No. 629,939. Patented Aug. 1, 1899.

# E. TYDEN.

## SELF LOCKING SEAL.

(Application filed Apr. 4, 1898.)

(No Model.)

Fig. 1.

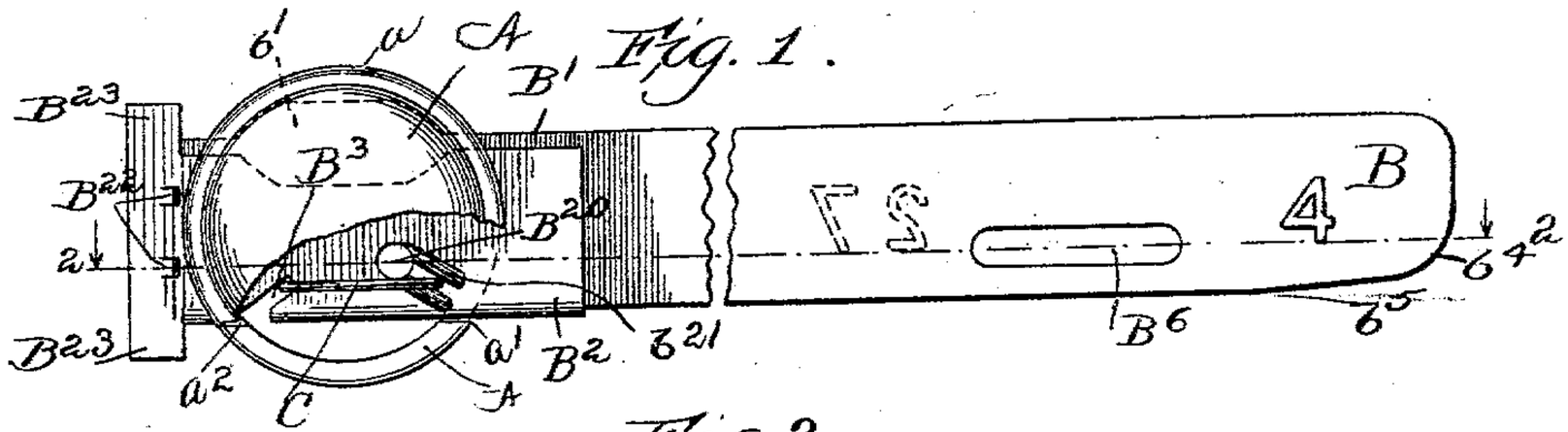



Fig. 2.

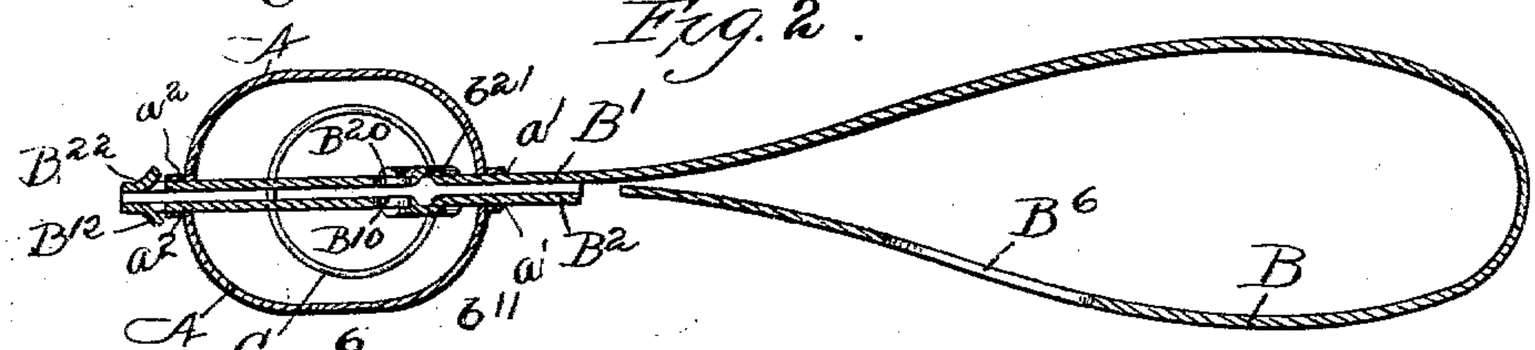



Fig. 3.

