

E. J. BROOKS.

SNAP SEAL.

(Application filed Oct. 18, 1901.)

(No Model.)

2 Sheets—Sheet I.

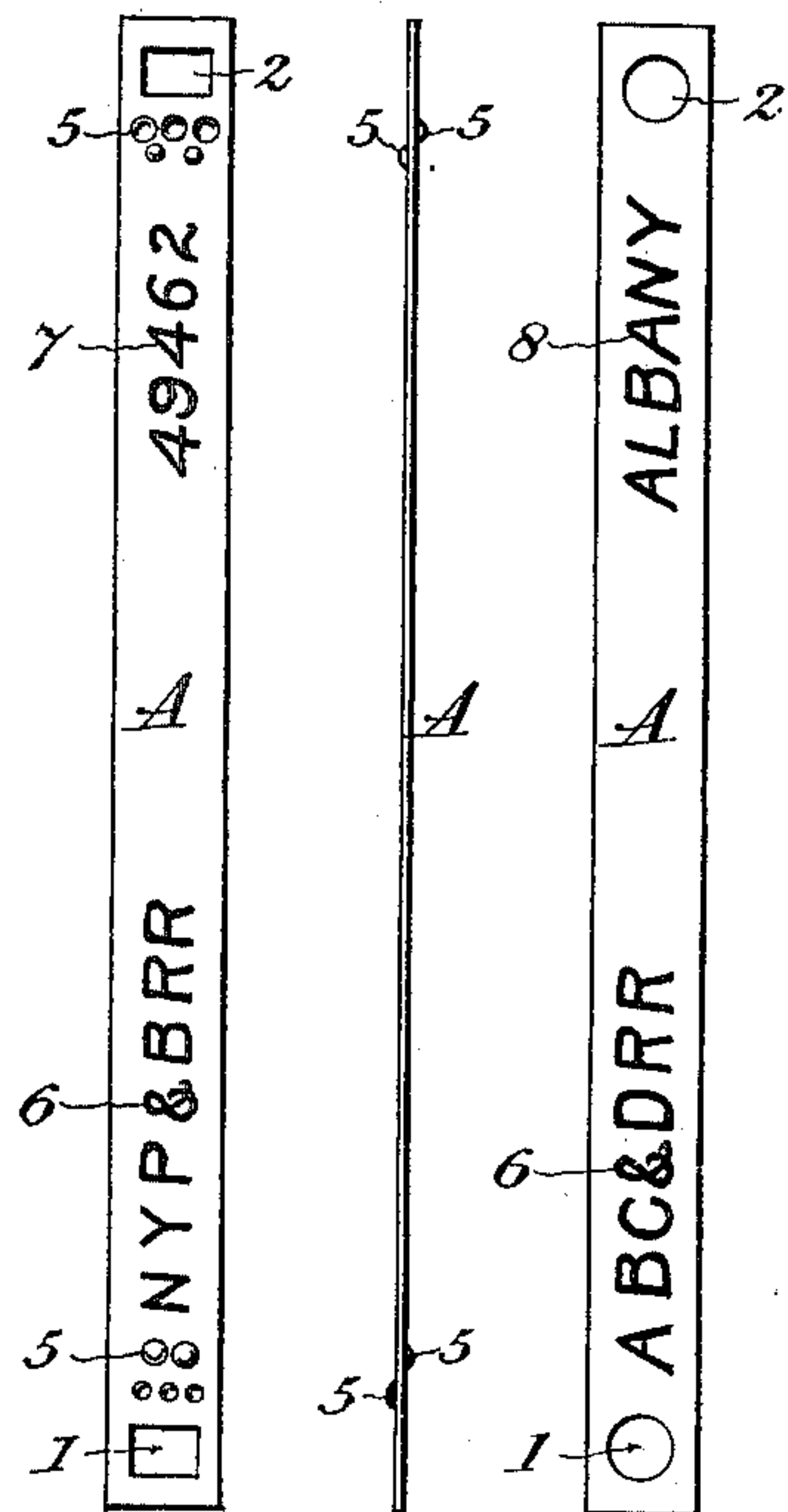


Fig. 1. Fig. 2. Fig. 3.

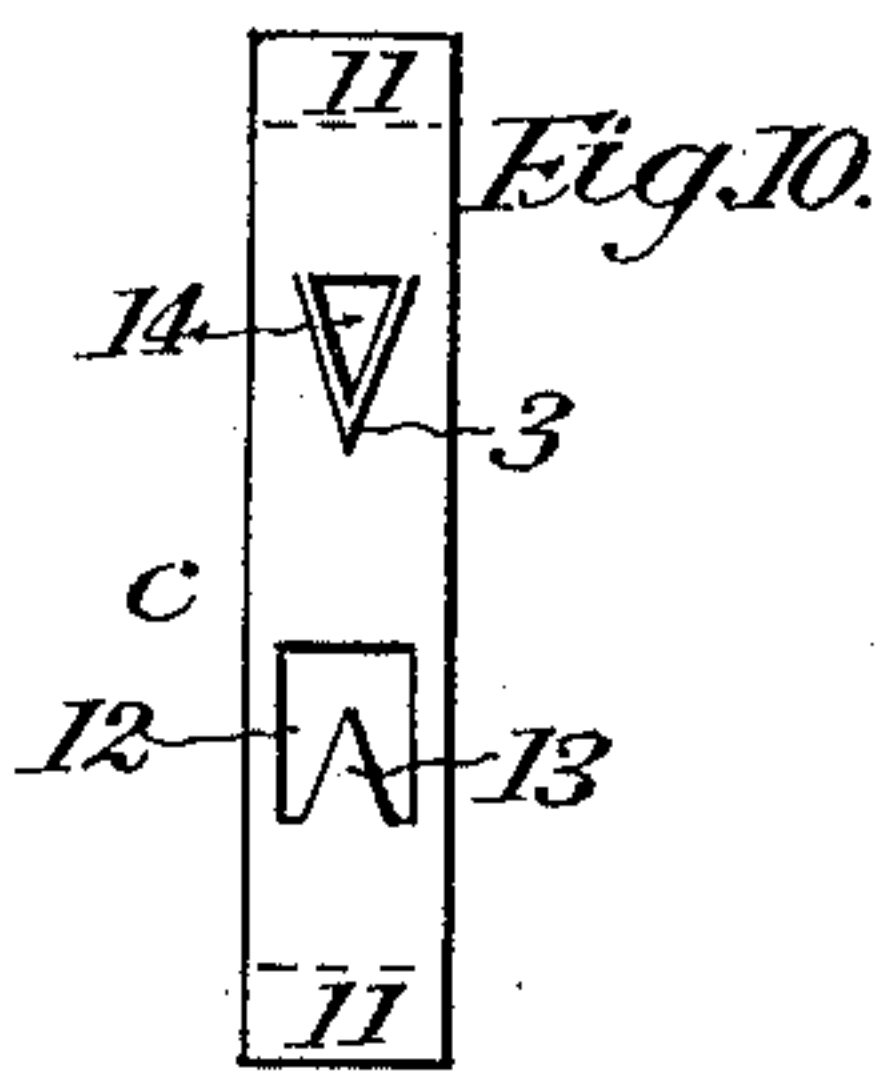


Fig. 10.

