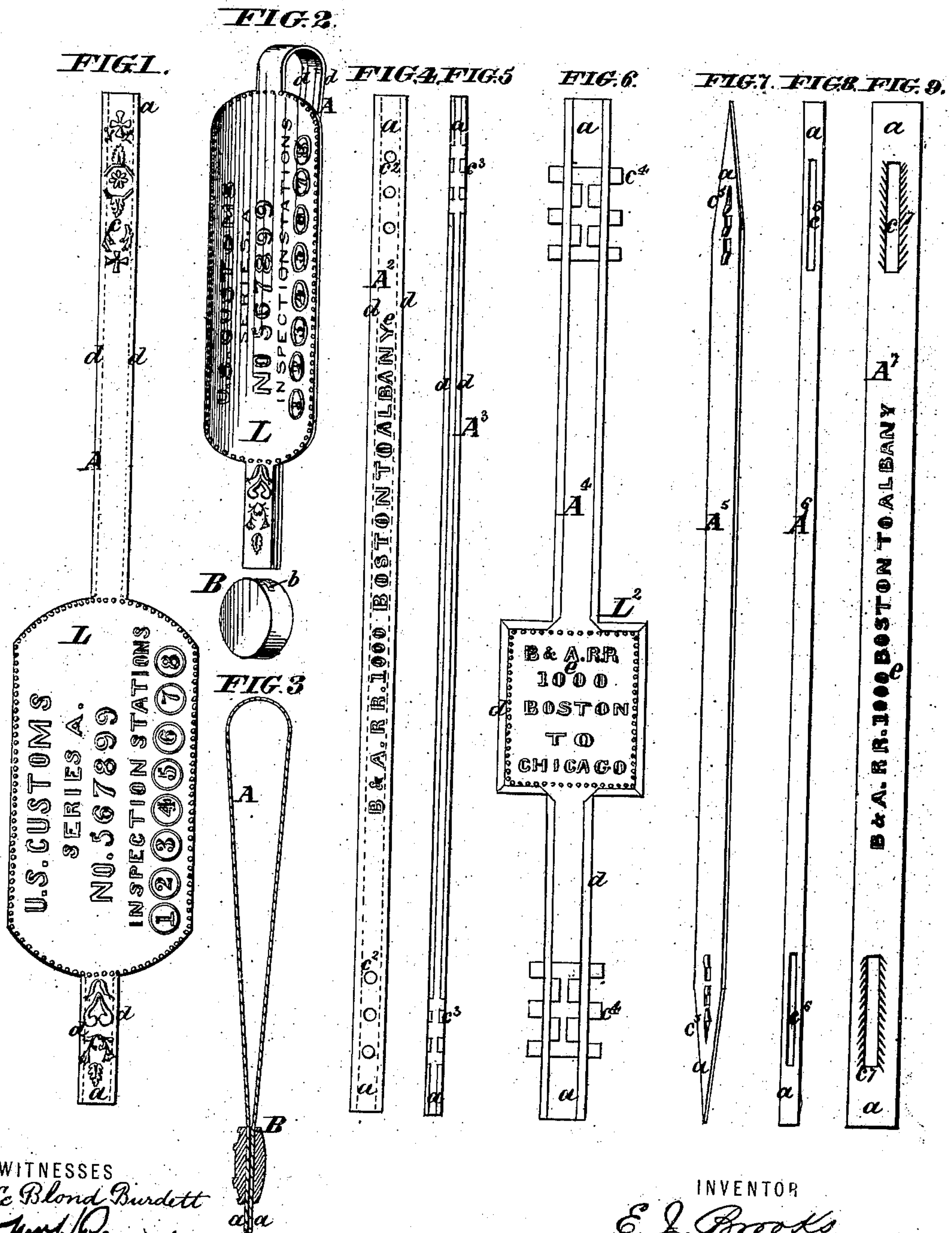


E. J. BROOKS.
METALLIC SEALS.

No. 178,722.

Patented June 13, 1876.



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FIG. 11. FIG. 12. FIG. 13. FIG. 14. FIG. 15. FIG. 16. FIG. 17. FIG. 18. FIG. 19.

