

No. 777,329.

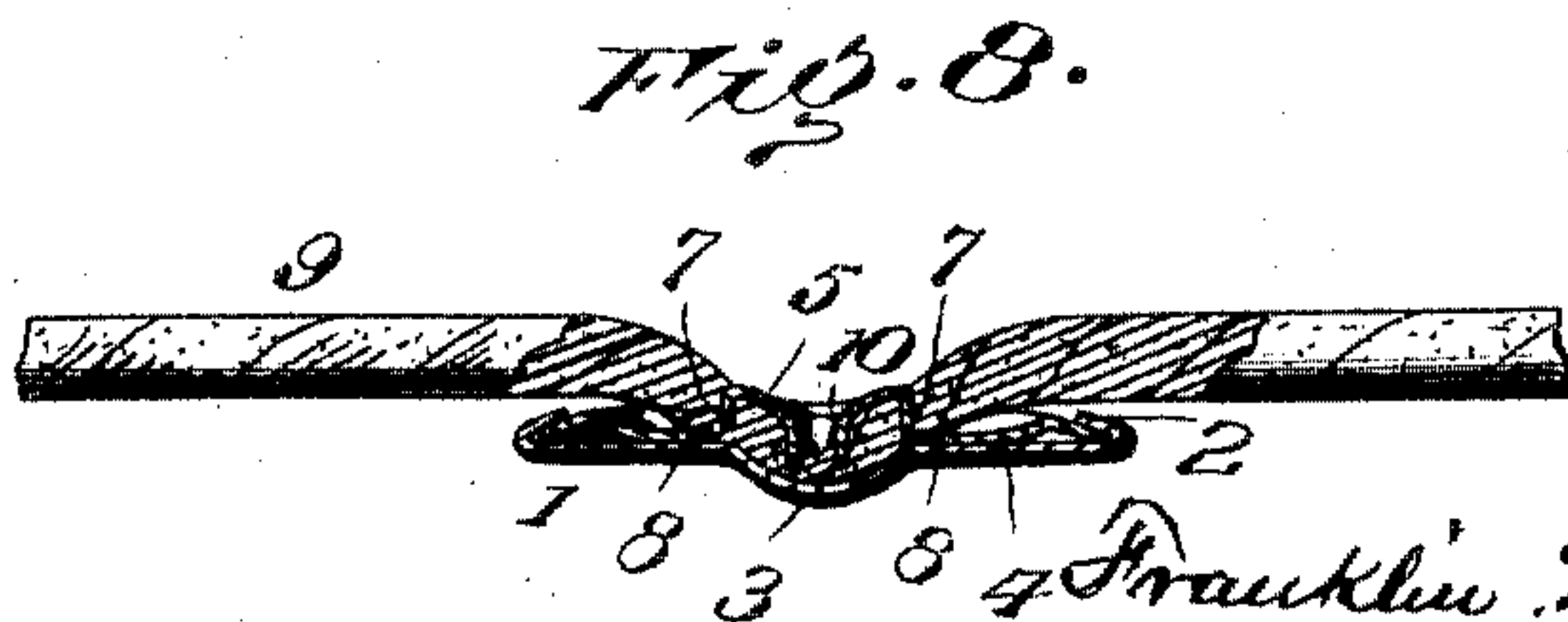
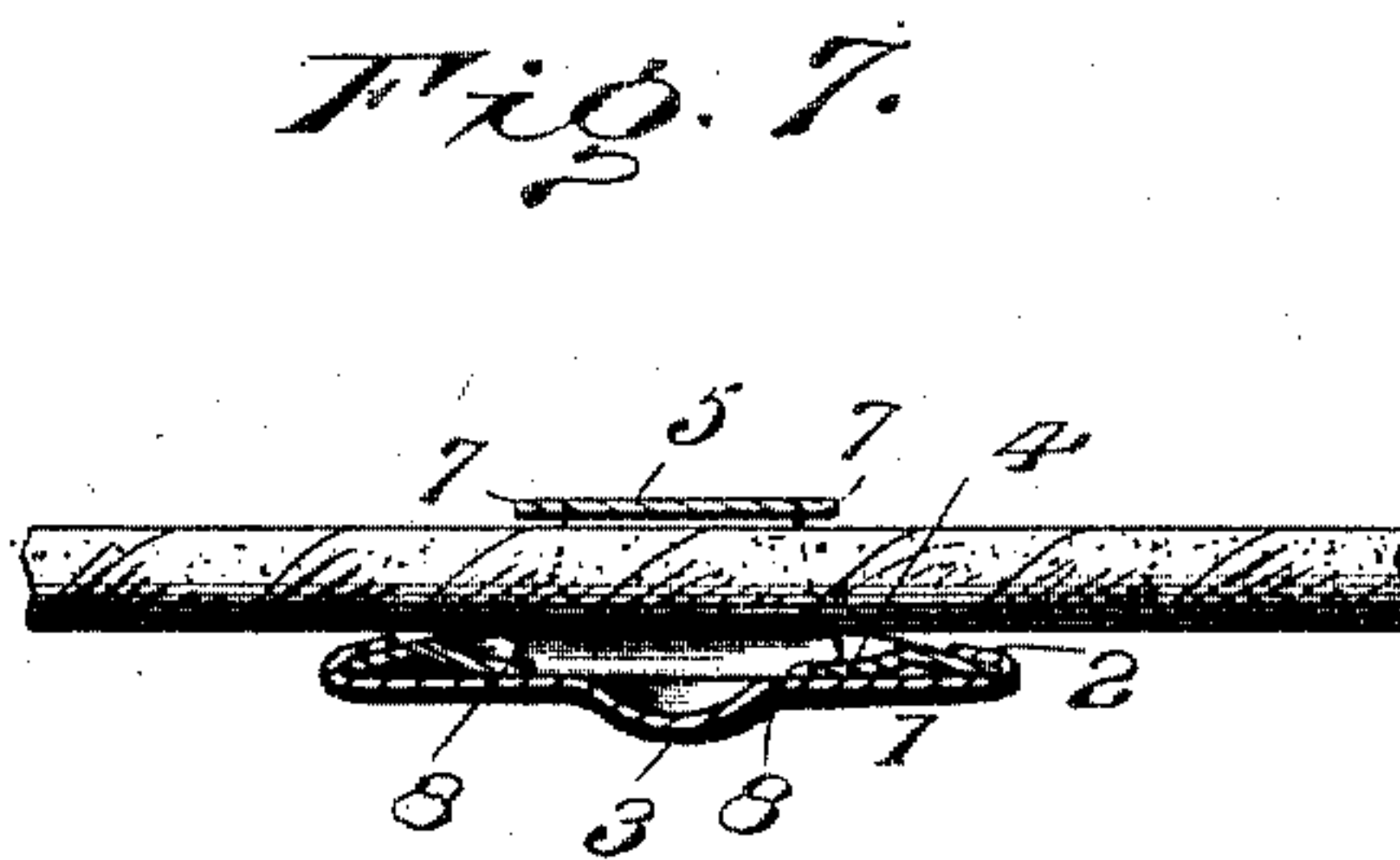
