No. 719,642. PATENTED FEB. 3, 1903.

E. J. BROOKS.

SNAP SEAL.

APPLICATION FILED SEPT. 6, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

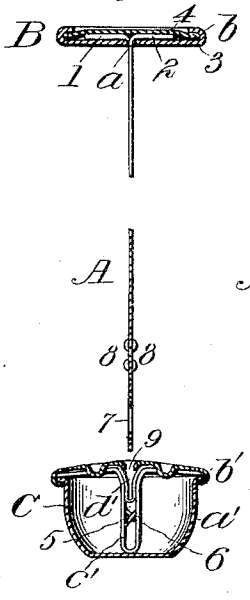


Fig. 3.

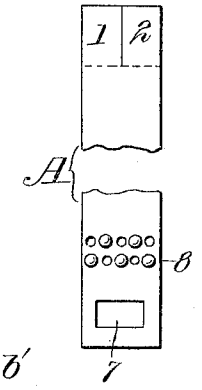


Fig. 2.

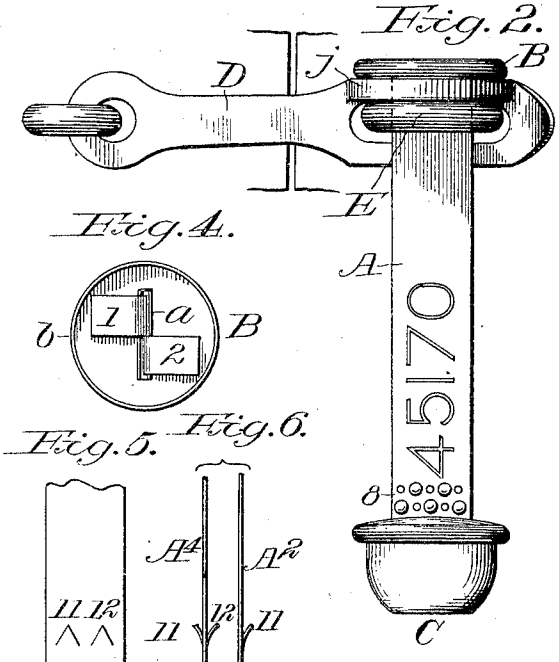


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

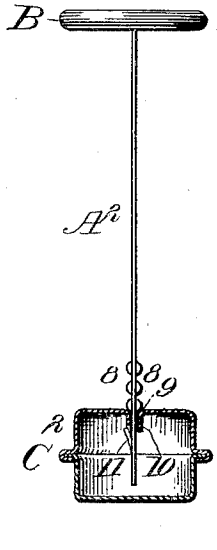


Fig. 8.

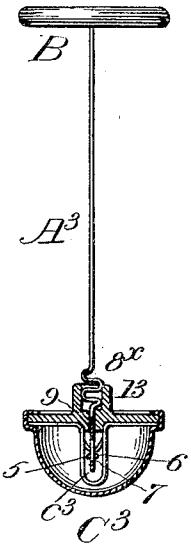


Fig. 9.

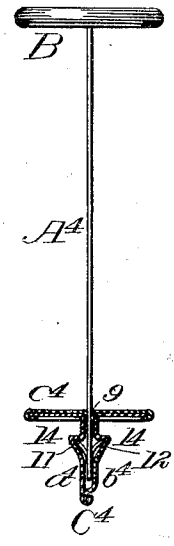
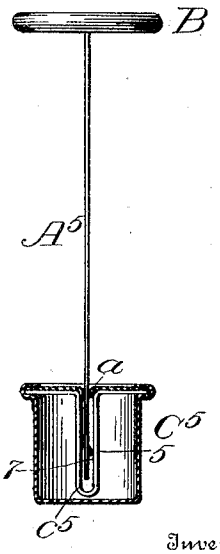


Fig. 10.



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No. 719,642. PATENTED FEB. 3, 1903.

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APPLICATION FILED SEPT. 6, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 11.

