

No. 720,806.

PATENTED FEB. 17, 1903.

DE KERNIEA J. T. HIETT.
SEALING DEVICE.

APPLICATION FILED OCT. 25, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

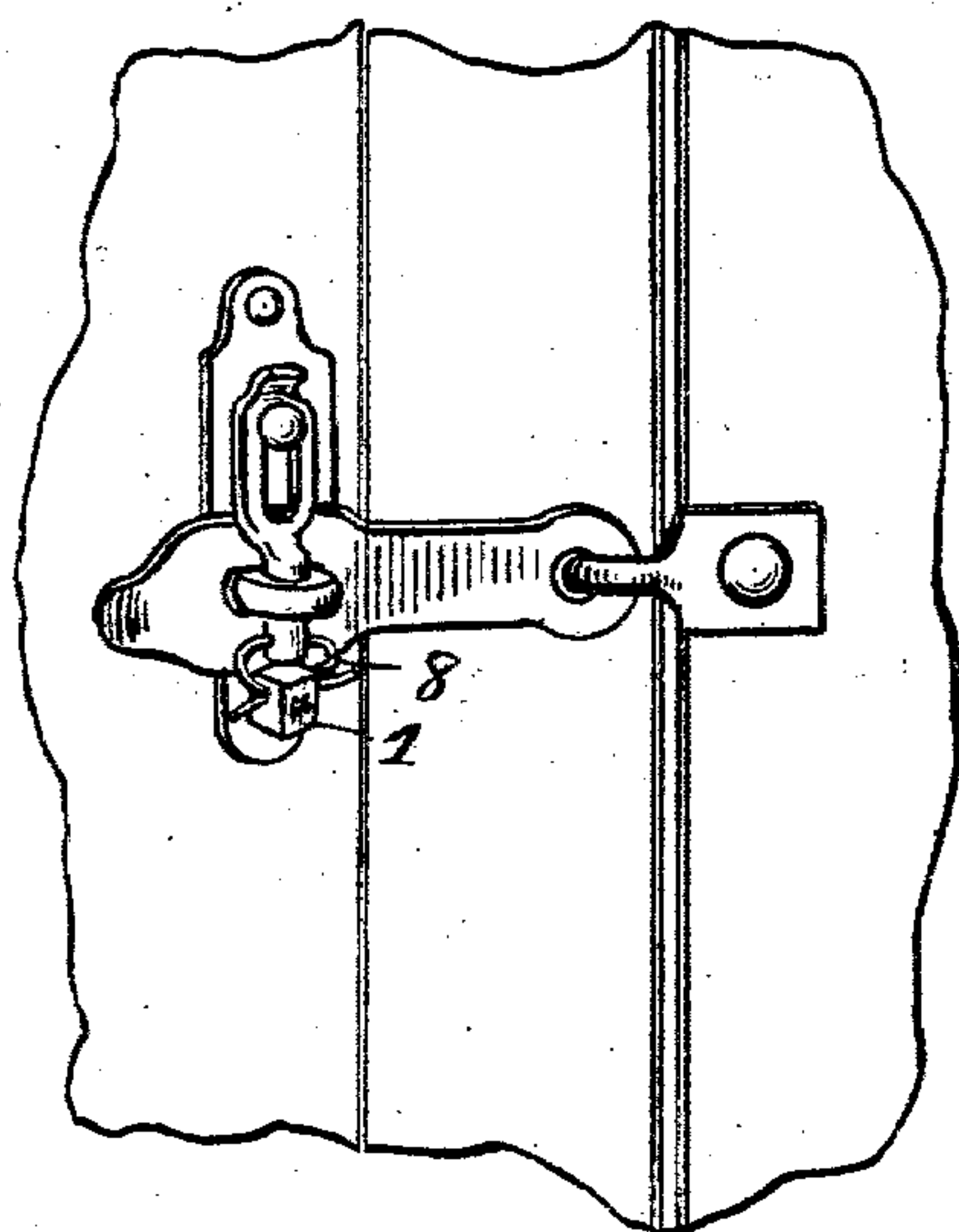


Fig. 1.

