

No. 882,238,

A. DIECKMANN.

PATENTED MAR. 17, 1908.

SHEET METAL ELBOW.

APPLICATION FILED SEPT. 21, 1906.

2 SHEETS—SHEET 1.

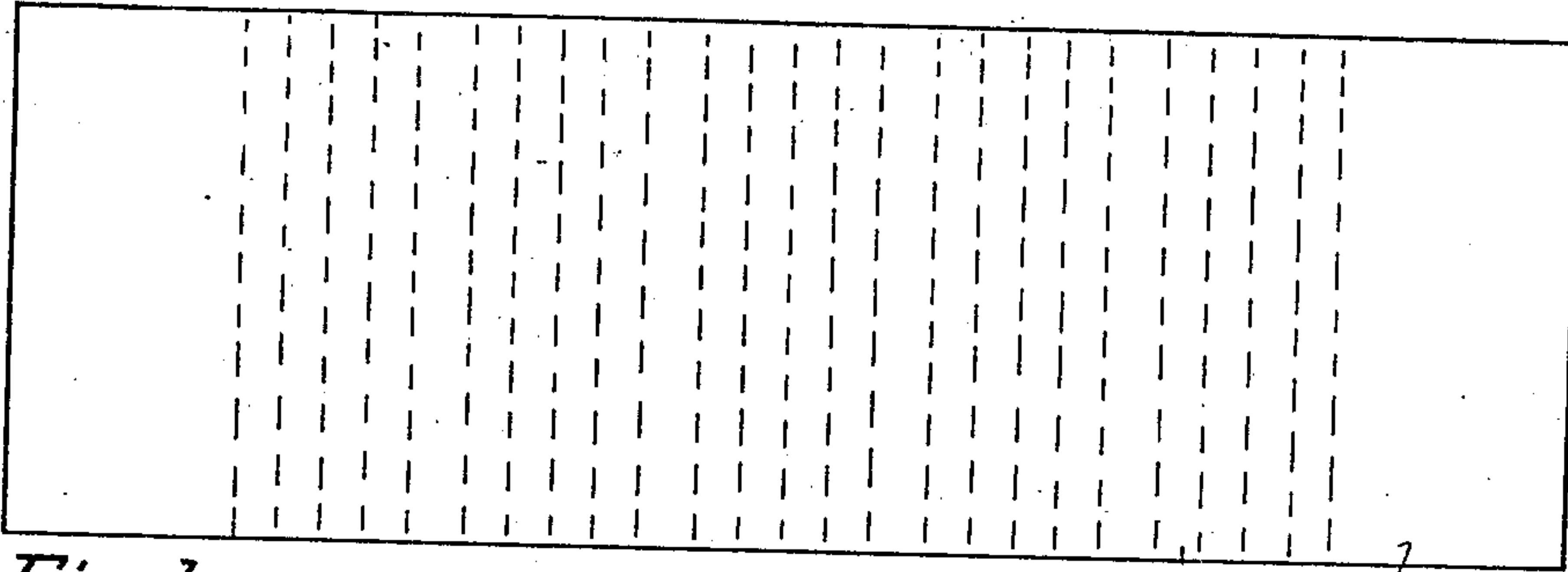


Fig. 1.

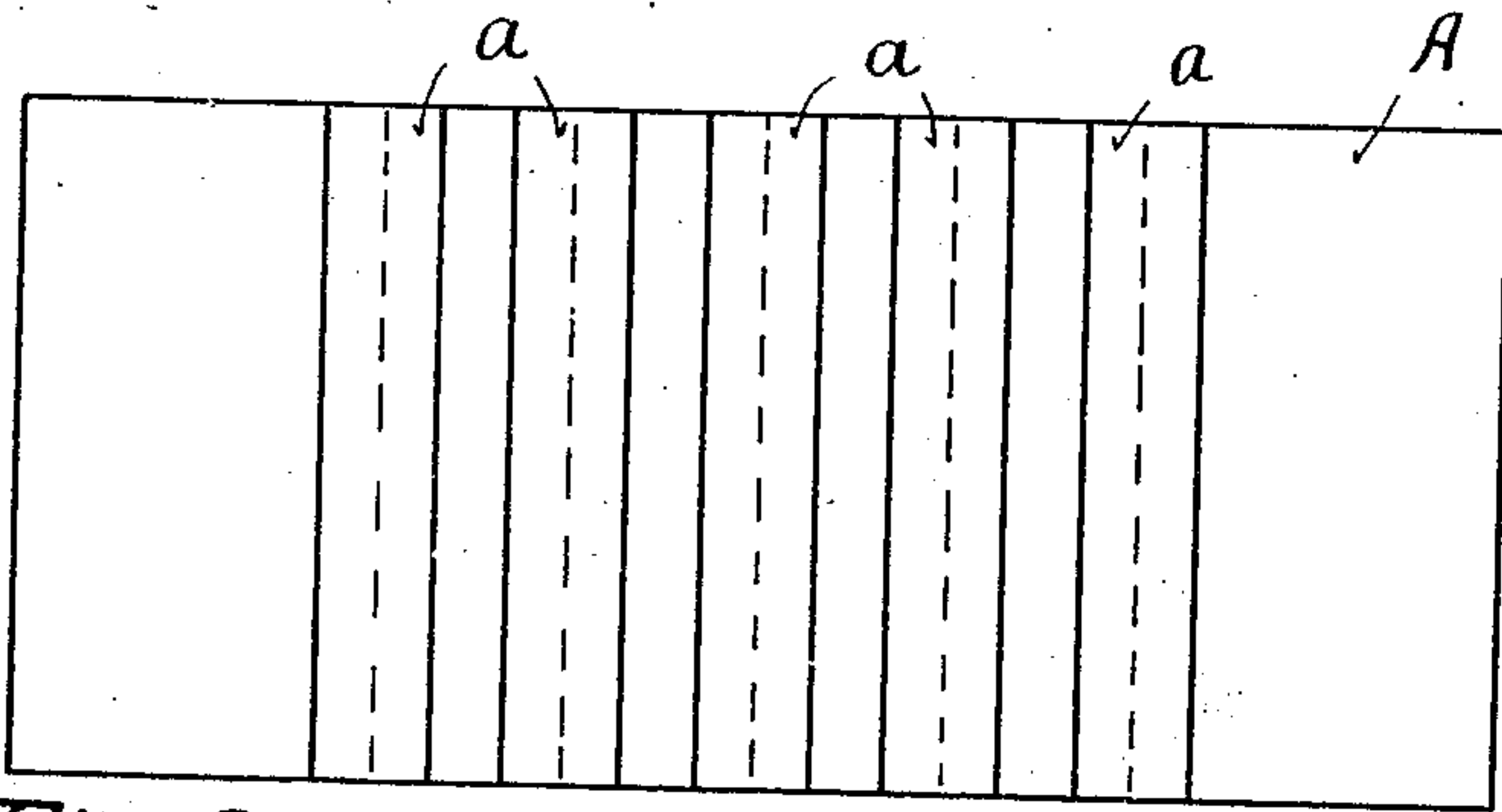


Fig. 2.