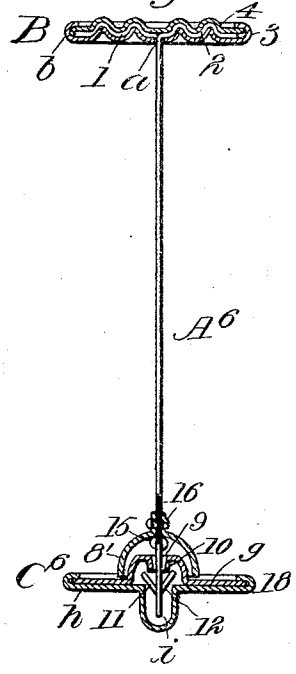


Fig. 12.

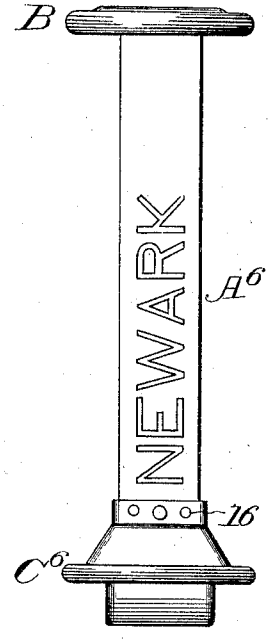


Fig. 14.

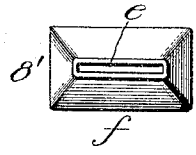


Fig. 15.

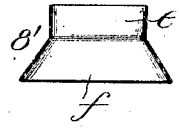


Fig. 13.

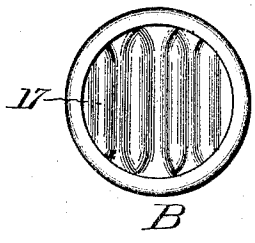
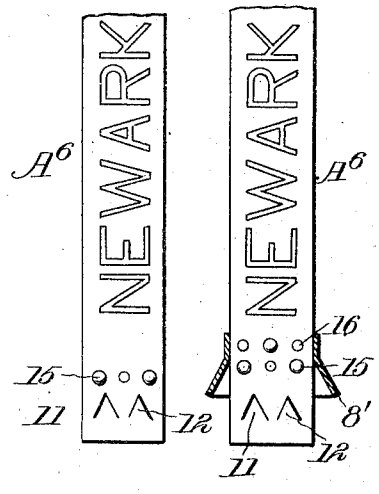


Fig. 16.



Fig. 17. Fig. 18.



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UNITED STATES PATENT OFFICE.

EDWARD J. BROOKS, OF EAST ORANGE, NEW JERSEY.

SNAP-SEAL.

SPECIFICATION forming part of Letters Patent No. 719,642, dated February 3, 1903.

Application filed September 6, 1902. Serial No. 122,425. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. BROOKS, a citizen of the United States of America, and a resident of East Orange, in the State of New Jersey, have invented a new and useful Improvement in Snap-Seals, of which the following is a specification.

This invention relates to self-fastening seals, or "snap-seals," as they are commonly termed, for use as substitutes for lead and wire seals and other self-fastening sealing devices to secure the doors of railway freight-cars and for other sealing purposes. Previous forms of such snap-seals are set forth in my specifications forming part of United States Letters Patent No. 679,104, dated July 23, 1901; Nos. 696,002 and 696,003, dated March 25, 1902, and No. 697,375, dated April 8, 1902, and in my previous specifications therein referred to.

The present invention consists in a bolt-shaped snap-seal of peculiar construction and in certain novel combinations of parts formed in such bolt-shaped snap-seal, as hereinafter set forth and claimed.