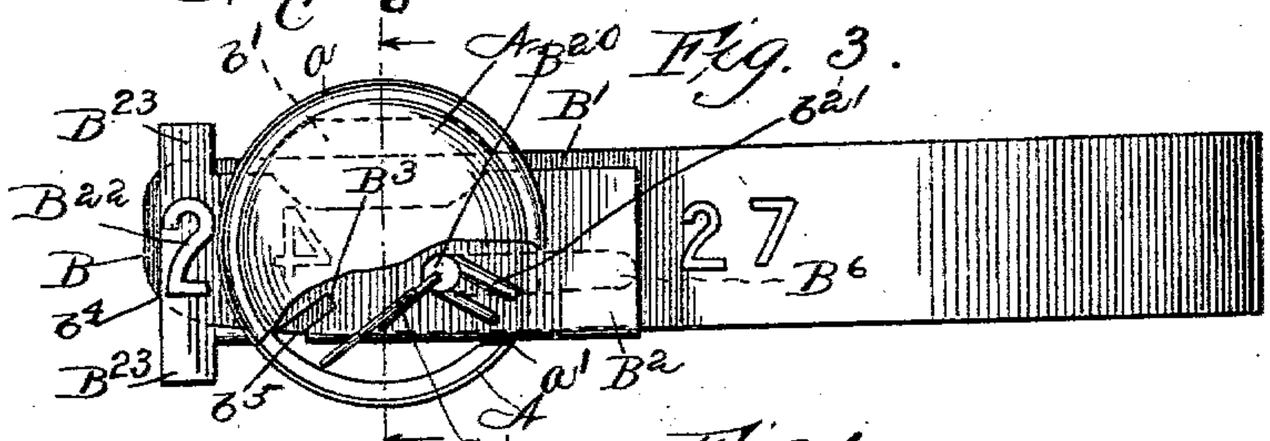



Fig. 4.

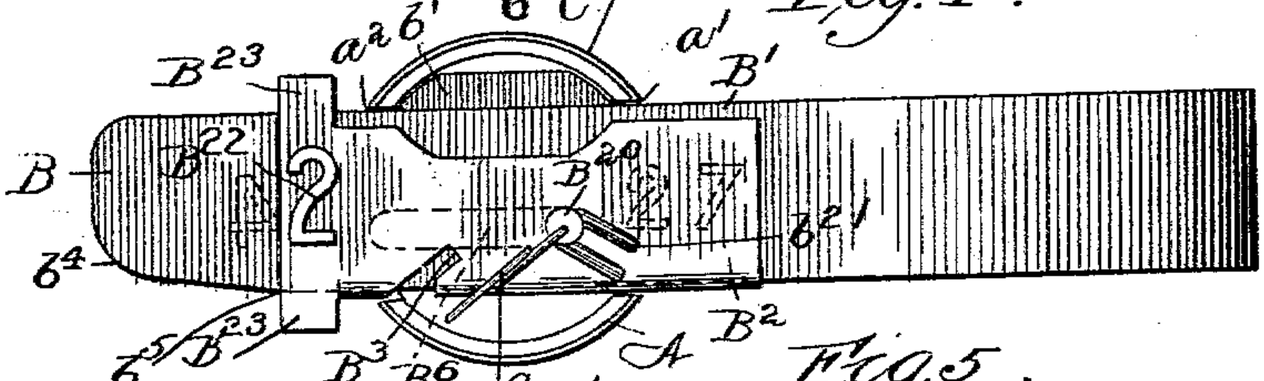



Fig. 5.

