June 26, 1934. G. J. WENK 1,964,013

SELF LOCKING SEAL

Original Filed Feb. 9, 1932

Fig. 4.

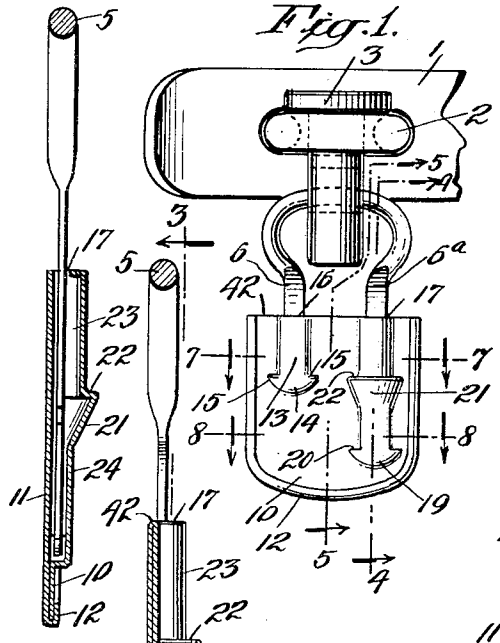


Fig. 1.

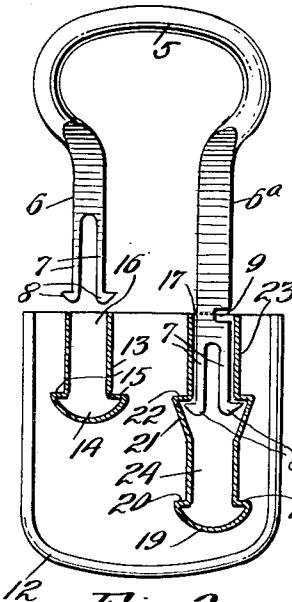


Fig. 2.

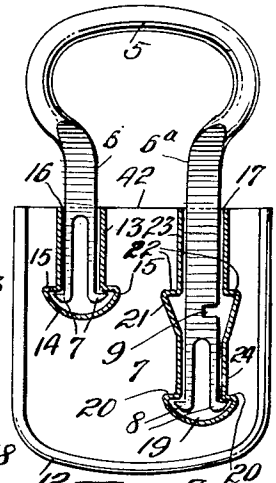


Fig. 3.

Fig. 5.

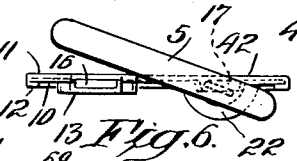


Fig. 6.

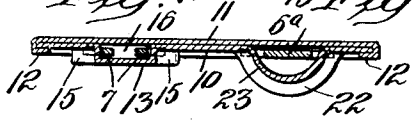


Fig. 7.

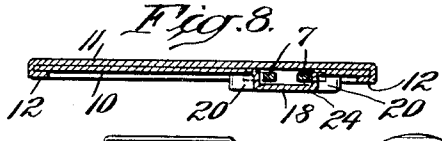


Fig. 8.

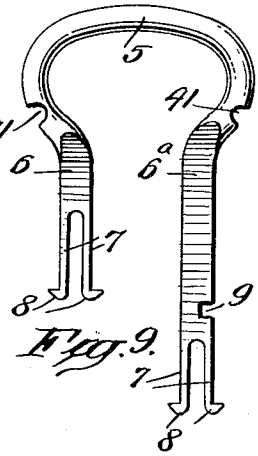


Fig. 9.

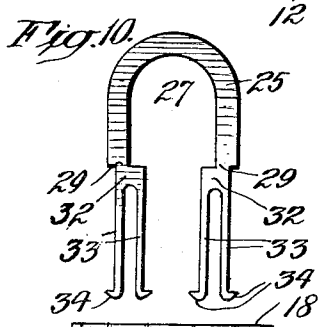


Fig. 10.

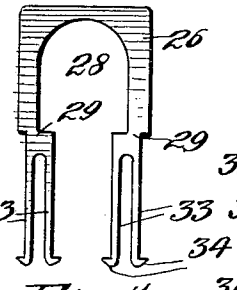


Fig. 11.

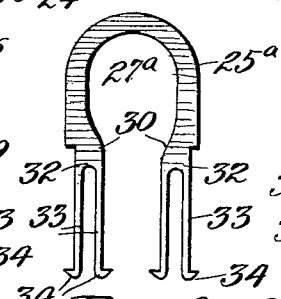


Fig. 12.