The objects of the leading features of this invention are, first, to produce a secure snap-seal wholly of sheet metal that can be used in the same manner as seal-bolts as an inexpensive substitute for the latter; second, to permanently fasten one shackle end within a stop-disk in a peculiar manner; third, to construct a disk-shaped seal part in two pieces of sheet metal with a chamber perpendicular to the faces of the disk formed equally in the two pieces and provided with inwardly-projecting lips to interlock with spring-catches on the shackle, and, fourth, to construct and permanently attach a sheet-metal inlet-guard in a novel manner and so as to render it practically impossible to obtain access to the snap-catch or snap-catches of the seal without its destruction or defacement to such an extent as to insure immediate detection.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 represents a longitudinal section through a bolt-shaped snap-seal constructed according to the present invention with the seal part detached, as it appears before fastening the seal. Fig. 2 is an elevation of the same seal fastened, showing it applied to a hasp and staple. Fig. 3 is a face view of the two ends of the flexible shackle. Fig. 4 is a detail end view showing the manner of attaching the stop-disk shown at the top in Figs. 1 and 2. Figs. 5 and 6 are respectively a face view and two edge views showing the seal-part end of another shackle provided with snap-catches. Figs. 7, 8, 9, and 10 are sectional edge views representing additional species of the improved snap-seal. Fig. 11 is a like view showing a preferred species. Fig. 12 is an elevation projected from Fig. 11. Fig. 13 is an end view projected from Fig. 11. Figs. 14, 15, and 16 are detail views of the inlet-guard of said preferred species detached; and Figs. 17 and 18 are face views of the seal-part end of the shackle of the preferred species, illustrating the manner of permanently attaching the inlet-guard.

Like reference letters and numbers indicate like parts in all the figures.

My bolt-shaped snap-seal in all its forms is composed of a flexible shackle A or A^2 or A^3 or A^4 or A^5 or A^6, a flat stop-disk B, permanently attached to one end of the shackle A, and a chambered seal part C or C^2 or C^3 or C^4 or C^5 or C^6, adapted to receive the other end of the shackle and to interlock therewith to permanently fasten the seal, and in all the forms the improved snap-seal as a whole is or may be constructed of tin-plate or other inexpensive sheet metal.

Another feature, preferably common to all the species, is the mode of permanently attaching one end of the shackle to the stop-disk illustrated in Figs. 1, 2, 3, and 4. For this purpose the end of the shackle is provided with a central longitudinal slit dividing it into legs 1 and 2, and the stop-disk is composed of a cup-shaped member 3 and a flat disk 4, the former constructed with a contracted slot *a*, the metal from which is displaced inwardly without detaching it. The slitted end of the shackle is passed through said slot, and the legs 1 and 2 are spread apart, as in Fig. 4. The flat disk 4 is then applied, and the rim *b* of the cup-shaped member is turned in to permanently unite the parts.

In the species represented by Figs. 1, 2, 3, and 4 the seal part C is of the construction particularly set forth and claimed in my

specification forming part of a companion application for United States Letters Patent filed the 1st of August, 1902, Serial No. 117,977. This seal part comprises two shell-pieces a' and b', a middle piece c', and an inner middle piece d', permanently united with each other, as in Fig. 1, the middle piece c' having snap-catches 5 and 6, guarded by said inner middle piece d', and the corresponding end of the shackle A is provided with a catch-hole 7 to interlock with said snap-catches 5 and 6 and embossed inlet-guards 8 to protect the inlet 9 of the seal part externally against the introduction of tampering-tools, these features being in part common to that seal part and those set forth in my patent specifications before referred to.

In the species illustrated by Figs. 5, 6, and 7 the improved snap-seal is constructed with a hollow seal part C^2, having its inlet 9 guarded by inwardly-projecting rigid "vestibule-walls" 10, as set forth in my specification forming part of said Letters Patent No. 679,104, and the corresponding end of the shackle A^2 is provided with snap-catches 11 and 12, preferably V-shaped, projecting from one or both sides of the shackle to interlock with said vestibule-walls 10, as in Fig. 7, and with embossed inlet-guards 8, Fig. 7, as set forth in the same specification.

In the species represented by Fig. 8 the seal part C^3 is constructed with an upwardly-projecting curb 13, surrounding its inlet 9, and with a middle piece c^3, having snap-catches 5 and 6, and the corresponding shackle end is constructed with a catch-hole 7 and a corrugated inlet-guard $8^\times$, as set forth in my specification forming part of said Letters Patent No. 696,003.