Fig. 4.

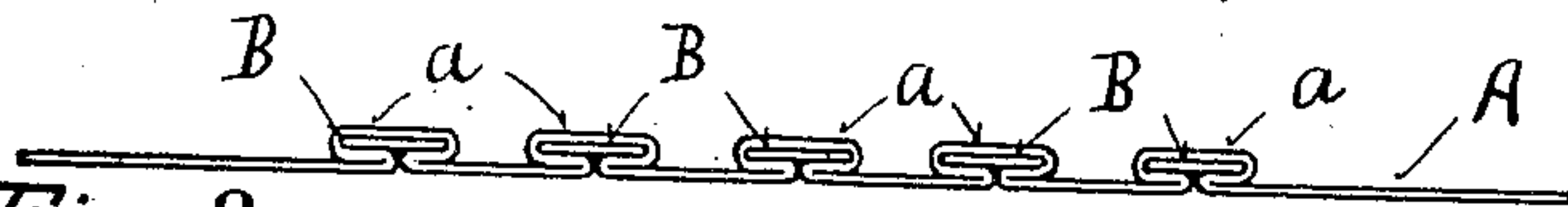


Fig. 3.

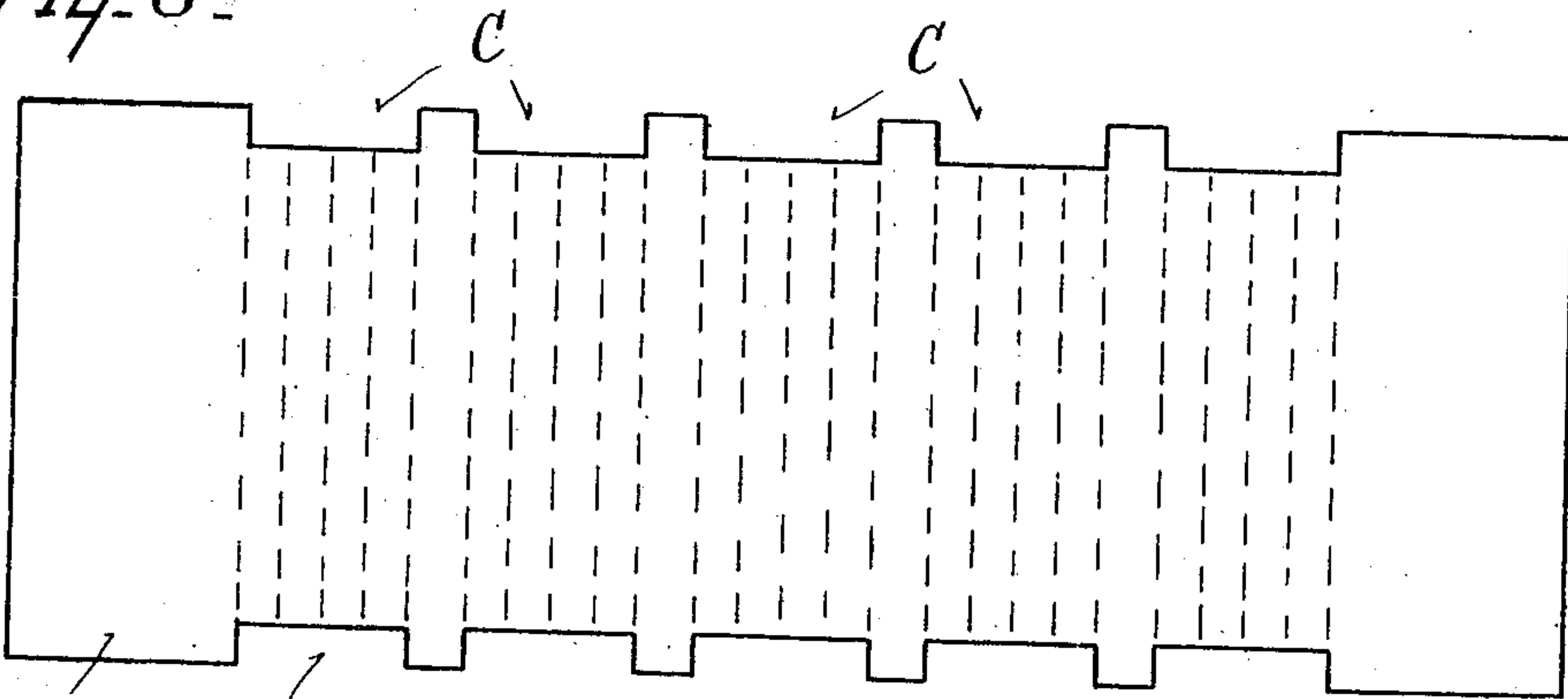


Fig. 5.