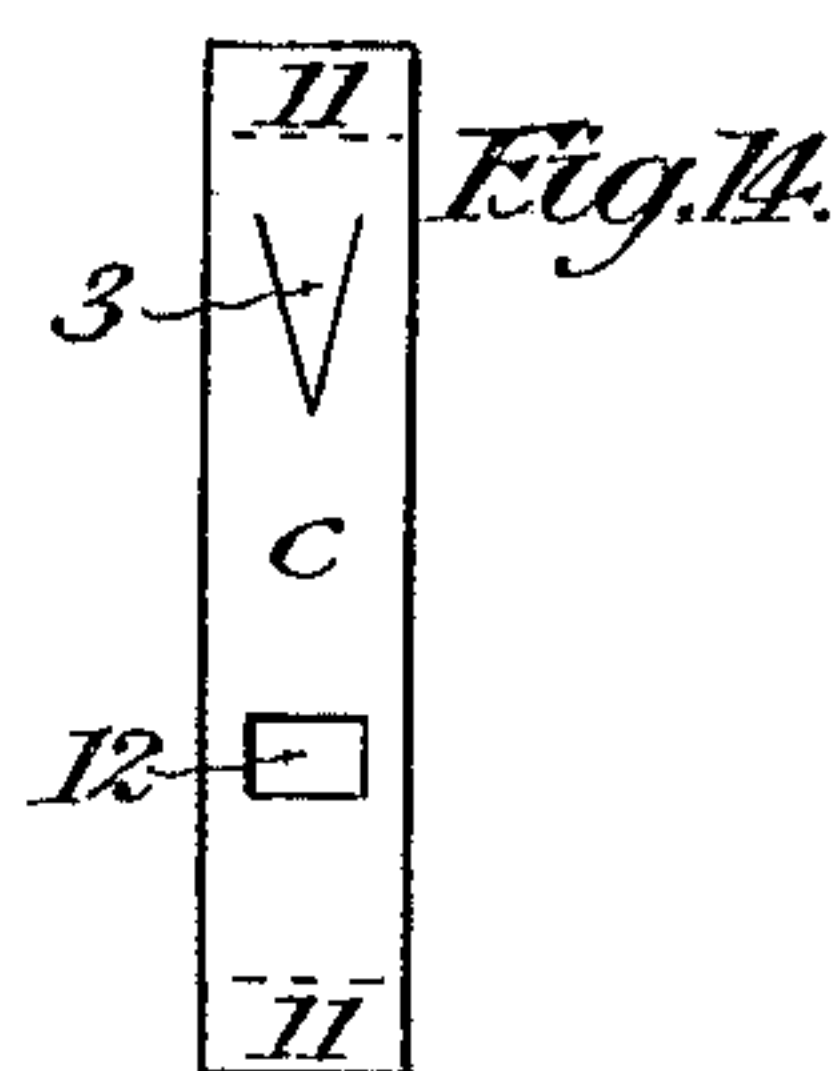


Fig. 14.

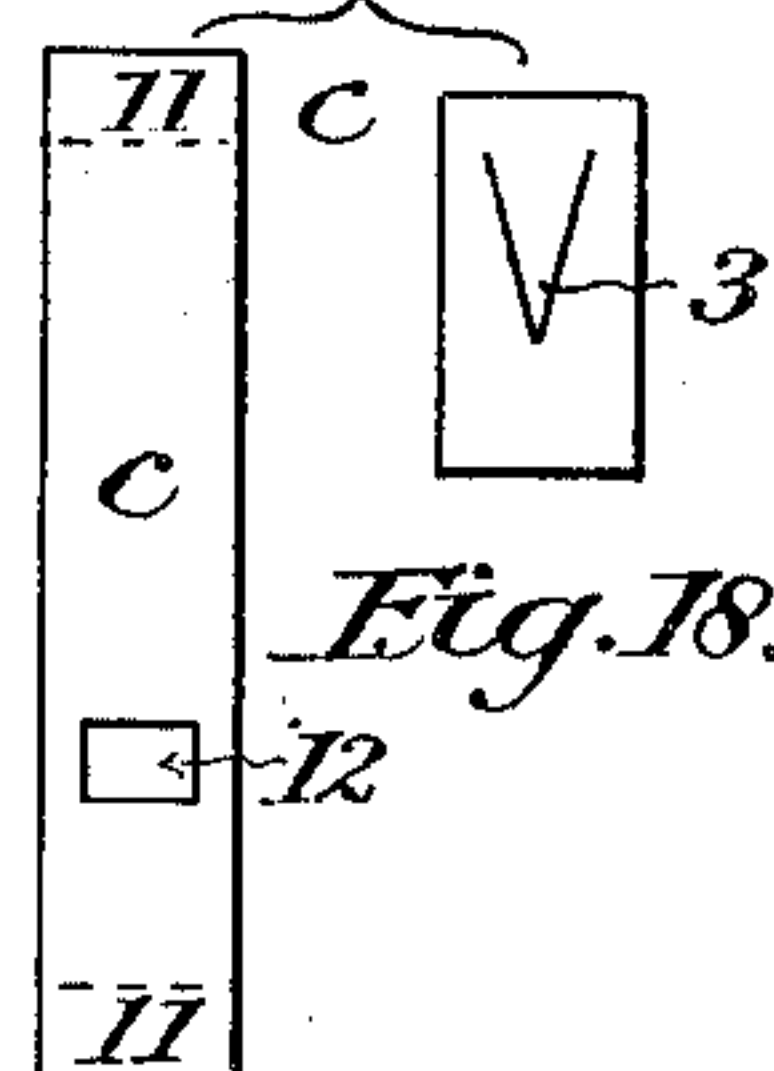


Fig. 18.

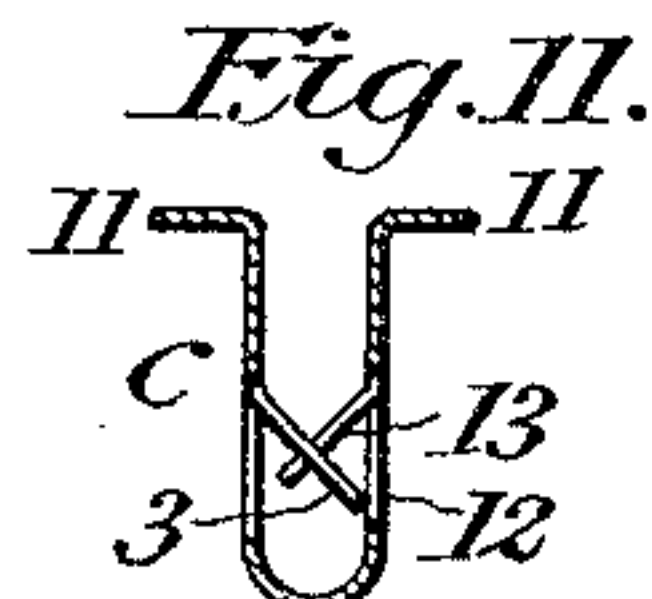


Fig. 11.

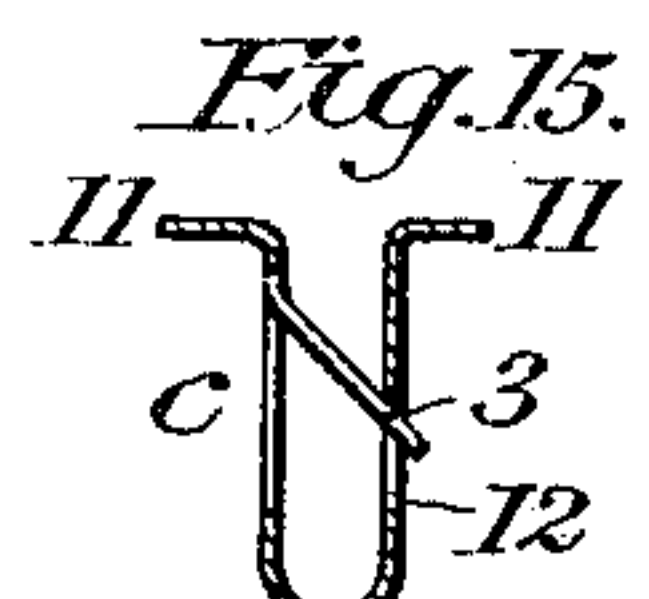


Fig. 15.

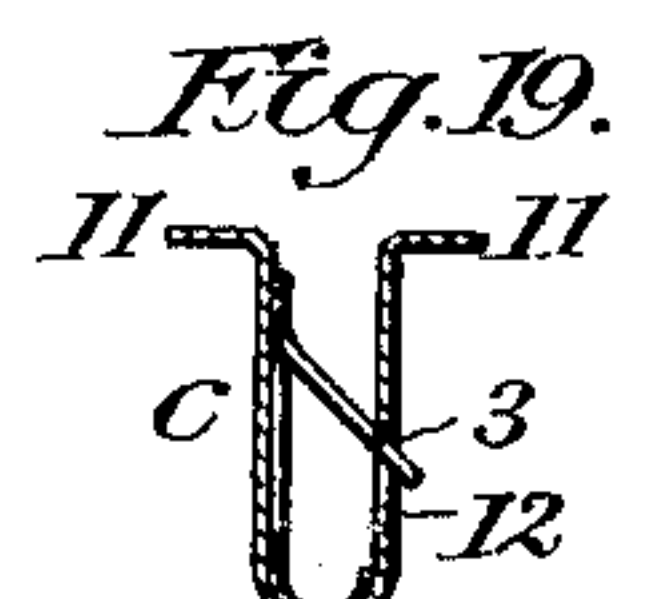


Fig. 19.

Fig. 12.

Fig. 16.

Fig. 20.

