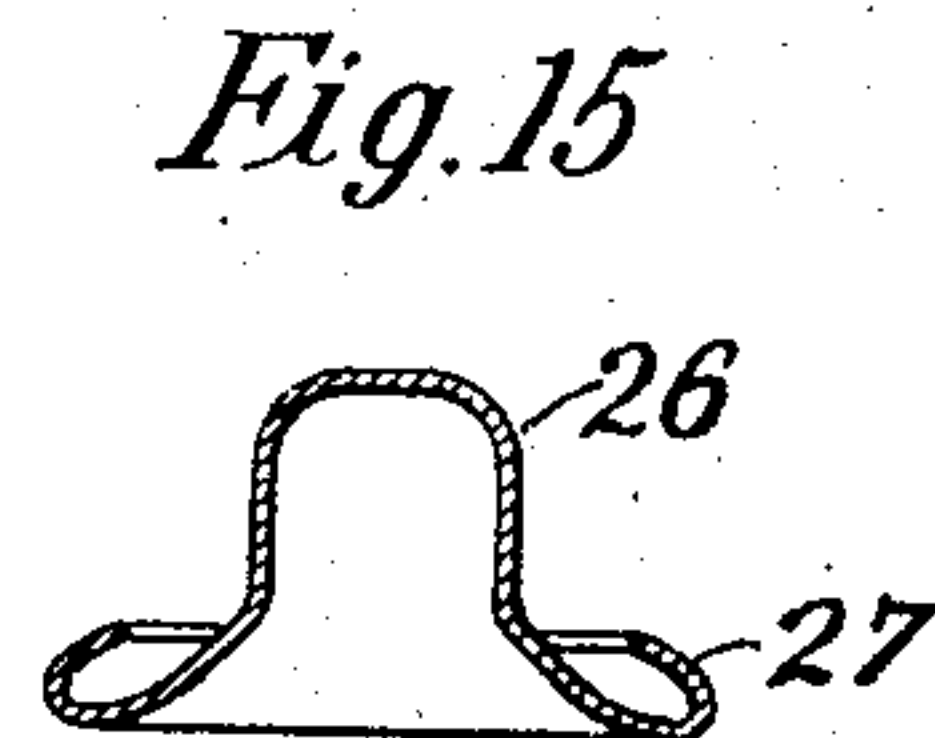
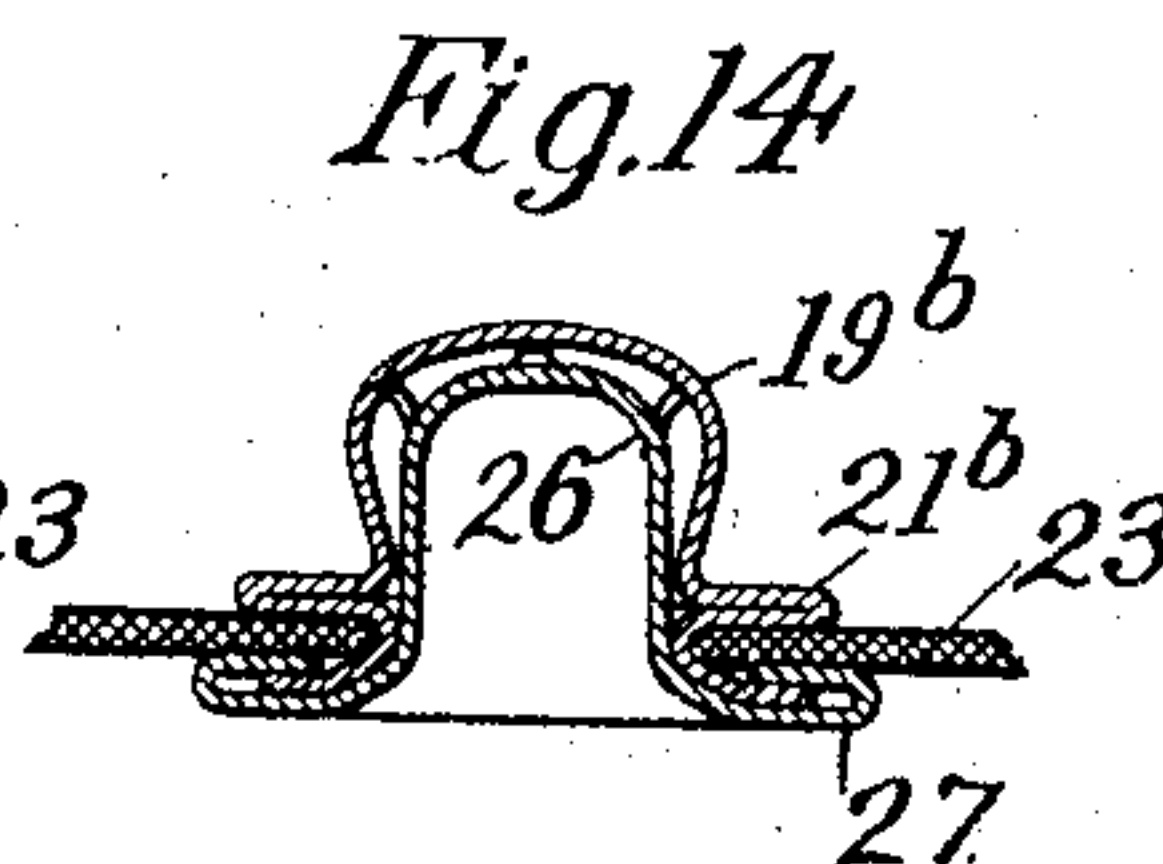
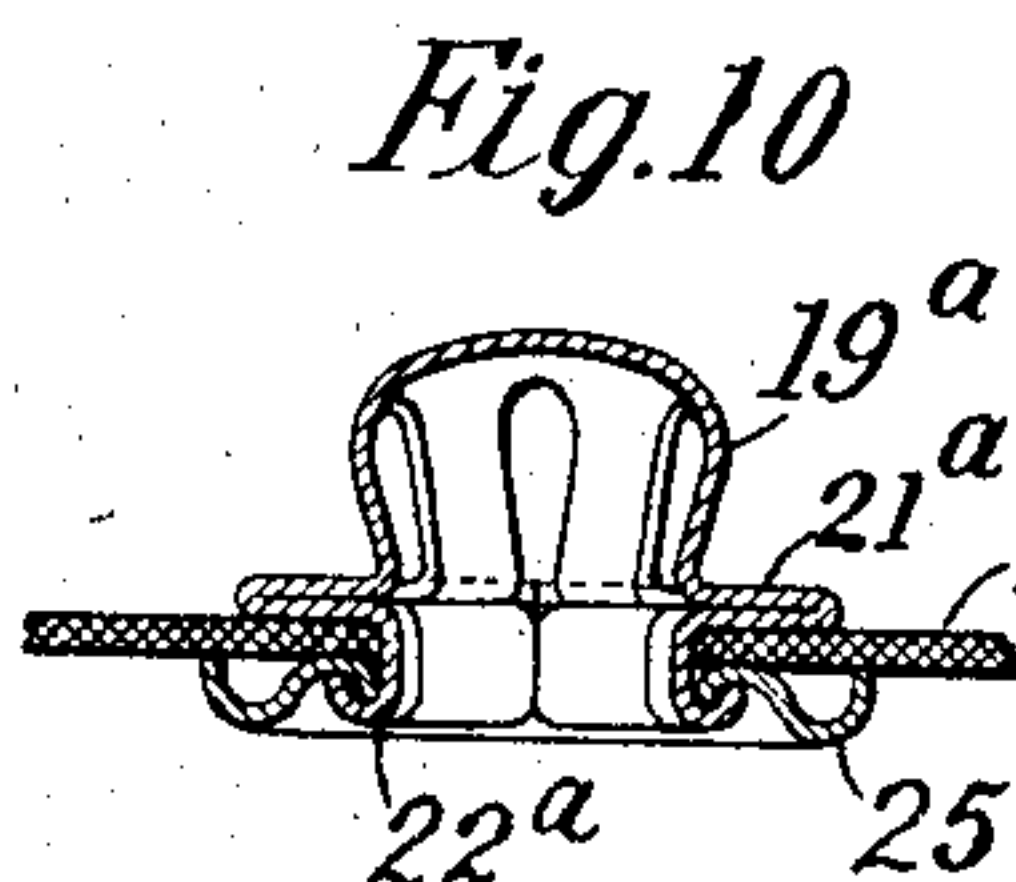