Witnesses

A. McCormack.
Halter & Murray

By

Adolph Dieckmann
C. W. Miles,

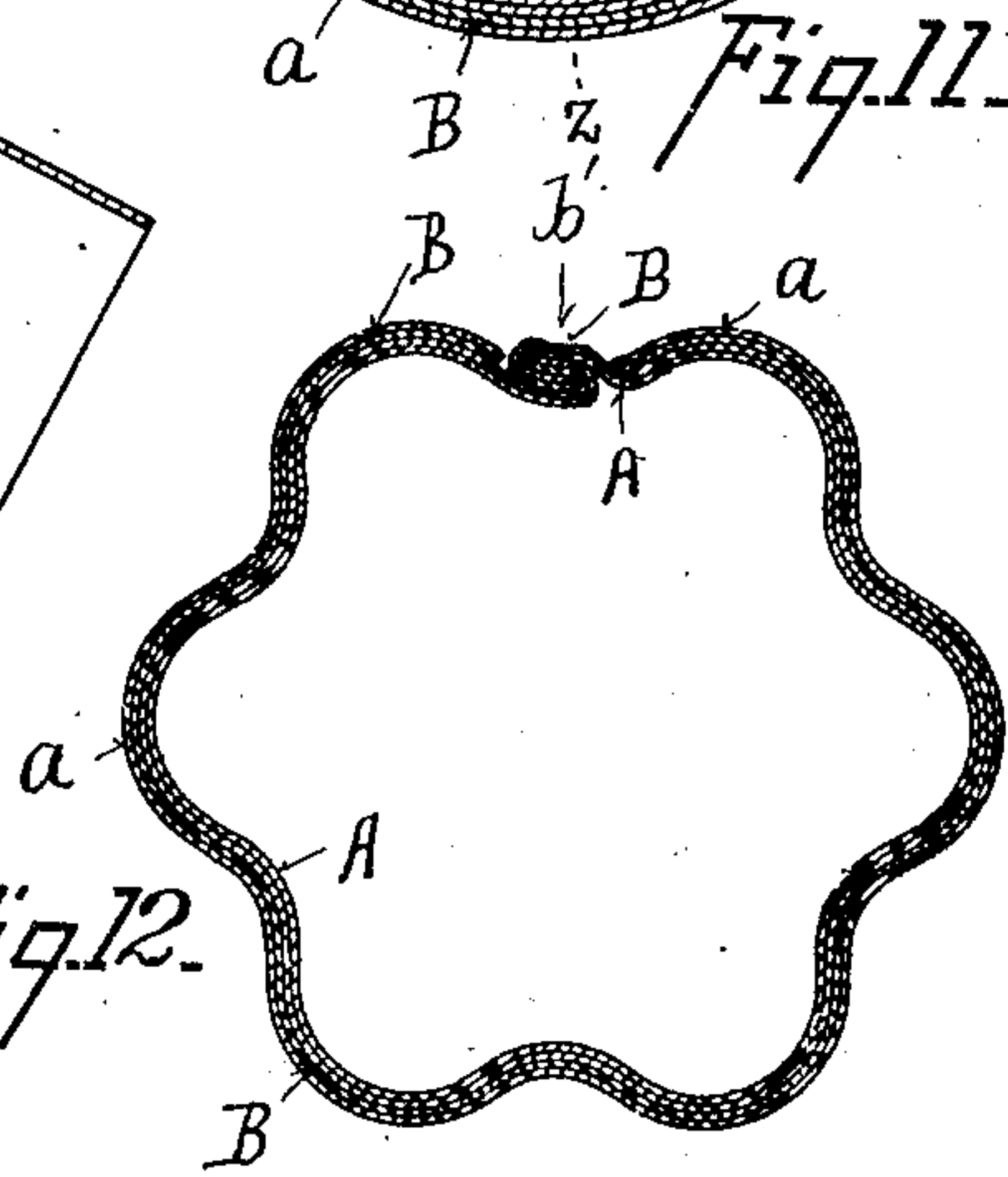
