

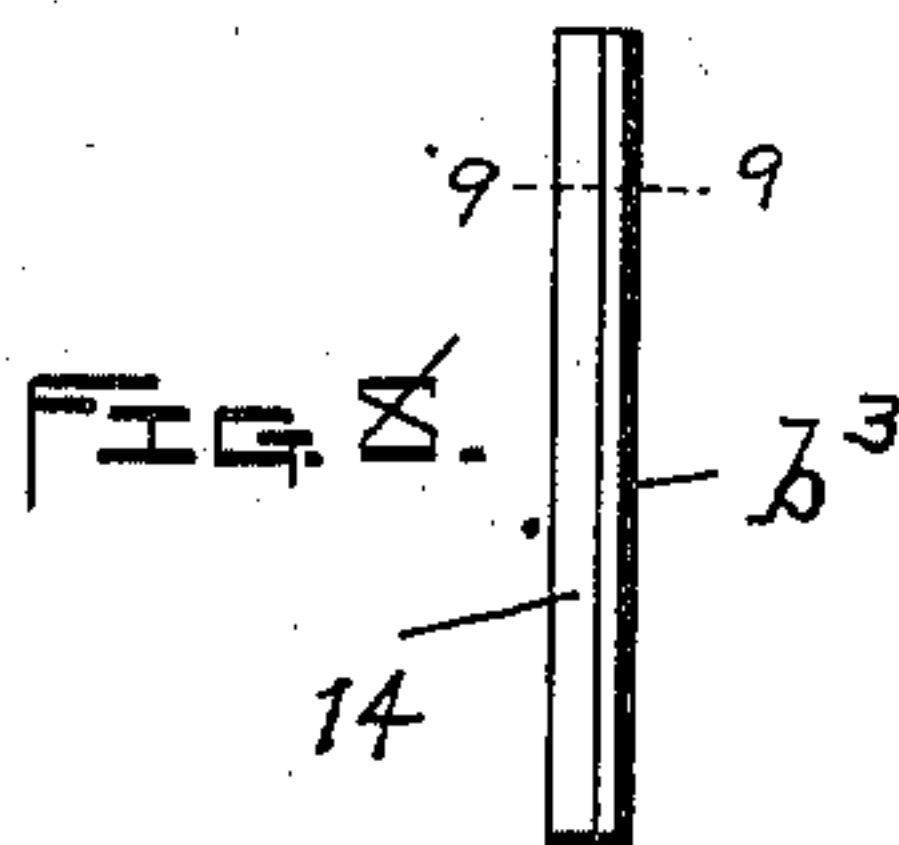
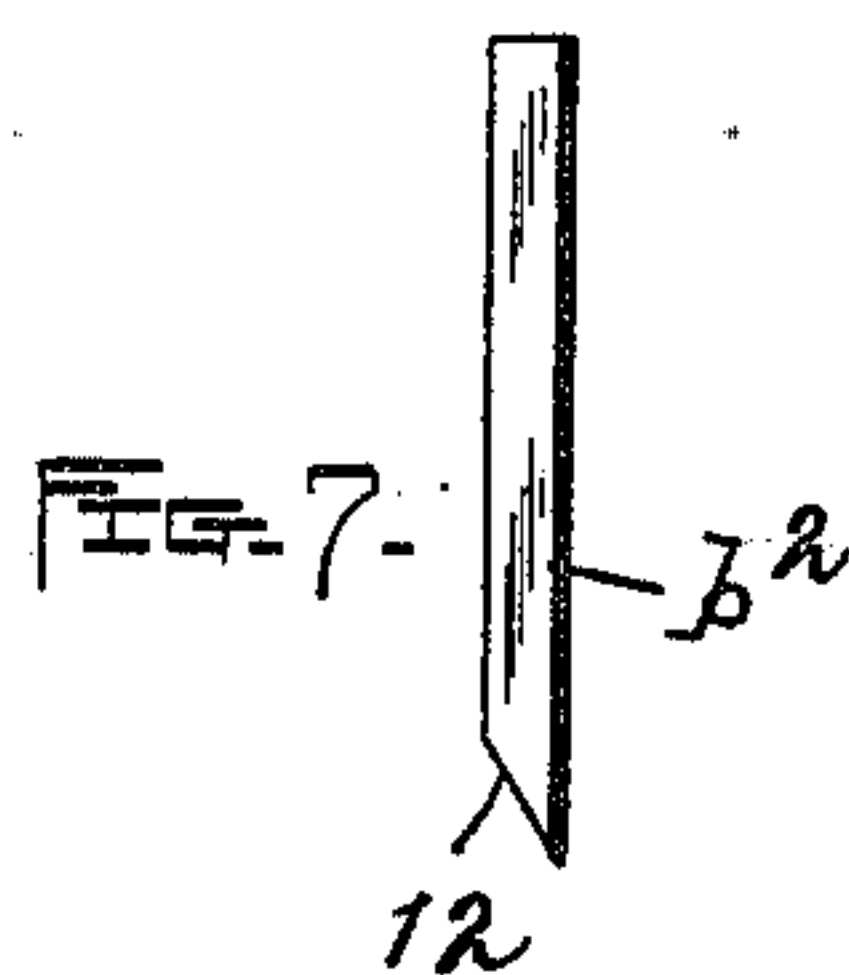