Fig. 6.

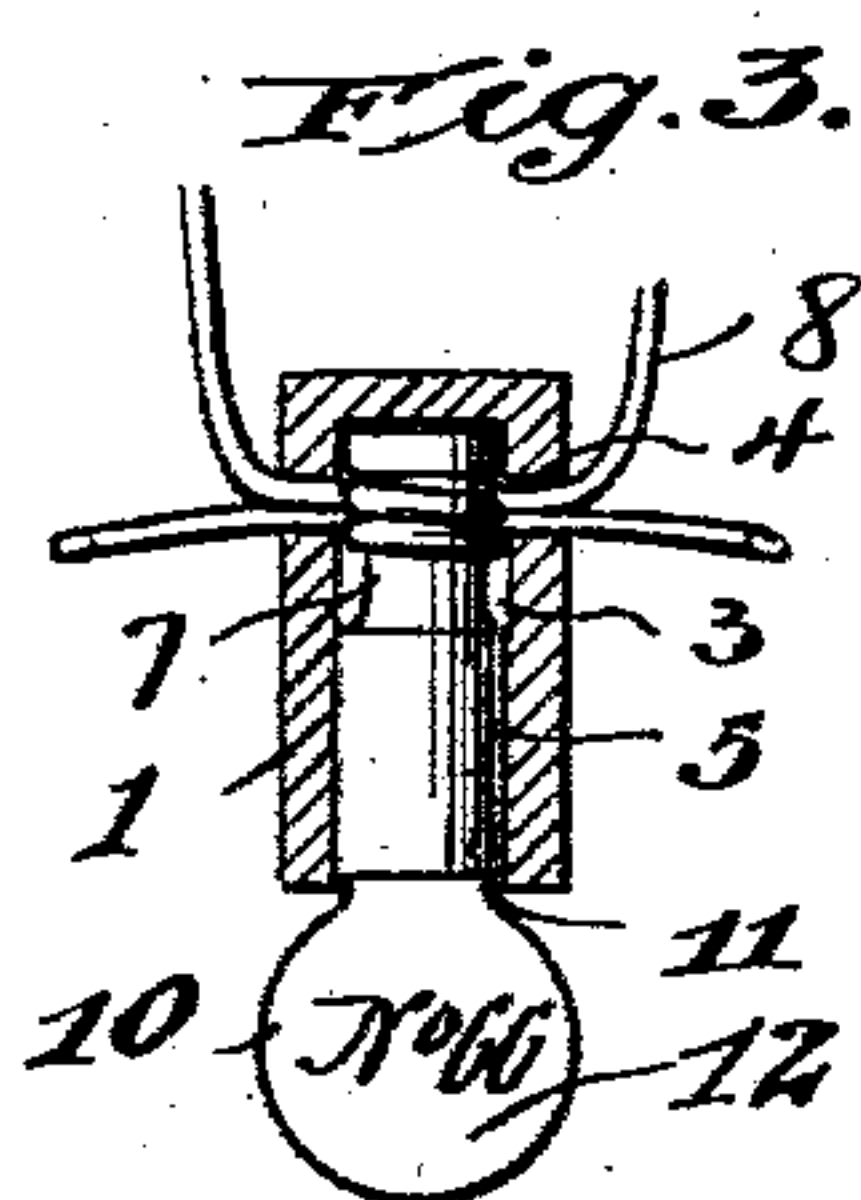
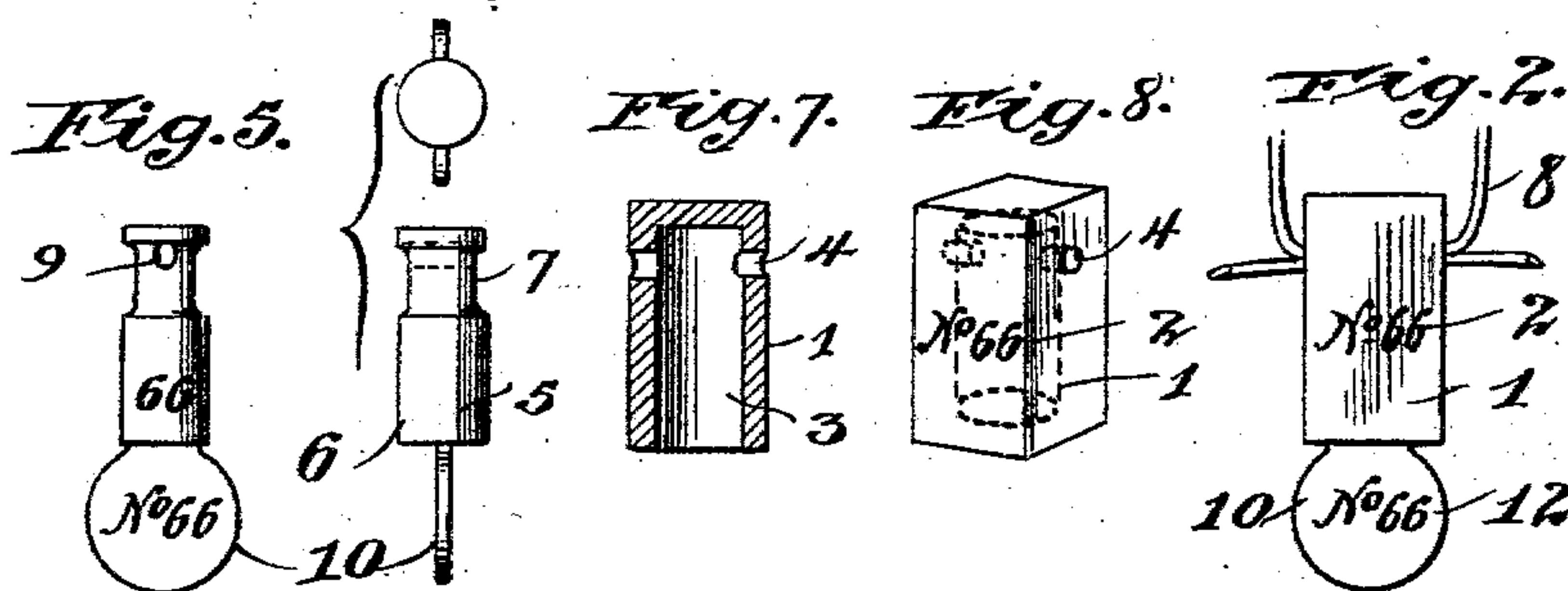