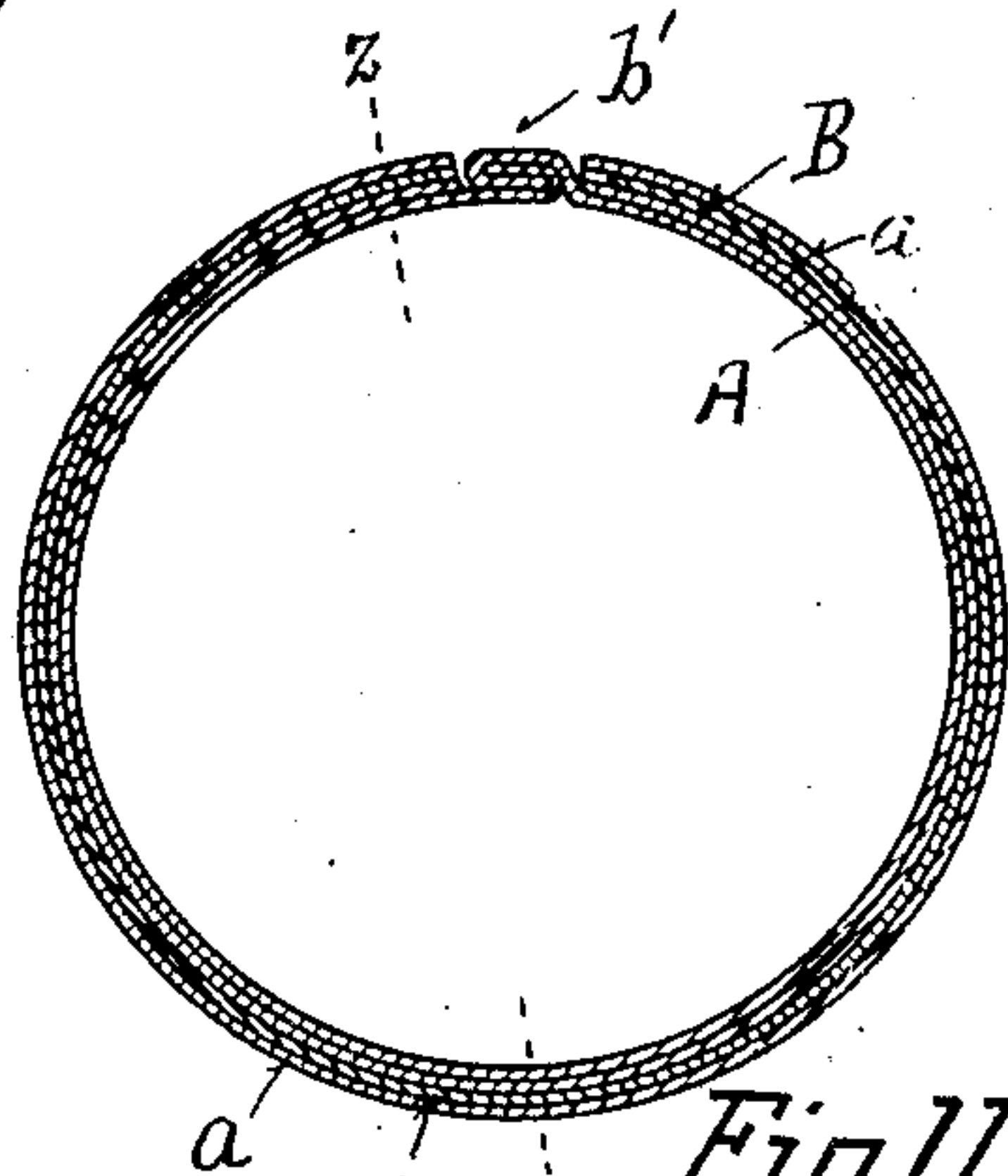
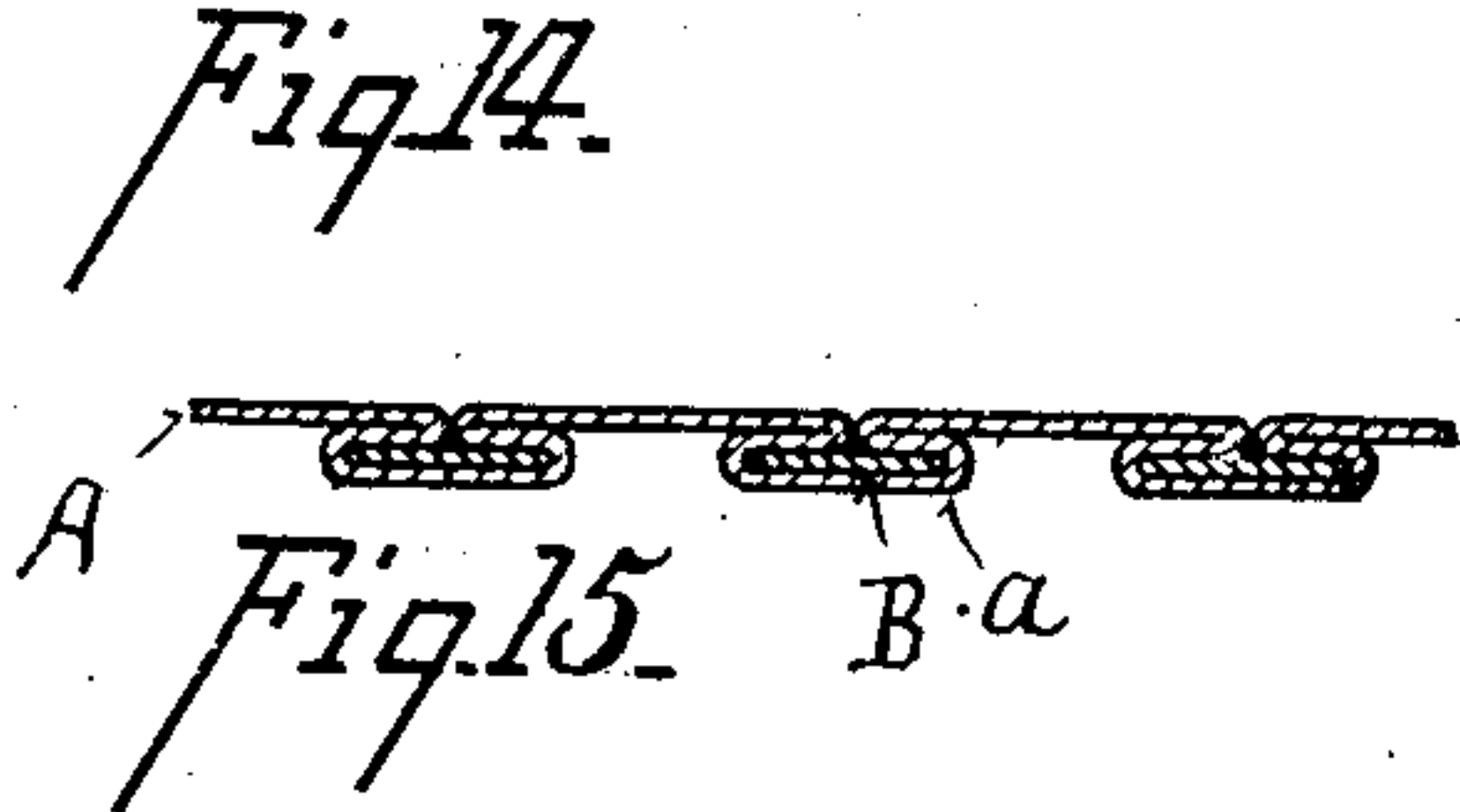