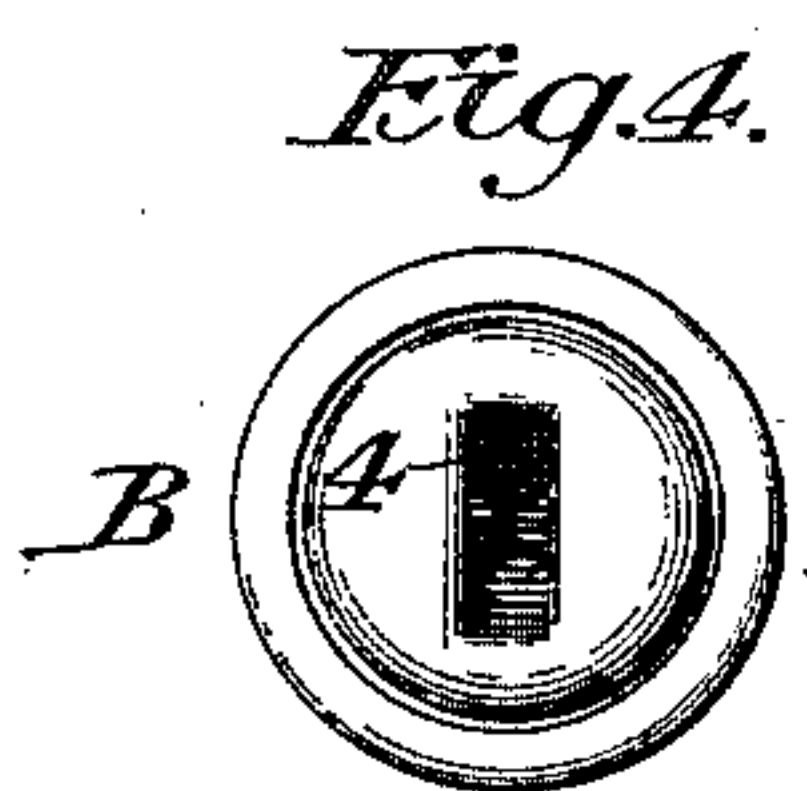
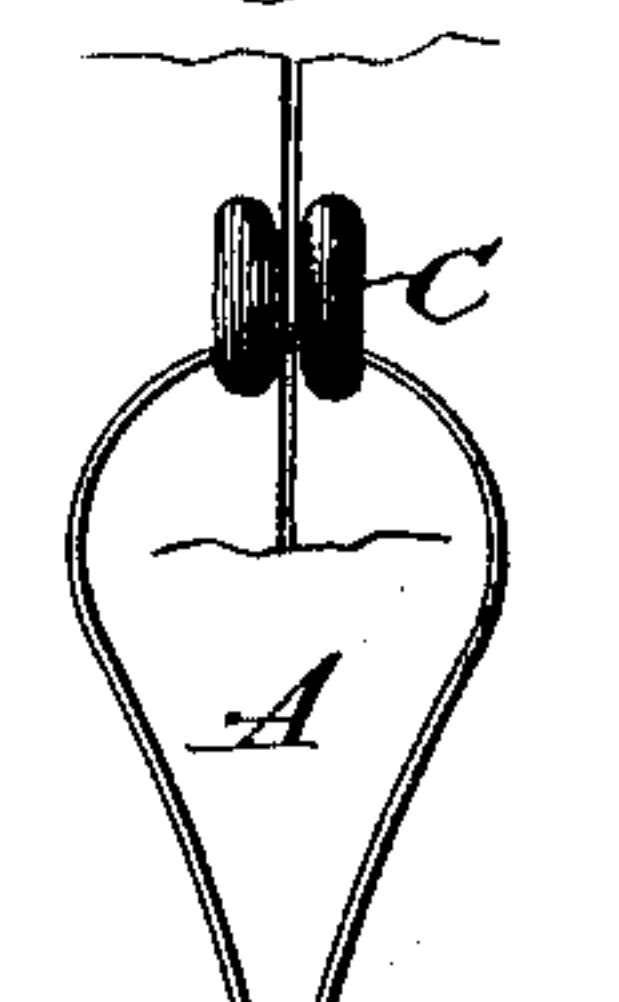
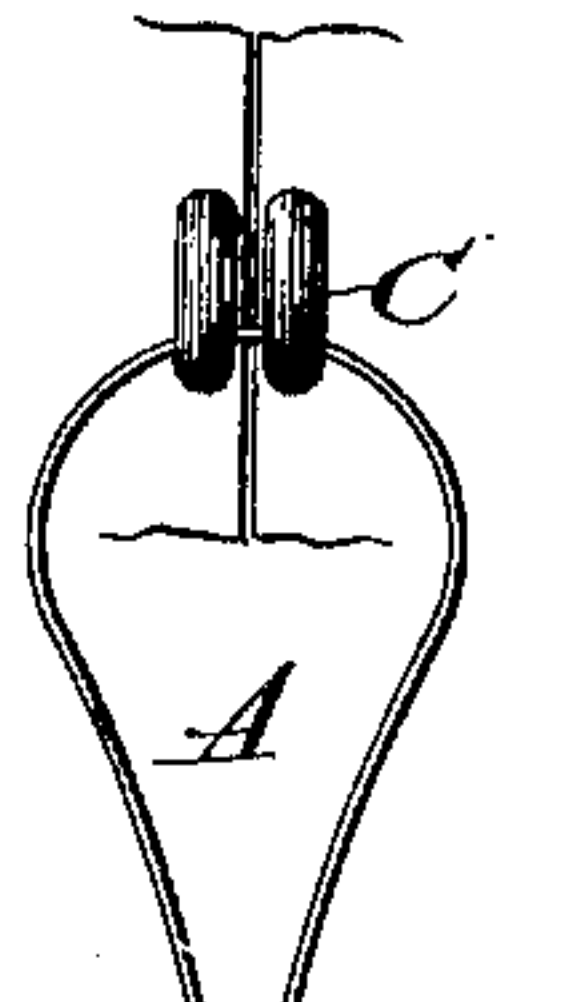
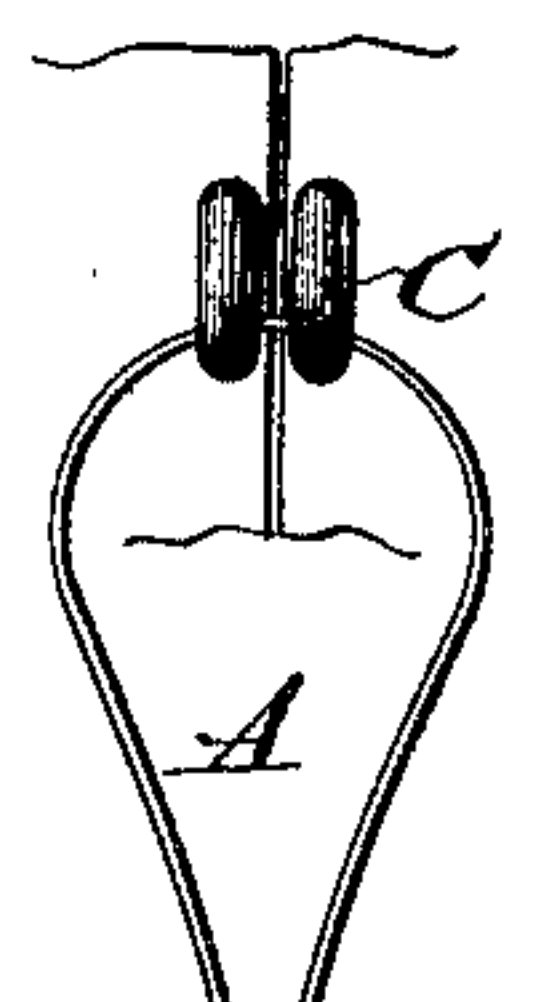


Fig. 4.



Fig. 7.

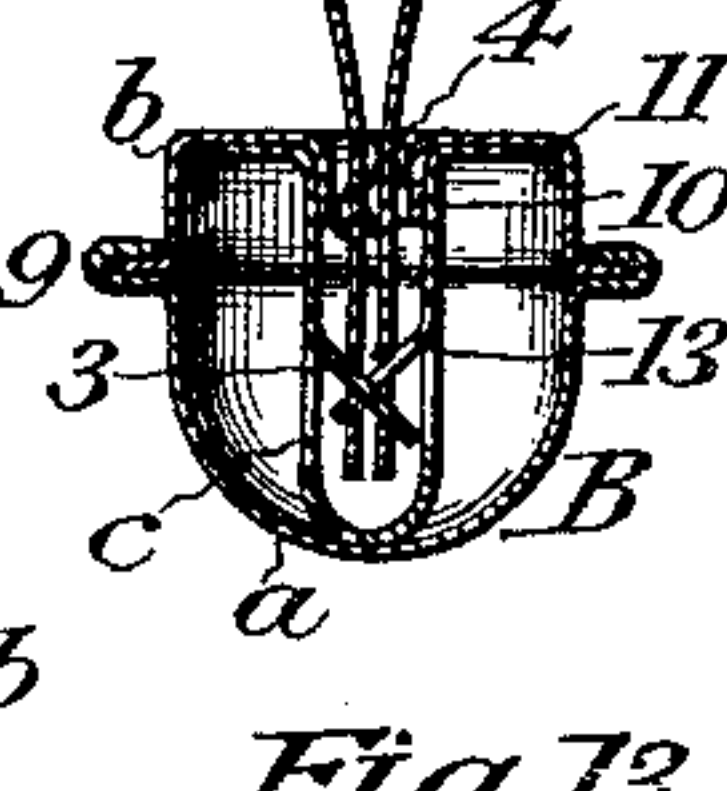


Fig. 13.