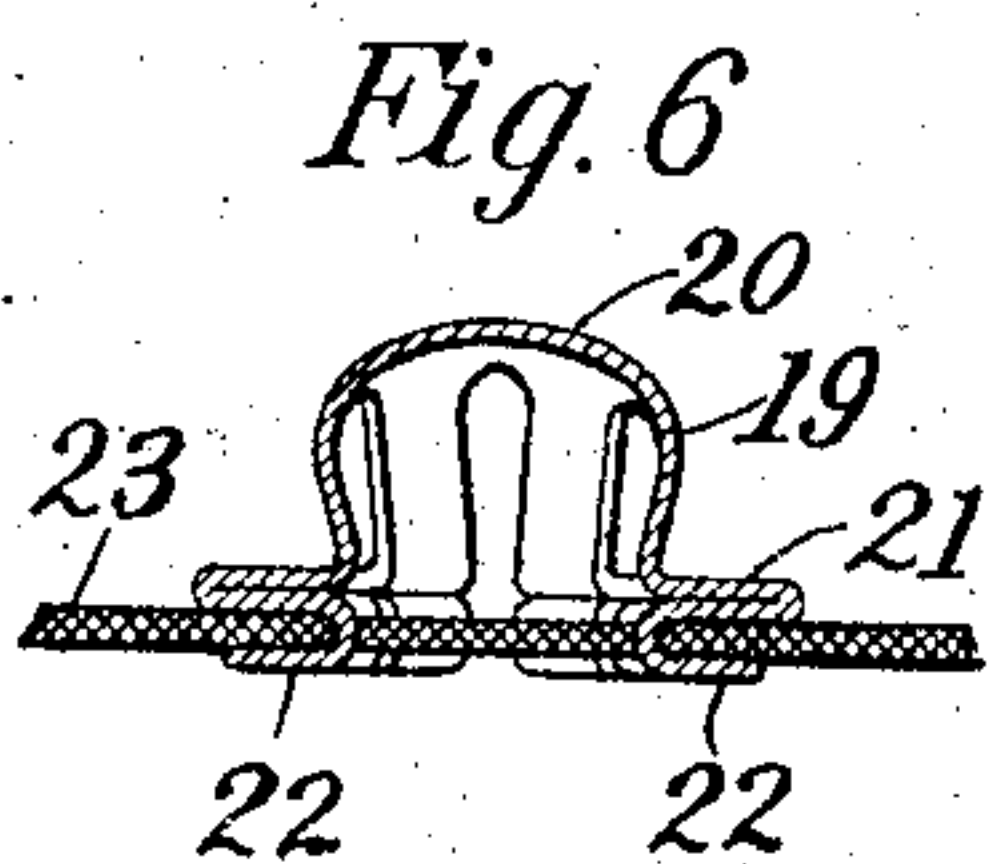
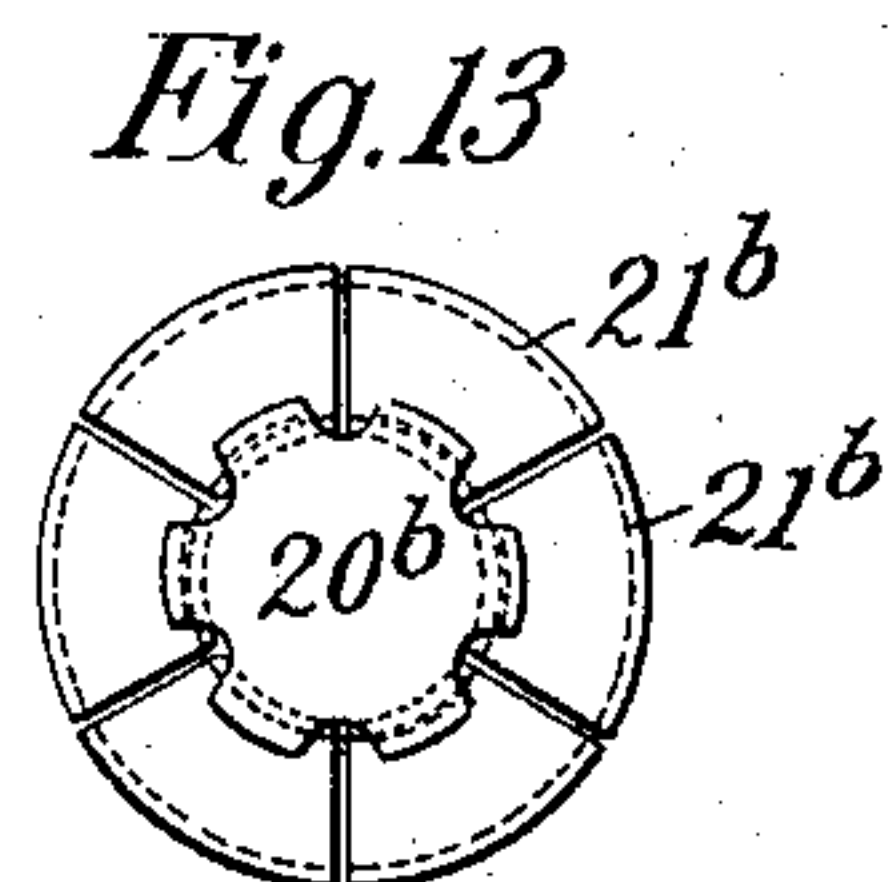