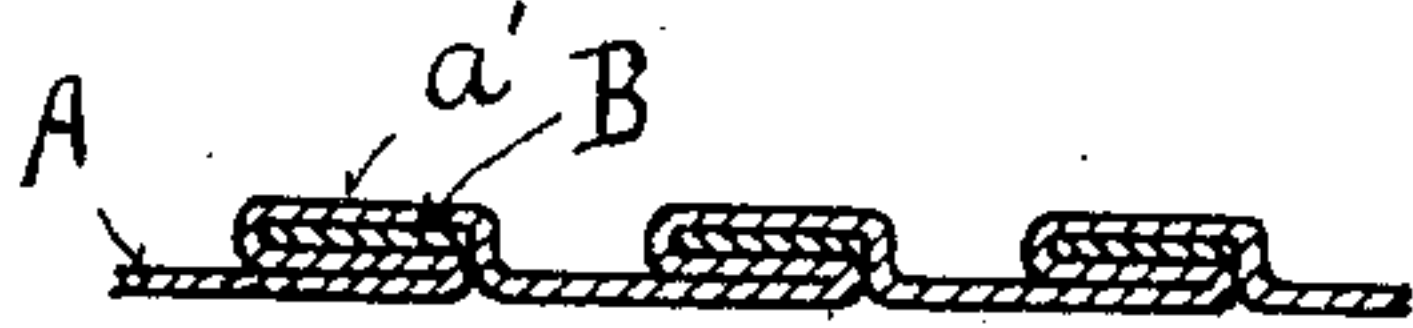
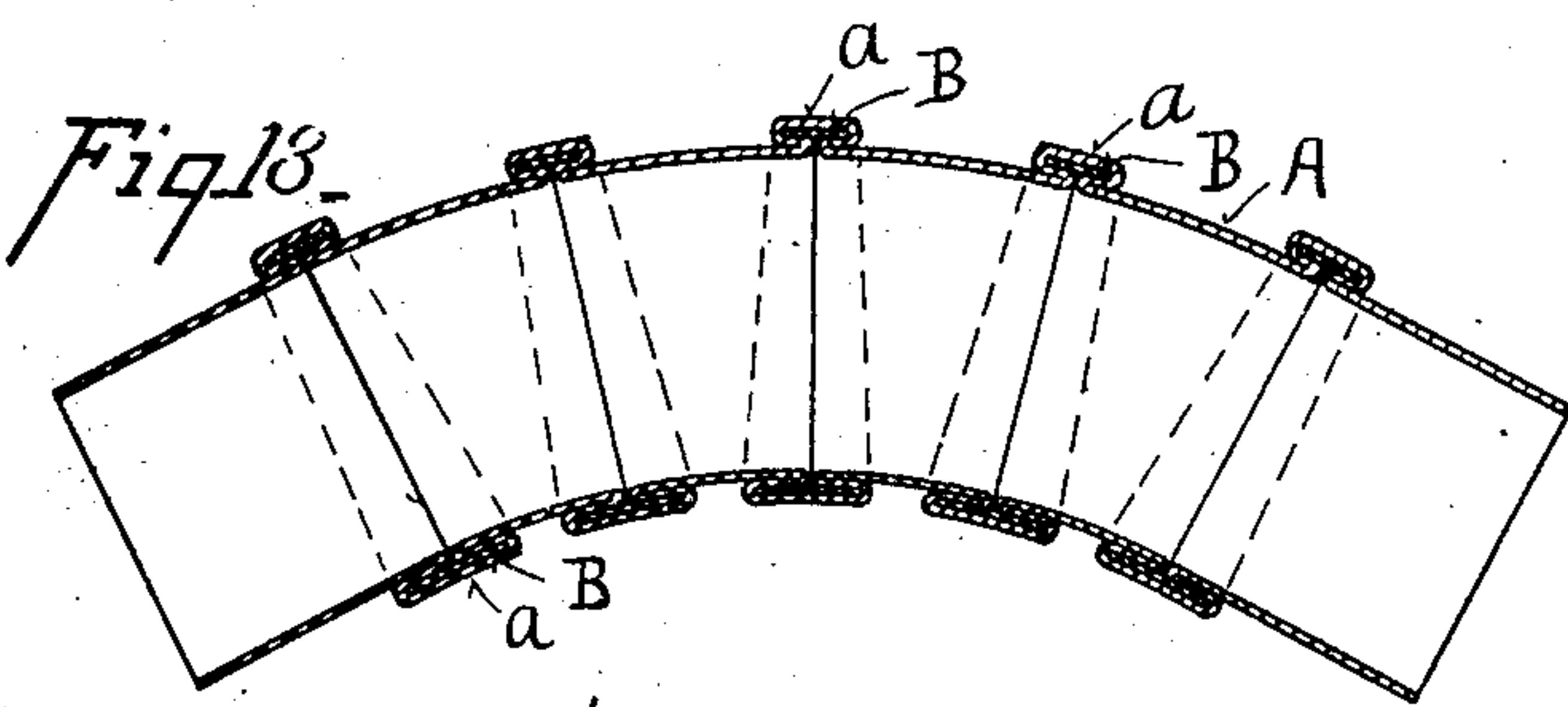