Fig. 3.

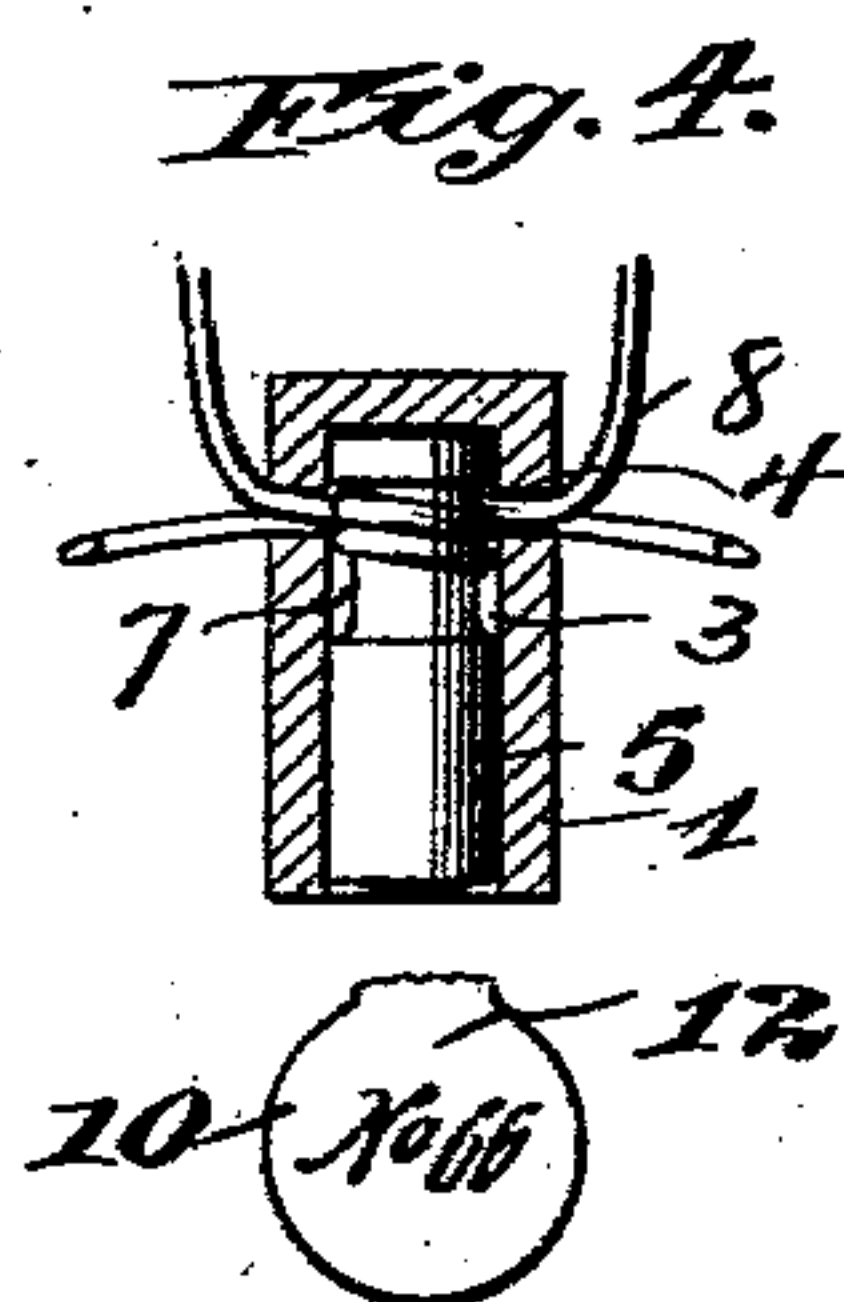


Fig. 4.