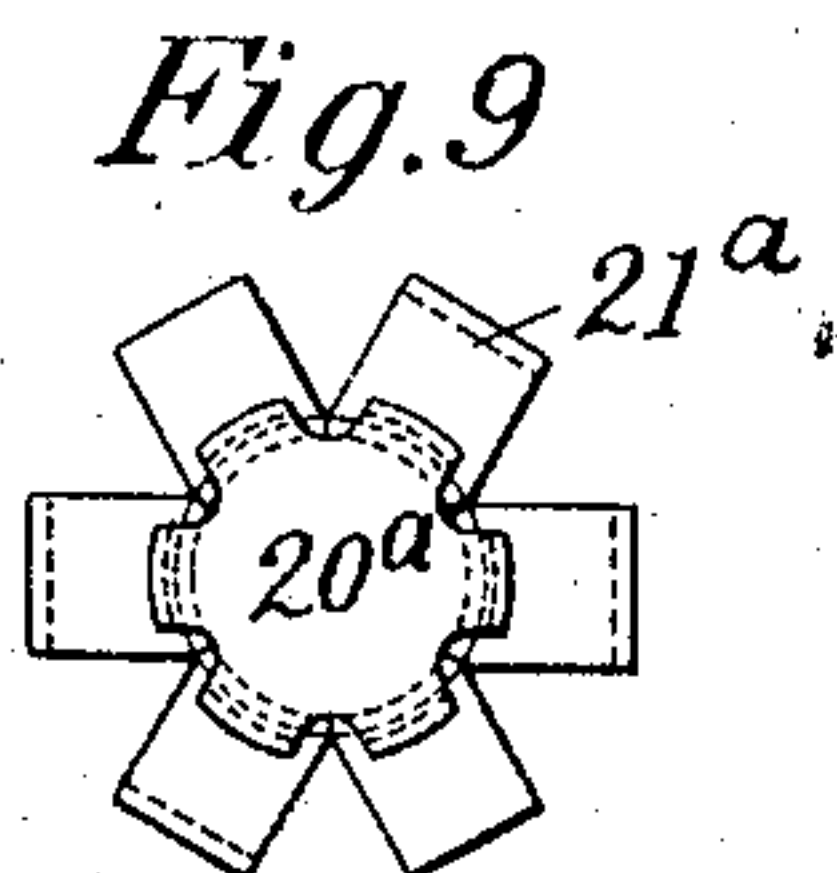
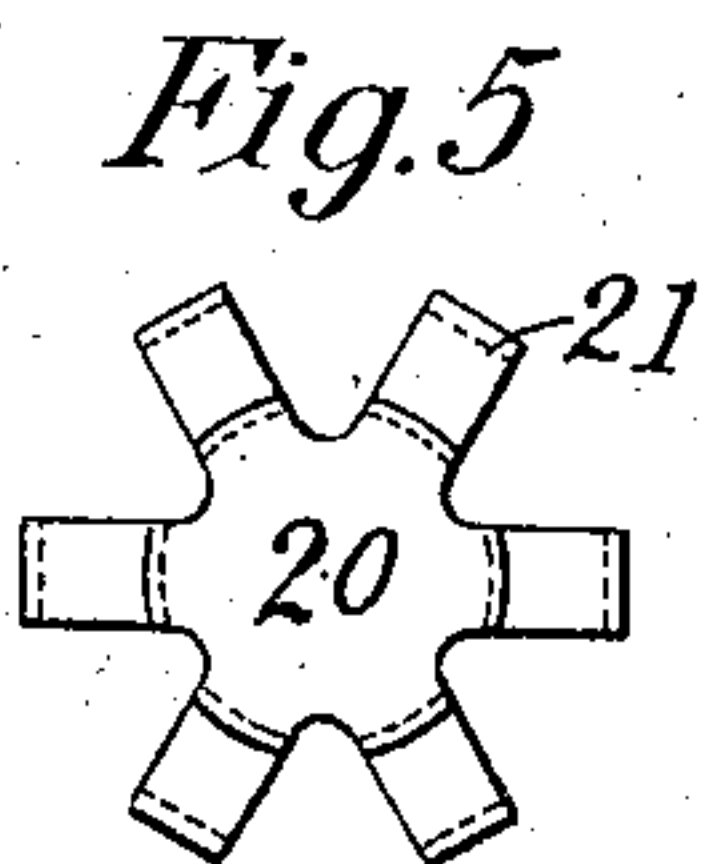
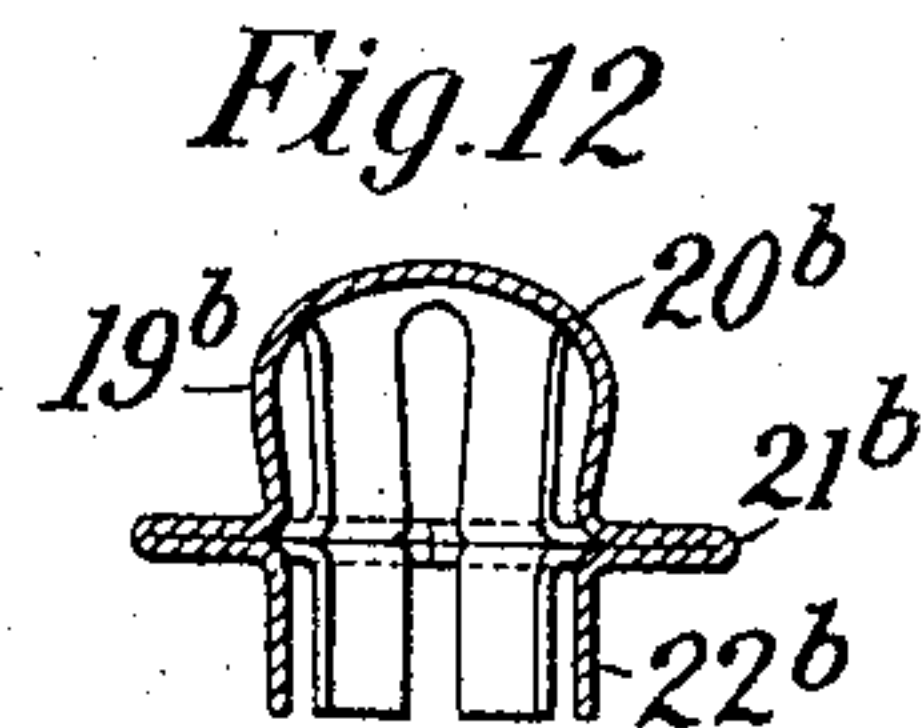