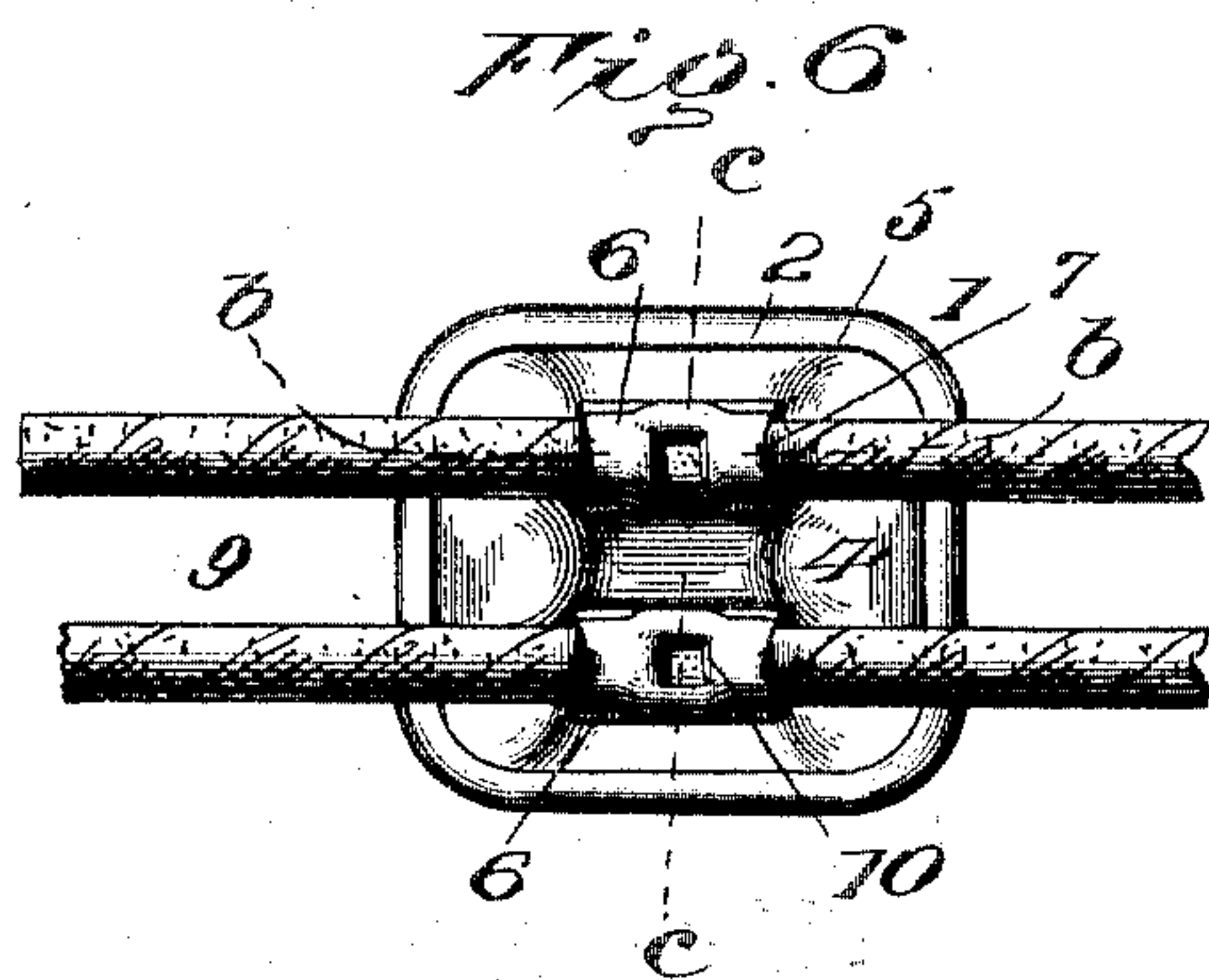
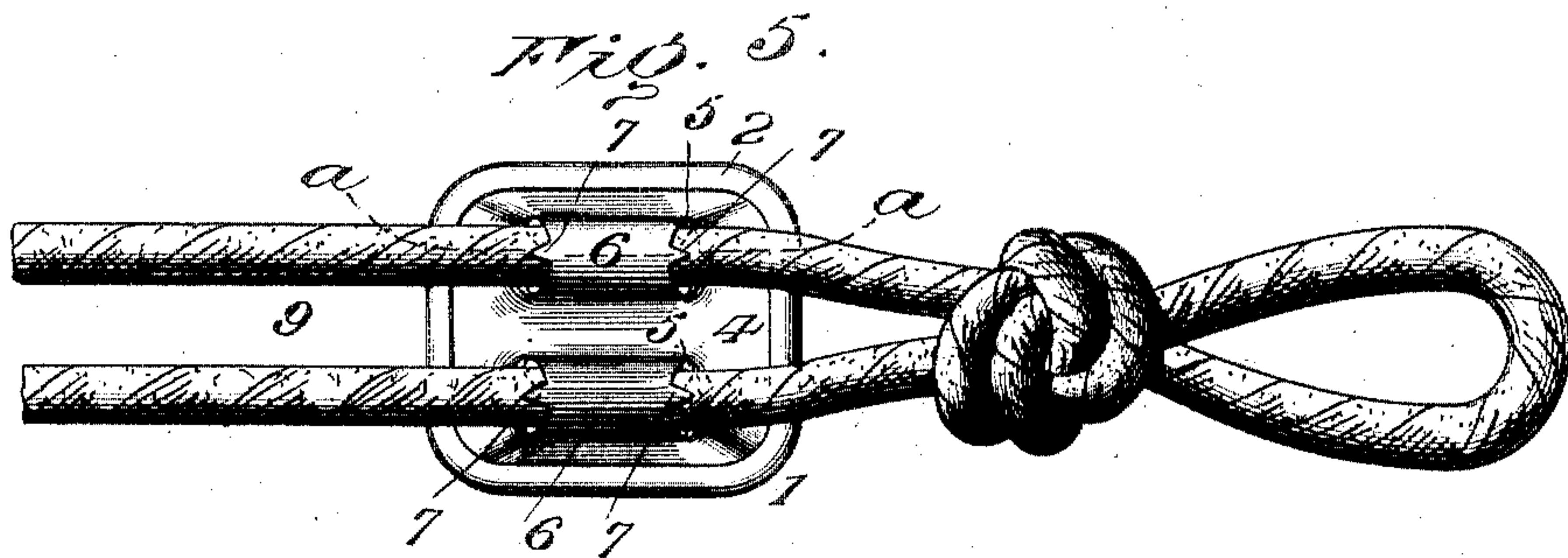
