

E. J. BROOKS.
SNAP SEAL.

APPLICATION FILED NOV. 12, 1912.

Patented Feb. 11, 1913.

2 SHEETS-SHEET 1.

1,052,562.

Fig. 1.

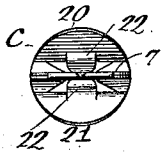


Fig. 2.

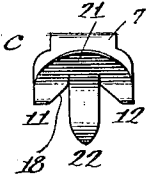


Fig. 3.

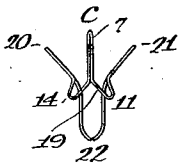


Fig. 4.

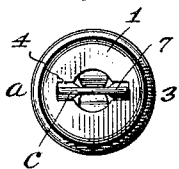


Fig. 5.

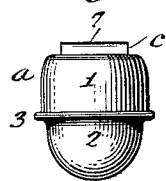


Fig. 6.

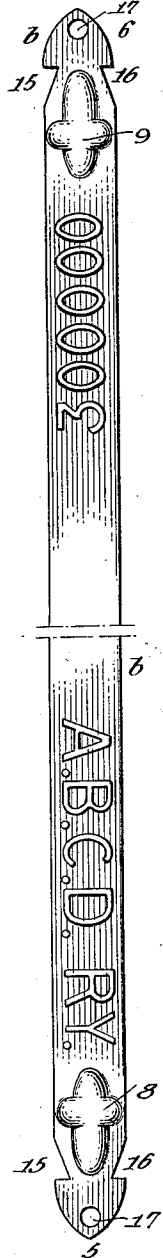


Fig. 7.

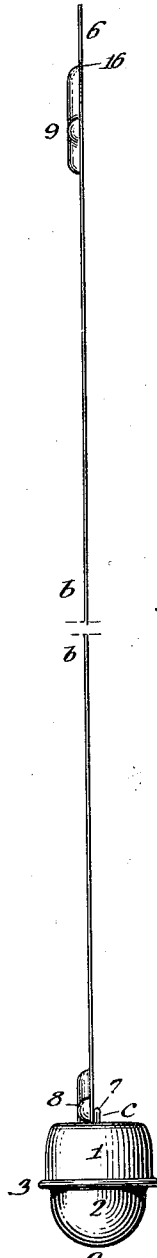


Fig. 8.

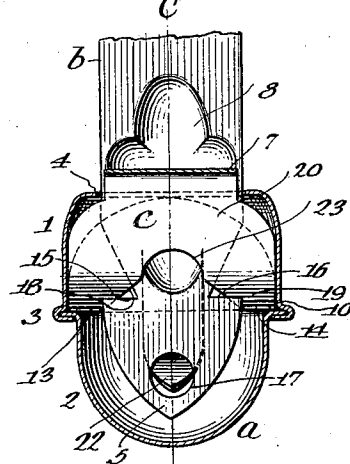


Fig. 9.

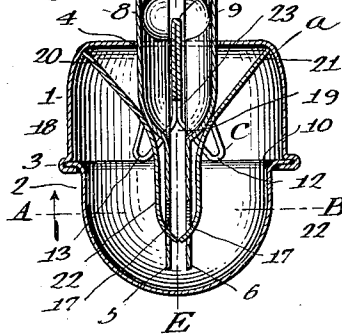
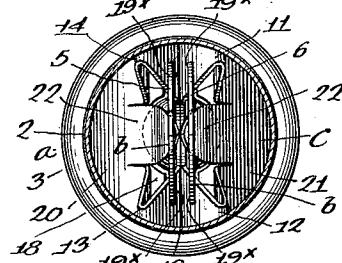


Fig. 10.



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2 SHEETS—SHEET 2.

1,052,562.

Fig. 11.

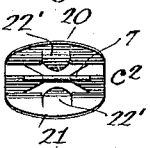


Fig. 12.

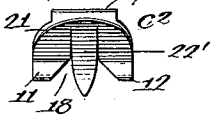


Fig. 13.

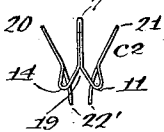


Fig. 14.

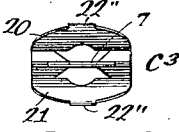


Fig. 15.

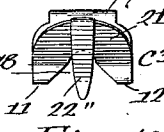


Fig. 16.

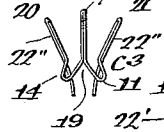


Fig. 17.