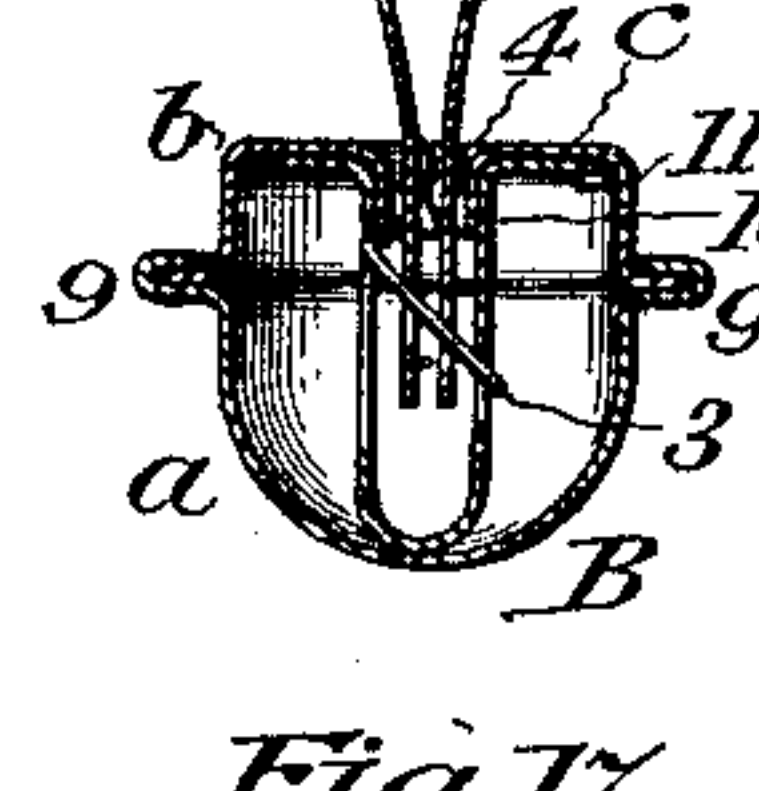


Fig. 17.

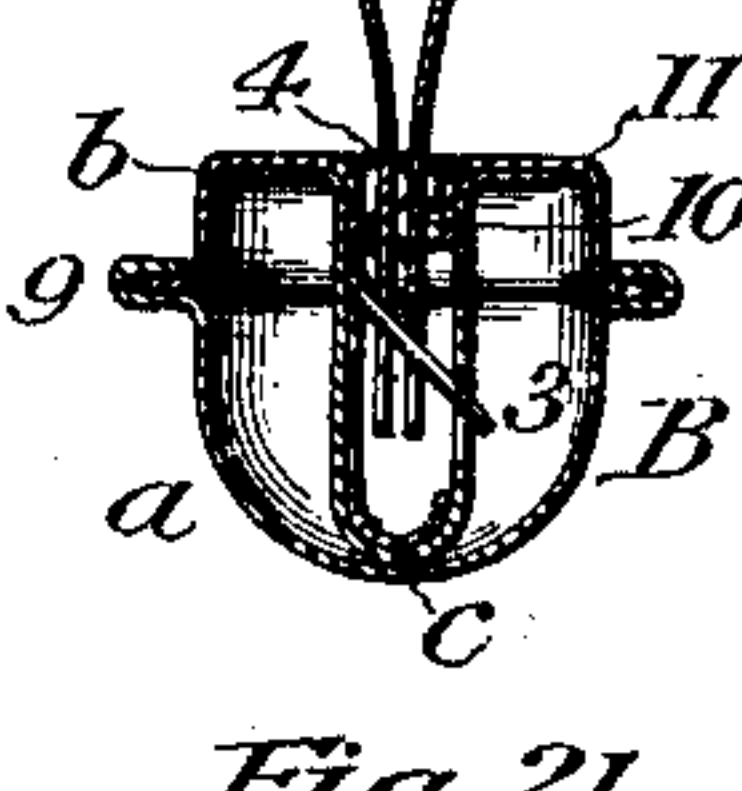


Fig. 21.



Fig. 5.



Fig. 8.

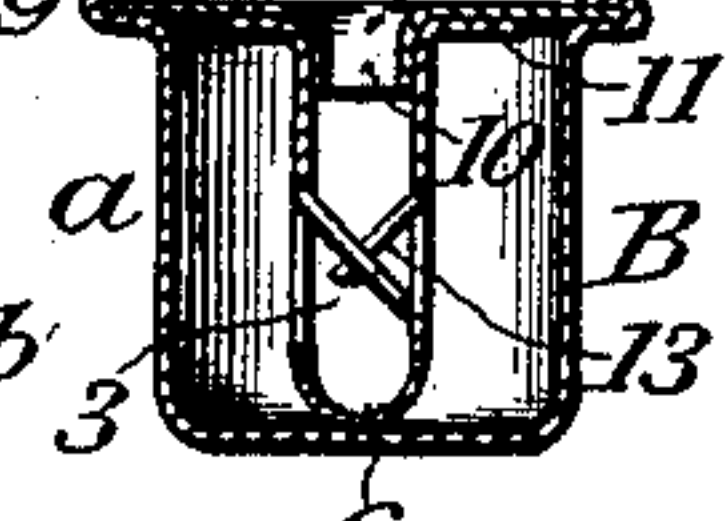


Fig. 13.

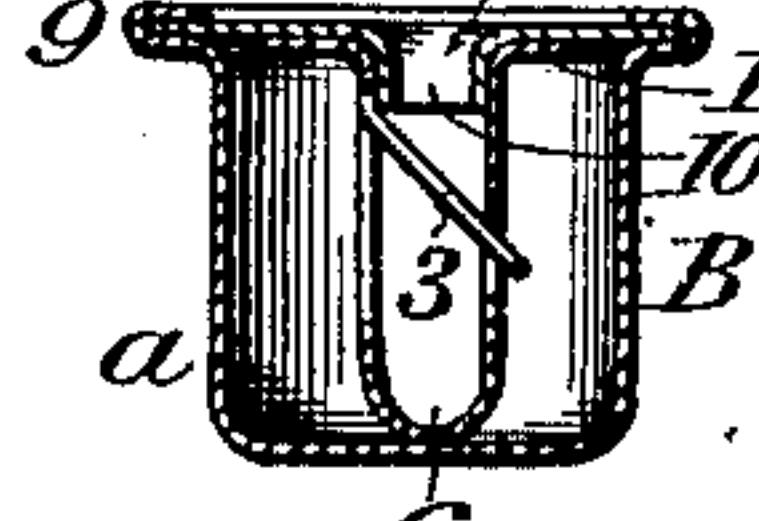


Fig. 17.



Fig. 21.

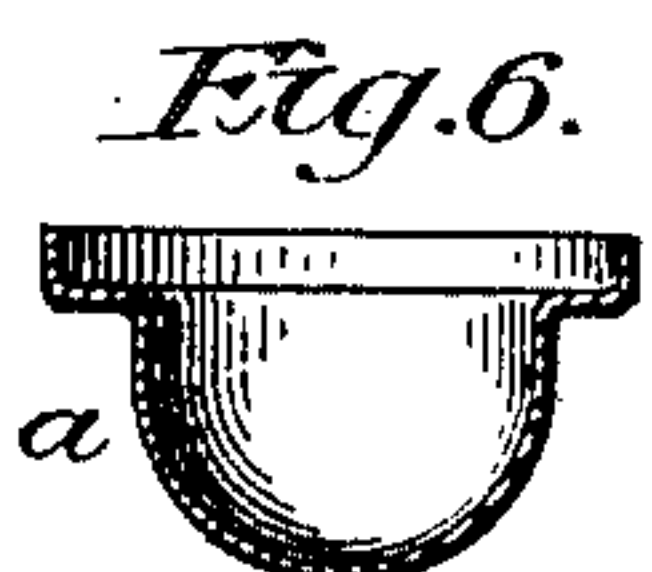


Fig. 6.



Fig. 9.



Fig. 22.