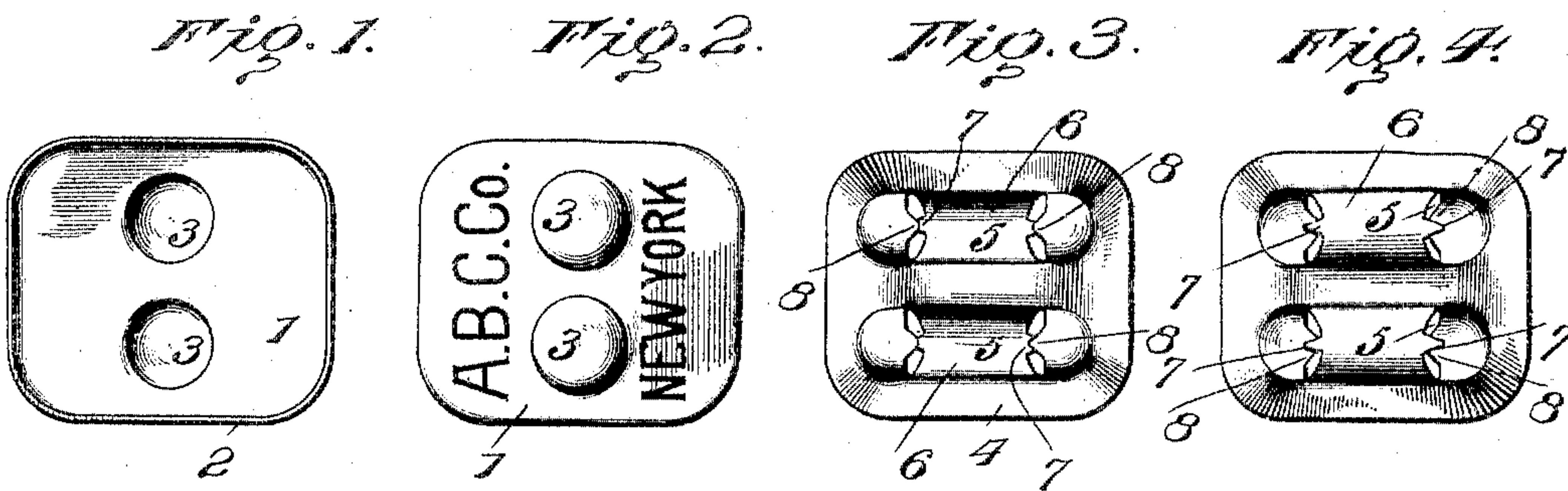
PATENTED DEC. 13, 1904.