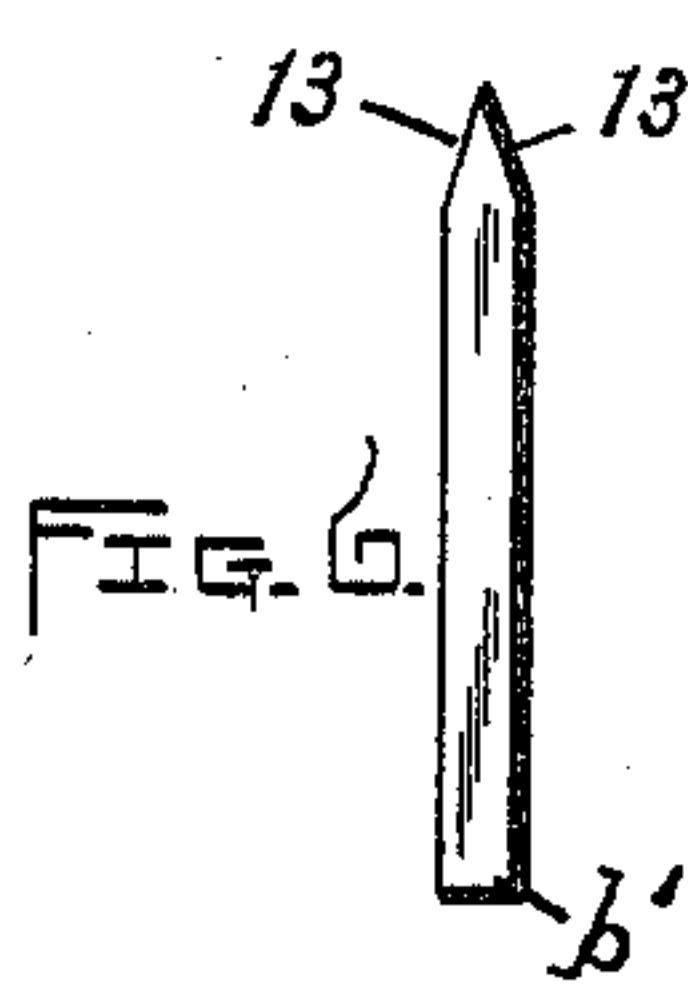