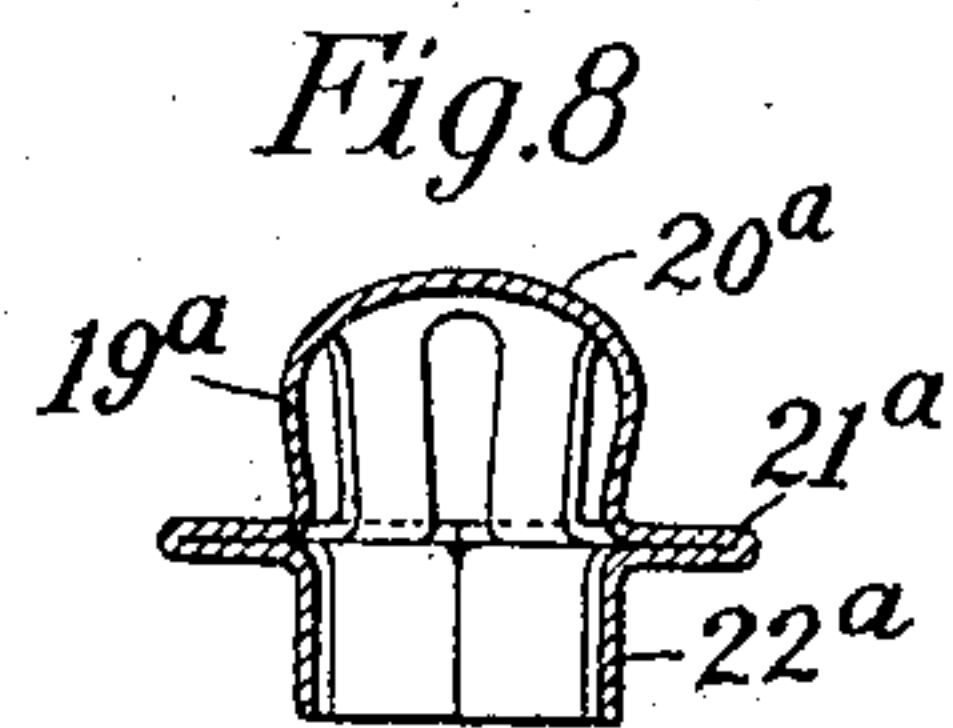
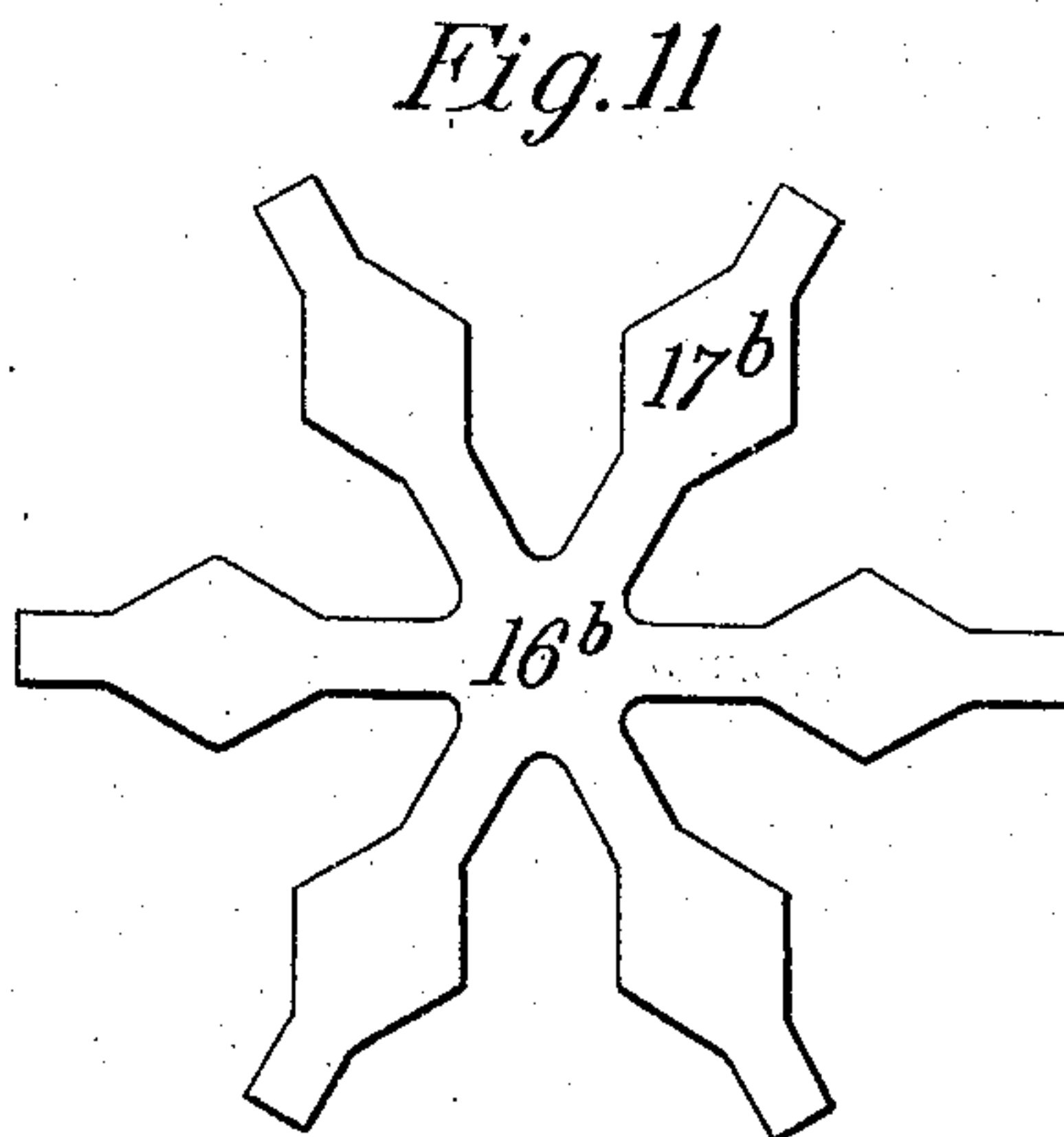