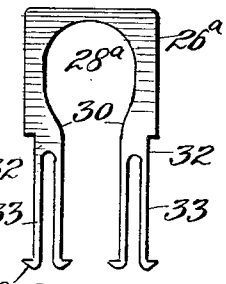


Fig. 13.

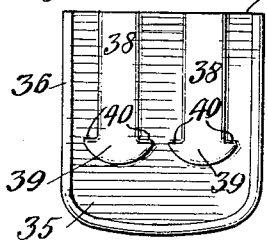


Fig. 14.

INVENTOR
George J. Wenk
BY Fred B. Barker
ATTORNEY

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SELF LOCKING SEAL

George J. Wenk, Woodhaven, N. Y.

Application February 9, 1932, Serial No. 591,878
Renewed September 19, 1933

4 Claims. (Cl. 292—320)

This invention refers to certain new and useful improvements in self-locking seals, adapted for various uses, such for example as car doors, electric and gas meters, boxes, trunks, covers, lids, and miscellaneous packages &c., or any object or article where a shackle has enough opening to be admitted for use. The invention consists in novel and ingenious details in the shackle and casing or shell; and further it may be said to consist essentially in the construction, arrangement and combination of parts, substantially as will be hereinafter described and claimed.

In the accompanying drawing illustrating my invention:

Figure 1 is an outside or front elevation of one form of my improved seal fastening, when the casing or shell is complete and shows one form of the shackle inserted and locked therein, the fastener being associated with a key or pin that locks a hasp and staple.

Figure 2 is an enlarged view of the same shackle and shell, the raised features of the shell being in partial section, and the shackle being only partially inserted and locked in the shell; the locking being with one arm only and a half locking, the other arm not being inserted or locked so that the shackle is left free to swivel more or less in the shell.

Figure 3 is a view similar to that of Figure 2 but showing the shackle and casing with both arms introduced full length into and locked in the shell or casing, the raised features of the shell being sectioned on the line 3, 3, of Figure 5.

Figure 4 is a vertical section on the line 4, 4, of Figure 1.

Figure 5 is a vertical sectional side view on the line 5, 5, of Figure 1.

Figure 6 is a top plan view of the shackle and shell, when the shackle is partially locked in the shell so that it may be swiveled into a plane at an angle to the plane of the shell.

Figure 7 is a horizontal section on the line 7, 7, of Figure 1.

Figure 8 is a horizontal section on the line 8, 8, of Figure 1.

Figure 9 is a detail plan view of the form of shackle in Figures 2 and 3 having arms of different lengths.

Figure 10 is a plan view of a form of shackle having its arms of equal lengths, with weakened sections and a round loop.

Figure 11 is a plan view of a similar shackle having weakened points and an exteriorly square loop.

Figure 12 is a plan view of a shackle similar to that in Figure 10 but having solid instead of weakened sections.

Figure 13 is a plan view of a shackle similar to that in Figure 11 but having solid instead of weakened sections.

Figure 14 is a plan view of a form of shell adapted to receive the arms of any of the shackles shown in Figures 10 to 13.

Similar characters of reference designate corresponding parts in all the different figures of the drawing.

There are two essential features in my improved device, viz., the shackle and the shell or casing, both characterized by novel and useful features of construction and function.

The sheet metal shell, casing or body, is fashioned to serve as the main frame of the seal. It is made in any suitable manner and of as many parts as desired, and it is usually in the particular form which is shown by way of example in Figures 1, 2, and 3, as consisting of a single blank of metal that is bent back or folded upon itself at 42 to provide the flat side 10 which has raised parts for pockets or grooves, and also the opposite side 11 which is close against it and is smooth and flat for lettering &c.; the edge 12 of the section 11 being bent or lapped over the edge of section 10 to form a bead or rib 12 which runs around the entire edge of the shell except where the fold 42 occurs along the top edge of the shell, which fold 42 is slotted before or after the folding of the blank to provide openings for the insertion of the shackle arms. A modified form of shell is shown in Figure 14, having one side 35 with raised places of equal lengths for a shackle having arms of the same length, and an opposite flat side, whose edge is beaded over the edge of side 35 at 36, except at the slotted edge 18 which is similar to the folded edge 42.