In the species represented by Fig. 9 the construction of the seal part C^4 is an adaptation of the construction set forth and claimed in my specification forming part of said Letters Patent No. 697,375—that is to say, the seal part is composed of three pieces a^4, b^4, and c^4, of which the pieces a^4 and b^4 are united with each other by interlocking flanges, and the disk-shaped piece c^4 is attached by interlocking flanges upon the respective pieces; and both of said pieces a^4 and b^4 are provided with wedge-shaped recesses 14 to interlock with snap-catches 11 and 12 on the shackle A^4, and the inlet 9 is in said disk-shaped piece c^4. The shackle A^4, Fig. 9, is or may be of the construction shown in Fig. 5 and at the right in Fig. 6.

In the species represented by Fig. 10 the seal part C^5 is of one of the types set forth in my specification forming part of said Letters Patent No. 696,002 with a middle piece c^5 provided with a snap-catch (or snap-catches) 5, and the shackle A^5 is or may be similar to the shackle A, Figs. 1 to 4, having a catch-hole 7 to interlock with said snap-catch 5.

In the preferred species (represented by Figs. 11 to 18, inclusive) the shackle A^6, apart from the generic construction of its end permanently attached to the stop-disk B and apart from an embossed distinguishing-mark "Newark," thereon, is provided in the act of stamping it from the sheet with oppositely-projecting snap-catches 11 and 12 and with a single row of protuberances 15, similar to said embossed inlet-guards 8. (See Fig. 17.) A distinct sheet-metal inlet-guard 8′ of the peculiar construction represented in Figs. 11, 12, 14, 15, 16, and 18 is slipped over the slitted end of the shackle A^6 before applying the stop-disk B and is stopped in effective position by said protuberances 15. This inlet-guard 8′ has a tubular flat upper end e, Figs. 14 to 16, and a downwardly-flaring or roof-shaped body f, Figs. 14 to 16. When it reaches its effective position, the upper end e of the inlet-guard 8′ and the shackle end within it are provided with embossed fastenings 16, like said protuberances 15, and are thereby permanently united with each other. The stop-disk B is then completed, as in Figs. 1 to 3, and embossed fastenings 17, Figs. 11 and 13, are afterward formed therein and in the shackle-legs 1 and 2 within it as additional guards against any separation of the shackle A^6 and said stop-disk B. The seal part C^6, Figs. 11 and 12, of said preferred species is composed of two disk-shaped pieces g and h permanently united with each other at the factory by a circumferential joint 18 and constructed in common with central concavo-convex portions of equal or substantially equal depth to form between them the chamber i of the seal part. The upper piece g is further provided with the inlet 9 and with inwardly-projecting rigid vestibule-walls 10, as in the second species, and is so shaped and proportioned as to project within the inlet-guard 8′ in the fastened seal, as in Fig. 11, whereby the insertion of a tampering instrument into the inlet 9 is effectually prevented and the snap-catches 11 and 12 within the fastened seal are securely guarded.

It will be apparent that both ends of an ordinary sheet-metal shackle may be fastened and secured in the manner above described with reference to Figs. 11 to 14 and that the within-described sheet-metal inlet-guard may be formed and attached in like manner to a shackle end otherwise fastened.

A hasp D, provided with a flange j, projecting above the interlocking staple E and having a corresponding opening smaller than the stop-disk B to receive the snap end of the shackle, is shown in Fig. 2; but no particular construction of the hasp and staple or their equivalents is essential to the improved snap-seal, which may be employed in connection with any fastening adapted to receive a seal-bolt.

The shackle of the bolt-shaped seal is particularly well adapted to carry and expose to view a serial number, (represented by "45,170" in Fig. 2,) a station number or name, (represented by "Newark" in Figs. 12, 17, and 18,) or any preferred distinguishing

mark or marks, and the stop-disk and seal part, or either of them, may be marked for identification, if desired. The marking in each case may be either embossed or printed, and other like modifications will suggest themselves to those skilled in the art.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. A bolt-shaped snap-seal made wholly of sheet metal and comprising a flexible shackle having one end slit and bent to form withdrawal-resisting legs, a two-part sheet-metal stop-disk inclosing said legs within it and having its parts permanently united to each other by a circumferential joint, and a hollow seal part interlocked by snap-catches with the other end of said shackle.