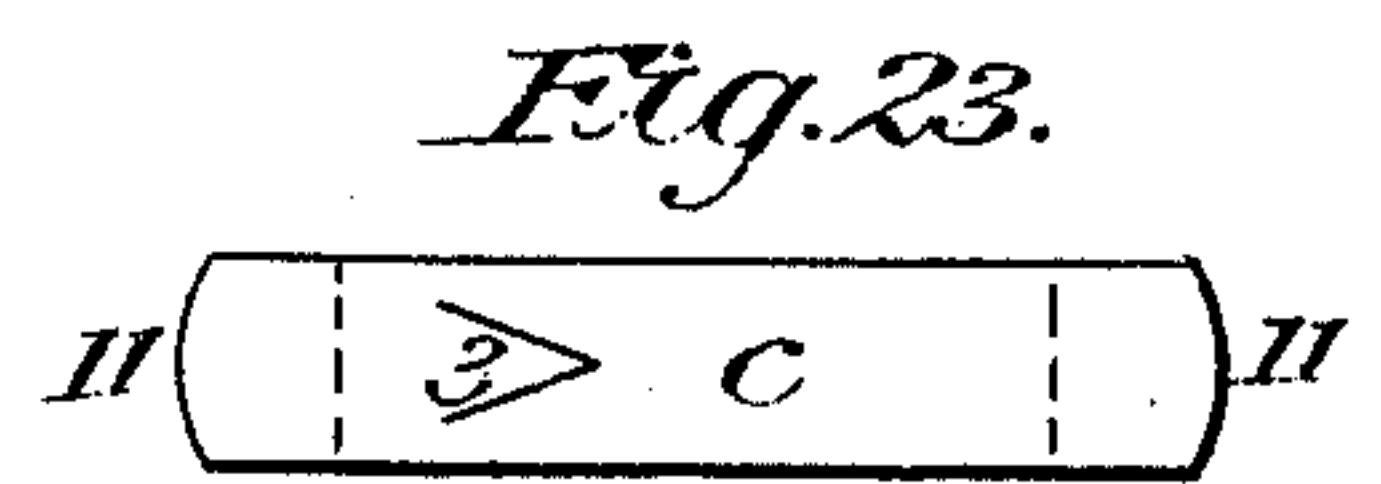


Fig. 23.

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E. J. BROOKS.
SNAP SEAL.

(Application filed Oct. 16, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 24.

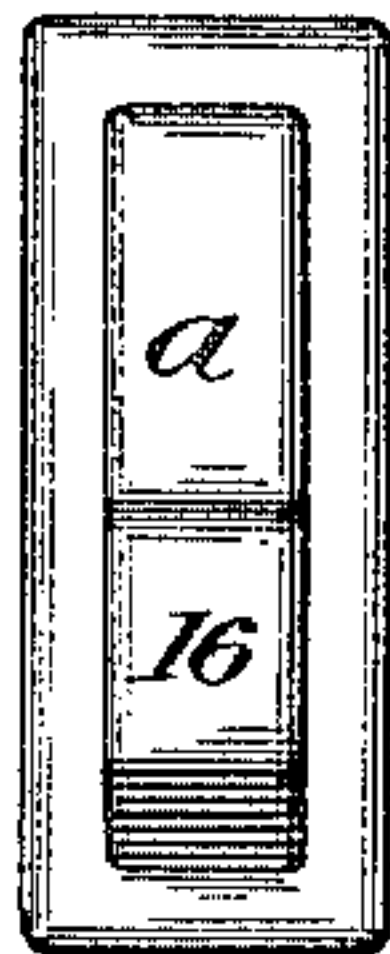


Fig. 25.



Fig. 32.

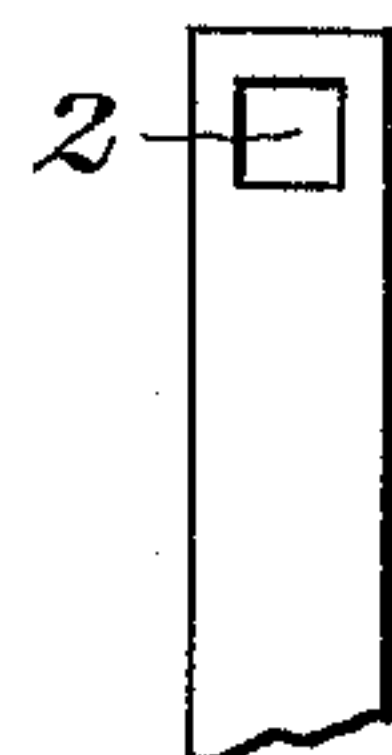


Fig. 26.

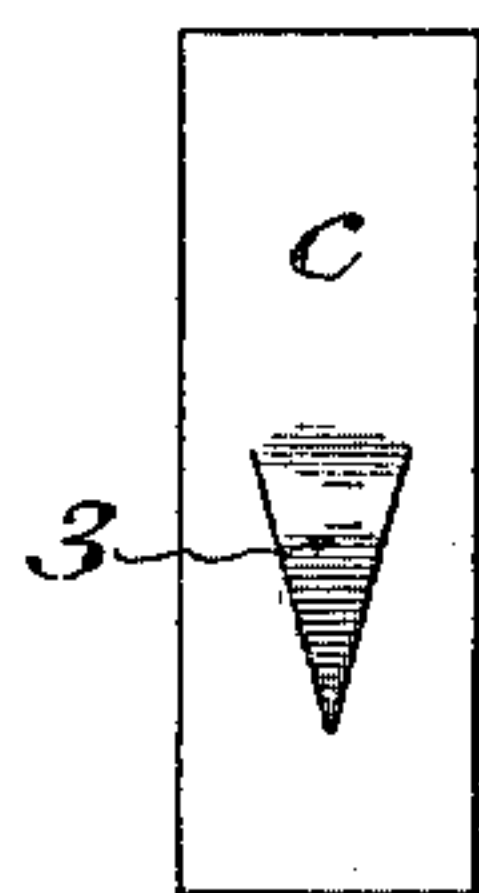


Fig. 27.

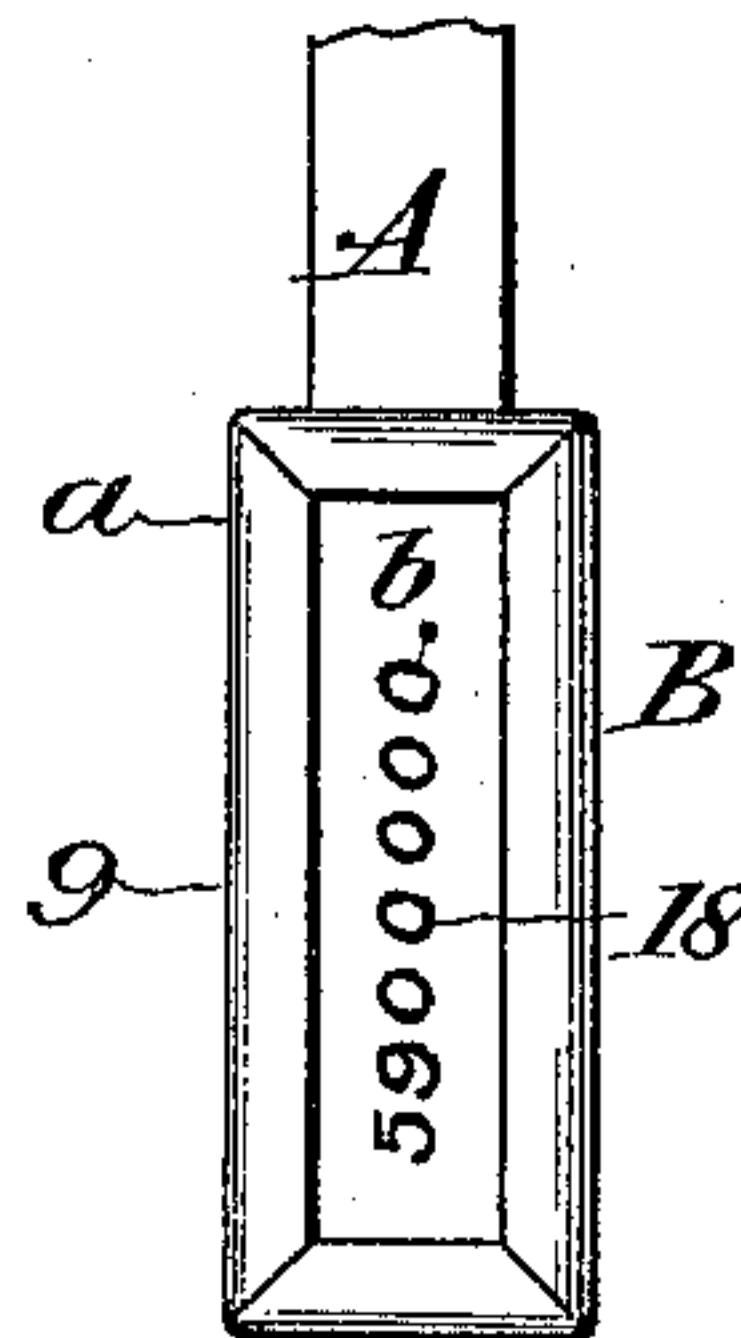
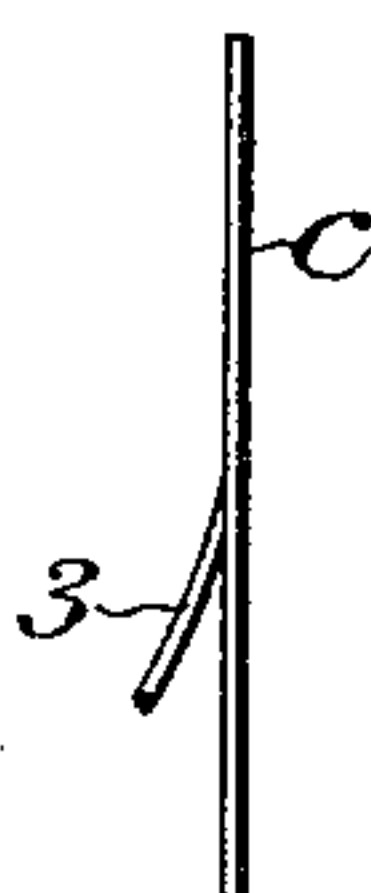


Fig. 33.

