J. F. CRUDGINTON.

SEAL.

APPLICATION FILED SEPT. 21, 1909.

961,069. Patented June 7, 1910.

Fig. 1.

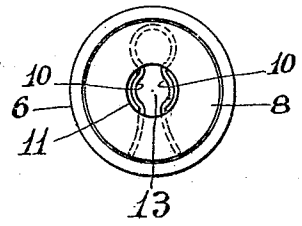


Fig. 2.

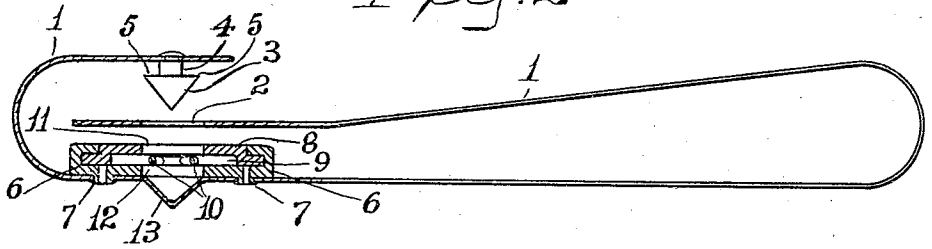


Fig. 3.

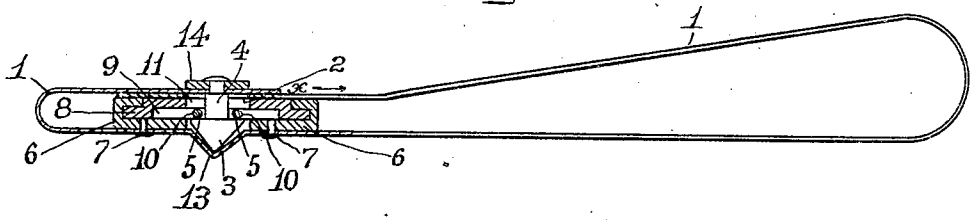


Fig. 4.

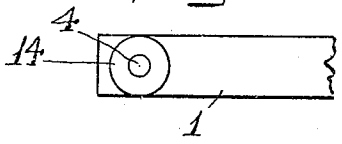


Fig. 5.

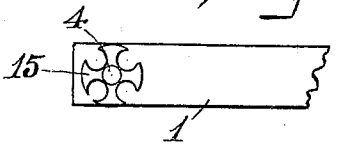
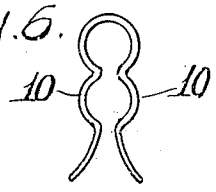


Fig. 6.



WITNESSES:

H. A. Lamb.

M. I. Loughlen

INVENTOR

Jas. F. Crudginton

BY M. Smith Jr.

ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES F. CRUDGINTON, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO JOHN L. CARPENTER, OF BRIDGEPORT, CONNECTICUT.

SEAL.

961,069. Specification of Letters Patent. **Patented June 7, 1910.**

Application filed September 21, 1909. Serial No. 518,837.

To all whom it may concern:

Be it known that I, JAMES F. CRUDGINTON, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Seals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in seals such as are commonly used for the purpose of securing the contents of freight, refrigerator and other cars, as well as various receptacles, and has for its object to produce a seal in which the number of parts is reduced to a minimum, thereby likewise reducing to a minimum the chances of successfully tampering with the seal.

My improvement relates to that class of seals of this description in which a shouldered conical shaped plug is forced through the seal so as to spread apart resilient detent devices which latter engage with the shouldered portion of the plug as soon as such portion has passed beyond the detents, thereby preventing the withdrawal of the plug.

In my improvement I provide a resilient detent element that is perfectly free and disconnected from any part of the device and which cannot become displaced so as not to properly engage with the shouldered portions of the conical shaped plug, and I further aim to do away with the employment of a special element for the purpose of confining the detent device, the body portion of my seal being made in two parts so shaped that there is a recessed portion between them within which portion the detent element is located.

A further object of my invention is to provide the strap, the seal body and the locking plug, all permanently connected so that the parts are always ready at hand for use.

In the accompanying drawing Figure 1 is a plan view of my improvement—Fig. 2 a sectional elevation thereof with the parts in position for locking engagement—Fig. 3 a sectional elevation showing the parts in locked position—Figs. 4 and 5 are detail broken elevations showing particularly the shank of the locking plug secured to the strap through the medium of fragile heads, and Fig. 6 a detail plan view of the detent element.

Similar numerals of reference denote like parts in the several figures of the drawing.

1 is the strap, made of any suitable flexible metal such as tin, one end of which is perforated as shown at 2, while to the other extremity is secured a conical shaped plug 3 having a reduced shank 4 whereby shoulders 5 are provided.