Thus the side 10 opposite to side 11 is not spaced away from side 11, except where the said smaller side 10 is stamped out or struck up before the bending of the blank to provide a thin and substantially oblong pocket 13 between the sections 10 and 11, to receive one arm of the shackle. This pocket or recess 13 is short in length and extends from the folded edge 42 for a short distance, say a half or third of the way to the other end of the shell, the pocket 13 having an open entrance 16 through a slot in the folded edge 42, see Figure 7; and the opposite or inner end of pocket 13 being enlarged to form a cavity 14 which is shaped like a T to provide shoulders against which spring teeth on the shackle arm may engage. The shell section 10 is further provided with another raised

part stamped therein or struck out therefrom, of an elongated form, to furnish at one end a semi-circular or tubular pocket 23 which is enlarged at its inner end at 21 to form a T cavity with a shoulder 22. The outer end of pocket 23 consists in a slot in the folded edge 42 at an opening 17 which serves to admit the other and longer arm of the shackle so that the spring teeth on the end thereof may engage the said shoulder 22. The cavity 21 merges with a taper into a flat and square or substantially rectangular flat portion 24 of this raised member, which portion 24 forms a part of the elongated pocket and has its innermost end formed with a T shape and furnishing a cavity 19 with shoulder 20 to engage with the shackle teeth. The semicircular pocket 23 is about the same length as the flat pocket 24, each being about half the length of the whole elongated pocket, and the upper or first pocket 23 being round allows the shackle to swivel therein before the other arm of the shackle has an opportunity to be introduced into the companion recess 13 through the outer opening 16. It will be noted that not only the section 10 may be provided with raised parts to provide the pocket but the companion section 11 may also be formed with raised portions to cooperate with the features of section 10 in making pockets of the desired size and shape. These pockets or recesses or grooves may be shaped in the blank before it is folded in the same way that the slots 16 and 17 may be cut in the blank before it is folded on the middle edge 42.

The shackle is fully shown as to one form, perhaps the leading form, in Figures 1, 2, 3, 4, 5, and in detail in Figure 9. It consists of a looped end 5 and a pair of parallel arms 6 and 6a, the arm 6a being longer than the arm 6, these arms being adapted to be inserted into the shell through the aforesaid openings 16 and 17. The inner ends of these arms 6 and 6a are split or cleft to provide pairs of spring fingers 7, 7, having the ends or tips thereof hooked or provided with teeth or catch projections 8, 8, that project horizontally or at right angles to the direction of the fingers 7, in order that they may have the function of engaging the shoulders of the T ends of the pockets at 15, 15 and 22, and 20, 20, as I shall hereinafter more fully explain. The arms of the shackle fit with very little clearance in the rectangular or thin pocket sections 13 and 24, substantially filling these pockets, but when the arms are being introduced into the pockets the horizontally-projecting teeth 8 at the ends of the fingers 7, being out beyond the line of said fingers cause the said fingers to be squeezed toward each other when they are introduced into the said pockets, and the same thing occurs when the spring fingers are passed through the tubular pocket 23; but the moment the teeth 8 are released from the interior of the pockets the spring fingers cause these teeth to expand respectively below the shoulder 15, 22, or 20, so that the arms are non-withdrawably held in the pockets.

A useful feature of my invention lies in the fact that the shackle can be permanently connected to the shell with one of its arms, and thus the shackle and shell prepared to be commercially sold in a single unit, instead of having these parts sold separately. The two parts are connected in this manner by inserting the long arm 6a through the opening 17 into the pocket 23, thus compressing the spring fingers 7, 7, towards each other as the projections 8, 8, are forced toward each other by the contiguous walls of pocket 23, until the catches or prongs 8 snap under the shoulder 22 and prevent afterwards any withdrawal of the shackle from the shell. The shackle arm 6a has a notch 9 in the end thereof near the inner ends of finger 7, and when the prongs 8, 8, are in engagement with the shoulder or shoulders 22 as in Figure 2, the notch 9 being adjacent at the time to the edge of the opening 17 allows the shackle arm 6a to swivel in the tubular pocket 23, as seen in Figure 6, because notch 9 engages the edge of fold 42 around opening 17, and thus the flat arm 6a may be rotated sufficiently around to take the short arm 6 away from its receiving opening 16 far enough, as shown in Figure 6 to allow the shackle to admit and receive between it and the shell a staple or pin so that it may engage such staple or pin, as pin 3, which is slotted, so that the shackle holds the hasp 1 over the staple 2; or the shackle may be arranged with a staple otherwise, or with a strap or with any other article to be secured.

After the shackle is applied to a staple or strap or other fastener, both the arms can be pushed home the full distance into the shell as shown in Figure 3 until the arm 6 reaches the inner end of pocket 13 and its prongs 8 snap under the shoulders 15, and simultaneously the prongs 8, 8, on arm 6a will pass from under the shoulders 22 down the incline or taper of the bottom of the cavity 21 into the thin lower pocket 22, in which the terminal prongs 8 cause the fingers 7 to be squeezed together, the prongs 8 being also borne in by contact with the walls of the pocket 24, until said prongs 8 snap under the shoulders 20, 20, and anchor the longer arm non-withdrawably in the shell; and thus both arms as shown in Figure 3 are locked to the shell and the sealing device cannot be removed from the door, box or other article without breaking it. Thus the long arm 6a has two locking points, a half lock that is locked when the short lock is unlocked, and a full complete lock after the short arm is locked also.

