securely against withdrawal, and hence the channel or throat will be full and nothing else can enter; thus the security of the seal against tampering is insured.

Thus the bulb, housing or head in one piece entirely encloses the locking mechanism and prevents tampering with the seal, as so often happens when the head is made of two or more parts. With such construction it is impossible to squeeze the bulb or channel together and make the slot smaller. This is mentioned because one method of tampering with car seals is to break off one end of the shackle after it has been locked, and re-insert it into the slot as far as it will go and squeeze the slot together to hold it, thereby making the seal appear to have not been tampered with. Hence I have this extra precaution in the provision of a structure where it is impossible to insert anything but the two ends of the shackle.

Within the bulb is a spring catch that automatically engages the inner ends of the shackle within the bulb and locks them within the channel piece. This catch may be made in many forms. It may be merely a split spring ring, but the usual form consists essentially of a small spring or coiled piece of spiral wire 5. One or two spiral winds will be sufficient, and this is caused to engage freely and loosely the channel before the latter is inserted in the bulb. And this wire spring lock 5 will engage the slots 13 and 14 of said channel and lie well within the slots. In manufacturing the seal the spring 5 is thus loosely engaged with the channel, and then the channel is fastened inside the bulb. Then the fixed end of the shackle is pushed into the bulb through mouth 16 and the slots 8 when they meet the spring 5 will engage same, for spring 5 will fall into said slots and thus the one end of the shackle will be permanently locked in the bulb. The other end of the shackle will be similarly inserted and locked when the seal is put into use.

The corrugated ends *a* of the shackle 1, are weakened by a transverse cut 7, preferably at a point near the seal projection 6, so that if an attempt is made to pull the shackle out of the bulb, the ends would break at the weakened point, while the corrugated ends *a* being locked in the bulb would remain there and in the channel piece, filling up the opening 16 so that nothing can be inserted in this opening in the attempt to further pilfer the seal.

The perforations 9 in the ends of the shackle 1 are for stringing the group of seals on a wire or cord for convenience in shipment.

Thus I provide a very strong seal. The construction of the shackle in combination with the channel piece is such that the manufacture of the seal is greatly simplified, in that the bulb with the entire locking means can be made separately and ahead of time, which includes most of the operations on such seal. Obviously many changes in detail and precise construction may be made at times for convenience.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a seal, the combination with a bulb or head, of a channel within the bulb, a shackle having corrugated ends which are adapted to be inserted into the channel, and a free lock within the bulb consisting of a free spring ring for interlocking the parts.

2. In a seal, the combination with a bulb or head, of a channel within the bulb, a shackle whose corrugated ends are adapted to be inserted into the channel, and a free spring within the bulb which is automatically acted upon by the insertion of the ends of the shackle for interlocking the parts.

3. In a seal, the combination with a bulb or head, of a corrugated channel within the bulb, a shackle with corrugated ends that are adapted to be inserted into the channel, and means for interlocking said ends and the channel.

4. In a seal, the combination with a bulb or head, of a corrugated channel within the bulb, a spring lock, and a shackle with corrugated ends adapted to be inserted into the channel, both ends causing the lock to operate.

5. In a seal, the combination with a bulb or head, of a corrugated channel within the bulb, a shackle having end portions provided with corrugations and stop means for limiting their inward movement into the channel, and a freely movable spring ring within the bulb that is caused to act when moved by the ends of the shackle.

6. In a seal, the combination with a bulb or head, of a corrugated channel within the bulb, a shackle having corrugated end portions that are adapted to be inserted into the bulb, and means for locking said end portions consisting of a coiled spring.

7. In a seal, the combination with a head, of a corrugated channel therein, a shackle having corrugated ends and sealing projections, and a spring for locking the shackle in the channel.

8. In a seal, the combination with a bulb or head, of a channel within the bulb, a shackle having end portions that are adapted to be inserted into the bulb, and means for locking said end portions, consisting of a spiral spring loosely engaging the edges of the channel and the shackle.

9. In a seal, the combination with a bulb or head, of a channel within the bulb, a shackle having corrugated end portions that are adapted to be inserted into the bulb, and a spring ring for locking said ends, said shackle ends being weakened by a cut.

10. In a seal, the combination with a bulb or head, of a corrugated channel within the

bulb having a throat and lateral slots, a shackle whose corrugated ends enter the throat and are provided with lateral openings to register with said lateral openings in the channel, and a flexible ring that embraces the channel and is engaged by the channel ends.

11. In a seal, the combination with a head, of a corrugated channel therein, a shackle having corrugated ends and an embossed projection therein, and a free spring ring for locking the shackle in the channel.

In testimony whereof I hereunto affix my signature.

EMIL DIETZE.