Fig. 18.

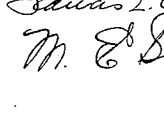


Fig. 19.



Fig. 20.

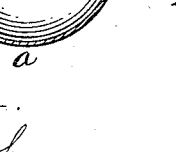
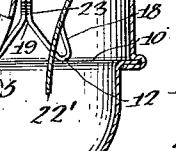
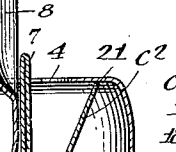
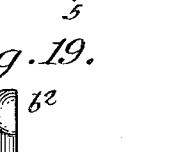
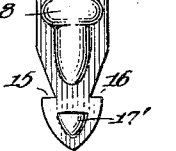
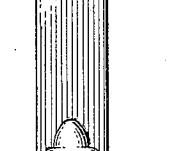
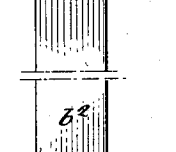
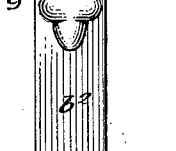
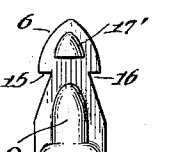


Fig. 21.

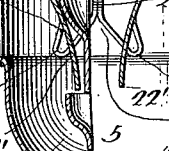
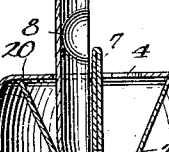
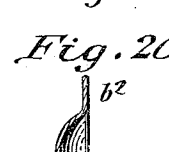
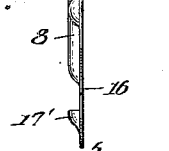
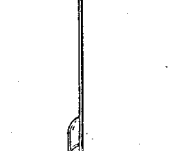
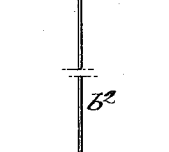
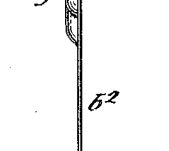
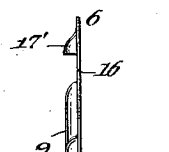
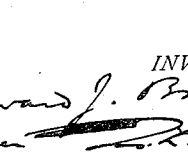
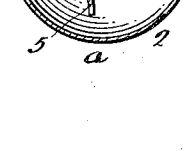
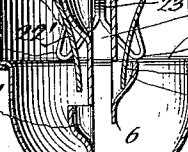
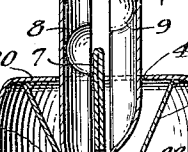
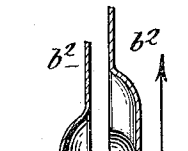
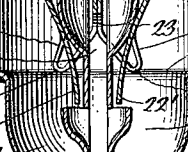
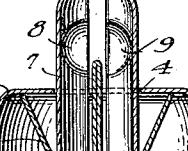
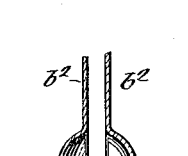


Fig. 22.



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UNITED STATES PATENT OFFICE.

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SNAP-SEAL.

1,052,562.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed November 12, 1912. Serial No. 730,924.

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, in common with previous improvements, to self-fastening seals, or "snap seals" as they are commonly termed, for use, as substitutes for lead and wire seals and other press-fastened or press-fastenable sealing devices, to secure the doors of railway freight cars and for other like purposes. Examples of such snap seals are set forth in my previous specifications forming part of United States Letters Patent No. 1,030,458, patented June 25, 1912, No. 1,035,526 patented August 13, 1912, and other Letters Patent therein referred to.

The present invention is more particularly additional to the improvements in snap seals set forth in the two previous specifications first mentioned; relating especially to snap seals in which a seal part includes two bulb members united by a circumferential joint as shown at Figs. 10, 11 and 12 in the drawings accompanying the earlier of said specifications, and to "double" catch-engaging center pieces for such seal parts, and flexible sheet-metal shackles adapted to interlock therewith, embodying some of the principles of construction set forth in both of said previous specifications, including normally flat snap-catch shackle ends.

The present invention consists in certain novel combination of parts, and in an improved snap seal embodying said combinations or any of them, as hereinafter particularly described and claimed.

The leading objects of this invention are to obviate contracted slots in the catch-engaging center-piece and to render the improved snap-seal unpickable.

Other objects will be set forth in the general description, which follows.