F. W. BROOKS.  
SHEET METAL SEAL.

APPLICATION FILED JUNE 27, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 9.

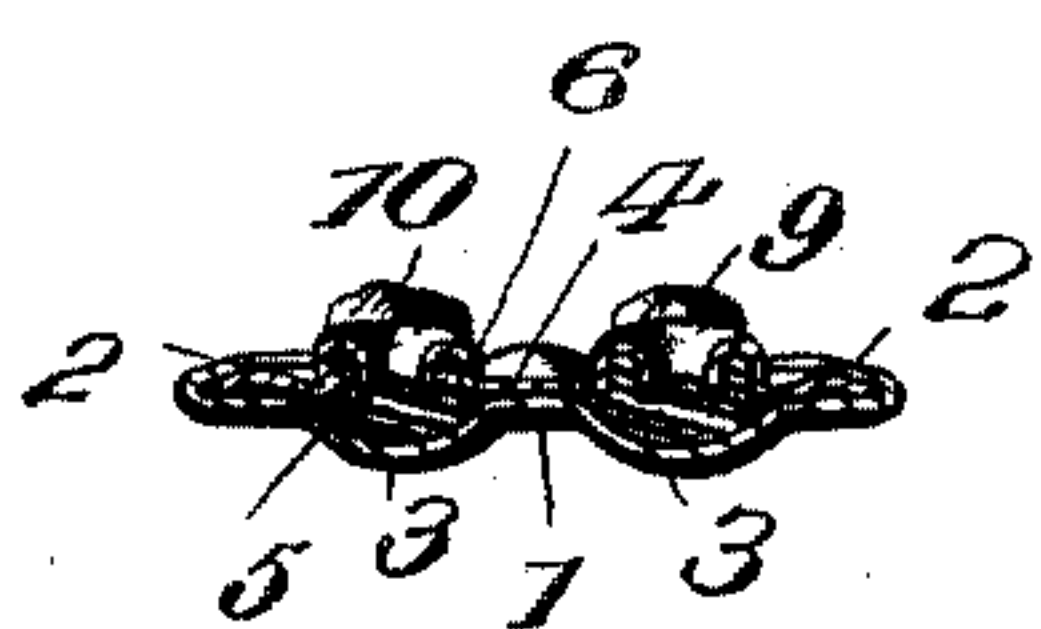


Fig. 10.

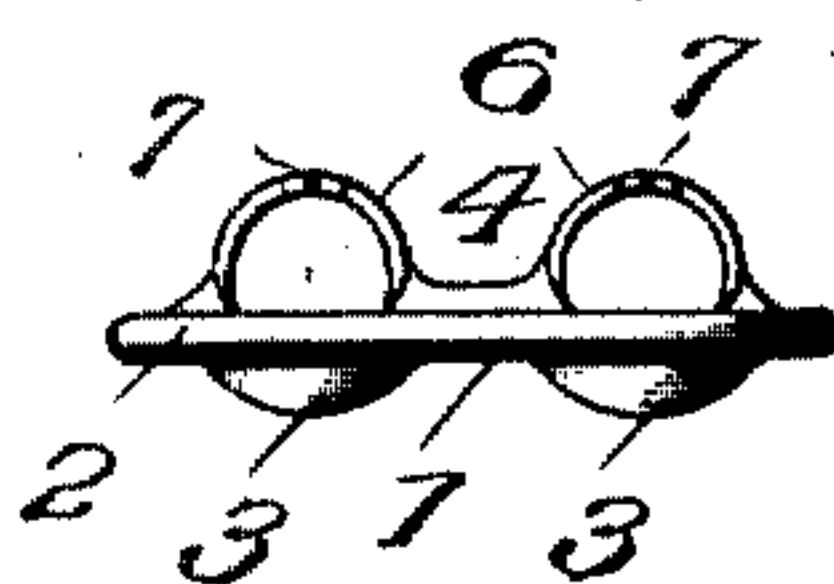


Fig. 11.

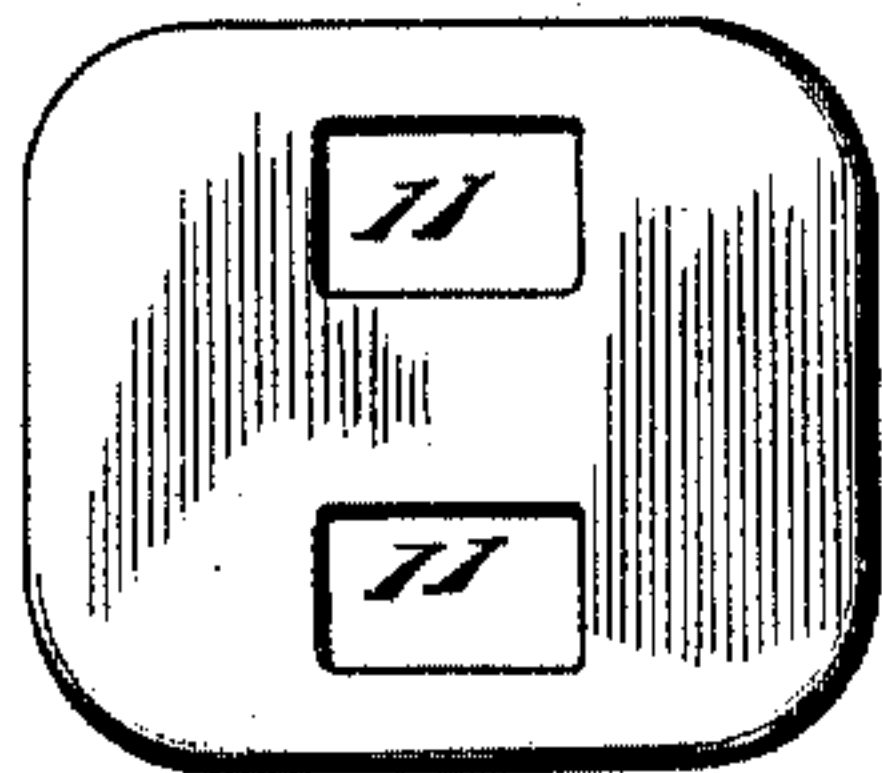


Fig. 12.