If desired, the shackle may have weakened parts as at 41, 41, to enable the shackle to be broken off easily, these points being cut out notches or openings.

When the shackle has arms of equal length, as represented in Figures 10, 11, 12, and 13, the shell will be formed with two pockets of equal length and shape, see Figure 14. The shackle in Figure 10 has an outer loop 25 that is exteriorly round and a round inside at 27, and the arms 32 that are parallel and of equal length, both being split to provide spring fingers 33 having terminal prongs 34. It will be noted that this shackle is weakened at 29, 29 where the arms pass from the loop 25 so they may be broken off easily. In Figure 11 the shackle is of the same kind except that the loop is square exteriorly at 26 and round interiorly at 28. In Figures 12 and 13 the shackles are solid and instead of the weak points 29 there are the strong thick points 30. The shackle in Figure 12 has the loop round exteriorly at 25a, and round inside at 27a, and the shackle in Figure 13 is the same but square outside at 26a and round inside at 28a.

The shackles are all preferably made of flat stamped steel. The shell for the forms of shackle in Figures 10 to 13 is shown in Figure 14. This shell is formed of one piece bent and shaped as shown, with slots or openings at the top or folded edge 18 to receive the shackle arms and grooves or pockets 38 raised on one side with equal di-

mensions and formed at the ends with a T cavity 39 with shoulders 40. One metal side 35 is close against the other side which is beaded at 36 over the edge of part 35.

Obviously the shackle may be made of either flat or round steel, and the looped part may be round or square while the arms are flat and slotted or bicleft to provide fingers that will give a spring effect so that the locking prongs at the ends may snap or lock into the shell as I have explained. While the ends of the long arm of the shackle enters part way into the shell and locks it with a half lock, the short arm is simultaneously just above the shell, this arrangement being made for the purpose of having a complete seal, consisting of shackle and shell in one piece or one unitary combination, and for the purpose of being able to use one arm inserted in the shell to act as a swivel to make a swinging effect so it can be opened out with a greater spread to permit inserting the staple without twisting or bending the same and the notch 9 assists in this and helps the spring effect to be adjusted by raising or lowering the shackle, and allows it to adjust itself so that the cut 9 in the shackle fits into or rests at the top of the shell. The shell is made from any stamping metal and is shaped from one piece with slots at the top or the fold for openings to receive the arms of the shackle that enter into the recesses or pockets that are raised on one or both sides with equal dimensions to have a snug fit so that no instrument can be inserted through the slots to tamper with inside mechanism, and so that the shackle and shell may interlock and make a perfect and secure sealed effect. The reverse or other side of the shell is flat and used for lettering or numbering with either stamping or pressing or embossing type. Obviously many changes in the details of the parts may be made and other alternative forms can be brought within the scope of the invention.

What I claim is:

1. In a self-locking seal, the combination with a shell, having pockets, of a shackle having parallel arms of unequal length, each arm being cleft to provide a pair of spring fingers having prongs at the ends, the longer arm being formed with a lateral notch to assist in swiveling the long arm in the shell, so that both arms may enter their pockets.

2. In a self-locking seal, the combination with a shell, having a relatively short T-pocket and a relatively longer T-pocket, the outer portion of which is tubular with shoulders at its inner end, and shoulders also at the inner end of the remainder of the pocket, of a shackle having parallel arms of unequal length, each arm being cleft to provide a pair of spring fingers having prongs at the ends, the longer arm having a lateral notch to assist in swiveling the long arm in the shell, so that said arms may be introduced into the pockets and cause to engage therein non-withdrawably.

3. In a self-locking seal, the combination with a shell having a shorter pocket with a shouldered inner end and a longer pocket partly tubular with a shouldered inner end and the remainder non-tubular with a shouldered inner end, of a shackle having a long and a short arm provided with catch provided spring fingers that enter the pockets and engage the shoulders in said pockets, and the longer arm having means to enable it to swivel.

4. In a self-locking seal, a shell having a raised pocket with a shouldered interior, and a second longer raised pocket of partly tubular form shaped with a shoulder at the end of the tubular part, in combination with a shackle formed with spring arms whose inner ends have right-angled projections to engage shoulders at the inner ends of the aforesaid pockets, and the longer arm having a lateral notch to assist in swiveling said arm.

GEORGE J. WENK.