

(No Model.)

2 Sheets—Sheet 1.

E. J. BROOKS.
SNAP SEAL.

No. 526,217.

Patented Sept. 18, 1894.

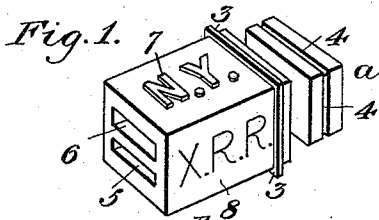


Fig. 2.



Fig. 3.

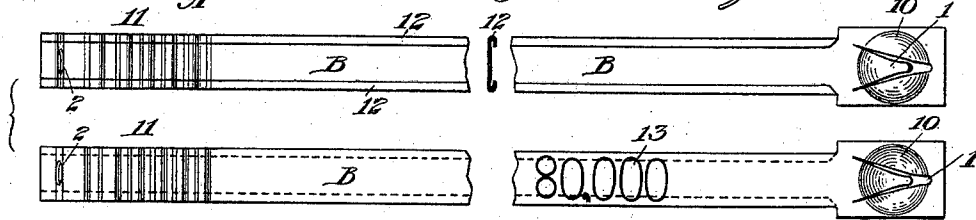


Fig. 4.

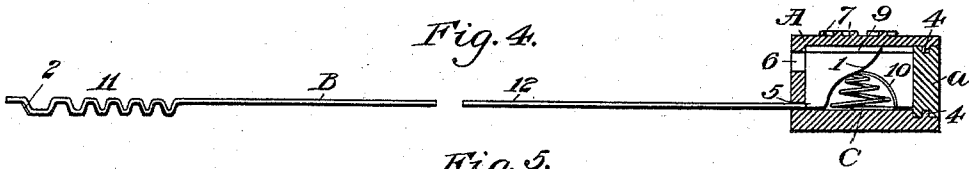


Fig. 5.

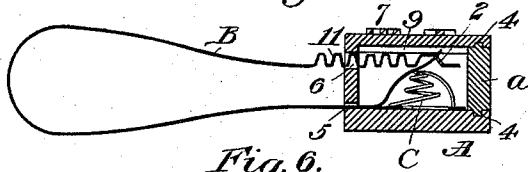


Fig. 6.

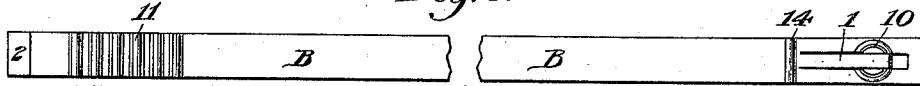


Fig. 7.

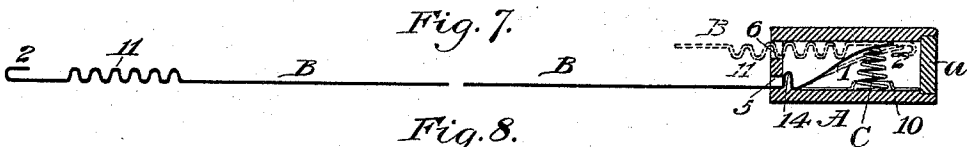


Fig. 8.

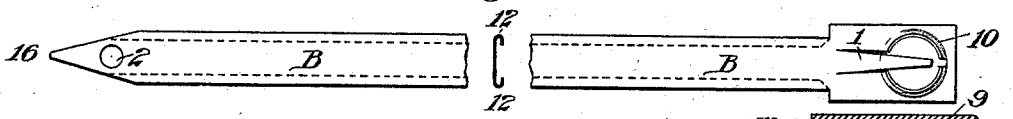


Fig. 9.

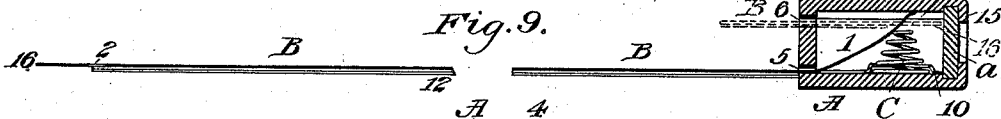


Fig. 10.