2. A bolt-shaped snap-seal comprising a flexible sheet-metal shackle having one end slitted and bent to form withdrawal-resisting legs, a two-part sheet-metal stop-disk inclosing said legs within it and having its parts permanently united with each other by a circumferential joint, and a hollow seal part having an inlet to receive the other end of said shackle, the shackle and seal part being constructed respectively with the interlocking members of a snap-catch fastening located within the seal part.

3. A bolt-shaped snap-seal comprising a flexible sheet-metal shackle having one end slitted and bent to form withdrawal-resisting legs, a two-part sheet-metal stop-disk inclosing said legs within it and having its parts permanently united with each other by a circumferential joint, and a hollow seal part having an inlet to receive the other end of said shackle, the shackle and seal part being constructed respectively with the interlocking members of a snap-catch fastening located within the seal part and said shackle provided with an inlet-guard to prevent tampering with said fastening.

4. The combination, in a snap-seal, of a flexible shackle of sheet metal, having its respective ends constructed with a pair of withdrawal-resisting legs and with one member of a snap-catch fastening, a two-part stop-disk inclosing said legs and having in common therewith embossed fastening-corrugations transverse to said legs, and a seal part having within it the other member of such snap-catch fastening.

5. The combination, in a snap-seal, of a flexible shackle of sheet metal, having its respective ends constructed with a pair of withdrawal-resisting legs and with one member of a snap-catch fastening, a two-part stop-disk inclosing said legs and having in common therewith embossed fastening-corrugations transverse to said legs, a seal part having within it the other member of such snap-catch and an external inlet-guard attached to said shackle and arranged to prevent access to said fastening.

6. In a snap-seal, a hollow seal part of sheet metal composed of two disk-shaped pieces having its chamber formed by concavo-convex portions of both pieces of substantially equal depth, and having one of its pieces provided with an inlet and inwardly-projecting rigid vestibule-walls, in combination with a flexible shackle of sheet metal constructed with snap-catches to interlock with said vestibule-walls within the seal part, and provided with an external inlet-guard surrounding the shackle and having a roof-shaped body within which the convex top of the seal part projects, and means for securing the other end of the shackle.

7. In a snap-seal, a hollow seal part of sheet metal composed of two disk-shaped pieces having its chamber formed by concavo-convex portions of both pieces of substantially equal depth, and having one of its pieces provided with an inlet and inwardly-projecting rigid vestibule-walls, in combination with a flexible shackle of sheet metal constructed with snap-catches to interlock with said vestibule-walls within the seal part, and provided with an external inlet-guard surrounding the shackle and having a tubular attaching portion and a roof-shaped body, and means for securing the other end of the shackle.

8. In a snap-seal, a hollow seal part of sheet metal composed of two disk-shaped pieces having its chamber formed by concavo-convex portions of both pieces of substantially equal depth, and having one of its pieces provided with an inlet and inwardly-projecting rigid vestibule-walls, in combination with a flexible shackle of sheet metal constructed with snap-catches to interlock with said vestibule-walls within the seal part, and provided with embossed protuberances immediately above said catches, and an inlet-guard of sheet metal surrounding the shackle and having a tubular-attaching portion provided in common with the shackle with embossed fastenings whereby it is fixedly held in place, and a depending roof-shaped body.

9. In a snap-seal, the combination, with a flexible shackle of sheet metal, of means for securing its respective ends including a hollow seal part having a convex top provided with an inlet, and an inlet-guard surrounding the shackle and provided in common with the shackle with embossed fastenings whereby it is fixedly held in place and a depending roof-shaped body within which said convex top of the seal part projects, substantially as hereinbefore specified.

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