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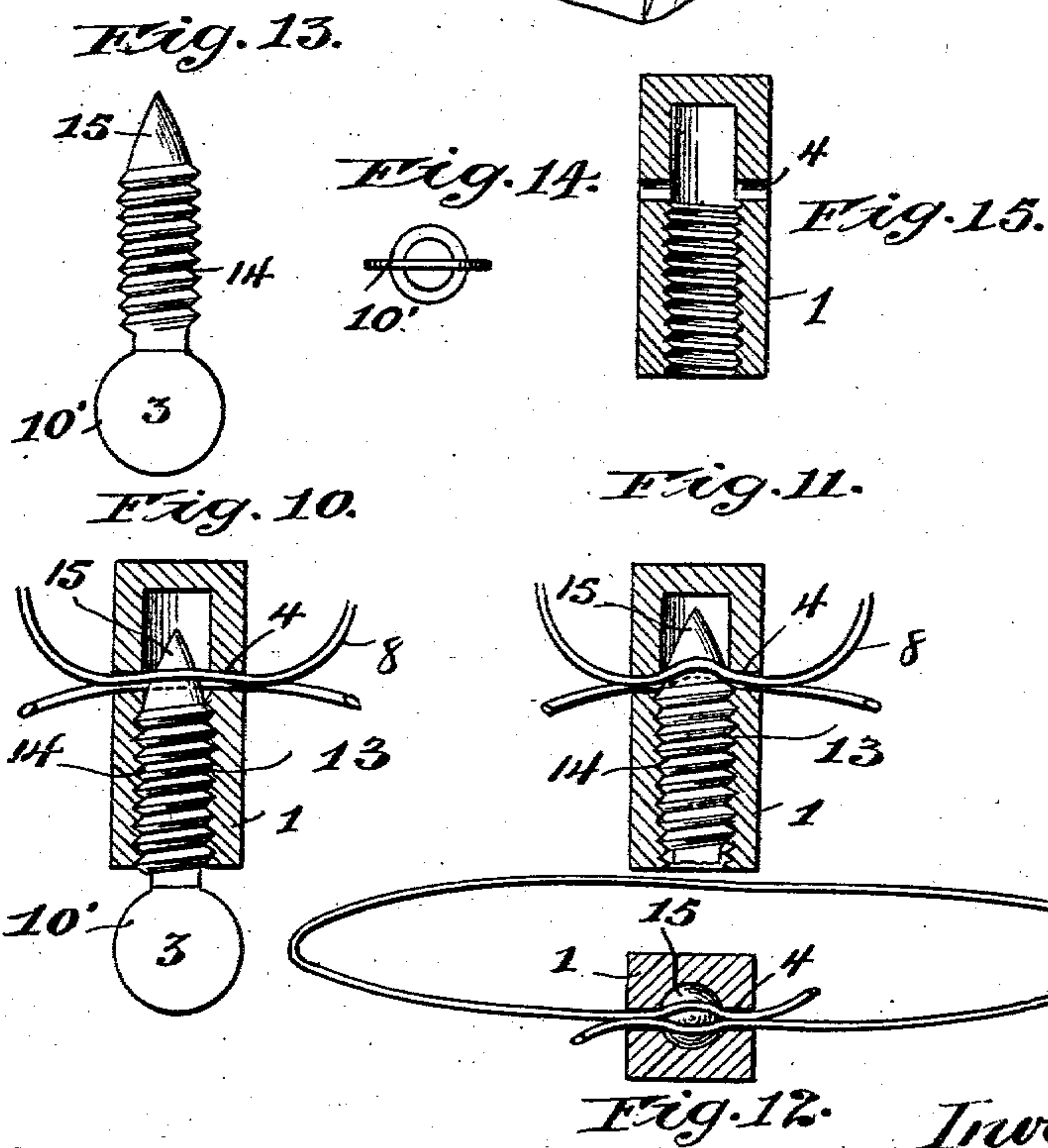