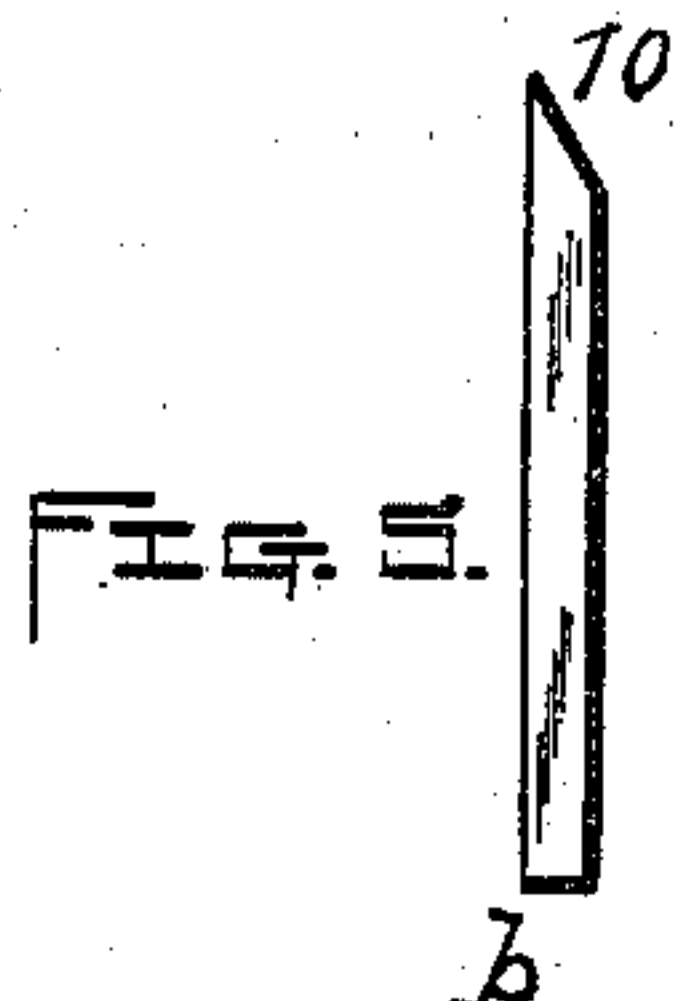
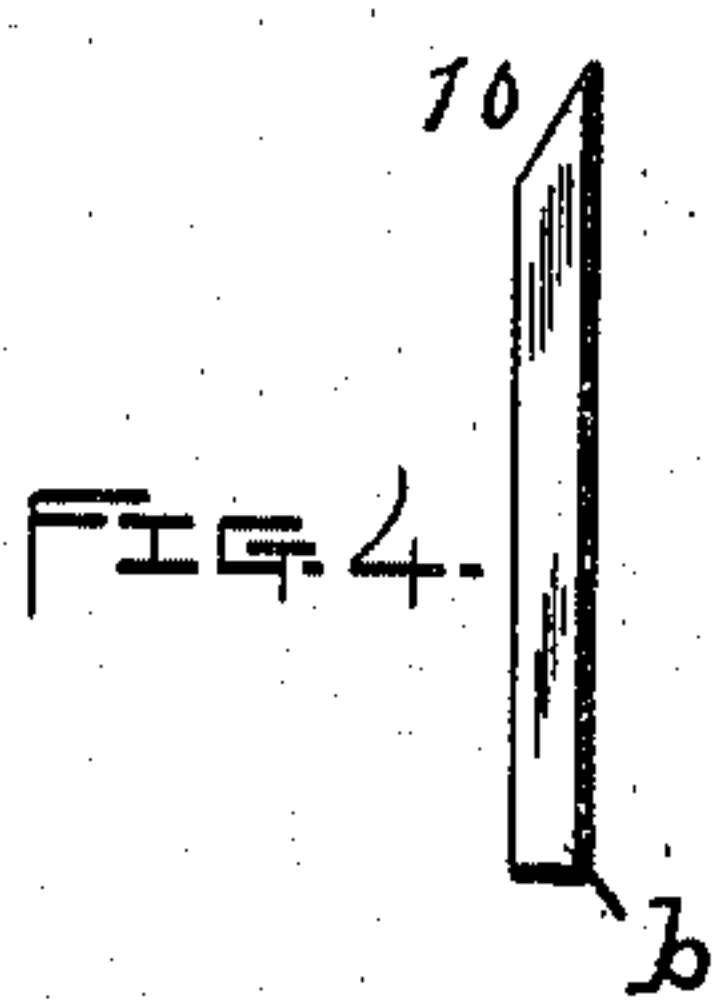