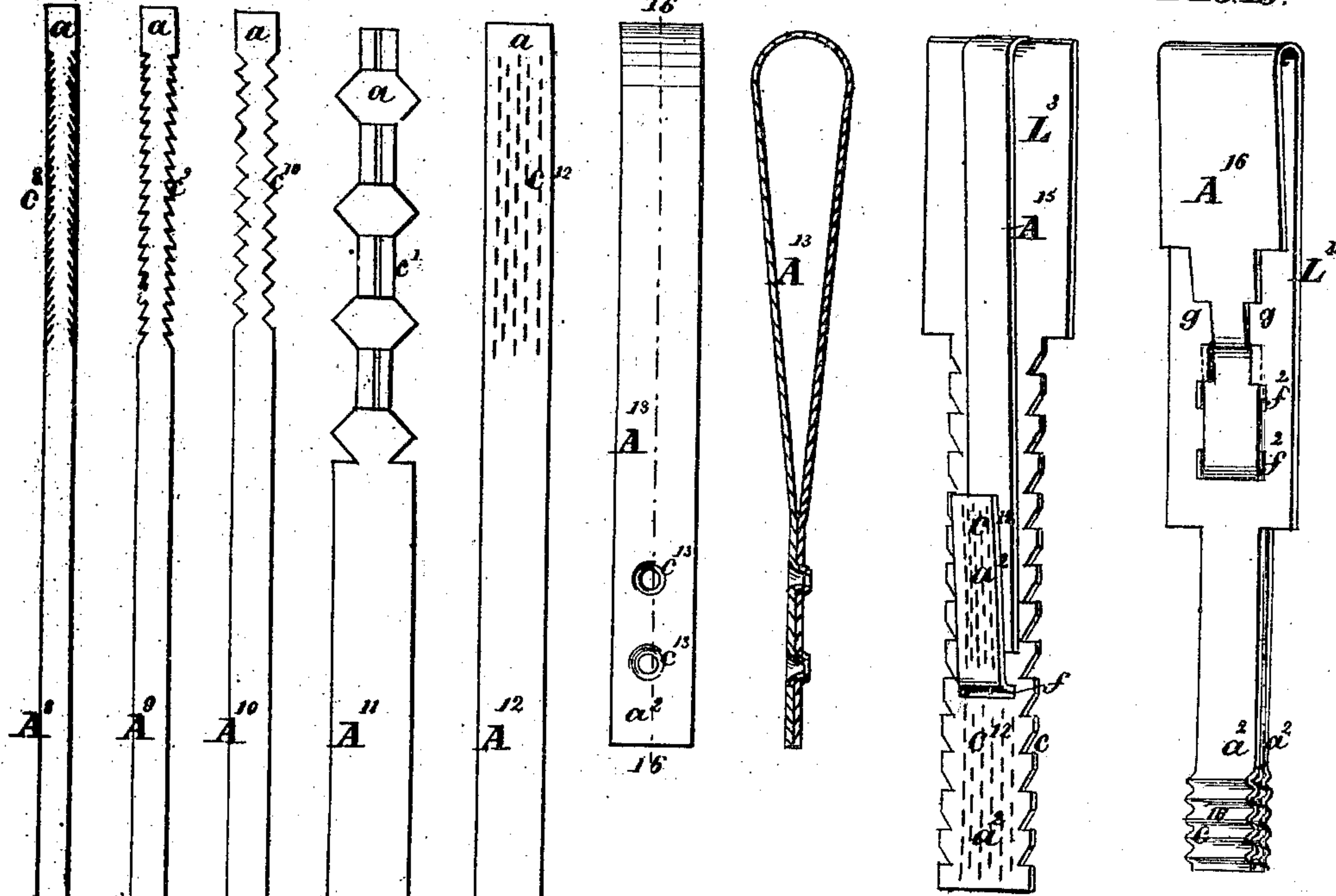
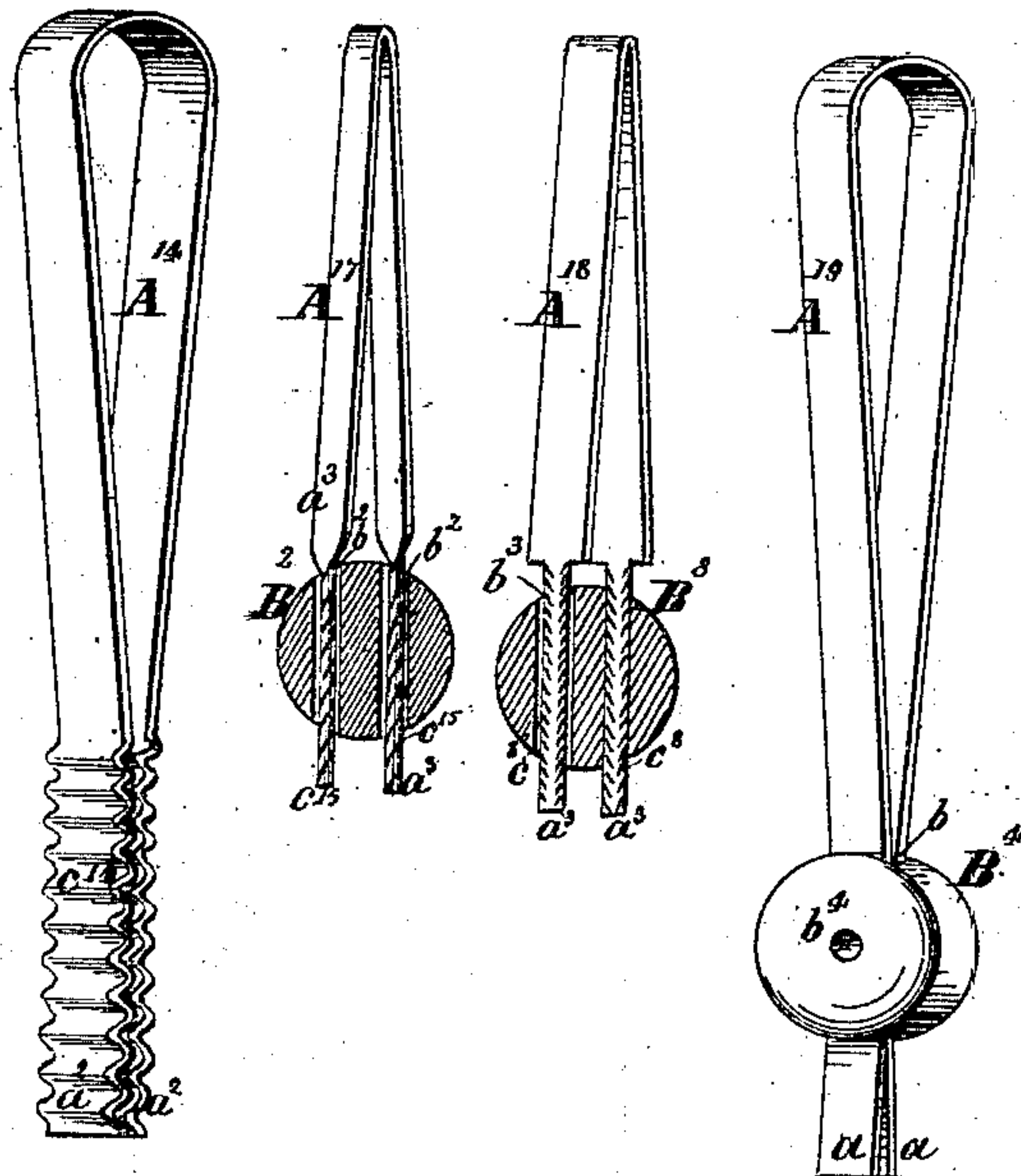