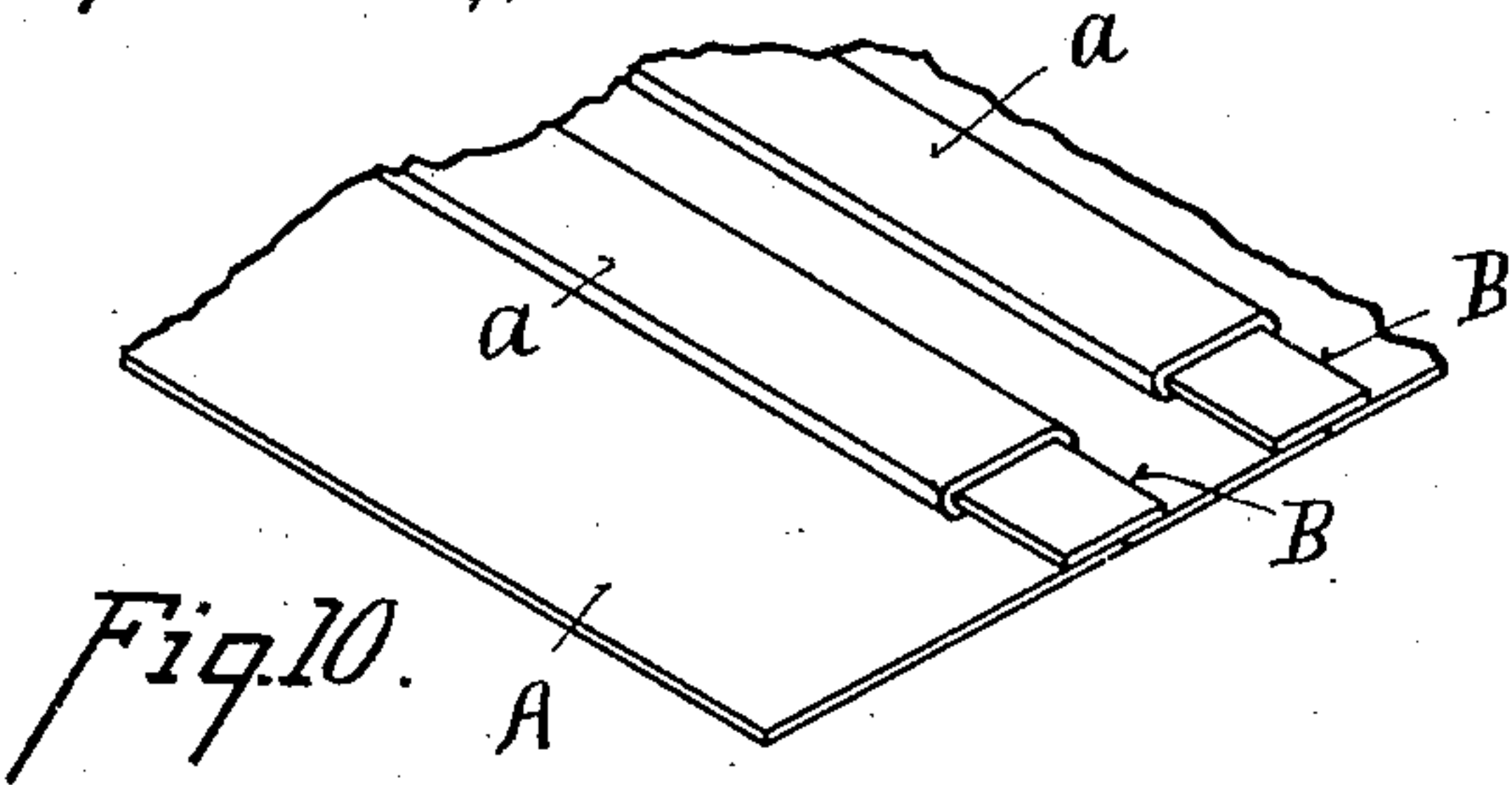
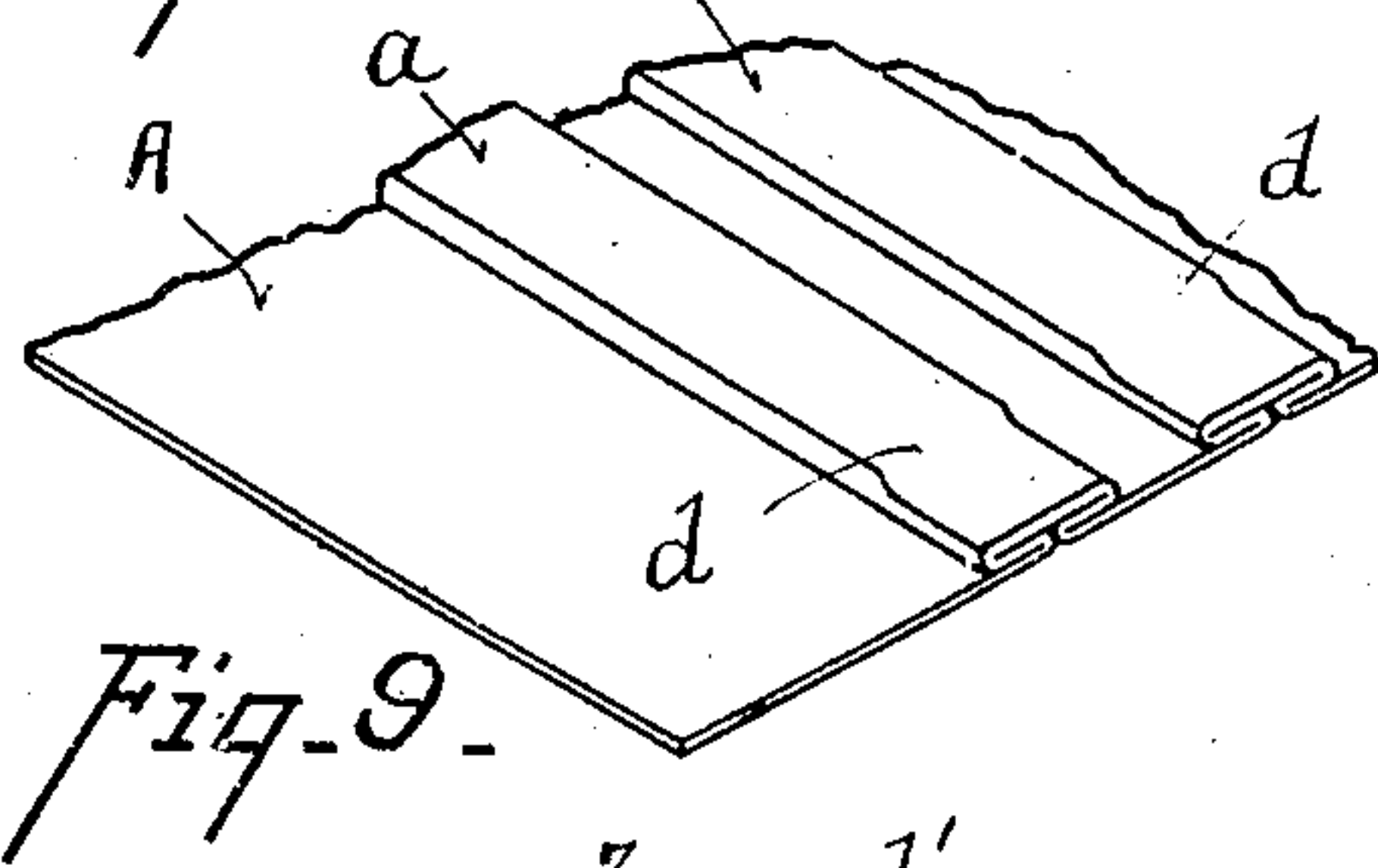
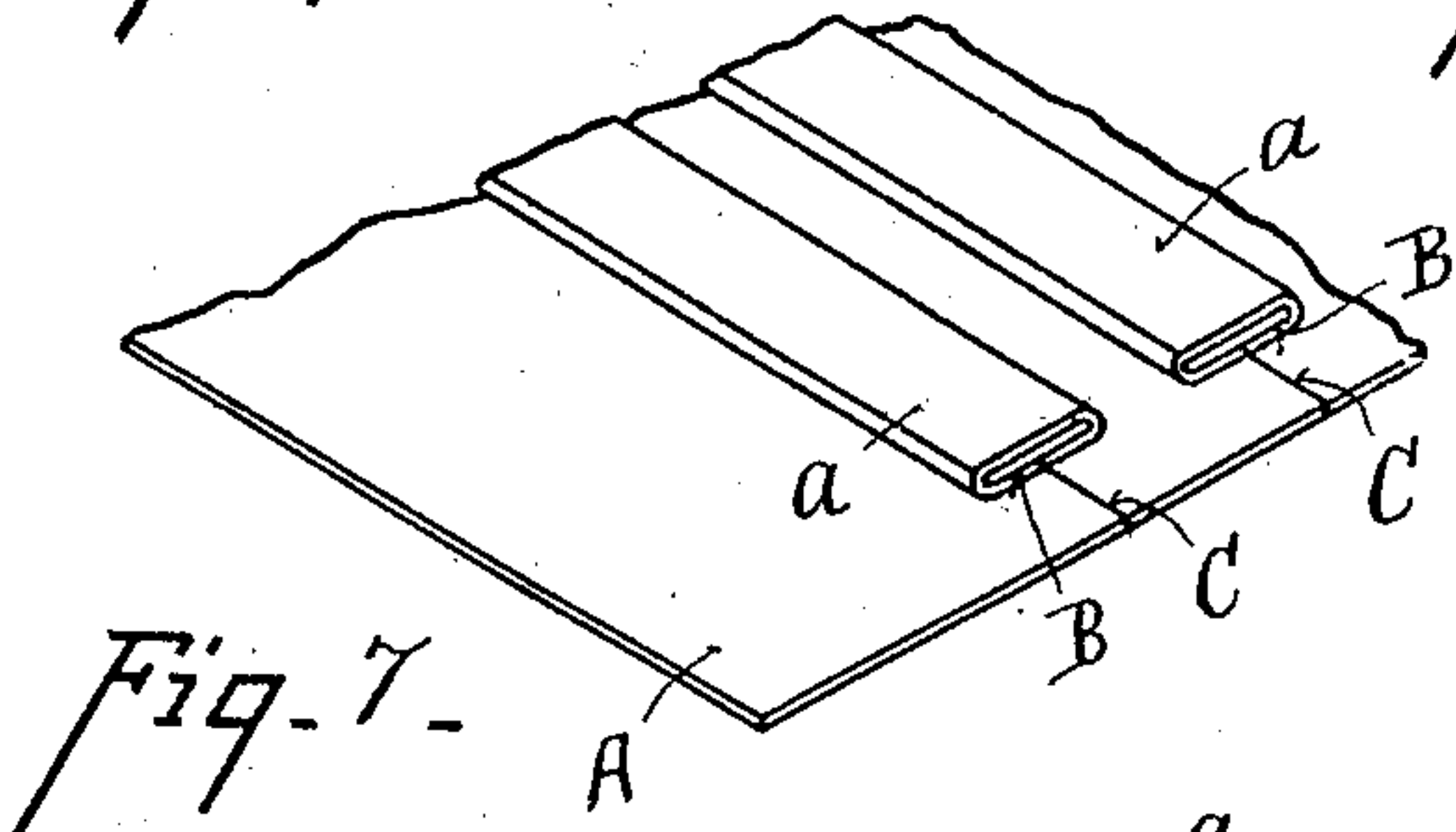