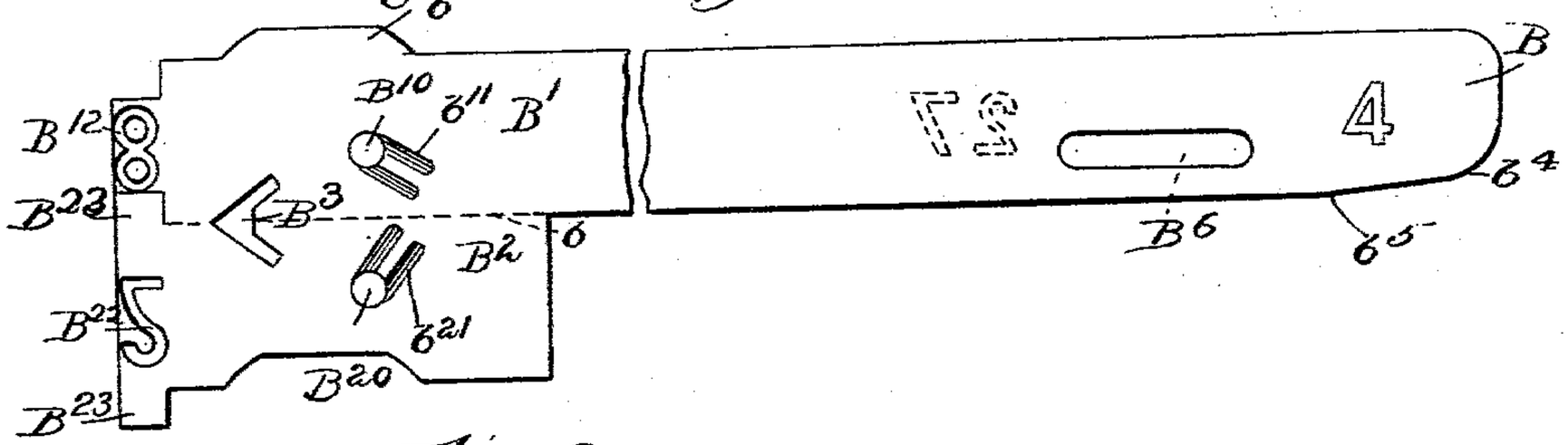
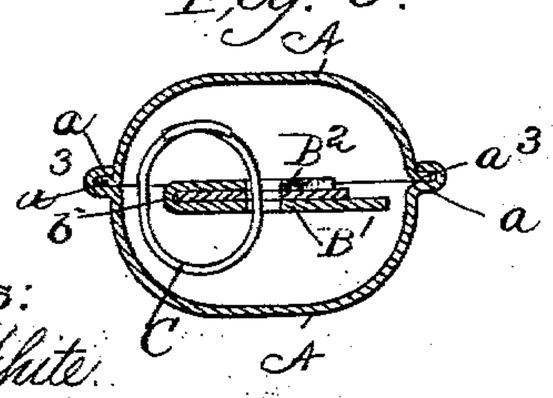



Fig. 6.

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# UNITED STATES PATENT OFFICE.

EMIL TYDEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE INTERNATIONAL SEAL AND LOCK COMPANY, OF HASTINGS, MICHIGAN.

## SELF-LOCKING SEAL.

SPECIFICATION forming part of Letters Patent No. 629,939, dated August 1, 1899.

Application filed April 4, 1898. Serial No. 676,440. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL TYDEN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Self-Locking Seals, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a plan of my improved self-locking seal with one cap of the case broken away to show the interior catch in unlocked position. Fig. 2 is a section at the line 2 2 on Fig. 1, disregarding the break in the cap. Fig. 3 is a plan similar to Fig. 1, but showing the parts in locked position. Fig. 4 is a view similar to Fig. 3, showing the securing device thrust through the case to disclose a character of a serial number which is concealed by the case in Fig. 3 and to conceal figures which are disclosed in Fig. 3. Fig. 5 is a plan of the blank partly formed, which constitutes when completed the securing device and the sheath for the same within the case and the means of securing it to the case. Fig. 6 is a section at the line 6 6 on Fig. 3.