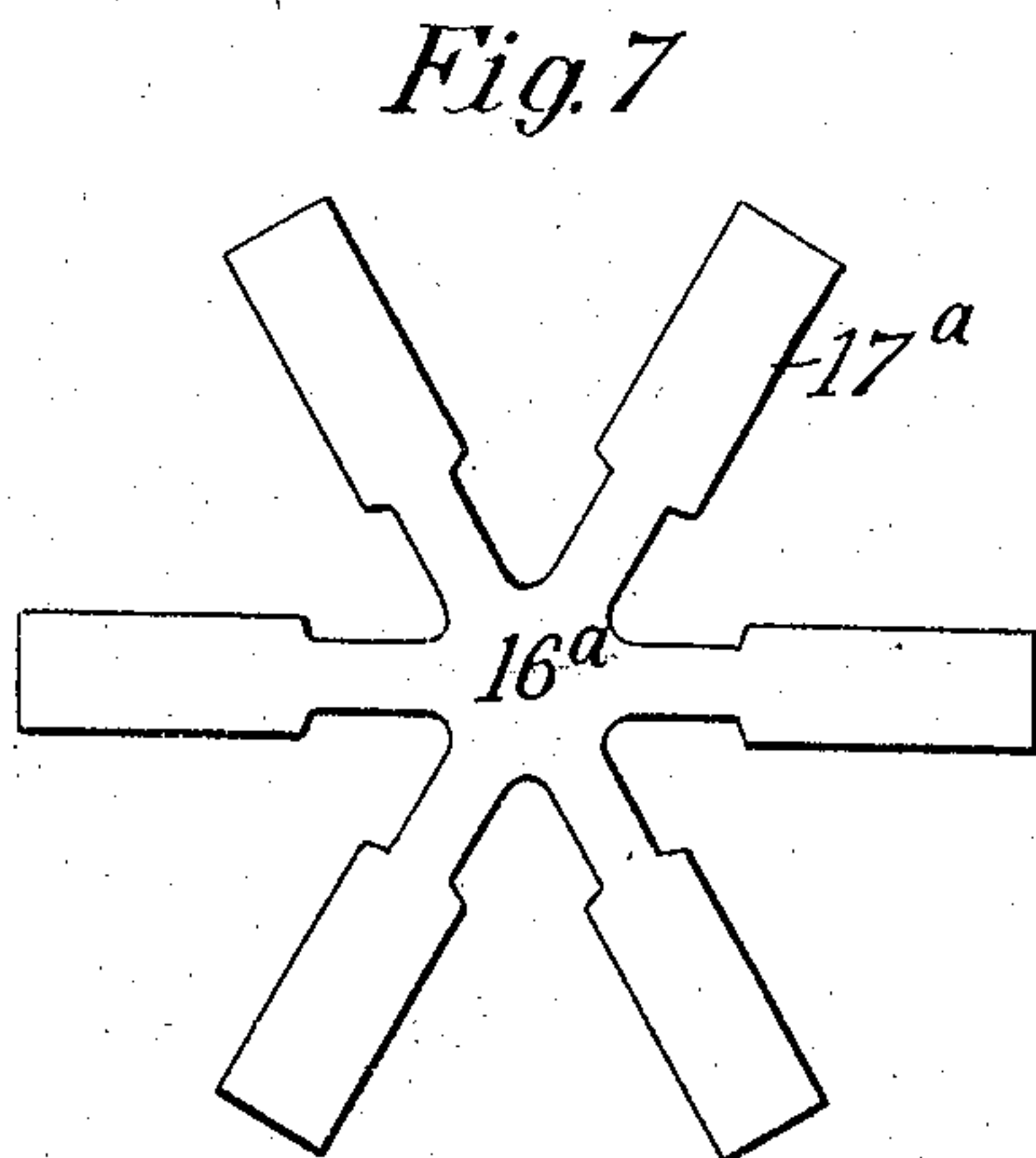
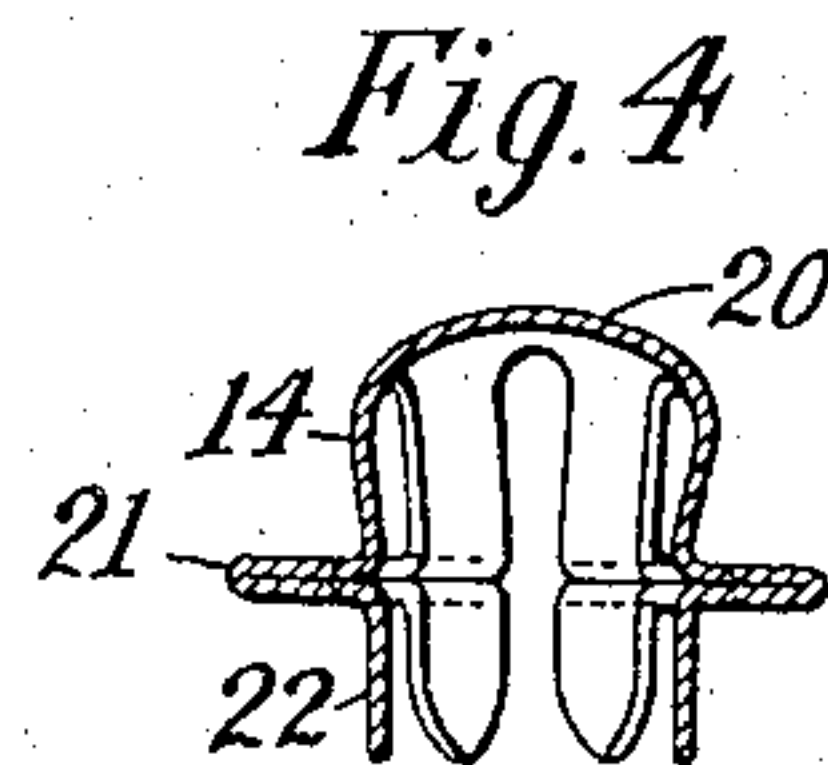
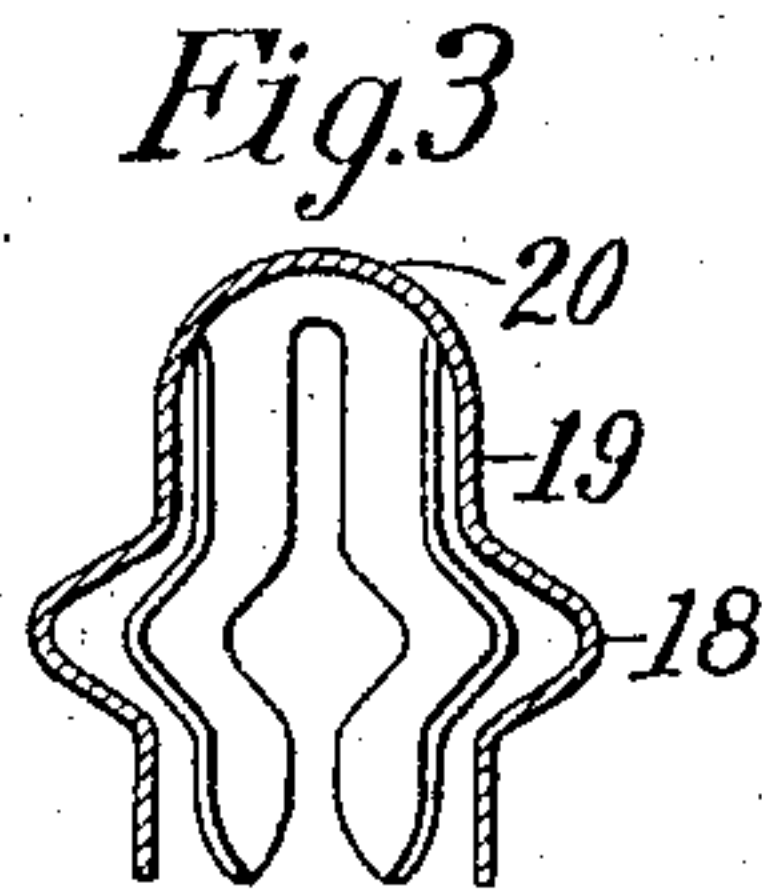