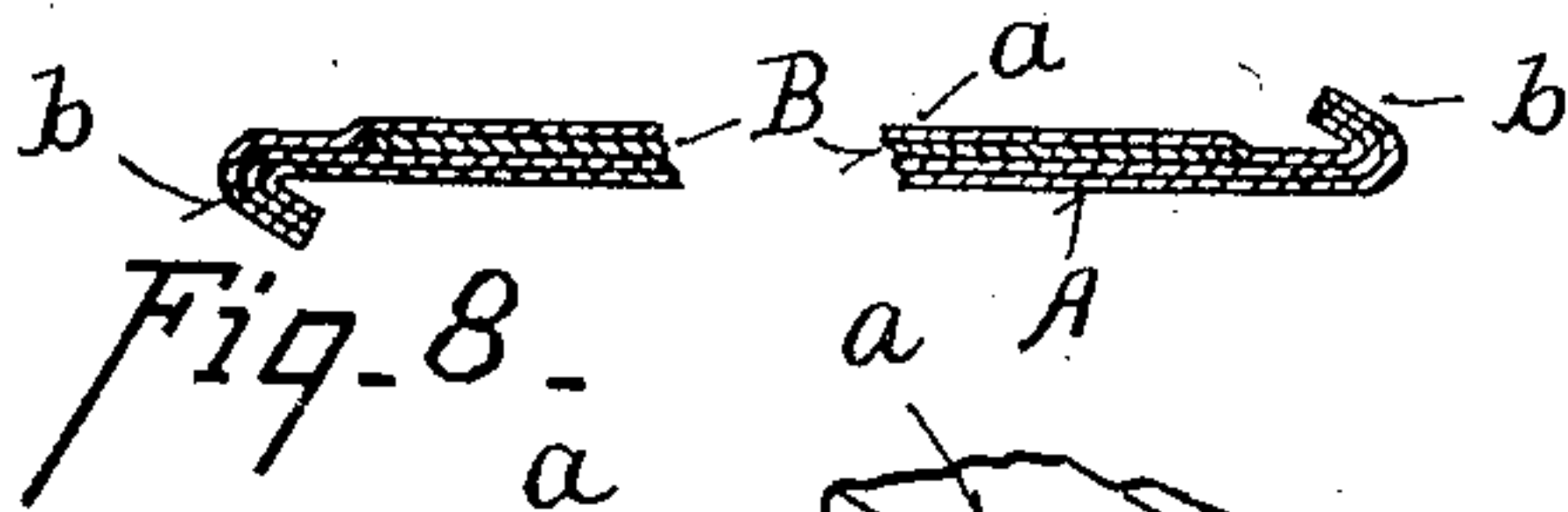
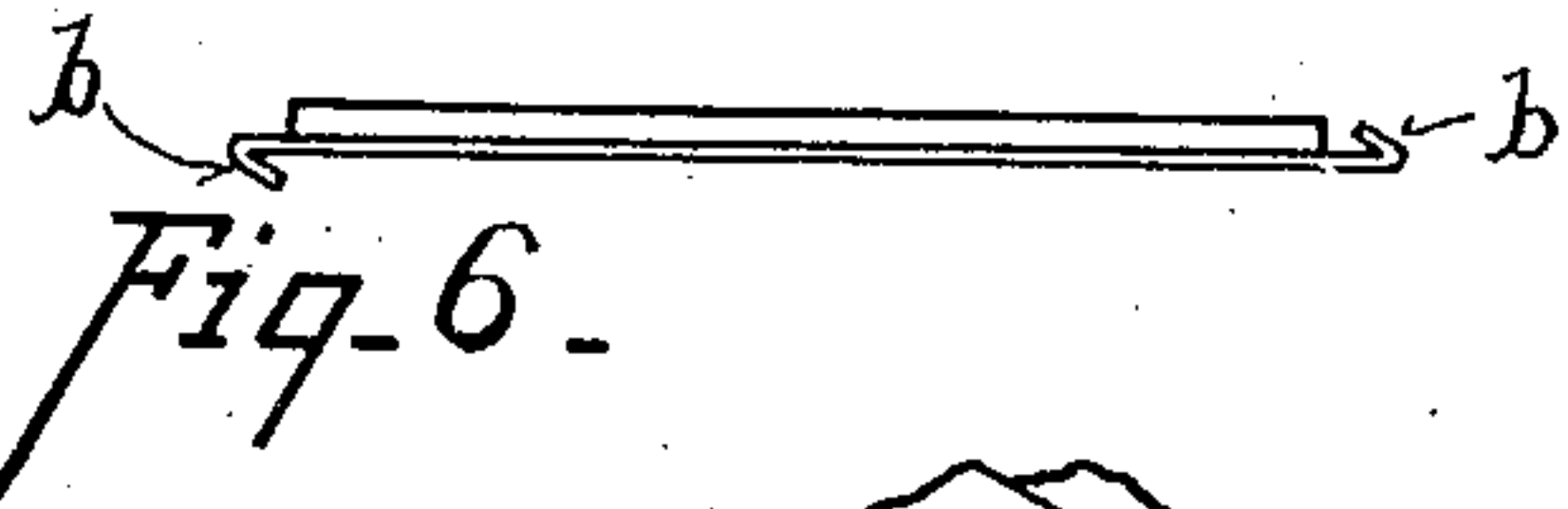
Attorney