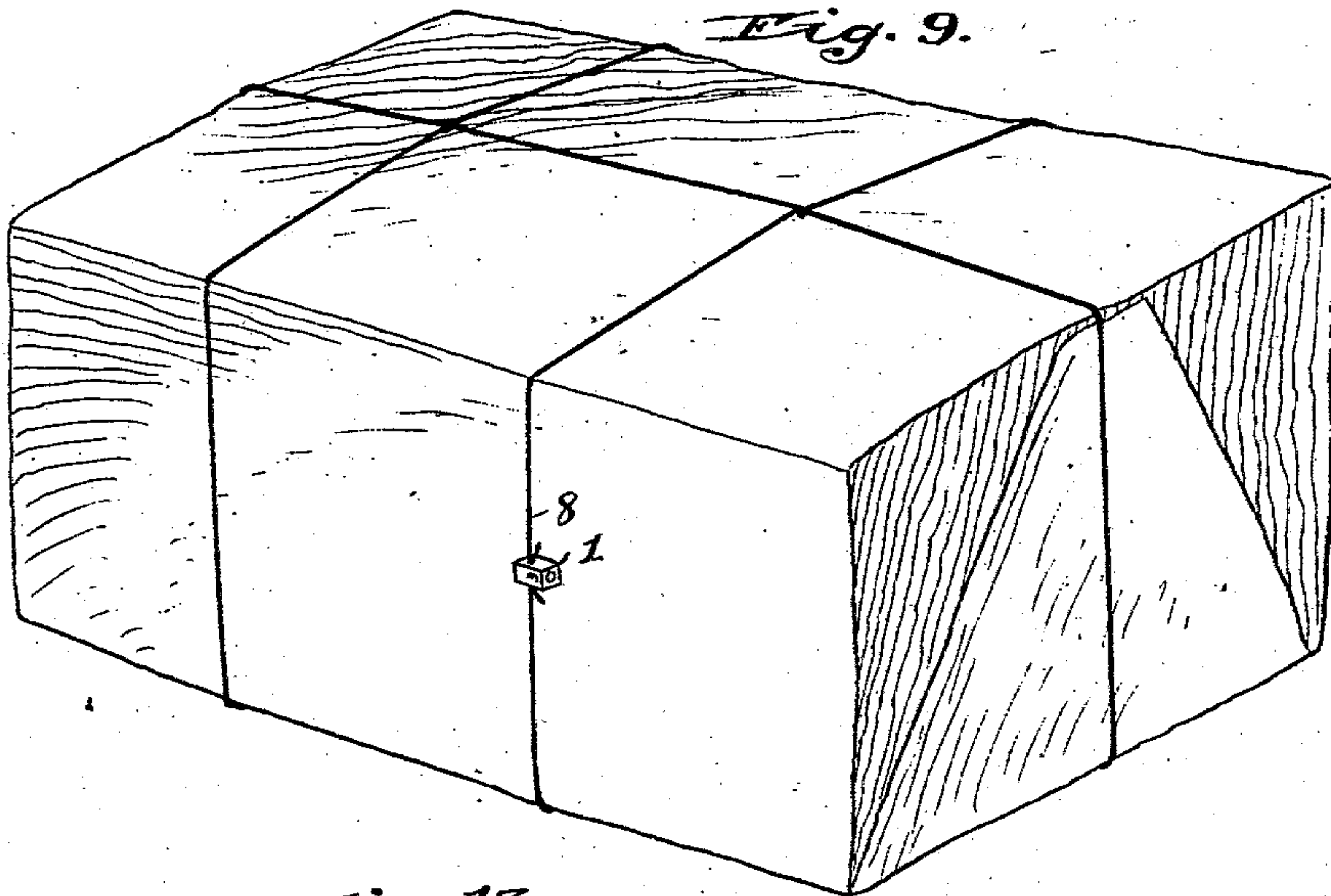
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SEALING DEVICE.