FIG. 20. FIG. 21. FIG. 22.



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IMPROVEMENT IN METALLIC SEALS.

Specification forming part of Letters Patent No. 178,722, dated June 13, 1876; application filed April 6, 1876.

To all whom it may concern:

Be it known that I, EDWARD J. BROOKS, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Metallic Seals, of which the following is a specification:

This invention consists in an improvement on "lead-and-wire seals" for sealing tags upon packages, and for securing the doors of railway freight-cars, and for other purposes.

The present device is a metallic seal having a shackle of sheet metal in combination with a soft-metal seal-disk constructed with an orifice or orifices to receive the ends of the shackle, the latter being securely locked within the disk when the seal is pressed.

The sheet-metal shackle is adapted to have its ends so roughened by embossed figures, perforations, or other devices, as to preclude their separation from the seal-disk. The same is also adapted to have embossed or perforated therein any name, number, or other device which may require expression, or which will serve as means to prevent duplicating a destroyed seal. By doubling the longitudinal edges of the shackle very thin metal can be employed, and by simple lateral enlargements one or more labeling-tags can be formed in one part with the shackle. In nearly every form which could be desired, the improved shackle is adapted to be completed at one or two operations in a simple stamping-press, and scrap metal can be utilized as the material. It is also adapted to be sheared from plain, perforated, or embossed sheet metal of suitable thickness.