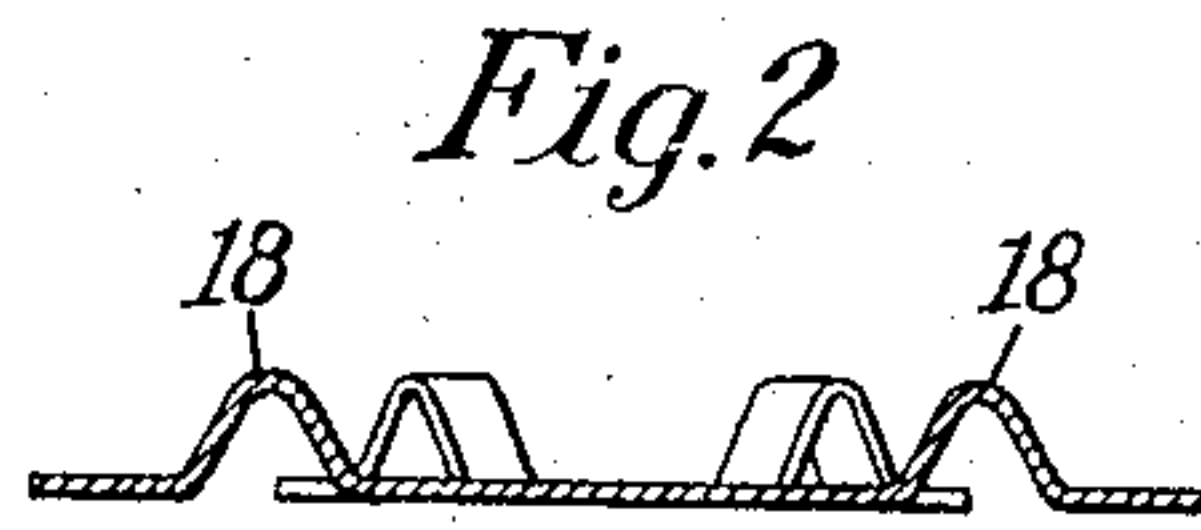
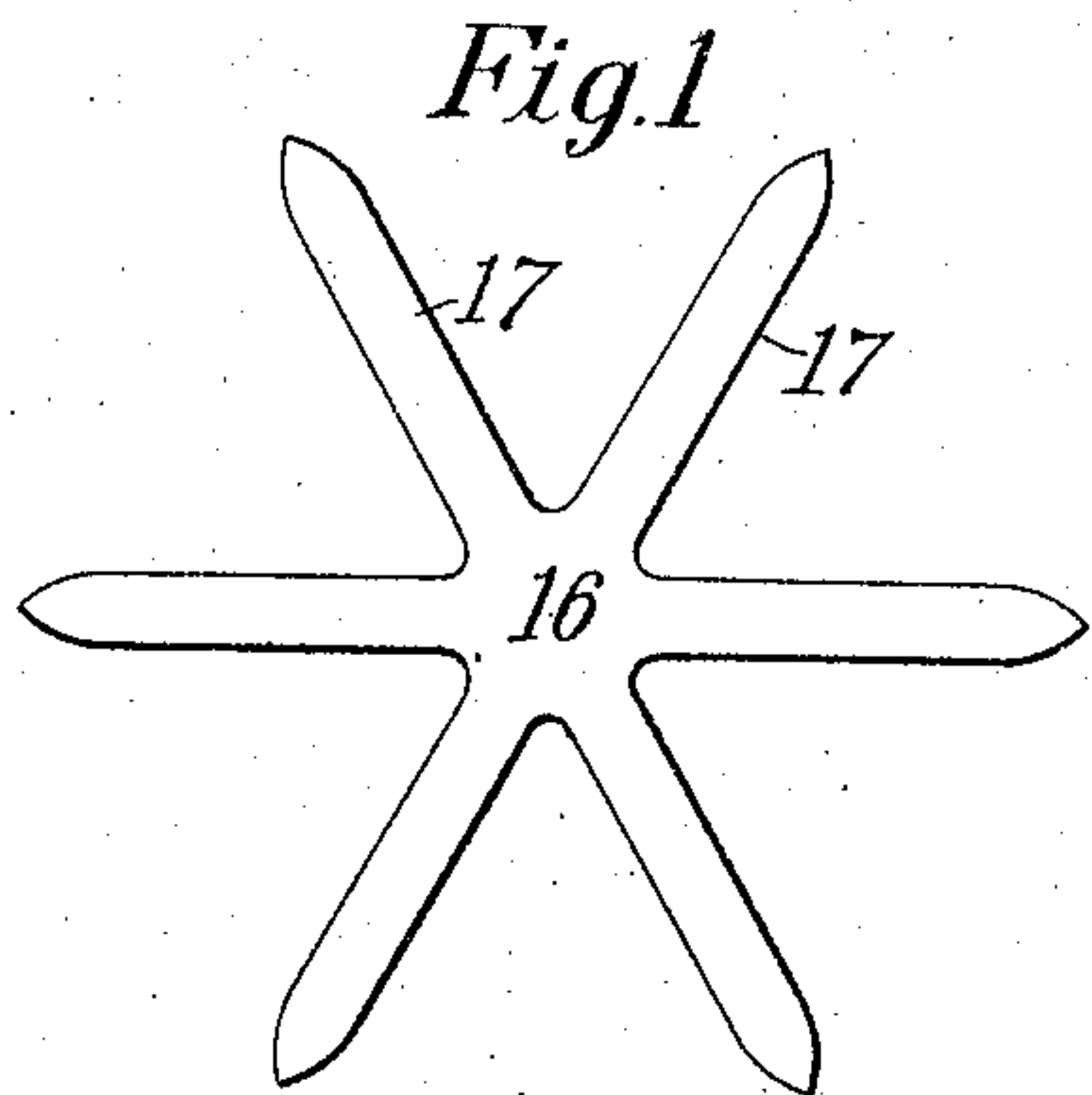