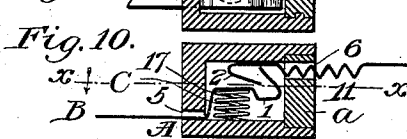
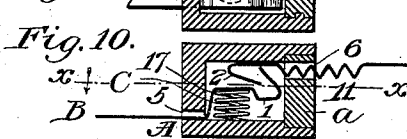


Fig. 11.



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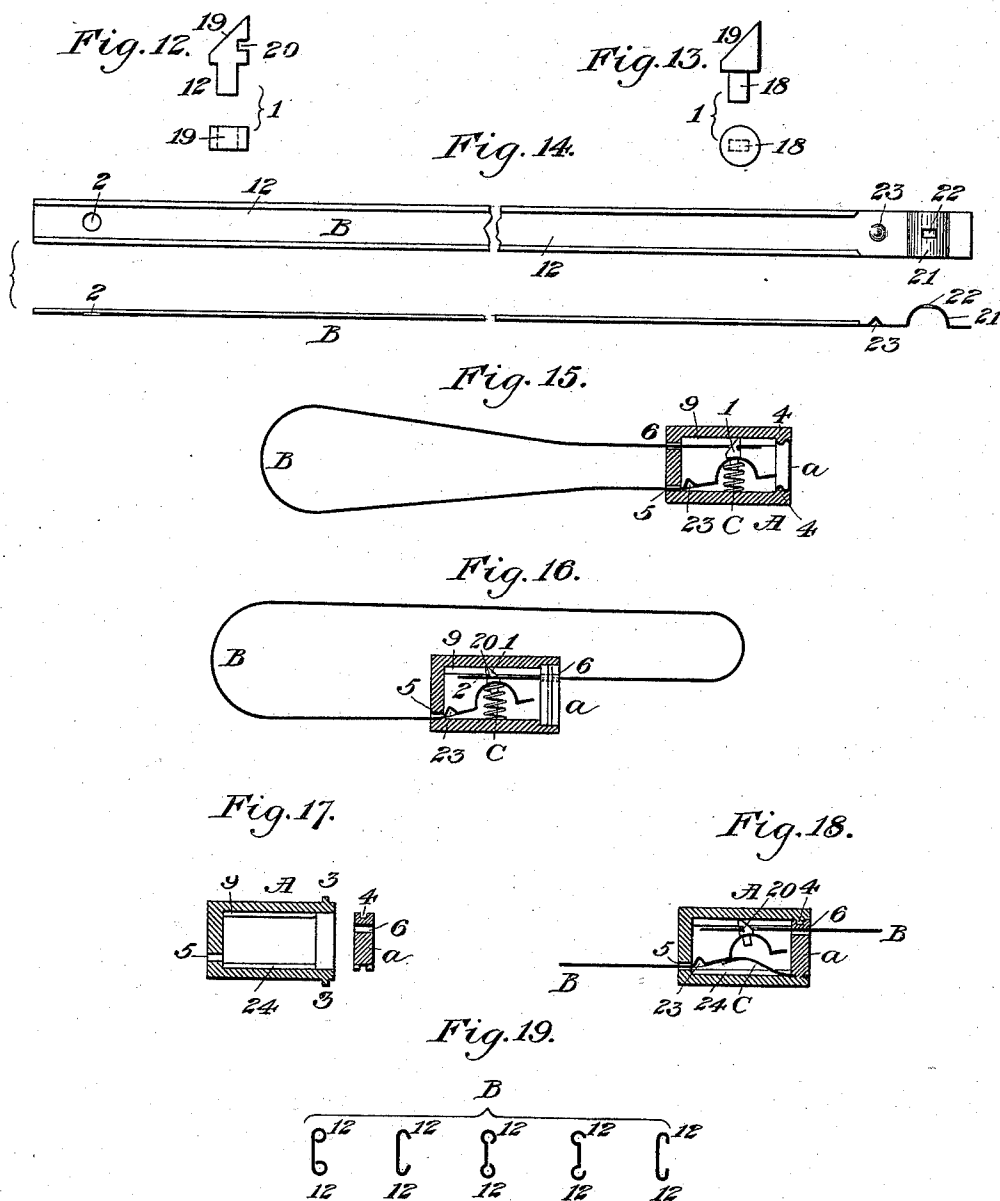
(No Model.)