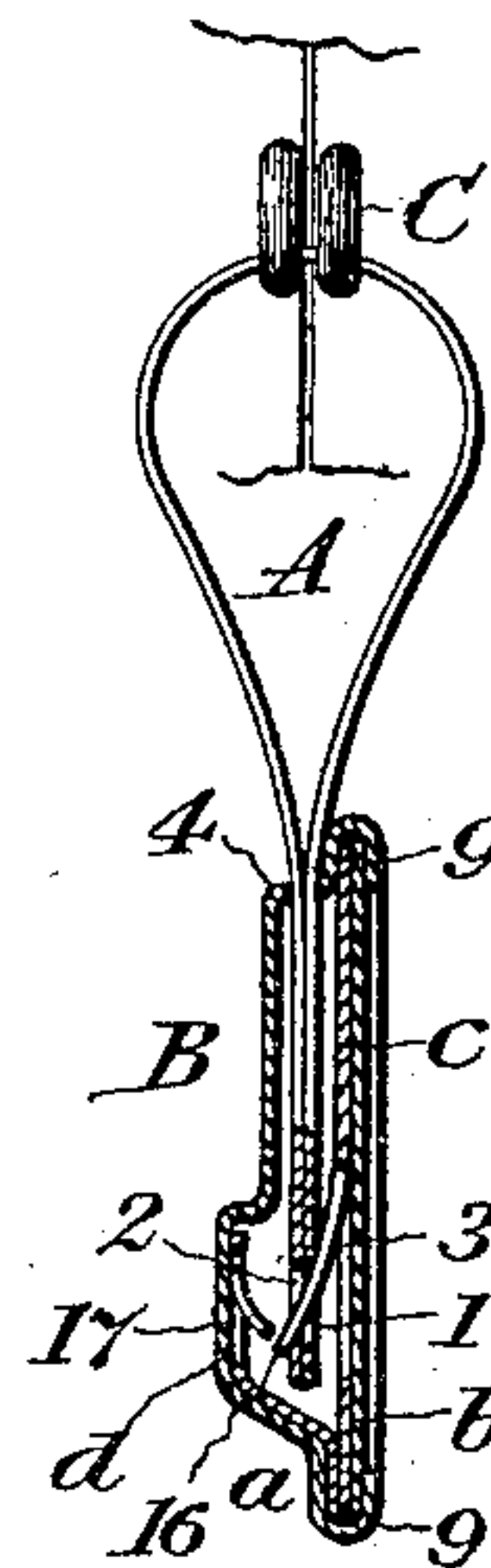


Fig. 28.

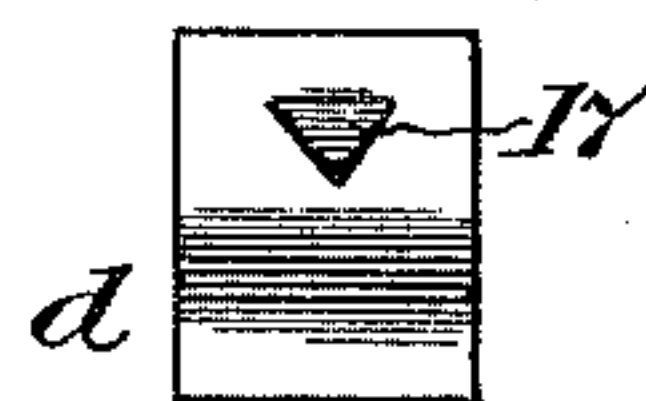


Fig. 29.

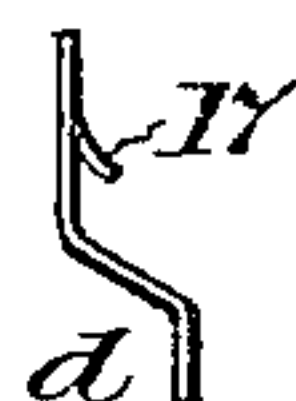


Fig. 34.

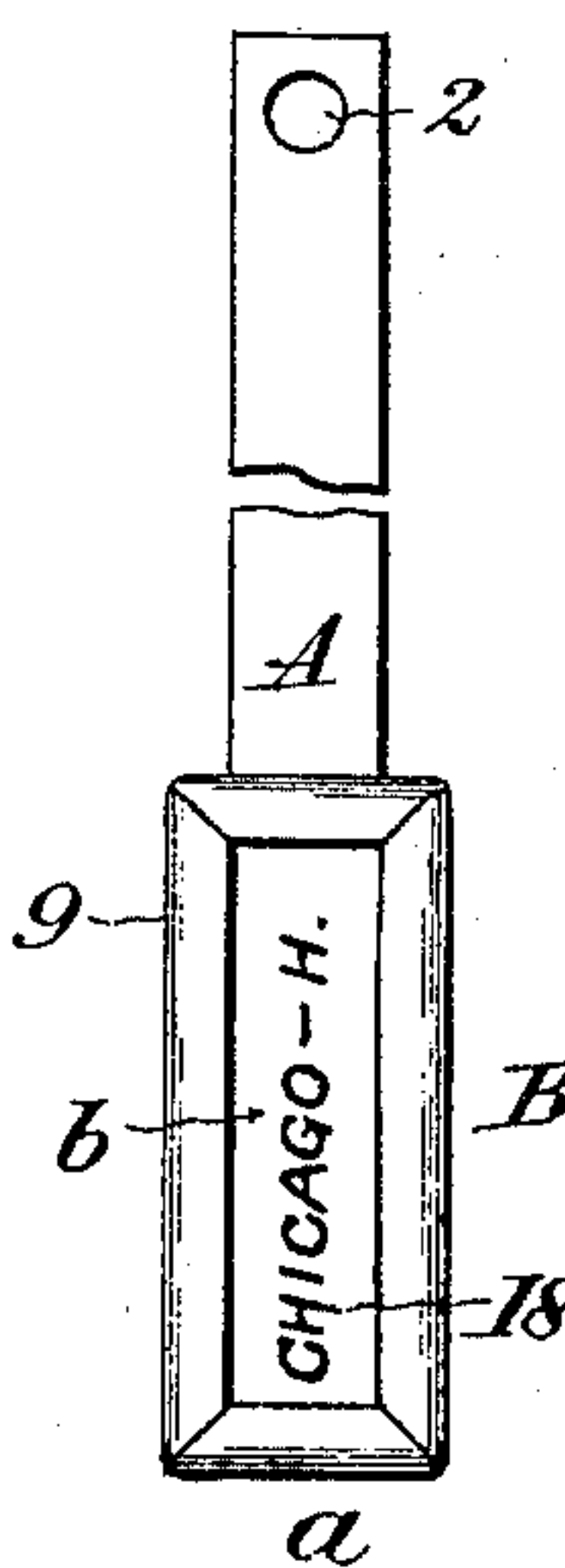


Fig. 35.