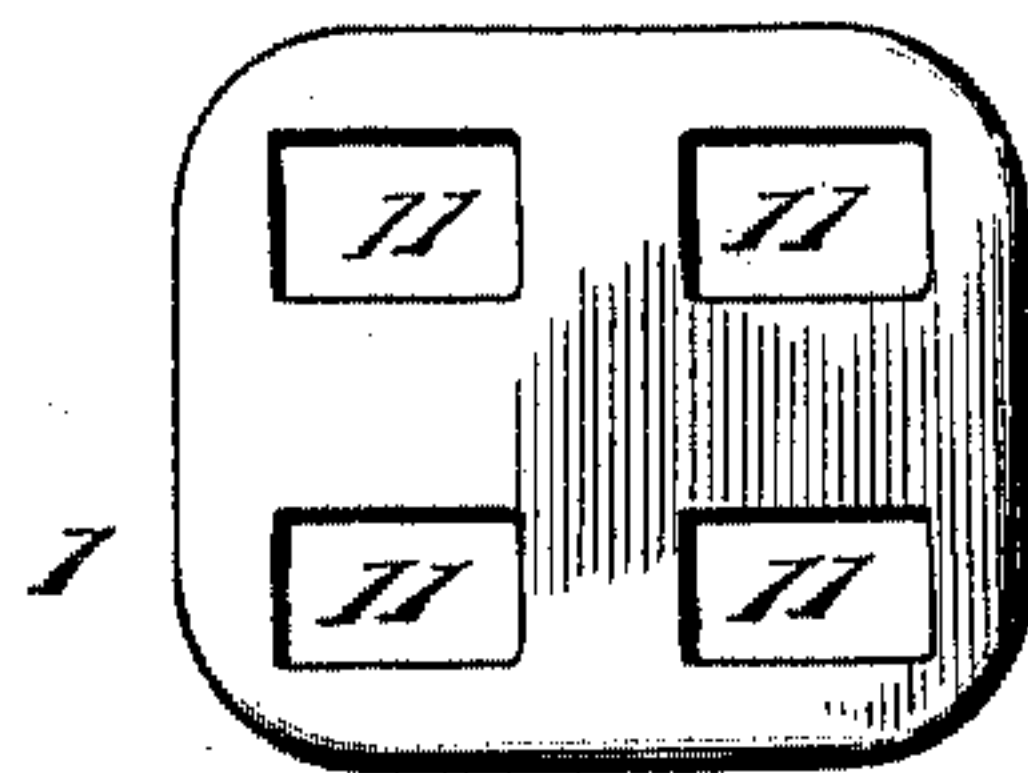


Fig. 13.

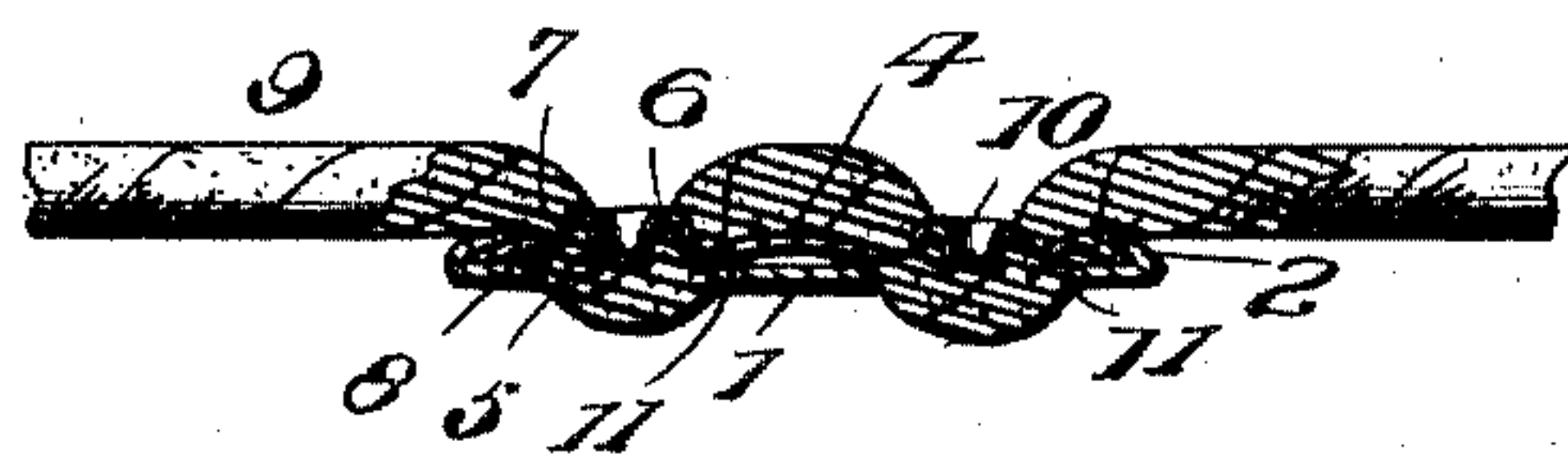


Fig. 14.