The case which constitutes the shell or body of my improved seal is composed of two parts A A, seamed together at $a$ and having approximately in the plane of the seam the apertures $a'$ and $a^2$ for the throat or sheath, which constitutes also the root and fastening of the securing device.

B is the securing device, which is integral with the sheath, which consists of wings B′ and $B^2$, adapted to be folded at the line $b$ to form the two leaves or walls of the guideway for the securing device in its insertion into and through the case or seal-body. When folded up at $b$, as best seen in Fig. 6, the space between the two leaves B′ and $B^2$ is sufficient to admit the thickness of the securing device or strap B, and when thus folded the sheath thus formed is adapted to be lodged in the notches, which when the two caps are secured together constitute the apertures $a'$ and $a^2$ and to protrude from the case through said apertures, being retained, nevertheless, against longitudinal displacement by the lug $b'$, which projects laterally from the edge opposite the fold of the leaf B′ into the segment of the circular space of the shell left at one side of the sheath. The folded edge of the sheath has a notch $B^3$, which is formed in the blank before folding, as seen in Fig. 5. This notch is located at a point on the sheath which brings it just inside the shell at the lower or left-hand end—that is, the end opposite that from which the securing device B extends when the sheath is lodged in the shell, and the notch extends obliquely with respect to the folded edge substantially toward the center of the circular shell—that is to say, toward the end of the throat at which the securing device enters, as hereinafter explained. Both leaves of the sheath have apertures $B^{10}$ and $B^{20}$, which coincide when the sheath is folded up, and the metal of the sheath is struck up, as seen at $b^{11}$ and $b^{21}$, in beads to form channels on the outer surfaces of the sheath-walls leading to said apertures $B^{10}$ and $B^{20}$ in an oblique direction transverse to the oblique direction of the notch $B^3$.

C is the catch, which is designed to engage and retain the securing device. It is a ring of spring-wire coiled with its ends lapped, and in the construction of my improved lock it is spread and its ends lodged against the outer surfaces of the two leaves of the sheath in the channels formed by the beads $b^{11}$ and $b^{21}$, the opposite side of the ring being at the same time lodged at the bottom of the notch $B^3$. This position of construction is shown in Fig. 1. The securing device B is beveled off at the end on the edge toward the folded and notched side of the sheath. Preferably, the bevel is graduated, being more abrupt at the end, as seen at $b^4$, and diminishing to long inclination, as seen at $b^5$. (See Figs. 4 and 5.) The securing device has also a long slot $B^6$ a little distance back from the end, the end of the slot nearest the end of the securing device being located so that it stands between the spread ends of the spring C when the extreme end of the securing device protrudes slightly from the lower end of the sheath.

In use, the parts being assembled as shown in Figs. 1 and 2, the beveled end of the securing device is inserted in the throat formed by the sheath and thrust down until the bevel encounters the side of the ring C which is lodged in the notch $B^3$. The downward thrust of the securing device upon the ring coöper-

ates with the guidance afforded by the oblique slot and causes that side of the ring to be moved laterally out of the path of the securing device, while the spread ends are simultaneously drawn along the path, within which they are restrained by the beads $b^{11}$ $b^{21}$, to the apertures $B^{10}$ and $B^{20}$, which they reach by the time the slot $B^6$ reaches the same point, and thereupon the spring closes up, lapping its ends through said apertures and slot, and by the force of the reaction flying around usually to such position as shown in Fig. 6. The opposite side of the ring having been forced laterally entirely out of the path of the securing device, the latter may now be thrust through the sheath to the limit of the length of the slot $B^6$. The securing device is provided with characters of a serial number, part of which are between the slot $B^6$ and the shell and part beyond the slot $B^6$, toward the end of the securing device. The former, or a part of them, are at such position that they are carried into the sheath and concealed thereby when the securing device is thrust through to one limit of the slot $B^6$, and in this position the portion of the serial number which is on the end of the securing device becomes visible beyond the seal-body. If the securing device is withdrawn to the other limit of the slot $B^6$, the portion of the serial number which at the first position was concealed within the sheath is disclosed, being withdrawn therefrom, while the portion which was disclosed beyond the seal-body is withdrawn within the latter and concealed. The purpose of this expedient is to compel handling and longitudinal movement of the securing device in order to make record of the serial number, and thus to insure detection of any tampering to which the device may have been subjected after being locked. To the same end, and to compel examination of both sides of the seal, I prefer to make part of the characters legible upon one side and part legible upon the other side of the securing device. As illustrated, the character "4," which appears beyond the seal-body, toward the end of the securing device, is legible at one side, while the characters "2" and "7," which are disclosed at the opposite end of the sheath and at the opposite limit of the longitudinal movement of the securing device, are on the opposite surface of the securing device.