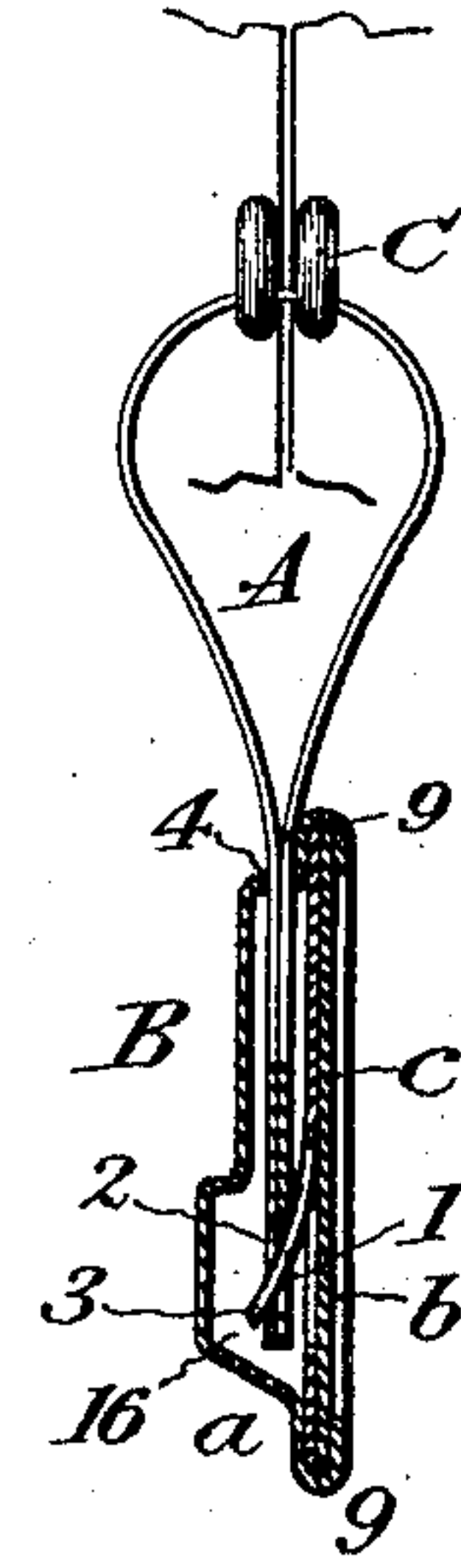


Fig. 30.

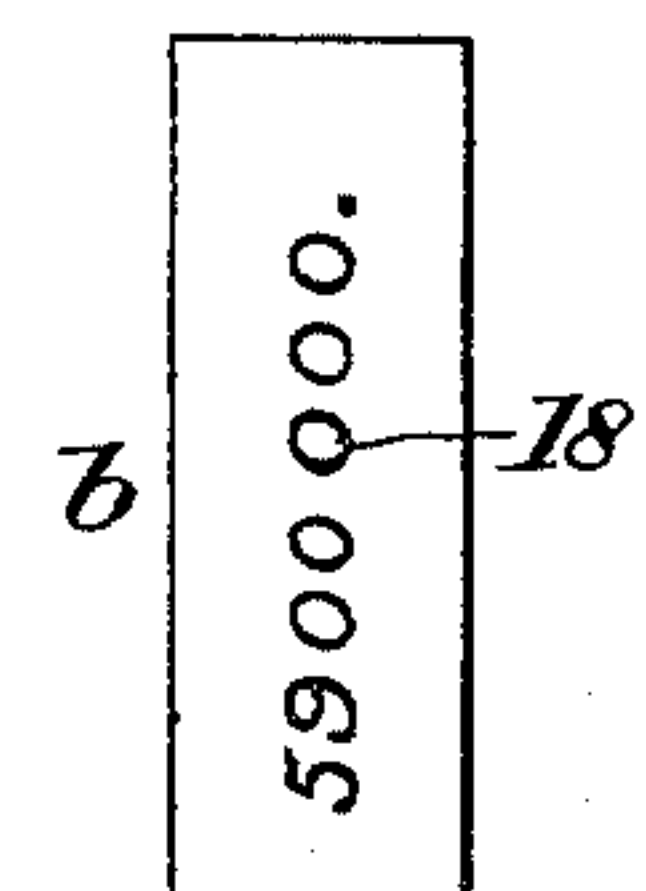


Fig. 31.



Witnesses
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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. 696,002, dated March 25, 1902.

Application filed October 16, 1901. Serial No. 78,819. (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 press-fastened sealing devices to secure the doors of railway freight-cars and for other like purposes. Previous forms of such snap-seals are set forth in my specification forming part of United States Letters Patent No. 679,104, dated July 23, 1901, and in my previous specifications therein recited. The present invention is more particularly an improvement on the sheet-metal snap-seal of said Letters Patent No. 679,104.

The leading object of this invention is to free the shackle wholly from projecting snap-catches, which are liable to be broken off or bent out of shape when thus exposed in packing the shackles for shipment and in carrying the seals in the hand unless the shackles are made of an expensive grade of sheet metal.

Another object is to form the inclosed and protected snap-catches of sheet metal in an inexpensive way with one or two tongues to interlock with holes in the shackle ends.

Another object is to rigidly hold the catch or catches in place within the seal part by the joint between the parts of the latter, and another object is to so construct the same that the necessary resiliency may be either in the snap-catch or in the shackle ends or in both, as may be most convenient.

Two sheets of drawings accompany this specification as part thereof.

Figures 1 and 2 are face and edge views of an improved shackle. Fig. 3 is a face view of a modified shackle. Fig. 4 is a top view of an improved seal part, and Figs. 5 and 6 are sectional edge views of its principal pieces as they appear before they are united. Fig. 7 is a top view of an improved seal part of another pattern, and Figs. 8 and 9 are sectional edge views of its principal pieces. Fig. 10 is a face view of the blank of a "middle piece" for the seal part to provide the same with inclosed snap-catches. Fig. 11 is a sec-

tional edge view of the middle piece formed therefrom; and Figs. 12 and 13 are sectional elevations of improved seals, showing said middle piece within said seal parts, Figs. 4 to 6 and Figs. 7 to 9, respectively. Fig. 14 is a face view of the blank of another middle piece; Fig. 15, a sectional edge view of the middle piece formed therefrom, and Figs. 16 and 17 are sectional elevations of improved seals embodying the same. Fig. 18 is a face view of the two blanks of another middle piece; Fig. 19, a sectional edge view of the middle piece formed therefrom, and Figs. 20 and 21 are sectional elevations of improved seals embodying the same. Fig. 22 is a sectional elevation of an improved seal constituting the species selected for specific claims, and Fig. 23 a face view of the blank of its middle piece. Figs. 24 and 25 are respectively a face view and an edge view of the principal piece of another seal part. Figs. 26 and 27 are like views of the middle piece of this seal. Figs. 28 and 29 are like views of a supplemental middle piece. Figs. 30 and 31 are like views of the cap of the seal part. Fig. 32 is a face view of the improved seal part formed by uniting the pieces represented by Figs. 24 to 31, showing said seal part attached to one end of a shackle preliminary to use. Fig. 33 is a longitudinal section of the same applied to car-door staples and fastened; and Figs. 34 and 35 are respectively a face view corresponding substantially with Fig. 32 and a longitudinal section corresponding substantially with Fig. 33, showing additional modifications.

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

The improved snap-seal in all the forms shown in the drawings is composed of a flexible sheet-metal shackle A and a hollow sheet-metal seal part B. The shackle A is constructed with catch-holes 1 and 2 in its respective ends, and the seal part B comprises in addition to body and cap pieces *a* and *b* a middle piece *c*, provided with a snap-catch 3 to interlock with said holes 1 and 2 when the shackle ends are successively or simultaneously introduced through the inlet-hole 4. The shackle A may be constructed with or without embossed inlet-guards 5, Figs. 1 and 2, and may be provided with the name or initials 6 of a railroad-line and with a serial

number 7, Fig. 1, or the designation of a sealing-station 8, Fig. 3, or with any preferred combination of such marks, either embossed or printed. Four shapes of the seal part B or its shell composed of the pieces *a* and *b* are represented, respectively, by Figs. 4 to 6 and Figs. 12, 16, and 20, by Figs. 7 to 9, by Figs. 13, 17, 21, and 22, and by Figs. 24, 25 and Figs. 30 to 35. In all cases a single joint 9 permanently unites the pieces of which each seal part is composed. Another feature that is preferably common to the four shapes of the seal part B (shown on Sheet 1 of the drawings) is an "inwardly-projecting rigid vestibule-wall" 10, carried by the cap *b* of the seal part and surrounding each inlet 4, as set forth in said Letters Patent No. 679,104. Five shapes of the middle piece *c* are represented, respectively, by Figs. 10 to 13, Figs. 14 to 17, Figs. 18 to 21, Figs. 22 and 23, and Figs. 28, 29, and 33, and a supplemental middle piece *d* is represented by Figs. 28 and 29 in connection with Figs. 32 and 33. In all the species the shackle A is adapted to be and will ordinarily be preliminarily attached at one end to the seal part B, as in Figs. 32 and 34, by inserting one end through the inlet 4 and interlocking its catch-hole 1 with the snap-catch 3, so as to locate the marks 6 and 7 or 6 and 8 on the outside of the shackle, and so that there is, in effect, but one part to be handled by the sealer. Each seal is likewise applied and finally fastened by passing the free end of the shackle through a pair of car-door staples C or the like and then inserting said shackle end through the inlet 4 and thus interlocking its catch-hole 2 with the snap-catch 3.