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NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DE KERNIEA J. T. HIETT, OF CHICAGO, ILLINOIS.

SEALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 720,806, dated February 17, 1903.

Application filed October 25, 1902. Serial No. 128,781. (No model.)

To all whom it may concern:

Be it known that I, DE KERNIEA J. T. HIETT, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sealing Devices, of which the following is a specification.

This invention relates to improvements in sealing devices, and refers more specifically to that general class of sealing devices wherein the ends of a wire or band are united in such manner that the seal cannot be broken without detection, such devices being commonly employed in sealing the doors of cars and the like.

Among the salient objects of the present invention are to provide a construction which may be closed or sealed manually without the use of any special tool, to provide a construction which cannot possibly be released or opened without breaking the seal-body, and thus disclosing the unauthorized tampering with the device, to provide a construction which is extremely simple and cheap and one which is suitable for use under all ordinary circumstances, to provide in a device of this character a locking key or member which is designed to be broken off inside of the seal-body and in such manner as to positively prevent its removal or disengagement except by breaking the seal-body, to provide improved means for keeping a record of all the number of seals used and for positively determining whether any given seal has been replaced, and, in general, to provide a simple and improved device of the character referred to.

To the above ends the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a car-door lock and parts of the car, showing the manner of applying my improved seal thereto. Fig. 2 is a side elevation of the seal, showing the locking wire or band inserted in position. Fig. 3 is a vertical sectional view of the parts shown in Fig. 2, the key member being shown in elevation. Fig. 4 is a view similar to Fig. 3, but showing the head of the key broken

off. Fig. 5 is a side elevation of one of the keys removed from the seal-body. Fig. 6 is an end and side elevation of the key shown in Fig. 5, the said elevation figure being viewed at right angles to that shown in Fig. 5. Fig. 7 is a vertical sectional view of the seal-body, taken in the plane of the locking-wire apertures. Fig. 8 is a perspective view of the seal-body, the chamber thereof being outlined in dotted lines. Fig. 9 is a view showing an application of the seal to a package. Fig. 10 is a vertical or axial sectional view of a modified form of seal. Fig. 11 is the same seal shown in Fig. 10 with the head portion broken off. Fig. 12 is a cross-sectional view taken in the plane of the locking-wire apertures and showing the ends of said wire slightly spread apart by the partial insertion of the key. Figs. 13, 14, and 15 are separated detail views of the seal shown in Figs. 10 and 11.