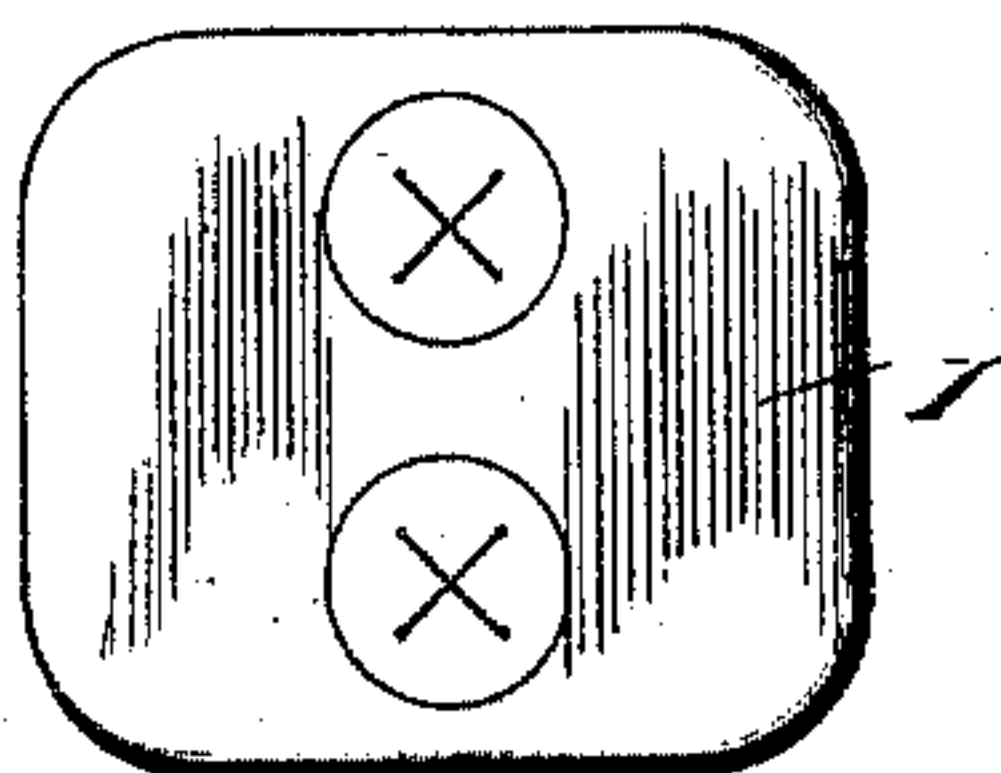
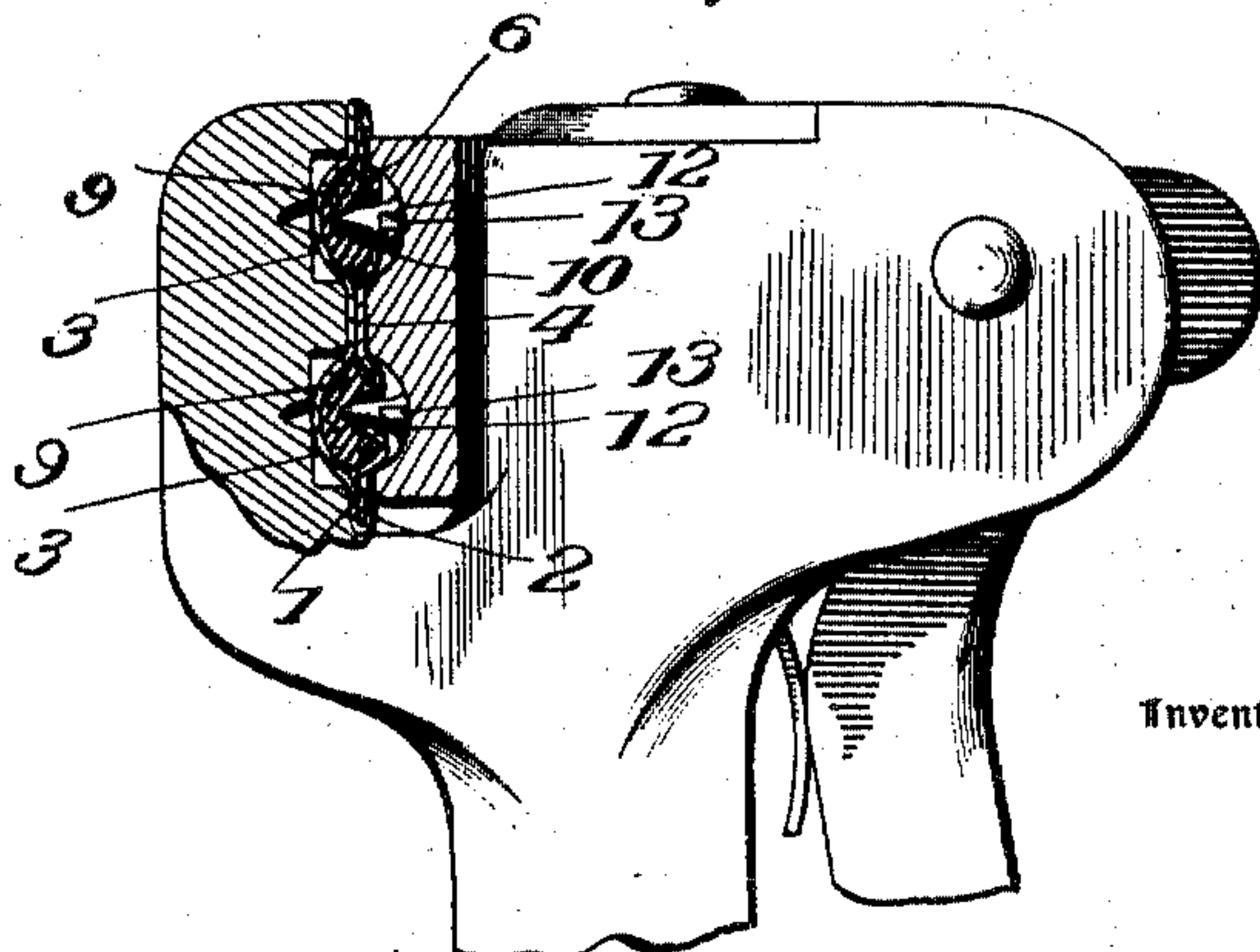


Fig. 15.



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# UNITED STATES PATENT OFFICE.

FRANKLIN W. BROOKS, OF WASHINGTON, DISTRICT OF COLUMBIA.

## SHEET-METAL SEAL.

SPECIFICATION forming part of Letters Patent No. 777,329, dated December 13, 1904.

Application filed June 27, 1904. Serial No. 214,345. (No model.)