No. 882,238.

A. DIECKMANN.
SHEET METAL ELBOW.
APPLICATION FILED SEPT. 21, 1906.

PATENTED MAR. 17, 1908.

2 SHEETS—SHEET 2



Witnesses

A. McCormack.
Halter Murray

By

Inventor
Adolph Dieckmann
C. W. Mills,

Attorney

UNITED STATES PATENT OFFICE.

ADOLPH DIECKMANN, OF CINCINNATI, OHIO.

SHEET-METAL ELBOW.

No. 882,238.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed September 21, 1906. Serial No. 335,654.

To all whom it may concern:

Be it known that I, ADOLPH DIECKMANN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sheet-Metal Elbows, of which the following is a specification.

My invention relates to improvements in sheet metal elbows. One of its objects is to provide an elbow requiring a less number of crimps to attain the desired curvature.

Another object is to provide an elbow requiring less metal to galvanize.

Another object is to provide an elbow having greater strength and resistance to crushing strains.

It further consists in certain details of form, combination and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which;

Figure 1 is a plan view of a blank from which the elbow is to be formed. Fig. 2 is a plan view of the blank Fig. 1 after the folds or plaits have been formed. Fig. 3 is an edge view of Fig. 2. Fig. 4 is a plan view of one of the reinforcing strips. Fig. 5 is a view similar to Fig. 1 showing a modification thereof. Fig. 6 is an end view of the same with the edges turned preparatory to forming the seam. Fig. 7 is a perspective view of the blank Fig. 6 prior to turning the edges. Fig. 8 shows a modification of Fig. 6. Fig. 9 is a perspective view of the blank from which Fig. 8 is formed. Fig. 10 represents a modification of the blank Fig. 7. Fig. 11 is a cross section through a plain round elbow formed from the blank Figs. 6 and 7. Fig. 12 is a cross section through a corrugated elbow formed from the blank Fig. 10. Fig. 13 is a longitudinal section through an elbow on line *z z* of Fig. 11. Fig. 14 is a cross section through a blank showing a modification. Fig. 15 is a cross section through a blank showing the plaits on the reverse side from that shown in Fig. 3, and designed to be rolled into a tube with the plaits upon the inside of the elbow, or tube.

In the accompanying drawings Fig. 1 represents a blank or sheet of metal A from which the elbow is to be formed. The first step consists in folding the blank A along the dotted lines of Fig. 1 to form the plaits *a* as indicated in Figs. 2 and 3 and inserting in the respective plaits sheet metal strips B of substantially the form shown in Fig. 4. The

strips B may be formed in length equal to the width of the blank A or of a length less than the width of the blank. The next step consists in turning or bending the edges of the blank at *b* as indicated in Figs. 6 and 8 preparatory to forming the same into an interlocking seam. The blank is then rolled or formed into a tube or cylinder with the plaits encircling the tube, and the bent edges *b* interlocked and pressed down to form a seam *b'* along one side of the tube as indicated in Figs. 11 and 12. The tube may now be bent to the desired curvature as indicated in Fig. 13, which is effected by the yielding of the plaits, which become of less width upon the outside of the elbow or curve. The shape of the strips B, which are narrower at the middle than at their ends, serves to limit the extent to which the plaits will yield, and thereby the curvature of the elbow. Where the strips B are of less length than the width of the blank, the ends of the plaits are preferably pressed down at the ends as indicated at *d* Fig. 9, and the edges subsequently turned as indicated in Fig. 8.

As shown in the modification Fig. 5, the edges of the blank are recessed at C so that the blank when folded and with short strips B inserted will assume the form shown in Fig. 7, the edges thereof being subsequently turned as shown in Fig. 6 and then formed into a tube as indicated in Fig. 11. Fig. 10 represents a folded blank of the form shown in Fig. 5 where long strips B instead of short ones are employed, the ends of the strips B projecting out of the plaits and being bent over together with the edge of the blank to form the seam. Fig. 12 indicates the manner of forming the blank Fig. 10 into a tube, the said tube having been also corrugated, as may also be done with any of the modifications illustrated if desired.

In practice I preferably form a double or box plait as shown in Figs. 3, 7, 9, 10, and 13, rolling the tube so that the plaits lie upon the outside thereof, as such plaits require a less number of plaits for a given curvature of the elbow than single plaits. If desired however, plaits of the form shown in Fig. 14 may be employed. Also the plaits may be formed upon the opposite side of the sheet or blank, as indicated in Fig. 15, or the sheet may be reversed in the rolls so that the plaits will lie upon the inside of the tube.

As sheet metal elbows are ordinarily if not necessarily formed of lighter weight

metal than the pipe with which they are employed, I am enabled by means of the construction herein described, and by the use of the strips B to greatly increase the strength and rigidity of the finished elbows.

Having described my invention, what I claim is;

1. A sheet metal elbow having encircling plaits and strengthening ribs encompassed by said plaits.

2. A sheet metal elbow having encircling plaits and a longitudinal seam, and strengthening ribs embraced within said plaits and locked therein by said seam.

3. A sheet metal elbow having encircling double or box plaits and strips embraced within said plaits, said strips being so shaped as to limit the movement of said plaits in forming the curve of the elbow.

4. A sheet metal elbow having double or box plaits completely encircling the elbow,

the plaits increasing in width from the outside to the inside of the elbow curve.

5. A sheet metal elbow having double or box plaits completely encircling the elbow and a longitudinal seam, the plaits increasing in width from the outside to the inside of the elbow curve, and the ends of said plaits abutting where the elbow seam is formed.

6. A sheet metal elbow having encircling plaits, a locked longitudinal seam, and strips embraced within said plaits, the length of said strips being less than the width of the elbow blank.

In testimony whereof I have affixed my signature in presence of two witnesses.

ADOLPH DIECKMANN.

Witnesses:

C. W. MILES,

J. J. HEIDACHER.