Describing first the construction shown in Figs. 1 to 8, inclusive, 1 designates as a whole a seal-body, which may be made of any suitable material, either of frangible material—such as pottery, cast-iron, or the like—so that it may be readily broken, or of non-frangible material, depending upon whether the seal is to be opened by breaking the seal-body or by cutting the sealing-wire. In the preferred form shown said seal-body is of externally-polygonal shape, so as to afford side faces upon which identifying figures or characters may be placed, as indicated at 2, and also to enable the device to be more readily grasped and held from turning. Within the body of the seal is formed a cylindric cavity or chamber 3, closed at one end and intersected by an aperture 4, arranged to extend diametrically through said chamber 3 at a point distant from the open end of said chamber.

5 designates as a whole a key, the main body portion 6 of which is made cylindric to accurately fit the chamber of the seal-body and of a length sufficient to extend from the open end of the chamber inwardly to a point beyond the intersecting wire-aperture 4. The inner or entering end of the key is provided with an annular groove or reduced portion 7, which groove is preferably relatively wide and is of a depth approximately equal to but slightly greater than the diameter of the lock-

ing or sealing wire 8. Through the reduced portion of the key is formed a transverse aperture 9, which is adapted to be brought into register with the wire-apertures 4 of the seal-body, so that the ends of the sealing-wire may be inserted through both seal-body and contained key, the transverse apertures through both the seal-body and the key being sufficiently large or elongated to accommodate the two ends of the wire extended alongside of each other, as indicated in Fig. 2. The outer end of the key is provided with a finger-piece 10, which is integrally joined to the key-body by a reduced portion 11, so that said finger-piece may be broken off at a point flush with or slightly within the seal-body, as indicated in Fig. 4. In order that the head of the key may be thus broken off, the key should be made of a suitable frangible metal, such as cast-iron. The head portion or finger-piece of each key may be provided with identifying characters or figures, as indicated at 12, to identify it with the particular seal-body for which it is intended, it being understood that any given seal is intended to be used but once and that the act of sealing or locking the device will unite the parts permanently, so that they cannot be separated except by mutilating the seal-body.

The use of the device is entirely obvious, but may be briefly stated. Assuming that the operator wishes to seal a car-lock, the sealing-wire is passed through the bolt in the manner illustrated in Fig. 1 or in any other suitable manner. The ends of the sealing-wire are then inserted through the body of one of the seals and through the contained key which has been inserted in the seal-body, so that the inserted ends of the wire lap past each other and extend out at opposite sides of the seal-body, as shown in Figs. 2, 3, and 4. The operator now holds the seal-body firmly with one hand (if the sealing-wire is relatively heavy a wrench may be employed for holding the seal-body firmly) and then rotates the key until the wire has been wrapped one or more times around the grooved portion thereof within the seal-body. Inasmuch as the depth of the groove is only sufficient to accommodate one thickness of the wire between the bottom of the groove and the interior of the seal-body, the wire will be compelled to wrap around the key-body spirally and in any event will be so permanently formed and wrapped around the key-body that it will be impossible to unwind it by any amount of pulling upon the wire. The operator having thus locked the wire in position breaks off the head of the key, thus rendering it impossible to manipulate the key-body and accordingly impossible to open the seal except by breaking it. If desired, the numbered key may be retained by the operator and at any later time compared with the seal-bodies to determine whether or not the identical seals then in position are the ones which he placed at the time the heads were broken off.

In Figs. 10 to 15, inclusive, I have shown a slight modification in which the interior of the seal-body is screw-threaded throughout its principal length, as indicated at 13, to receive the correspondingly-threaded shank or body 14 of the key. The key in this instance instead of being provided with an annularly grooved or reduced portion terminates at its inner end in a conical wedging portion 15, which when the key-body is threaded into position passes between the two inserted ends of the wire 8 and spread the latter outwardly into wedging engagement with the interior walls of the key-chamber, as best shown in Fig. 11. The conical point 15 is tapered out to the full diameter of the interior of the seal-chamber at the base of said cone, so that the wire ends may be wedged within the seal-body to an extent rendering their withdrawal an impossibility. In this instance the key-body is provided with a detachable head 10', adapted to be broken off the same as in the construction previously described. The use of this device is obviously substantially like that of the previously-described device and need not be repeated.