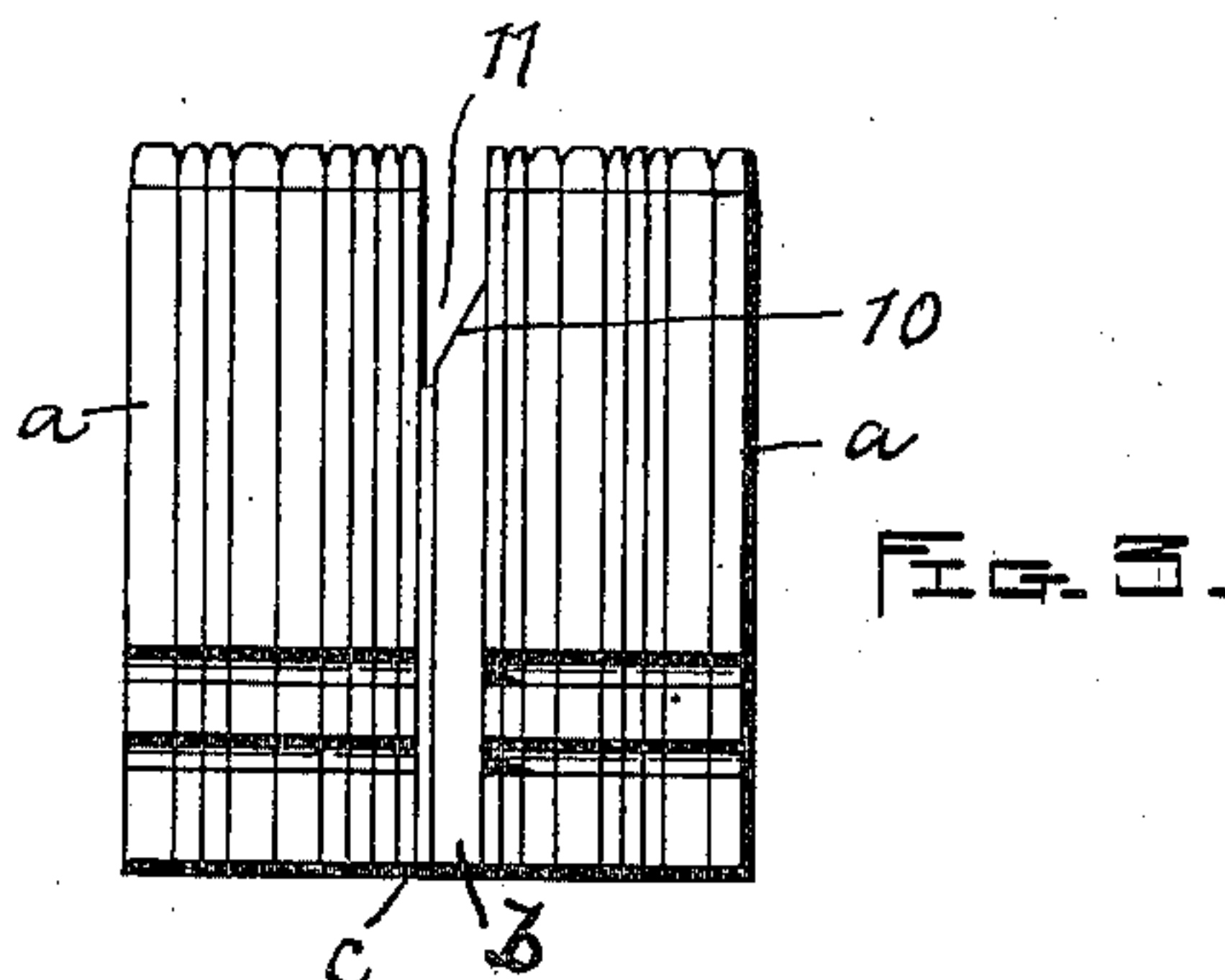
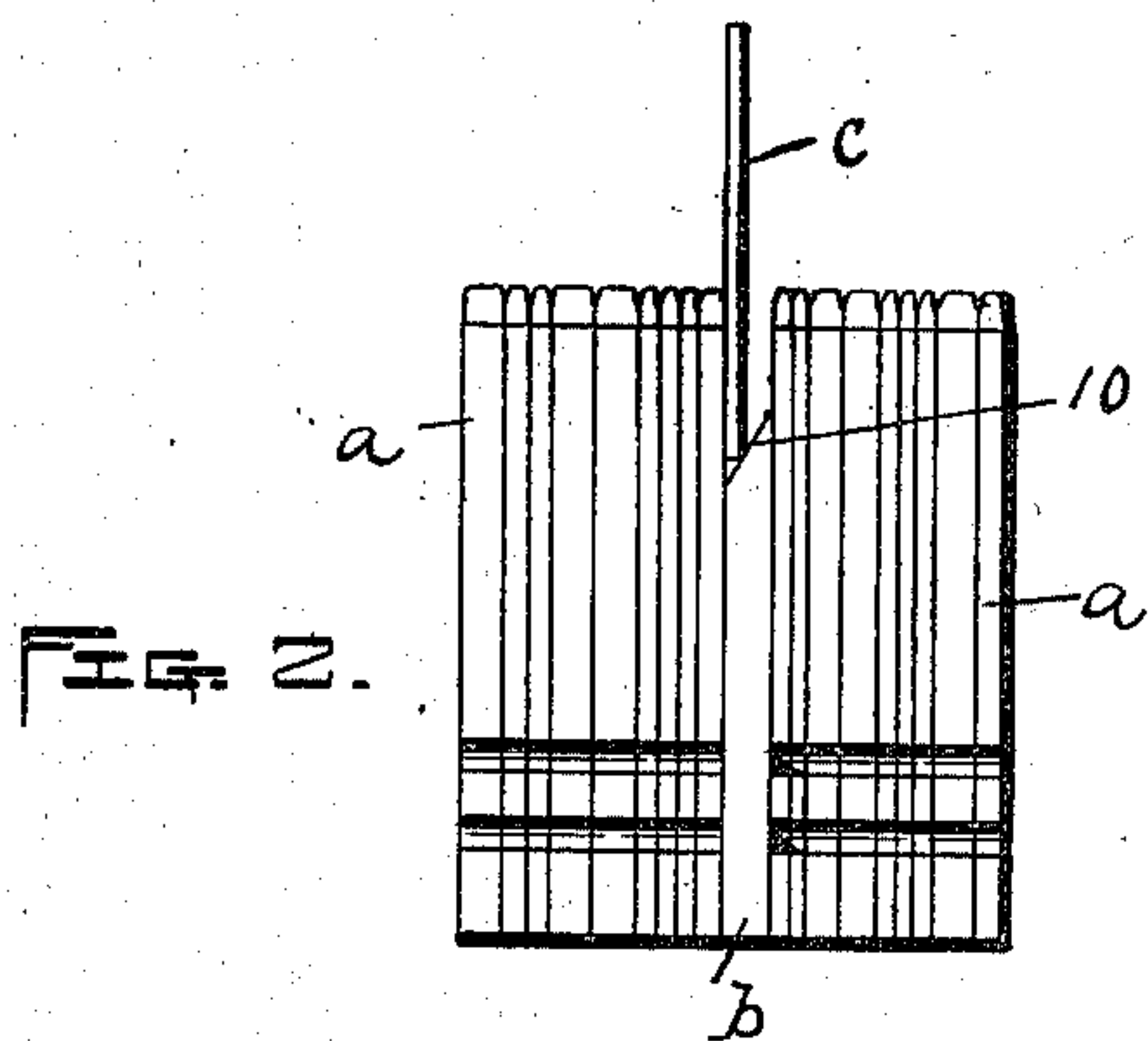