Two sheets of drawings accompany this specification as part thereof.

Figures 1, 2 and 3 are respectively top, side and edge views of one form of the improved center piece, detached; Figs. 4 and 5 are top and side views of a bulb-shaped seal part containing said center piece; Fig. 6 is a face view of one form of the improved shackle, detached; Fig. 7 is an elevation of the improved snap seal composed of said

seal part and shackle, as it leaves the factory, including an edge view of the shackle; Figs. 8 and 9 represent magnified longitudinal sections in planes at right angles to each other through the seal part of the improved snap seal, fastened; and Fig. 10 represents a magnified cross-section on the line A—B, Fig. 9, showing a bottom view of said center piece in the fastened seal. (The sectional planes of Figs. 8 and 9 are represented by the lines C—D and D—E respectively.) Figs. 11, 12 and 13 are respectively top, side and edge views of a second center piece; Figs. 14, 15 and 16 are like views respectively of a modified center piece; Figs. 17 and 18 are respectively face and edge views of a second shackle; Fig. 19 represents a magnified longitudinal section through the seal part, second centerpiece and one shackle end, illustrating the shackle-end deflecting operation; Fig. 20 is a like view of the same parts showing the seal as it leaves the factory; Fig. 21 is a like view of the seal, as finally snap fastened, showing both shackle ends in section; and Fig. 22 is a like view of the same parts as in Fig. 21, illustrating the secondary locking of either shackle end of the fastened seal should the same be partially released by manipulation. (The sectional plane of said Figs. 19–22 is sufficiently indicated by said line C—D, Fig. 8.) The second species illustrated by said Figs. 11–13 and Figs. 17–22 is selected for such of the claims hereto appended as are not generic to both species.

Like reference characters refer to like parts in all the figures.

The improved snap-seal is composed of a bulb-shaped seal part *a* (Figs. 4 and 5), and a flexible shackle *b* (Fig. 6) or *b*² (Figs. 17 and 18); the former containing as its catch-member a "double" catch-engaging center-piece, *c* (Figs. 1–3), *c*² (Figs. 11–13) or *c*³ (Figs. 14–16), adapted to interlock with both ends of the shackle *b* or *b*² within the seal part *a*.

The improved snap seal, as a whole, is intended and adapted to be made of suitable tin (tin plate) sufficiently thin, strong and resilient for the purposes of the several parts as hereinafter described.

The seal part *a*, as heretofore, is composed of bulb pieces 1 and 2, permanently united after the insertion of the center piece by a circumferential joint, 3; and the upper bulb piece is provided with an inlet hole 4 fitted

to the two shackle ends, 5 and 6, together with an interposed rigid tongue, 7, on the center piece, including embossed inlet guards, 8 and 9, on the respective shackle ends, each having a semi-cylindrical stem constructed to project into the seal part.

The lower bulb piece 2 of the seal part *a* is made somewhat smaller in diameter than the upper bulb piece 1, so as to form an annular shoulder, 10, (Figs. 8 and 9, and Figs. 19-22) within the seal part; and the center piece *c* or *c*² or *c*³ is so proportioned that it is held in place by the interaction of said shoulder 10 with points, 11, 12, 13, 14, of the center-piece.

The shackle ends 5 and 6 of each of the improved shackles, *b*, *b*² are notched as shown so as to render them more flexible and to provide each with a pair of laterally disposed catch shoulders, 15 and 16, which are supplemented by the provision of each shackle end with a catch hole, 17, or an open-ended catch projection 17', as its withdrawal resisting portions. Between the respective inlet guards 8 and 9 and the middle of the shackle *b* or *b*², it may be conveniently provided with the customary distinguishing marks or lettering and serial number, either embossed or printed, represented by "A. B. C. D. Ry." and "300000" in Fig. 6.