The parts of the improved seal are also adapted to be put together with the utmost facility, and the sealing operation is in no way necessarily complicated by the use of the sheet-metal shackle.

Figure 1 is an elevation of a combined shackle and tag for custom-house uses, illustrating this invention. Fig. 2 is a perspective view of the same, bent as in use, with a leaden seal-disk adapted to receive its ends. Fig. 3 represents a longitudinal section of the pressed seal. Figs. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14 are elevations of flat shackles, illustrating modifications. Figs. 15 and 16 are, respectively, an elevation and a longitudinal section

of another shackle, and Figs. 17, 18 and 19 are perspective views of three others, all bent as in use, illustrating additional modifications. Figs. 20 and 21 are sectional elevations of shackles and seal-disks united but unpressed, illustrating other modifications. Fig. 22 is a perspective view of a pressed seal, illustrating still another modification.

Like letters of reference indicate corresponding parts in the several figures.

The improved custom-house seal represented in Figs. 1, 2, and 3 may be taken as an illustration of the several features of the present invention. This seal consists of a shackle, A, of sheet brass, and a seal-disk, B, of lead. The latter has an orifice, b, and the shackle has ends a a adapted to pass together into or through said orifice. The shackle is passed through or around the objects to be sealed, or to which a labeling-tag is to be attached, and its ends are brought together, as illustrated in Fig. 2. The ends are then inserted into the seal-disk, and the latter is pressed in the usual manner, leaving the seal in the condition represented in Fig. 3.

To prevent the withdrawal of the shackle ends a a after the seal is pressed, these ends have been roughened by embossed figures c c impressed from one side of the blank, so as to project in opposite directions outwardly within the seal-disk. The soft metal is pressed into and around the holding-surfaces thus formed, so as to securely lock each end against displacement.

To provide for employing a narrow shackle of very thin sheet metal, when desired, the longitudinal edges d d have been re-enforced against tearing by doubling them, as illustrated. The shackle has been utilized additionally by embossing upon it letters, figures, and devices e, to express necessary information, and to add another barrier against the fraudulent duplication of a seal; and a labeling-tag, L, of the required dimensions has been combined with the shackle by simply forming the latter with a suitable enlargement for the purpose, as illustrated.

A² to A¹⁹, inclusive, represent sheet-metal shackles constructed of different proportions, with ends a a² a³, of different styles, with different locking devices e² to e¹⁴, inclusive, and

without any preliminary locking device; with and without the doubled edges d , and with and without the embossed letters &c., e , and with tag enlargements L^2 L^3 L^4 of different forms, and without any such enlargements, none of which features are considered essential to the primary part of this invention. B^2 B^3 B^4 represent different seal-disks. In Fig. 7 sharp-pointed shackle-ends a are shown; in Figs. 15 to 19, inclusive, ends a^2 a^2 , which are formed with relation to each other, so as to be interlocked before they are inserted into the seal-disk; and in Figs. 20 and 21 contracted ends a^3 a^3 , which are adapted to occupy different positions in the seal-disk. Separate orifices b^2 b^2 for the shackle ends are shown in Fig. 20. The seal-disk B^3 (shown in Fig. 21) is cast on one end of the shackle, and has an orifice, b^3 , to receive the other end. The seal-disk B^4 (shown in Fig. 22) was similar to B , Fig. 2, when unpressed. The plain ends a a of the shackle A^{19} were then inserted, and, after pressing the seal, a punch was driven through, forming a perforation, b^4 , in the lead and sheet metal, and turning up the edges of the latter around the perforation, so as to effectually lock the shackle ends in position. The seal can be pressed and punched simultaneously with a press of special construction. The locking device of the shackle A^2 , Fig. 4, consists of orifices c^2 c^2 punched in the respective ends. Any desired number of such orifices can be employed, and they may be of any preferred shape.

The locking device of the shackle A^3 consists of notches c^3 c^3 , cut in its doubled edges d , and that of the shackle A^4 consists of attached pieces of metal c^4 c^4 , having outward and lateral projections, the latter passing through holes in the doubled edges of the shackle. The locking device c^5 c^5 of the shackle A^5 consists of angular perforations, with the displaced metal or portions thereof bent outward to form holding-lips at the rear ends of the orifices. Those of the shackle A^6 consist of plain longitudinal slots c^6 c^6 , and those c^7 c^7 of the shackle A^7 consist of longitudinal slots, having their sides nicked, so as to form rearwardly-inclined holding-teeth.