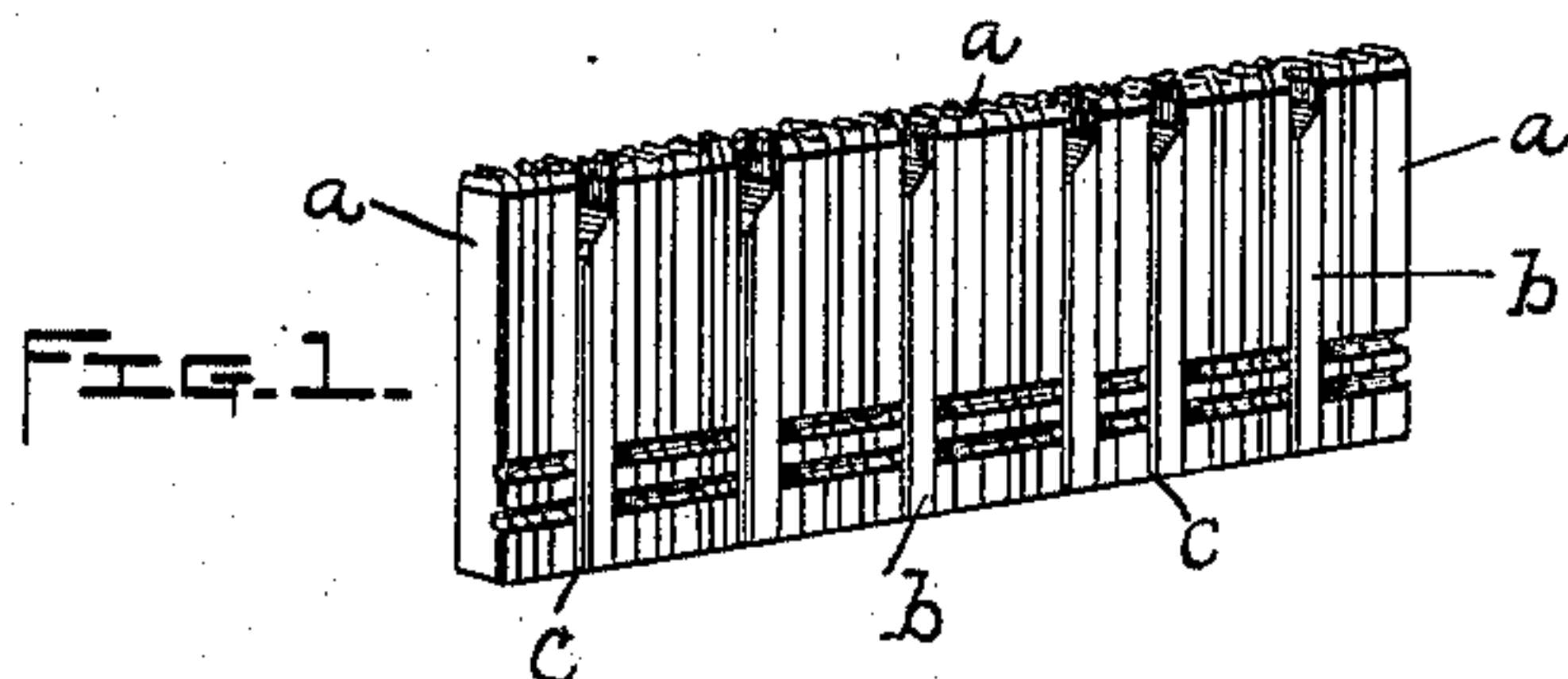
No. 731,666.