One important feature of my improved seal is that if the securing device B is forcibly withdrawn, the catch C being of quite fine and hard steel wire and the securing device being of thin sheet metal, such forcible withdrawal causes the strap of sheet metal constituting the securing device to be slit from the slot $B^6$ to the end, so that if restored to position after having been thus ruptured the next inspection will disclose the fact. This is rendered the more certain by the location of a portion of the serial number on the end of the strap and in the line in which such rupture will occur, so that the characters on this part of the strap will themselves be mutilated, and the inspector, who must read the characters, cannot fail to observe their mutilation, even though he might overlook the mutilation of the strap elsewhere. This precaution, however, would avail little if it were possible to pull out the entire sheath, which is integral with the other end of the strap which constitutes the securing device. This is partly prevented by the lug $b'$; but this lug being of necessity formed merely of the thin sheet metal of the sheath and presenting a thin raw edge to the metal of the shell where it binds against it and tends to stop the forcible withdrawal of the sheath from the shell, I find is liable to cut through the shell cleanly, and any bur that is formed on the shell by such cut being turned outward may be readily burnished down after the sheath has been restored, and only very close inspection will disclose such tampering. To overcome this defect and make it impossible to root out the entire sheath and securing device from the shell and restore it again so as to escape notice, I resort to two expedients of similar nature, but having each special purposes and advantages. First I strike up from the metal of both leaves of the sheath, on the end portion which protrudes beyond the shell at the side opposite that at which the securing device enters the throat, protuberances or embossed projections from the surface. These are shown in simple form at $B^{22}$ $B^{22}$ and $B^{12}$ $B^{12}$ in Figs. 1 and 2, and they are shown in the form of characters "2" and "8," which may constitute part of the identifying or serial number of the seal in Figs. 3, 4, and 5. I prefer the latter form for reasons which will be stated. In either case these protuberances are preferably abrupt on the side where they abut against the raw edge of the metal of the shell, forming the end of a slight flange turned out about the aperture $a^2$. This causes the raw edge to cut into the protuberance when force is applied to tear out the sheath from the shell, and the protuberances having stubbornness, which results from their being struck up from the metal and being thus engaged by the raw edges of the flanges cutting into them at the root, will hold to the raw edge and drag them inward, sometimes even to the extent of rupturing the shell throughout and generally with the result of collapsing it very noticeably at the side thus engaged. This inward collapsing of the shell caused by the dragging in of the edges of the aperture, as described, renders the mutilation of the seal-body much more difficult to conceal and the form much more difficult to restore than if the distortion were by an outward turn of the metal of the sheath, because in the latter case it might be forced in again to approximately proper position and form, but when forced inward it cannot be engaged to draw it out again to proper form. If the attempt at forcible withdrawal of the sheath should in any instance have the effect of cut-