2 Sheets—Sheet 2.

E. J. BROOKS.
SNAP SEAL.

No. 526,217.

Patented Sept. 18, 1894.



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UNITED STATES PATENT OFFICE.

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SNAP-SEAL.

SPECIFICATION forming part of Letters Patent No. 526,217, dated September 18, 1894.

Application filed July 11, 1894. Serial No. 517,229. (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 is additional to a series of improvements in self-fastening seals, or "snap-seals," as they are now commonly termed, set forth in my previous specifications forming part of United States Letters Patent No. 303,417, dated August 12, 1884; No. 304,258, dated August 26, 1884; No. 312,963, dated February 24, 1885; No. 314,994, dated April 7, 1885; No. 340,932, dated April 27, 1886; No. 345,764, dated July 20, 1886; No. 348,509, dated August 31, 1886, and No. 353,246, dated November 23, 1886.

The present invention consists in certain novel combinations of parts, as hereinafter set forth and claimed. Its distinctive objects are to provide at once for a superior degree of inexpensiveness of construction and for the requisite security against being tampered with without detection; to provide in a novel manner for permanently uniting all the parts at the factory without casting or molding one upon another; and to provide for the use of very thin "tin" (tin-plate) without loss of security and with freedom from the liability of tin-shackles as ordinarily made and used to cut or scratch those who are required to handle them or to handle inspected meat or the like having such seals attached thereto.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 of the drawings is a perspective view of the two pieces of a metallic seal-part as cast for a typical species of the improved seals. Fig. 2 represents edge and top views of a volute spring for the same. Fig. 3 represents face and back views of a shackle-part of thin tin for the same, together with a cross-section thereof. Fig. 4 is a longitudinal section of the completed seal as it leaves the factory. Fig. 5 is a longitudinal section of the same seal self-fastened. Fig. 6 is a face view of a modified shackle. Fig. 7 is a longitudinal section of an improved seal embodying said modified shackle. Fig. 8 represents a

face view and cross-section of another modified shackle, and Fig. 9 a longitudinal section of another improved seal embodying said shackle Fig. 8. Fig. 10 represents a longitudinal section through another modified seal showing only the ends of the shackle, and Fig. 11 a section on the line $x-x$ Fig. 10. Figs. 12 and 13 are detail views of distinct catches for another species of the improved seals. Fig. 14 represents a face view and a longitudinal section of a modified shackle for the same. Fig. 15 is a longitudinal section of another improved snap-seal, fastened, embodying said catch Fig. 12 and said shackle Fig. 14. Fig. 16 is a longitudinal section of another improved snap-seal, fastened, illustrating an additional modification. Figs. 17 and 18 are longitudinal sections respectively through a modified seal-part before and after the combination therewith of a flat spring in place of the coiled springs shown in Figs. 15 and 16, Fig. 18 including the remainder of an improved seal; and Fig. 19 represents additional cross-sections of shackles of thin tin.

Like letters and numbers refer to like parts in all the figures.

Each of the improved seals represented by the drawings is composed of a seal-part A originally made in two pieces including an end-piece a , a flexible shackle B of thin tin provided with interlocking catches 1 2 at its respective ends, and a distinct supplemental spring C to coact with the male catch 1 so as to insure its effective engagement with the female catch 2 when the latter is inserted into the seal-part and to augment the audible click or "snap" which attests the completion of the fastening.

In the species represented by Figs. 1 to 5 inclusive, the seal-part A, or its body at least, is of lead or like compressible metal, and its said body is originally constructed with projections 3 Fig. 1 corresponding with grooves 4 in the edges of its end-piece a , so that by driving in said projections 3 after the end-piece is inserted said grooves 4 will be filled with the lead and the end-piece thus fastened in place as in Figs. 4 and 5. The end-piece may be either of lead or of some other suitable material. The body of the seal-part A is further constructed with openings 5 and