The improved center piece *c* or *c*² or *c*³ is produced by machinery, in the form represented by Figs. 1-3 or Figs. 11-13 or Figs. 14-16, from flat tin. Its said points 11, 12, 13, 14 are the several extremities of a pair of laterally bent shackle-end flexing portions corresponding generally with the depending and slotted catch portions of the center pieces set forth in said previous specifications; but, instead of slotting these portions in the manner before practised, the improved center piece of either of the hereindescribed species is provided with a single recess, 18, of sufficient extent at its lower and widest part for the free passage of both shackle ends through the recessed flexing portions, and sufficiently contracted above, at and near the middle of the center piece, to resist the withdrawal of either shackle end therethrough; and, instead of deflecting the ends or middle only of such slots, each of said shackle-end flexing portions is bent laterally as a whole, so as to form between the two a recess, 19, V-shaped as viewed in Figs. 3, 9, 13, 16 and 19-22, extending from edge to edge of the center piece. Within this recess 19, adjoining said contracted portion of said recess 18, the withdrawal resisting surfaces of either center piece are located as shown at 19*, Fig. 10. The superjacent side portions 20 and 21 of the center piece extend obliquely upward, and are fitted to the interior of the upper bulb piece 1. Compare Figs. 1-3 with Fig.

9, and Figs. 11-13 or Figs. 14-16 with Figs. 19-22. Projecting downward from said side portions 20 and 21 are a pair of pointed spring fingers 22 or 22' or 22''. In the first and second of the hereindescribed center pieces these fingers, 22, 22', are preferably and conveniently integral with said side portions 20, 21, and formed by metal cut from the recess 18 and from notches 23 if required in the metal of the middle portion of the center piece. In said first species (Figs. 1-10) the pointed lower extremities of said spring fingers 22 of the center piece *c* are rebent so as to make them more or less hook-shaped and to cause them to project toward each other, as shown in Figs. 3, 9 and 10. In the second species (Figs. 11-13 and Figs. 17-22) the pointed spring fingers, 22', of the center-piece *c*², are simply pointed, and project obliquely downward; but are otherwise like those of said first species. In the modification of said second species represented by Figs. 14-16 the pointed spring fingers 22'' are integral with the side-portions 20, 21 of the center-piece *c*³, but project downward from the upper edges of said side portions 20, 21, adjoining their outer sides. See especially Fig. 16.

In an improved snap seal of either of the hereindescribed species, when one of the shackle ends 5 and 6 is thrust through the inlet hole 4, guided by the rigid protruding portion 7 of the center piece *c*, or *c*², or *c*³, the notched portion of the shackle end is flexed or bent at its notches in passing through said recess 18 in the outwardly bent portions which form the points 11, 12, 13, 14, as illustrated by Fig. 19; and it springs back to its original shape so that a pull on the shackle brings its catch shoulders 15, 16 into the recess 19, where they engage the withdrawal resisting surfaces of the metal of the center piece at the upper portion of the recess 18. (Compare Figs. 8 and 10). The seal part *a* and shackle *b* or *b*² are thus preliminarily united as in Fig. 7 and Fig. 20; and, after passing the other shackle end through a pair of card-door staples or their equivalent in customary manner, the second shackle end is inserted and snap-fastened in like manner. Compare Figs. 8-10 and Figs. 21, 22. The interaction of the side portions 20, 21 of the center piece *c* with the lower ends of the inlet guards 8, 9, as indicated in Figs. 9 and 20 and 21, tends to draw the shackle shoulders 15, 16 of each shackle end into said recess 19, and to retain them therein; as also to keep the shackle ends parallel with each other; and thus aids to prevent picking the fastened seal.

In the first species (Figs. 1-10), the entering shackle end 5 or 6 presses back the corresponding spring finger 22, and at the

limit of the inward movement of the shackle end, as determined by the contact of its inlet guard 8 or 9 with the top of the seal part, the catch hole 17 of the shackle end freely admits the extremity of the spring finger, and permits the finger to resume its normal position as in Fig. 9.

In the second species (Figs. 11-13, or Figs. 14-16, and Figs. 17-22), the spring fingers 22' or 22'' assist to restore the shackle ends to their original flat or unflexed form and to hold them in effective position, but do not become effective as withdrawal resisting means unless the seal is tampered with. In this event the manipulation of either shackle end, to dislodge its catch shoulders 15, 16, from the recess 19, causes the embossed catch projection 17' of the shackle end to embrace the adjoining extremity of the corresponding spring finger 22' or 22'', as shown in Fig. 22, and withdrawal of the shackle end is then effectively resisted by said spring finger 22' or 22''.