The locking devices c^8 c^9 c^{10} of the shackles A^8 , A^9 , A^{10} , A^{15} , and A^{18} consist of teeth or serrations of different shapes, formed along the longitudinal edges of the ends, by nicks and notches of different forms. Those c^{11} c^{11} of the shackles A^{11} consist of larger lateral teeth, with portions of the metal from the interdental spaces doubled upon the outer surface of the shackle in the form of longitudinal lips; and those c^{12} c^{12} of the shackles A^{12} A^{15} consist of roughened surfaces, like those of a grater, formed by simultaneously embossing and perforating the metal by means of a suitable punch.

The locking device of the shackle A^{13} is designed to be one or more flanged orifices, c^{13} , in each end, the flanges of one orifice fitting into the other, as represented. In the illustration

the flanges are serrated. They are readily formed in this shape by making *-shaped cuts in the act of stamping out the shackle, then bending the shackle to bring the cuts together over a concavity, and finally driving a sharp-pointed punch through both ends at the prepared point.

The locking devices c^{14} c^{16} of the shackles A^{14} and A^{16} consist of matching transverse corrugations formed in the two ends of each shackle separately or together. The locking device c^{15} c^{15} of the shackle A^{17} , Fig. 20, consists of a curl, formed at each end by twisting the sheet metal so as to cause the longitudinal edges to assume a spiral direction within the seal-disk.

The shackle A^{15} has ends a a of different widths, the wider provided with orifices f through which the narrower end is threaded and then rebent. Both ends are provided with holding devices, and both are inclosed within the seal-disk at their point of union; but the extended holding-surface of the larger end, and the interlocking of the smaller therewith give the required security.

The locking devices c^9 c^{12} of this shackle are those of the shackles A^9 and A^{12} , illustrating the combination of two or more of the described devices, or others possessing like functions.

The shackle A^{16} has orifices f^2 in its tag enlargement L^4 , to provide for interlocking ends of the same size, so as to prevent their withdrawal separately, one of the orifices being of T shape, and the threaded end constructed with notches g , to form a contracted portion which enters the narrow end of the orifice, and is held therein. The interlocking point is outside of the seal-disk in this illustration. The roughening device c^{16} of this shackle is like that of the shackle A^{14} . The shackle A^{18} , Fig. 21, has contracted ends, provided with the same holding device c^8 as the shackle A^8 .

The shackle A^{19} , as before described, is a plain strip of sheet metal, without preliminary roughening, and is held within the seal-disk by punching a hole, b^4 , through its ends after they are inserted, illustrating the employment of locking devices in the seal disk or press, to perforate or indent the sheet-metal shackle.

The improved shackle may be made of any available sheet metal of moderate flexibility; but, for some of the forms herein set forth, malleable sheet metal, such as tin or brass, is required, and these metals are preferred for general use.

The seal-disks may be made of pure lead, or of any soft alloy adapted to be shaped in a plier-press.

Seal-disks constructed with filling projections, as described in F. W. Brooks' Patent No. 172,698, dated January 25, 1876, may be employed to advantage, in combination with some forms of the improved shackle.

I am aware that a metallic seal consisting of sheet metal and lead is not, broadly, new, and I therefore disclaim the broad idea, and

limit myself to the peculiar combination and features of construction hereinafter set forth. I also disclaim any and all forms of wire and leaden shackles, as forming no part of the present invention.

I claim as my invention—

1. The combination of a soft-metal disk, having a single sealing-aperture and a sheet-metal shackle with embossed ends, adapted to be inserted one over or upon the other in the sealing-aperture, substantially as shown.

2. A flat sealing-shackle, of very thin sheet metal, having ends *a a*, adapted to be inclosed within a soft-metal seal-disk, and constructed with re-enforced longitudinal edges *d d*, as herein specified, for the purpose set forth.

3. A flat sheet-metal sealing-shackle, having ends *a a*, adapted to be inclosed within a

soft-metal seal-disk, and provided with roughening devices *c c* at or near its respective extremities, and permanent letters, figures, or devices *e* in its intermediate portion, adapted to be formed at one and the same stamping operation, substantially as herein shown and described, for the purpose specified.

4. A sheet-metal sealing-shackle, having ends *a a*, adapted to be inclosed within a soft-metal seal-disk, and an intermediate enlargement, *L*, to form a labeling-tag in one part with the shackle, as herein illustrated and described, for the purpose set forth.

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Witnesses:

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ABNER C. THOMAS.