*To all whom it may concern:*

Be it known that I, FRANKLIN W. BROOKS, a citizen of the United States, residing at Washington city, in the District of Columbia, have  
5 invented certain new and useful Improvements in Sheet-Metal Seals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable  
10 others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in sheet-metal seals, and particularly to that class designed for sealing commercial packages, packing-cases, baggage,  
15 and the like, and such, for instance, as shown and described in Letters Patent of the United States, No. 151,749, granted to me on the 9th day of June, 1874, consisting of a front and a back plate of sheet metal permanently con-  
20 nected together at their marginal edges, one of the plates being provided with shackle-orifices and raised tunnels or conduits, all as fully illustrated and described therein.

My present invention is designed to render  
25 more secure a seal of the class referred to and to provide means for positively preventing the withdrawal of the shackle or cord from the seal after the latter has been subjected to the action of an ordinary sealing tool or press.  
30 Many attempts have been made to accomplish this object; but so far as I am aware they have either been ineffectual or, if effectual, involve unnecessary and expensive construction of the seal and difficulty in expeditiously threading  
35 the shackle or cord through the same.

In some cases it has been proposed to provide the back and front plates with inwardly-extending spurs designed to penetrate the cord when the seal is compressed; but in practice  
40 it has been found that owing to the fragile or weak condition of such spurs, due to the character of the metal constituting the seal, and as the cord becomes condensed in advance of the inward movement of the spurs the latter  
45 fail to penetrate the cord and are simply turned up or clenched upon themselves. It has also been proposed to provide the seal with an interior auxiliary plate provided with spurs; but in such case the same difficulty of forcing  
50 the spurs into the hardly-compressed cord has

been experienced, and this construction also adds materially to the cost of production of the seals.

My present invention, while simple and economic of construction and manufacture, enables the shackle or cord to be quickly threaded through the seal and when the latter has been duly compressed by a suitable sealing tool or press absolutely locks the shackle or cord against any fraudulent removal of the  
60 same; and with these ends in view my invention consists in the details of construction and arrangement hereinafter fully explained.

In order that those skilled in the art to which my invention appertains may know how to  
65 make and use my improved seal and fully understand its advantages, I will proceed to describe the same, referring by numerals to the accompanying drawings, in which—

Figure 1 is an interior plan view of the back  
70 plate of my improved seal. Fig. 2 is an exterior plan view of the same. Fig. 3 is an interior plan view of the front plate. Fig. 4 is an exterior plan view of the same. Fig. 5 is a front plan view of the back and front  
75 plates secured together at their marginal edges and showing a shackle-cord threaded through the front plate in position to be subsequently securely locked in position by an ordinary sealing-tool. Fig. 6 is a similar view to Fig. 80  
5, but showing the front plate as having been compressed to securely fasten the shackle-cord in place. Fig. 7 is a longitudinal section taken on the line *a a* of Fig. 5. Fig. 8 is a similar section taken on the line *b b* of Fig. 6. Fig. 9 is  
85 a cross-section on the line *c c* of Fig. 6. Fig. 10 is an end view of the seal with the shackle-cord removed. Fig. 11 is an exterior plan view of the back plate similar to Fig. 2, but showing rectangular openings therein instead  
90 of concavo-convex depression, as shown in Fig. 2. Fig. 12 is a view similar to Fig. 11, but showing the plate with four rectangular openings instead of two. Fig. 13 is a longitudinal section similar to Fig. 8 of a seal af-  
95 ter compression and in which the back plate is formed with four rectangular openings, as illustrated at Fig. 12. Fig. 14 is a view similar to Fig. 2, but showing the concavo-convex parts of the back plate punched centrally  
100



by the sealing-tool; and Fig. 15 is a side elevation, partly in section, of a sealing-press such as is adapted to properly compress my improved seals.

5 Similar reference-numerals indicate like parts in the several figures of the drawings.

1 represents what I denominate the "back" plate, composed of sheet metal, such as ordinary tin, and of any preferred design, with  
10 the margin turned up to constitute a flange 2 for the purpose presently explained and with concavo-convex depressions 3 on opposite sides of the longitudinal center.

4 is what I denominate the "front" plate of  
15 my improved seal. This plate is also composed of sheet metal and is of raised or ordinary dish shape and designed to be located within the flange 2 of the back plate 1 and to be secured to said back plate by turning down  
20 the flange 2 in an obvious manner and as clearly shown in Figs. 5, 6, 7, and 8.

The dish-shaped front plate 4 is formed with shackle-threading orifices 5, and the metal between each pair of orifices is raised,  
25 as clearly shown at Fig. 10, to constitute tunnels 6 to properly lead the ends of the shackle-cord in threading the same through the seal. The terminal ends of each of these tunnels is formed with a longitudinally-trending spur 7,  
30 and the metal surrounding the orifices 5 and diametrically opposite the spurs 6 is fashioned into a curved tongue 8. The tongues 8 and spurs 7 terminate in substantially a common plane, and when the shackle-cord 9 has had  
35 its ends threaded through the orifices 5 and the tunnels 6 of the dish-shaped front plate 4 have been compressed by a suitable sealing tool or press the spurs 7 are turned inwardly into the shackle-cord 9, while at the same time  
40 the tunnels 6 are flattened down to tightly condense and compress the shackle-cord, and by means of a suitable spur or punch forming a part of the sealing tool or press the metal of each tunnel 6 in a plane coincident with the  
45 center of each of the concavo-convex depressions 2 in the back plate 1 is cut and forced inwardly to constitute spurs 10 intermediate of the spurs 7, which intermediate spurs 10 are, like the spurs 7, forced into the shackle-cord  
50 9, and the latter is at the same time compressed hardly and forced down into the concavo-convex depressions 3, so that such cord is not only tightly compressed, but is caused to assume a curved or buckled position between  
55 the points at which they enter and leave the seal and intermediate of the planes of contact therewith of the spurs 7 and tongues 8, heretofore referred to.