No. 780,510.

PATENTED JAN. 24, 1905.

S. B. LANE.
BUTTON FASTENER.
APPLICATION FILED JUNE 27, 1904.



Witnesses:
Raphaël Ketter
S. Chas. Yeaton.

Spencer B. Lane, Inventor
by *Chafford & Pelee* Attys.

UNITED STATES PATENT OFFICE.

SPENCER B. LANE, OF WATERBURY, CONNECTICUT.

BUTTON-FASTENER.

SPECIFICATION forming part of Letters Patent No. 780,510, dated January 24, 1905.

Application filed June 27, 1904. Serial No. 214,262.

To all whom it may concern:

Be it known that I, SPENCER B. LANE, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and Improved Button-Fastener, of which the following is a full, clear, and exact description.

My invention relates to button-fasteners; and it consists in certain novel parts and combinations of parts particularly pointed out in the claims concluding this specification.

In the accompanying drawings I have shown my invention applied in forms which are at present preferred by me; but it will be understood that various modifications may be made without departing from the spirit of my invention and without exceeding the scope of my claims.

In the accompanying drawings, Figures 1, 2, 3, and 4 show a spring-stud involving my invention in process of manufacture. Fig. 5 is a top view of Fig. 4. Fig. 6 is a sectional side view showing the fastener of Fig. 1 attached to the material. Figs. 7 and 8 show a modified form of spring-stud involving my invention in two stages of its process of manufacture. Fig. 9 is a top view of the stud shown in Fig. 8. Fig. 10 is a sectional side view showing the stud of Fig. 8 applied to the material. Figs. 11 and 12 show another form of spring-stud involving my invention in process of manufacture. Fig. 13 is a top view of Fig. 12. Fig. 14 shows the stud of Fig. 8 attached to the material, and Fig. 15 is a cross-section of the anvil of the stud shown in Fig. 14.

The following is a description of the structure shown in the drawings.

Fig. 1 shows a blank comprising a central part 16, adapted to form the central boss of the stud, and pieces or arms 17, extending radially therefrom. This blank is bent up in a die in the form shown in Fig. 2, the radial arms being thereby crimped at 18 18, as shown.

Fig. 3 shows the crimped blank of Fig. 2 after it has passed through another die by means of which the arms are bent downward to form the bird-cage 19 and the central boss or dome 20. This partially-formed stud is

then passed through a die by means of which the crimped portions 18 are flattened out, forming flanges 21 and legs 22, as shown in Figs. 4 and 5. This button is or may be attached to a glove or other suitable material 23, as shown in Fig. 6, by bending outwardly the legs 22 on the under side of the material. If preferred, however, the die which bends outwardly the legs 22 and attaches the button to the material may simultaneously collapse or flatten out the crimped portion 18 to form the flanges 21, as will be readily understood. The pressure exerted on the head of the dome in compressing or flattening the arms also gives the desired increase in diameter of the upper portion of the dome, as shown, for example, in Fig. 4.

