

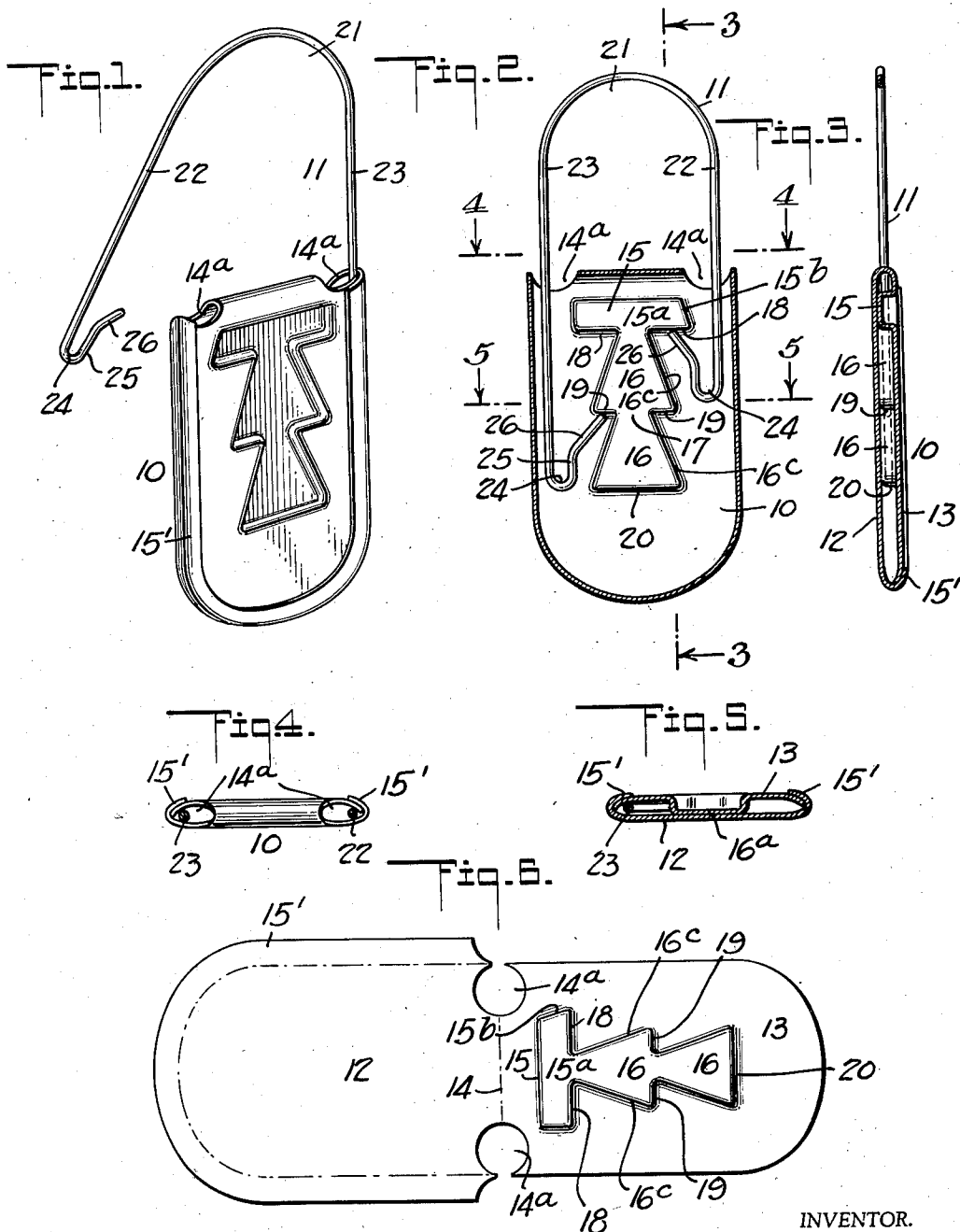
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SEAL

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SEAL

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1 Claim. (Cl. 292—328)

This invention relates to self-locking seals, and same is particularly but not necessarily directed to seals of the type intended primarily for use in connection with measuring instruments, such as meters or the like.

An important novel feature of the invention resides in the provision of a highly effective form of resilient shackle, the co-operable limbs of which are designed to co-act with the casing of the seal to positively prevent the seal from being broken or tampered with without detection.

Another object is to provide a simple and inexpensive form of casing having shackle locking means formed as an integral part thereof.

A still further object is to provide a seal employing a shackle having co-operable spring branches, one of which is formed as a continuation of the other and having permanent connection with the casing and whose other branch may be readily threaded through the hasp eye or the like of the instrument to be sealed and operatively adjusted into the casing and to co-act with the first named branch in a manner that will securely guard against the seal being broken.

With the above and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangements of parts which will hereinafter be fully described and particularly pointed out in the hereto appended claim.

In the accompanying drawing has been illustrated a single and preferred form of the invention, it being, however, understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claim may be resorted to when desired.