In the species represented by Fig. 12 the shackle A is constructed as above described with reference to Figs. 1 and 2, and the seal part B is of the construction shown in detail by Figs. 4, 5, 6, 10, and 11, which see. The body-piece *a* in this species carries the overlapping rim of the joint 9, and the cap *b* is cup-shaped, so as to divide the stretching of the metal at the stamping operation between the two pieces. The middle piece *c*, Figs. 10 and 11, in addition to its snap-catch 3 and a pair of feet 11, common to all the forms shown on Sheet 1, has a hole 12, through which the point of the catch 3 normally projects, as in Fig. 11, a supplemental catch 13 projecting from within said hole, and a hole 14, Fig. 10, in the catch 3 to admit the point of the catch 13. The middle piece *c*, in common with the others on Sheet 1, is U-shaped in its working condition. Its feet 11 rest against the inside of the cap *b* on both sides of the wall 10, and its bowed end coacts with the inside of the body part *a* to prevent the displacement of the middle piece by the insertion of the shackle ends. Upon the insertion of either or both shackle ends the catches 3 and 13 are by the impact sprung back out of the holes 12 and 14, and in turn spring through the catch-holes 1 and 2 into normal position, thus securely

fastening the shackle ends against withdrawal, and attesting the same by an audible click or snap. The distinguishing snap-catch device of this species, Figs. 10 to 12, is claimed in a companion specification forming part of my application for patent filed the 18th day of January, 1902, Serial No. 90,579.

The species represented by Fig. 13 in connection with Figs. 1 and 2 or Fig. 3 is or may be identical with the species just described, except that the seal part B as regards its body-piece *a* and cap *b* is substantially of the construction shown in detail by Figs. 7 to 9—that is to say, its cap *b* is flat. The overlapping rim of the joint 9 may in practice be carried either by the cap *b*, as in Fig. 8, or by the body-piece *a*, as shown in Fig. 13, in common with Figs. 17, 21, and 22. The operation of the seal is not affected by such modifications.

The two species represented by Figs. 16 and 17, respectively, differ from said species above described with reference to Figs. 12 and 13, respectively, in the construction of the middle piece *c*, which is that shown in detail by Figs. 14 and 15. In this simplified form of the middle piece a single resilient snap-catch 3 is employed in connection with a hole 12, through which the free end of the catch normally projects.

The two species represented by Figs. 19 and 20, respectively, embody instead a two-part middle piece *c* of the construction shown in detail by Figs. 18 and 19. In this construction an outer part of the middle piece is provided with the feet 11 and a catch-admitting hole 12, as above described, and the snap-catch 3 is formed on a shorter inner part, which is provided with a bowed end 15, Fig. 19, to coact with the bowed end of the outer part. Its other end is held between the wall 10 and the outer part of said middle piece *c*, as in Figs. 20 and 21.

The species represented by Fig. 22 and which is selected for specific claims, as aforesaid, embodies the middle piece *c* (shown in detail by Fig. 23 in connection with said Fig. 22) in a sheet-metal seal part B, the shell of which is substantially of the construction represented by Figs. 7 to 9, as above described, so that the circumferential joint 9, which permanently unites the pieces *a*, *b*, and *c*, is in the plane of the extreme top of the seal part. Apart from the snap-catch 3 the U-shaped middle piece *c* in this species is or may be constructed simply with the snap-catch 3, together with feet 11 at the extremities of the middle piece. The inlet end of the middle piece between said feet 11 embraces the downwardly or inwardly projecting rigid vestibule wall or walls 10 and is alined with the inlet-hole 4 by the same, which also insures a wide-open inlet end, and said feet in this species are adapted to project within the joint 9 on opposite sides of the inlet 4 and to be rigidly fastened in such joint, so that the bowed end of the middle piece need not contact with the bottom of the body-piece *a* and so as to pre-

clude at the same time any displacement of the middle piece by the insertion of the shackle ends. In this species the necessary resiliency may be possessed either by the snap-catch 3 or by the shackle ends or by both, as may be convenient. This is of great advantage in practice, owing to the latitude it affords for the selection of sheet metal for the respective parts of the seal. When the catch 3 is rigid, it will be seen that the shackle ends inserted successively, as above described, will spring past the shortened catch and interlock therewith, while it will be practically impossible to spring either end free from the catch after the second end is inserted, especially if the shackle A be provided with inlet-guards 5, as above described with reference to Figs. 1 and 2.

In the two species represented by Fig. 24 to Fig. 35, inclusive, as above described, the seal part B is reduced to the shape and as nearly as practicable the size of the shackle ends which it incloses. The middle piece *c* in these species is flat and carries simply the snap-catch 3. It is held in the joint 9, as in Figs. 33 and 35. The inlet 4 is in the body-piece *a* at one end, and this piece is constructed with a pocket 16 near its other end, into which the free end of the catch projects. In Fig. 33 the snap-catch 3 is resilient, and to prevent tampering therewith through the inlet 4 a supplemental middle piece *d* (shown in detail by Figs. 28 and 29) is combined with the middle piece *c*, as aforesaid. Said piece *d* carries a catch 17, adapted to admit a hook-shaped or looped tampering instrument past it, but to catch the same and prevent its withdrawal without such violence as will insure detection. If the parts are well fitted to each other, such supplemental middle piece is not considered essential, and in the species represented by Figs. 34 and 35 it is omitted. In this species the catch 3, properly proportioned, may be either resilient or rigid, as above described with reference to Fig. 22.

The cap-piece *b* in Figs. 7, 30, 32, and 34 is provided with distinguishing-marks 18, which may or may not be used in practice and if employed may be of any description and either die-formed or printed. By "die-formed" I mean either cameo or intaglio, and the term "printed" is intended to include all ink or color marks.

In said species represented by Figs. 22 and 23 if the catch 3 be resilient the middle piece may be advantageously provided with a hole 12 to receive its free end, with or without a supplemental catch 13 and hole 14, as in Figs. 10 and 11. One end only of the shackle A need be fastened in the manner hereinbefore described, the other end being attached to the seal part B in any known or improved manner, 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 sheet-metal snap-seal composed of a flexible shackle and a hollow seal part, one shackle end being preliminarily attached to the seal part, the other shackle end having a catch-hole, and the seal part comprising a shell consisting of body and cap pieces, permanently united with each other by a circumferential joint, and a rigidly-supported middle piece having a snap-catch to interlock with said catch-hole and portions which project into said joint between the body and cap pieces and are tightly clamped within said joint.

2. The combination, in a snap-seal, of a flexible sheet-metal shackle preliminarily attached at one end and having its second shackle end provided with a catch-hole, and a hollow seal part comprising body and cap pieces permanently united with each other by a circumferential joint to form a shell, said cap being provided with an inlet for said second shackle end, and a U-shaped middle piece within the seal part, having its open end aligned with said inlet, and provided with a snap-catch integral therewith to interlock with said catch-hole when the seal is fastened.

3. The combination, in a snap-seal, of a flexible sheet-metal shackle preliminarily attached at one end and having its second shackle end provided with a catch-hole, and a hollow sheet-metal seal part provided with an inlet, and inwardly-projecting vestibule-walls at such inlet and comprising body and cap pieces, permanently united with each other by a circumferential joint, and a U-shaped middle piece having an inlet end which is aligned with said inlet-hole and kept wide open by said vestibule-walls and provided with a snap-catch to interlock with said catch-hole when the seal is fastened.

4. The combination, in a snap-seal, of a flexible sheet-metal shackle, preliminarily attached at one end and having its second shackle end provided with a catch-hole, and a hollow sheet-metal seal part provided with an inlet and comprising body and cap pieces, permanently united with each other by a circumferential joint, and a U-shaped middle piece within the seal part rigidly held in said joint and provided with a short inwardly-projecting snap-catch to interlock with said catch-hole.

5. An improved sheet-metal snap-seal composed of a flexible shackle having its ends provided with catch-holes, and a hollow seal part composed of body and cap pieces permanently united with each other by a circumferential joint to form a shell which is provided with an inlet, and a U-shaped middle piece held at its ends within said joint, and provided with a snap-catch integral therewith arranged to interlock with said catch-holes as the shackle ends are successively introduced through said inlet.

6. An improved sheet-metal snap-seal composed of a flexible shackle having its ends provided with catch-holes and with embossed

inlet-guards, and a hollow seal part composed of body and cap pieces permanently united with each other by a circumferential joint to form a shell which is provided with an inlet
5 common to both shackle ends and vestibule-walls at said inlet to cooperate with said inlet-guards of both shackle ends, and a U-shaped middle piece held at its ends within said joint, and provided with a snap-catch in-

tegral therewith arranged to interlock with 10 said catch-holes as the shackle ends are successively introduced through said inlet, substantially as hereinbefore specified.

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Witnesses:

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ELLEN J. BROOKS.