6 in its end opposite said end-piece, and with lettering or distinguishing marks 7 and 8 of any description that may be required; also with an internal recess 9 at top as viewed in Figs. 4 and 5. The thin tin shackle B has its said catch 1 cut from a slot in the tin, the latter being further provided with a hollow dome 10 within which the spring C, the same being a volute spring of light wire, is confined when the parts are assembled, as in Figs. 4 and 5. The female catch 2 of the shackle is formed by a perforation in connection with a re-entrant bend, as in Figs. 3 to 5, and, adjoining the same, corrugations 11 are formed in the shackle to fill the threading hole 6 behind said catch 2 when the seal is fastened, as in Fig. 5. The shackle B is further constructed with inturned edges 12 to free it from sharp cutting edges (see the cross-section in Fig. 3), and is conveniently provided with a serial number 13 or any other distinguishing mark that may be desired; the same being conveniently embossed therein or printed thereon. In assembling the parts of said seal represented by Figs. 1 to 5 inclusive that end of the shackle B provided with the catch 2, before receiving its bends which complete the latter and before receiving the corrugations 11, is threaded through the hole 5 of the seal-part A, and the catch 1 and dome 10 are drawn into place within the seal-part, the spring C being at the same time inserted. The end-piece *a* is next inserted and fastened as above, and the seal is completed by crimping the shackle B to complete the catch 2 and to form the corrugations 11. After passing the shackle B in the same direction through a pair of car-door staples or the like, said end provided with the female catch 2 is inserted through the threading hole 6 into the seal-part, depressing the catch 1 before it against the resistance of the spring C until said catch 2 coincides with the extremity of the catch 1. The latter then interlocks with the catch 2, projecting therethrough into said recess 9, and the corrugations 11 fill the hole 6 behind said catch 2, as in Fig. 5. The hole 5 is securely filled by the flat neck of the shackle adjoining the head from which the catch 1 and dome 10 are stamped.

In the species represented by Figs. 6 and 7 the seal-part A has threading-holes 5 and 6 of one and the same width, and an end-piece *a* having ungrooved edges, by way of illustration. Said holes 5 and 6 being of one and the same width the shackle B can be completed before the parts are assembled, a bent-up projection 14 on the shackle closing the hole 5 internally as in Fig. 7, and corrugations 11 closing the hole 6 behind the catch 2 as in the previous arrangements. This seal-part A, together with its end-piece *a*, is intended to be made either of a suitable metal or metals providing for "burning" the end-piece fast by drawing a soldering iron or the like across it, or of a suitable compound, as of sand and glue or sand and sulphur, with

the end-piece *a* cemented fast. The catch 2 of the modified shackle B is a small hook, as shown in Fig. 7; the catch 1 having a square end to effectively interlock therewith; and the dome 10 is cut away so as to more fully expose the top of a volute spring C.

The seal-part A of the modified seal Figs. 8 and 9 is intended to be made of lead or the like having a thin open end 15 to overlap the end-piece *a* as in Fig. 9. Both its threading-holes 5 and 6 are narrow, and it has the internal recess 9 of the seal first described. The shackle B has the inturned edges 12 of the form first described, with a simple perforation to form its catch 2, and with a sharp pointed end 16 to illustrate the adaptation of the seal in this way to be applied to inspected meat without the aid of the customary needle. The inturned shackle edges are of peculiar value and importance in meat seals, as the seals are liable to strike the faces or necks of the men who carry the meat across their shoulders. The sharp-pointed end 16 becomes masked within the seal-part when the seal is fastened, as in dotted lines in Fig. 9.

In the modified seal-part A represented in Figs. 10 and 11 a narrow hole 5 and a wide hole 6 are formed respectively in the originally closed end of the seal-part and in the end-piece *a*, and the latter is fastened in place by grooves 4 in the lateral edges of the end-piece filled with lead from the body A as in the species first described. With the grooves 4 so confined to the lateral edges of the end-piece there is no liability to close the hole 6 in pressing the lead into the grooves. The catches 1 and 2 are both hook-shaped in this seal, and are formed, together with corrugations 11 adjacent to the catch 2 and a re-entrant bend 17 to coact with the spring C, by simple transverse bends; and the spring C is in this arrangement a spiral spring of suitable size and strength, corresponding in diameter with the width of the shackle.