In the said drawing,

Figure 1 is a perspective view of the seal, showing the same in a normal relative position of its parts such as they assume before the seal has been associated with the instrument to be protected;

Figure 2 is a vertical section through the seal, showing the co-operable branches of the shackle operatively secured within the casing;

Figure 3 is a section taken on the line 3—3 of Figure 2;

Figure 4 is a transverse section taken on the line 4—4 of Figure 2;

Figure 5 is a transverse section taken on the line 5—5 of Figure 2;

Figure 6 is a plan view of the blank from which the casing is formed.

In carrying the invention into practice, use is made of a substantially rectangular casing 10 and a co-operable shackle 11.

The casing 10 is preferably formed from a single blank of sheet metal, as shown in Figure 6 of the drawing. Said blank is stamped to provide companion walls 12 and 13, which, when the blank is folded over on itself on the transverse line 14, are adapted to occupy positions in parallel relation to each other. The marginal portion of the wall 12 is formed to provide a seaming flange 15' which, when turned over and upset upon portions of the wall 13, as shown in Figure 1, functions to hold the two walls 12 and 13 operatively related to each other. It provides in the casing structure a simple, yet positively acting, means for holding the casing fully set up and in a manner that will not permit the walls to be opened relatively without detection. At the termini of the transverse line of fold of the casing blank and formed in said blank are guide openings 14a for the parallel branches of my improved form of shackle, the construction of which I will describe presently. The wall 13 is up struck to provide a transverse guard 15 and a longitudinal series of substantially dove-tail portions 16, the small end 17 of one of which joins the large end of the next adjacent portion as shown in Figure 2. The construction is, therefore, such that the guard 15 is formed with longitudinally alined locking shoulders 18—18, and at the juncture of the small end of one of the aforesaid portions 16 with the large end of the companion portion 16 are horizontally alined locking shoulders 19—19. The base of the inner portion 16 is formed with a continuous shoulder 20. It will be appreciated from the description of the parts last above referred to that the shoulders 18—18, 19—19 and 20 are disposed in relatively parallel, spaced-apart positions with respect to each other and in such relationship to straight lines drawn through the openings 14a as to cause these to reside in the effective paths of movement of the locking ends of the shackle 11. The broad flat faces 16a of the portions 16 (Figure 5) are adapted to be firmly pressed against the inner surface of the wall 12, thus making it necessary that the walls 12 and 13 be operatively spaced apart from each other and thus allow for the free sliding movement of the shackle. The corresponding broad flat face 15a of the guard 15 will function in a manner corresponding with that of the faces 16a.

The shackle 11 consists of a single piece of heavy gauge springy steel wire, the same bent on itself to provide a loop 21, a short leg or branch 22 and a long leg or branch 23. The free end of each of the said legs or branches 22 and 23 is formed with a resilient loop 24, the same having a short extension 25 on which is formed an inwardly extending long locking dog 26. Let it be assumed that initially the short leg 22 assumes the released position shown in Figure 1, and that the long leg 23 at that time occupies a position in the casing where its dog 26 engages under the adjacent shoulder 18 of the guard 15. Now it follows that when the short leg 22 is inserted in the casing and pressure advanced thereagainst in a longitudinal direction, the dog 26 of said short arm will be forced past the inclined face 15b of the guard and as soon as the dog escapes said face, and stress is released from said dog, the latter will engage under the adjacent shoulder 18 of said guard. Simultaneously therewith, the position of the long arm may be shifted, if desired, and in so doing its dog 26 may be forced to engage with either the shoulder 19 of the next adjacent portion 16 or it may even be forced to a position where it will effectively engage with the shoulder 20, depending upon how large a shackle loop one may wish to leave exposed from the open end of the casing. If desired, the legs 22 and 23 may be singly operated and their dogs made to engage with selected co-acting locking shoulders within the casing, or they may be simultaneously operated.

The construction of the shackle is such that one leg thereof is normally permanently con-

nected with the casing 10 and the other leg, so to speak, disconnected therefrom, and the latter leg can be manipulated and operatively inserted into said casing so as to operatively co-act with the first said leg and effectively lock the shackle in a position of intended adjustment.

The relatively diverging sides 16c of the portions 16—16 serve to cam the dogs 26 in a manner to first tension or stress same and to subsequently enable same to freely engage under their co-acting shoulders of the locking means of said casing. The length of the guard 15 is preferably such that should an attempt be made to release the dogs from their co-acting shoulders, it could not possibly be successful.

Should an attempt be made to release the dogs by pulling upon the loop of the shackle, it manifestly follows that the greater the force applied upon the loop, the greater becomes the binding action of the dogs 26 against the co-acting locking shoulders of the casing.

What is claimed is:

A seal comprising a casing having a wall formed with a plurality of longitudinal rows of internal shoulders, and a shackle formed from a single length of springy material and provided with a pair of legs connected with each other by a flexible loop of the same material, either or both of which can be adjusted to relatively different positions in the casing, the free extremities of said legs being of identical construction and each having a resilient loop from which is extended a locking dog for engagement with any one of the shoulders of an adjacent one of the aforementioned rows.

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