ting off the protuberances $B^{22}$ $B^{12}$, their absence when the device was next inspected would be noticeable. It is in order to insure attention to the condition of these protuberances—whether they are torn off or only partly mutilated by their encounter with the raw edges of the shell—that I prefer to make them in the form of embossed characters forming part of the identifying-number of the seal, because the inspector, being thus obliged to record them, will the more certainly notice their condition. In addition to such protuberances from the face of the sheath at the farther end I consider it desirable to provide edgewise lateral projections which will enter into and affect the contour or plan view of the device as a whole, constituting a feature which will be quite noticeable, even at some distance. Such projections or lugs are shown at $B^{23}$ $B^{23}$, being formed in the blank shown in Fig. 5, as seen in that figure. These projections are preferably, as shown, made to extend from the leaf or wall $B^2$ of the sheath, and they thus stand in the plane of the flange $a^3$, (of one of the caps A,) which enters into the seam $a$, and said lugs therefore are adequate to cut their way into the shell and are certain to be torn off bodily if sufficient force is applied to withdraw the sheath from the shell. Such mutilation, changing the outline or contour as seen looking in the direction necessary to read the serial number, is in that respect more likely to attract attention than the mutilation of the less prominent protuberances on the surfaces of the protruding end of the sheath. Either of these expedients, however, may be used independently of the other, but both are desirable, because the one tends to cause mutilation of the shell, while the other causes mutilation of the sheath.

I claim—

1. In a self-locking seal, in combination with a sheet-metal case, the securing device and the sheath for the same, such sheath being extended through and protruded beyond the case, and provided at such protruded end with protuberances from the surface adapted upon attempted withdrawal of the sheath to encounter the edge of the aperture of the case from which the sheath protrudes.

2. In a self-locking seal, in combination with a sheet-metal case, the securing device having one end lodged in and extended through the case and protruded therefrom, and provided on the surface of the protruding portion with abrupt protuberances, the aperture through which it protrudes presenting a raw edge of the sheet metal of the case to such protuberances.

3. In a self-locking seal, in combination with a sheet-metal case, the securing device having one end lodged in and extending through the case and protruding therefrom at the farther side and provided with identifying characters struck up or embossed on the outer surface of such protruding portion; the aperture through which the same protrudes presenting a raw edge of the sheet metal of the case in a position to be encountered by such embossed characters upon attempted withdrawal of such lodged portion of the securing device from the case.

4. In a self-locking seal, in combination with the case, a securing device, and a sheath or guide for the same, and a catch which locks the securing device to such sheath or guide within the case, such sheath being extended within the case and protruded therefrom at the side opposite that at which the securing device is inserted and provided on the surface of such protruding portion with outwardly-embossed identifying characters; the aperture through which the sheath protrudes from the case presenting a raw edge of the metal to such characters.

5. In a self-locking seal, in combination with the case, the securing device and a sheath or guideway for the same; the spring-catch C which by construction has its ends spread ready to react into engagement with the securing device, the latter having the slot $B^6$ for such engagement, the sheath having an oblique notch which admits the opposite side of the ring into the path of the securing device, whereby the encounter of the securing device with the catch draws the spread ends to the aperture of the securing device and moves the opposite side laterally out of the path of the latter.

6. In combination with the case, the catch C; the securing device having integral with it the sheath comprising the two leaves B′ and $B^2$, having apertures $B^{10}$ $B^{20}$, which coincide when the sheath is folded, and the guide-channels on the exterior surfaces of said leaves leading to said aperture, said sheath having also the oblique notch $B^3$ at the folded edge adapted to afford lodgment for one side of the catch when the ends opposite are spread to embrace the sheath, and lodged in the grooves leading to said apertures, the end of the securing device being beveled at suitable point to encounter the catch lodged in said notch.

7. In a self-locking seal, in combination with the case, a securing device having a bevel at one side; the ring-catch; the sheath by which the catch is spread apertured to admit the spread ends and provided with surface-guides to lead the ends to the aperture; the opposite side of the catch being exposed in the path of the bevel, whereby the securing device draws the ends of the catch to the aperture in the sheath, and simultaneously crowds the opposite side laterally out of the path of the securing device.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 26th day of March, 1898.

EMIL TYDEN.

Witnesses:
CHAS. S. BURTON,
JEAN ELLIOTT.