In the species represented by Figs. 12 to 18 inclusive, distinct catches 1, readily formed from flat or round wire, as represented respectively by Figs. 12 and 13, are constructed with shanks 18 bevels 19, and preferably with safety-notches 20, Fig. 12. The shackles B are constructed with arches 21 corresponding in function with said domes 10 but of different shape, with a non-circular hole 22 at the top of each arch to receive the shank 18 of the distinct catch, and with any suitable stop 23 to properly locate the catch within the seal-part as in Figs. 15, 16 and 18. The catch 2 is formed by a simple perforation, as in said seal represented by Figs. 8 and 9, and the edges of the shackle are preferably inturned as in that seal and the seal first described, as represented at 12 in Fig. 14. The springs C shown in Figs. 15 and 16 are simple spiral springs. The spring C in Fig. 18 is a flat spring, as hereinafter more particularly described. The seal-part A in Fig. 15 has a

pair of narrow threading holes 5 and 6 and a top-recess 9 as above described, together with lead-filled grooves 4 for fastening in place its end-piece *a*, but this end-piece as shown is made of sheet-metal to illustrate the employment of end-pieces of this description.

The seal-part in A Fig. 16 has narrow threading-holes 5 6 formed respectively in its originally closed end and in the end-pieces *a*, together with an internal recess 9 as above described. The catch 1 in Fig. 16 is simply turned around as compared with the catch 1 in Fig. 15, and the same shackle B may be used for either form of seal.

15 A flatspring C, Fig. 18, is conveniently fastened within a bottom recess 24, similar to said top-recess 9, by perforating the heel end of the spring, and filling the perforation with lead, in the act of filling the end-piece grooves 4, by forcing in projections 3, Fig 17, cast on the body of the seal-part.

The shackles B may be provided with in-turned edges 12 of various patterns, as illustrated by Fig. 19. The specific seal-part A of any of the seals above described may be used in connection with the shackle B and spring C of any other or others of the seals to which it may be appropriated. Those seal-parts which do not require to be press-fastened may be preferably made of brittle alloys or of such compositions as those above described with reference to Fig. 7; and other like modifications will suggest themselves to those skilled in the art.

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

1. An improved snap-seal composed of a hollow seal-part in two pieces which are inseparably fastened together to preliminarily unite all the parts of the seal, and constructed with a pair of threading-holes, a flexible shackle having a head-end secured within said seal-part and provided with a male catch, and having a female catch at its other extremity, and a supplemental spring arranged within said seal-part and acting upon said male catch, substantially as hereinbefore specified.

2. The combination, in a snap-seal, of a flexible shackle having a head-end provided with a male catch and with a spring-retaining portion, and having a female catch at its

other extremity, a supplemental spring to act upon said male catch, and a hollow seal-part inclosing said shackle-head and supplemental spring and having a pair of threading-holes through one of which the shackle is preliminarily threaded, substantially as hereinbefore specified.

3. The combination, in a snap-seal, of a flexible shackle having a head-end provided with a male catch and with a spring-retaining portion, and having a female catch at its other extremity, a supplemental spring to act upon said male catch, and a hollow seal-part inclosing said shackle-head and supplemental spring, and having a pair of threading-holes through one of which the shackle is preliminarily threaded, and an internal recess at top into which the extremity of said catch projects above the plane of the other threading-hole, substantially as hereinbefore specified.

4. The combination with a flexible shackle B and devices for securing its respective ends of a hollow seal-part A inclosing such securing devices and composed of a hollow body of lead and an end-piece having lead-filled grooves in its edges to fasten it in place, substantially as hereinbefore specified.

5. In combination with a hollow seal-part A having a pair of threading-holes, a shackle B having male and female catches at its respective ends and preliminarily threaded through one of said threading-holes, said male catch being inclosed within said seal-part, and the other end of the shackle provided with transverse corrugations adjacent to its female catch to fill the other threading-hole of the seal-part behind the catch last named when the seal is fastened, substantially as hereinbefore specified.

6. In combination with a hollow seal-part having a pair of threading-holes, a flexible shackle of thin tin having male and female catches integral with its respective ends and in-turned edges, and a supplemental spring inclosed within said seal-part together with the male catch to supplement the latter, substantially as hereinbefore specified.

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