6 is the base portion of the seal body which is secured to the strap intermediate of its ends by means of eyelets 7 formed in the stock of the base and extending through perforations in the strap and then clenched thereto.

8 is the cap plate of the seal body, the periphery of which cap rests directly upon the base 6 and is secured thereto by crimping the circumferential portion of the base around the periphery of the cap and directly against the upper face of the latter. The main central portion of the cap is slightly elevated above the base 6 so as to provide a recess 9 between the base and cap, and within this recess and resting freely upon the base is the resilient detent 10 which is shaped after the manner of a hairpin and whose length is only slightly less than the diameter of such recess.

The top of the cap is perforated as shown at 11 and a similar perforation 12 is formed in the base, both for the purpose of permitting the passage of the plug, while the strap 1 immediately below the base is formed into a conical shaped socket 13, for the purpose presently to be explained.

The side wires of the detent 10 always extend across the opening 12 in the base, and there can be no displacement of this detent owing to the fact that its length is nearly equal to the diameter of the recess 9, and said side wires are in the same horizontal plane so that they will each engage simultaneously with the shouldered portions of the plug.

In utilizing my improvement the strap is passed through the staple or other part of the lock to be sealed, and the perforated part 2 placed in alinement with the perforation in the cap, and the end of the strap carrying the plug is then bent around, so that the parts are in the position shown at Fig. 2, whereupon, by depressing the plug it will pass through the several perforations

into the socket portion 13, and as the plug is driven inwardly it will spread the side wires of the detent element until the shouldered portions 5 have passed beyond the detent, whereupon the side wires of the latter will by their resiliency recover their normal position and engage the plug immediately behind the shoulders thus preventing the withdrawal of said plug.

The seal can not be tampered with without showing evidences thereof, but by passing the shank of the plug through the strap and then riveting the end of said shank directly to an interposed fragile washer or head 14, such as is shown at Fig. 4, or by riveting such shank to an interposed skeleton head 15 such as is shown at Fig. 5, any attempt to force the seal will result in the destruction of the fragile heads and evidences of tampering will be apparent. These heads 14, 15, may be made of any suitable weak or fragile material or they may be made of metal that is case hardened and will readily break.

When the conical plug is forced into the body of the seal its shoulders will be engaged simultaneously by both side wires of the detent, and therefore there can be no likelihood of false locking such as would happen in case such side wires were in different horizontal planes.

It will be observed that the body of my seal is composed of only two pieces, the cap and the base and that no extra element is required to hold the detent in position. Also, both the seal body and the plug are permanently attached to the strap so that they are always in position for ready use, and it will also be noted that the perforated end of the strap is not passed within or through the seal body but is outside the latter and in plain sight.

The serial numbering of the seal may be placed upon the face of the perforated end of the strap, beginning at the points x close to the extreme end of the strap which carries the plug, so that it would not be possible to cut away the perforated end of the strap and then tuck the latter beneath the end which carries the plug without concealing this serial numbering.

I am aware of the fact that it is old in the art to use a shouldered conical plug in connection with a spring detent for the purpose of properly locking a seal and I therefore do not wish to be understood as making any broad claim in this respect, my invention residing solely in the specific construction and arrangement of parts which I have shown and described.

What I claim as new is—

1. A seal comprising a flexible metal strap perforated at one end and carrying at the other end a conical shaped and shouldered plug and having intermediate of its ends a depressed conical shaped socket, a perforated base secured to said strap immediately above said socket, a perforated cap secured directly to said base and having its main central portion slightly raised whereby a recess is provided within said cap and base, and resilient detent wires resting upon said base within said recess and bridging the perforation in the base, whereby when the perforated end of the strap is alined with the perforations in the cap and base the plug may be depressed through said perforations into said socket and be locked by the engagement of the detent wires behind the shouldered portion of the plug.

2. A seal comprising a flexible metal strap perforated at one end and having a conical shaped and shouldered plug secured to the other end, a perforated base portion secured to said strap intermediate of its ends said strap having a conical socket depressed therefrom immediately below the perforation in the base, a cap whose periphery rests upon said base and is secured thereto the main central portion of said cap being raised above the plane of the base and perforated whereby a recess is provided between said base and cap, and a resilient detent element within said recess and resting upon said base, said detent having spaced side wires that bridge the perforation in the base and are of a length slightly less than the diameter of said recess.

3. The combination of the strap perforated at both ends, the body portion of the seal secured to said strap intermediate of its ends and provided with perforations and a recess, the detent wires within said recess and bridging said perforations, the perforated fragile head, and the conical shaped and shouldered plug having a shank which is passed through the perforation in said strap adjacent the body portion of the seal and also through the perforation in the fragile head and then riveted to said head.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. CRUDGINTON.

Witnesses:

F. W. SMITH, Jr.,

M. T. LONGDEN.