It will be obvious from the foregoing that I attain the several objects of my invention hereinabove mentioned and produce a device which can be used for a wide variety of purposes and with the most perfect security. The operator requires no tool for fastening the seal, and it cannot be opened or broken after it has once been sealed without either cutting the wire or breaking the body of the seal. By actually identifying the body of the seal and the head of the key thereof it is easy to determine absolutely whether or not the seal has been broken and replaced by another.

It will be understood from the foregoing that the details of construction may be modified without departing from the invention, and I do not, therefore, limit myself to the details of construction except to the extent that they are made the subject of specific claims.

I claim as my invention—

1. In a seal, the combination with the locking band or wire, of a seal-body provided with a key-chamber and a locking-wire aperture extending into said chamber, a key-body constructed to fit said chamber and engage the locking-wire therein, and a break-off head upon said key-body adapted to be broken off at a point coincident with, or within the outer surface of the key-body and whereby said key-body may be manipulated to permanently bend the inserted ends of the wire within the seal-chamber.

2. In a seal, the combination of a seal-body provided with an interiorly-circular key-chamber, a locking-wire aperture extending into said chamber, a locking band or wire having its ends inserted into said locking-wire aperture, a key-body constructed to fit said chamber and having its inner end portion constructed to engage and bend the wire

laterally at a point within the chamber, and a break-off head formed integrally upon said key-body and adapted to be broken off at a point inside of the key-chamber.

5 3. In a seal, the combination of a seal-body provided with a substantially cylindric key-chamber closed at its end and a locking-wire aperture extending through said chamber at a point intermediate the length of the latter,
10 a key-body constructed to fit said chamber and provided with a break-off head adapted to be broken off at a point coincident with, or within the outer surface of the key-body, and a locking band or wire having its ends
15 inserted through the locking-wire aperture of said seal-body and the portions thereof within said chamber encircling or partially encircling the key-body.

4. In a seal of the general character described, the combination of a seal-body provided with a key-chamber and a locking-wire aperture intersecting said key-chamber, a key-body adapted to fit said chamber and positively hold the locking-wire at a point
20 within said chamber, and means permanently securing said key-body against removal from said chamber, for the purpose set forth.

5. In a seal of the general character described, the combination of a seal-body provided with a key-chamber and a locking-wire aperture intersecting said key-chamber, a key-body adapted to fit said chamber and positively hold the locking-wire at a point within said chamber, means permanently securing said key-body within said chamber,
30 and a break-off head upon the key-body, for the purpose set forth.

6. In a seal of the general character described, the combination of a seal-body provided with a key-chamber interiorly screw-
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threaded and with a locking-wire aperture intersecting said chamber, a key-body threaded to fit said key-chamber and provided at its inner end with a wire-clamping portion, and a break-off head whereby said key may be
45 forcibly inserted and permanently fixed within the seal-body.

7. In a seal of the general character described, the combination of a seal-body provided with a key-chamber interiorly screw-
50 threaded and with a locking-wire aperture extending transversely through the key-chamber, a locking wire or band inserted through said transverse aperture, a key-body threaded to fit said key-chamber and provided
55 at its inner end with a conical point adapted to bend the inserted portions of the wire laterally and to hold them in wedging engagement with the inner walls of the chamber, and a break-off head upon said key-body, for
60 the purpose set forth.

8. In a seal of the general character described, the combination of a seal-body provided with a key-chamber interiorly screw-
65 threaded and with a locking-wire aperture extending transversely through the key-chamber, a locking wire or band inserted through said transverse aperture, a key-body threaded to fit said key-chamber and provided at its inner end with a conical point adapted
70 to bend the inserted portions of the wire laterally and to hold them in wedging engagement with the inner walls of the chamber, a break-off head upon said key-body, said break-off head and seal-body being provided
75 with mutually identifying characters.

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