When the seal and shackle-cord are in the  
60 conditions thus described, it will be seen that if an effort should be made to fraudulently withdraw the shackle-cord that such effort will be resisted by the central or intermediate spurs 10 and that their location and the fact  
65 that they terminate within the concavo-con-

vex depressions 3 serve to hold the shackle-cord in its hardly-compressed condition in such position as to render it impossible to move said cord longitudinally between the spurs 7 and the tongues 8. In other words, the spurs 7, 70 tongues 8, spurs 10, and depressions 3 all cooperate to render it impossible to withdraw the shackle-cord from the seal, as I have found from repeated tests under powerful pulling strains that the cord, such as is best adapted 75 for use in seals of this kind, will invariably break rather than withdraw from the seal. It will also be observed that as the spurs 7 at the terminals of the tunnels 6 penetrate the cord substantially coincident with the ends of 80 the tongues 8 the latter constitute abutments which prevent the tongues 7 from straightening out when longitudinal strain is exerted upon the cord and that they also constitute in themselves resisting-shoulders within the com- 85 pressed fibers of the cord.

In lieu of forming the back plate with two concavo-convex depressions as described they may be formed with four in order that the shackle-cord may be compressed and buckled 90 at four localities instead of two in the manner already described.

As shown at Figs. 11, 12, and 13, the back plate 1 may preferably be formed with rectangular openings 11 instead of the concavo- 95 convex depressions 3, in which case and when the seal is subjected to the action of the sealing-press, such as shown at Fig. 15, the shackle-cord is compressed and forced partly through the openings 11 of the back plate and firmly 100 anchored therein, as clearly shown at Fig. 13.

I prefer to form the back plate with the openings 11, as described, rather than with the concavo-convex depressions 3, because of economy in cost of manufacture; but as in both cases 105 the shackle-cord is buckled and anchored at such localities I desire it to be understood that the two illustrated and described constructions I consider as clear mechanical equivalents and that either construction is to be considered as 110 coming within the terms of the claims herein-after made.

In applying one of my improved seals to a customs package or other package the shackle-cord after being suitably connected with the 115 package and tied in a knot has its ends passed through the orifices 5 of the front plate, as shown at Fig. 5, and the seal being then subjected to the action of the sealing-press (shown at Fig. 15) the tunnels 6 are crushed and forced 120 down upon the shackle-cord, thoroughly compressing and condensing the same, and at the same time the sharp punches 12 in the center of the movable die cuts the metal at the center of each tunnel and produces spurs which are 125 carried or forced into the fiber of the cord, the punches 12 acting as braces to prevent the buckling or clenching of the spurs. During this operation of the press the short pins or studs 13 each side of the central punches 12 130



turn the spurs 7 at the terminals of the tunnels 6 downwardly and into the fiber of the shackle-cord in an obvious manner. Instead of cutting the metal to produce the spurs the punches 12 may be so constructed as to simply force the metal in teat form into the cord. This action by the sealing-press also causes the shackle-cord to be buckled or crimped into the depressions or openings of the back plate to crimp and anchor it therein, as already described.

While I have illustrated my improved seal as of a substantially rectangular design, it will be understood that I do not wish to be limited in this respect, and while I have shown the seal as provided with two parallel threading-tunnels each adapted to accommodate one end of the shackle-cord and prefer this construction I wish it to be understood that my invention contemplates the use of a single threading-tunnel and a single threading-orifice at each end thereof, so that both ends of the shackle-cord may be located within a common receiving-tunnel and the cord buckled or anchored in a single depression or opening in the back plate in substantially the manner already described, the broad feature of my invention residing in the idea of compressing the shackle-cord between the front and back plates and buckling or anchoring it within depressions or openings in the back plate, either with or without the additional securities resulting from the penetrating spurs and tongues hereinbefore referred to.

What I claim as new, and desire to secure by Letters Patent, is—

1. An improved compressible sheet-metal seal composed of a front plate formed with raised cord-receiving tunnels open at each end and a back plate constructed to permit of the shackle-cord being buckled or forced at two or more localities beyond the general plane of said plate when the cord-receiving tunnels of the front-plate and the cord therein are subjected to the action of a sealing-tool, the said front and back plates permanently connected

at their marginal edges, substantially as and for the purpose set forth.

2. An improved compressible sheet-metal seal composed of a back plate formed with shackle-cord depressions and a front plate formed with raised cord-receiving tunnels open at each end, the front and back plates permanently connected at their marginal edges, substantially as and for the purpose set forth.

3. In a sheet-metal seal such as described, and embodying a back plate with cord-recesses, and a front plate with threading-orifices and raised cord-receiving tunnels, spurs at the terminals of the tunnels adapted to be forced into the body of the shackle-cord by a suitable sealing-tool, substantially as hereinbefore set forth.

4. A sheet-metal seal consisting of a back plate having one or more depressions therein, and a front plate with cord-threading orifices connected by cord-receiving tunnels, spurs at the terminals of the tunnel, tongues extending from the threading-orifices, the two plates permanently connected at their marginal edges, and adapted to confine and interlock with a shackle-cord, substantially as hereinbefore set forth.

5. A seal for commercial packages, packing-cases and the like, consisting of a compressible shackle-cord and a sheet-metal seal, the latter comprising a back plate provided with depressions, and a front plate formed with cord-receiving tunnels, said tunnels adapted to be forced upon and into the shackle-cord to compress, buckle, and secure the same against longitudinal movement, substantially as hereinbefore set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN W. BROOKS.

Witnesses:

D. G. STUART,  
G. M. COPENHAVER.