Instead of starting with such a blank as is shown in Fig. 1 I may employ a blank of the form shown in Fig. 7, in which 16^a is the central part, adapted to form the central boss or cap of the stud, and 17^a represents arms extending radially therefrom. From this blank by the steps already described the stud of Figs. 8, 9, and 10 may be made, in which 20^a is the cap of the dome. 19^a represents the resilient sides thereof, 21^a the sectional flange, and 22^a the legs, which are in contact edge to edge, forming a cylindrical extension before it is attached to the material 23. In Fig. 10 I have shown this stud attached to the material by means of a crimped washer 25, the legs 22^a being bent in contact with the outer surface of the washer; but, if preferred, it may be attached by the means already described with reference to Fig. 6 or by the means hereinafter described with reference to Fig. 14.

Instead of starting with such blanks as are shown in Figs. 1 and 7 I may use a blank such as is shown in Fig. 11, in which the part 16^b is adapted to form the central boss or cap of the stud, and 17^b represents arms extending radially therefrom. From the blanks shown in Fig. 11 by the steps already described the stud shown in Figs. 12, 13, and 14 may be formed, 20^b being the cap of the dome; 19^b, its resilient sides; 21^b, the flange, and 22^b the legs. In this form of stud the flange 21^b is made up of segments in contact edge to edge with each other.

This stud may be connected with the material in a manner shown in Figs. 6 and 10, if desired.

While I have in Figs. 7 and 11 shown the outer ends of the several arms as being square, still when desired they may be more or less pointed to facilitate their piercing the fabric, as is shown, for instance, in Fig. 1.

Instead of attaching the studs to the material in the manner shown in Figs. 6 and 10 I may attach them by means of an anvil, as shown in Fig. 14. The anvil is shown in detail in Fig. 15 and is composed of an upwardly-extending part 26 and a rolled-over lower portion 27. The legs of the stud extend into this lower rolled-over portion, and the whole is then compressed against the under side of the material by means of a suitable die to form the completed structure. (Illustrated in Fig. 14.)

In whichever manner constructed my stud when completed contains a head, a flange, and a securing member, integral with each other, or, in other words, of a single piece of metal. The crown 20, 20^a, or 20^b of the head is continuous, or, in other words, constitutes the unit or junction from which the arms composing the sides of the head, the flange, and the attaching member extend. The flange is of two-ply, or, in other words, is formed by producing a return-bend of each of the arms upon itself. The means of attachment is composed of the extension of the arms from the return-bend of the flange through and below the material. It will also be observed that this integral structure may be employed alone, as shown in Fig. 6, or in conjunction with the additional means of attachment shown in Fig. 10 or Fig. 14. It will further be noted that each of the long arms 17, 17^a, or 17^b, which, as above stated, compose the side of the head, the flange, and the attaching member of the stud, are formed by cutting away certain portions from the solid blank, so that when the blank is assembled in its complete stud-like form these cut-away portions form approximately vertical slots, each pair of slots being spaced apart by the long arm formed by the cutting of such slots.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An integral member comprising a head, a flange to overlie the material to which the stud is attached, the sides of the head being composed of arms extending from a junction at the crown of the head, and the flange being composed of a return-bend of said arms bent upon themselves intermediate their length, the portion of said arms below the flange being adapted to pass through the material to form means for attaching the stud to the material.

2. An integral stud member comprising a

head, a flange to overlie the material to which the stud is attached, and a means of attachment extending through and below the material; the sides of the head being composed of resilient arms extending from a junction at the crown of the head, and the flange being composed of a return-bend of said arms bent upon themselves, and the attaching member being composed of extensions of said arms below said return-bend, in combination with a washer engaging with the portions of the arms beneath the material.

3. An integral stud member comprising a head, a flange to overlie the material to which the stud is attached, and a means of attachment extending through and below the material, the sides of the head having a plurality of slots forming arms which extend out of contact with each other from the junction at the crown of the head, and the flange being composed of the return-bends of said arms bent upon themselves in circumferential contact with each other, and the attaching member being composed of the extended portions of the arms below the material.

4. An integral stud member comprising a head, a flange to overlie the material to which the stud is attached and a means of attachment extending through and below the material; the sides of the head being composed of arms extending from a junction of the crown at the head and the flange being composed of a return-bend of said arms bent upon themselves and the attaching member being composed of extensions of said arms below said return-bend, in combination with a washer beneath the material and a dome extension of said washer entering the head of the stud.

5. A stud having a unitary or solid crown and arms extending downward from said crown to form the sides of the head, the flange and means of attachment; each of said arms being bent convex at the side of the head, thence with an outward and return bend forming a flange of double thickness, thence with a downward and outward bend through and below the material to which the stud is attached, and a retaining element engaging with the portions of the stud below the material.

6. As an article of manufacture, a stud member comprising a head having a solid crown, and a plurality of arms depending from said crown and separated from each other their entire length, each of said arms having an outwardly-extending flange formed integral therewith, the lower free extremity of each arm depending from the under side of the flange, and forming means for securing the stud to a fabric.

7. As an article of manufacture a stud member comprising a head member having a plurality of slots in the side thereof, spaced apart to form a relatively long arm, the material of said arm being bent outward and then back-

ward upon itself to form an outwardly-extending flange of double thickness intermediate the length of the arm, the lower free portion of said arm serving as a means for securing the stud to a fabric.

5 8. As an article of manufacture a stud member comprising a head having a solid-crown portion, a depending arm formed in the side of said head by a plurality of vertically-extending slots, and a flange of a thickness double
10 that of the thickness of the arm formed integral with said arm, a portion of said arm extending below the flange to assist in securing the stud to a fabric.

15 9. As an article of manufacture a stud comprising a head having a solid crown, and a plurality of depending arms, each arm having intermediate its length a flange of a thickness double that of the material of the arm, said
20 flange being formed of the material of the arm, the portion of each arm below the flange

serving as a means for securing the stud to a fabric.

10. A stud member comprising a head having a solid crown, and a plurality of depending
25 arms, each arm having intermediate its length an outwardly-extending flange of double the thickness of the material of the arm, said flange being formed of the material of the arm, the portion of each arm below the flange
30 being adapted to extend through a fabric to which the stud is secured, and a locking element engaging with the said lower portion of each arm.

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

SPENCER B. LANE.

Witnesses:

HOWARD WEBSTER,
F. M. PEASLEY.