The material of which the seal part *a*, especially, is composed is not considered essential; the shackle *b* or *b*² may be of any required length, and its inlet guards 8 and 9 may vary in shape or in some cases may be omitted; 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. An improved snap seal having, in combination, a bulb-shaped seal part constructed with a suitable inlet hole, a resiliently flexible shackle constructed with a normally flat withdrawal-resisting catch portion at each end, and a center-piece supported within said seal part in juxtaposition to said inlet hole; said center piece being constructed with shackle-end flexing portions each of which is bent laterally as a whole, a passage-way forming recess common to said flexing portions, a V-shaped recess extending from edge to edge between said flexing portions, and catch-engaging surfaces within the recess last named.

2. The combination, in a snap seal, of a bulb-shaped seal part having an inlet hole, a resiliently flexible shackle having a normally flat withdrawal resisting catch portion at each end, and a center piece supported within said seal part in juxtaposition to said inlet hole; said center-piece being constructed with laterally bent shackle-end flexing portions, a V-shaped recess extending from edge to edge between these portions, a recess forming passageways in said flexing portions through which the temporarily flexed shackle ends are insertible, withdrawal resisting surfaces of the metal within said V-shaped recess, lo-

cated to interlock with said catch portion of each shackle end in the normal position of the latter within the fastened seal, superjacent side portions, and spring fingers depending from these side portions and located to press against the temporarily deflected shackle ends and to assist in keeping said catch portions of the shackle ends in effective relation to said withdrawal resisting surfaces.

3. The combination, in a snap seal, of a bulb-shaped seal part having an inlet hole, a resiliently flexible shackle having a normally flat withdrawal-resisting catch portion constructed with catch shoulders and a supplemental catch at each end, and a catch-engaging center piece supported within said seal part in juxtaposition to said inlet hole; said center piece being constructed with laterally bent shackle-end flexing portions, a V-shaped recess extending from edge to edge between these portions, a recess forming passageways in said flexing portions through which the temporarily flexed shackle ends are insertible, withdrawal-resisting surfaces located to interlock with said catch shoulders of each shackle end, the shackle end being in its normal fastened position within said V-shaped recess, superjacent side-portions, and spring fingers depending from these side portions and located to press against the temporarily deflected shackle ends and to interlock with said supplemental catch of each shackle end as secondary withdrawal resisting means.

4. The combination, in a snap seal, of a bulb-shaped seal part having an inlet hole, a resiliently flexible shackle having a normally flat withdrawal-resisting catch portion at each end constructed with laterally disposed catch shoulders and an open-ended catch projection, and a catch-engaging center piece supported within said seal part in juxtaposition to said inlet hole; said center piece being constructed with laterally bent shackle-end flexing portions, a V-shaped recess extending from edge to edge between these portions, a recess forming passageways in said flexing portions through which the temporarily flexed shackle ends are insertible, withdrawal-resisting surfaces located to interlock with said catch shoulders of each shackle end, the shackle-end being in its normal fastened position within said V-shaped recess, superjacent side portions, and spring fingers depending from these side portions, having pointed lower extremities, and located to press against the temporarily deflected shackle ends and to interlock with said catch projection of each shackle end as secondary withdrawal-resisting means.

5. The combination, in a snap seal, of a bulb-shaped seal part having a suitable in-

let hole, a resiliently flexible shackle having
a withdrawal-resisting catch portion at
each end and an inlet guard located adja-
cent to each catch portion and constructed
5 to extend inward through said inlet hole,
and a catch-engaging center piece support-
ed within said seal part in juxtaposition to
said inlet hole and constructed with later-
ally bent and recessed shackle-end flexing
10 portions through which the shackle ends
are insertible and having withdrawal-re-
sisting surfaces, a recess between said flex-
ing portions within which the fastened
shackle ends are normally located, and su-
15 perjacent side portions constructed to in-
teract with said inward extensions of the in-
let guards to assist in keeping the shackle
ends parallel to each other with their catch
portions in effective relation to said with-
20 drawal resisting surfaces.

6. The combination, in a snap seal, of a

bulb-shaped seal part composed of upper
and lower bulb pieces permanently united by
a circumferential joint, the lower being of
less diameter than the upper to form a cir- 25
cumferential shoulder within the seal part,
and the upper bulb piece provided with a
suitable inlet hole, a resiliently flexible
shackle having a withdrawal-resisting catch
portion at each end, and a catch-engaging 30
center piece within said seal part construct-
ed with laterally bent and recessed shackle-
end flexing portions forming four points
adapted to interact with said shoulder
within the seal part for supporting said 35
center piece in juxtaposition to said inlet
hole, substantially as hereinbefore specified.

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Witnesses:

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**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."**