PATENTED JUNE 23, 1903.

C. H. COCHRANE.
MEANS FOR JUSTIFYING TYPE.

APPLICATION FILED SEPT. 25, 1899.


NO MODEL.



WITNESSES;

C. Forest Nesson.

M. C. Regan.

FIG. 7. 

INVENTOR;
CHARLES H. COCHRANE.

By Southgate & Southgate Attys.

UNITED STATES PATENT OFFICE.

CHARLES H. COCHRANE, OF BROOKLYN, NEW YORK.

MEANS FOR JUSTIFYING TYPE.

SPECIFICATION forming part of Letters Patent No. 731,666, dated June 23, 1903.

Application filed September 25, 1899. Serial No. 731,558. (No model)

To all whom it may concern:

Be it known that I, CHARLES H. COCHRANE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Means for Justifying Type, of which the following is a specification.

The most difficult problem to-day in setting type is the justifying of the type-lines so that they will all be of the same length, whereby the right-hand side of the column or page which is to be printed from the type matter will be in line.

Many methods and schemes have been suggested and devised for justifying type matter. It has been proposed to make the type-spaces compressible and compress the type-lines all to one length. It has been proposed to separate or spread apart the words by various forms of wedges. This, while applicable to a certain class of work—such as linotype-work, in which matrices are used instead of type and in which the justification of a single line of matrices is done laterally or at right angles to the type-faces—has not as yet, so far as I have been informed, been employed in any of the machines now on the market for setting ordinary type matter. It has also been proposed to provide an automatic mechanism which would withdraw the type-spaces from the line and insert larger type-spaces and continue the operation until a line of type less than the desired length would be brought to proper length. It has also been proposed to provide a mechanism which would automatically separate the words, so that additional spaces could be dropped in to fill out the line. All these proposed methods have met with little, if any, commercial success, and it is the common practice to-day throughout the printing art, so far as I am informed, to justify type by hand by selecting and varying the type-spaces until the right length is obtained. Machines with measuring and calculating devices have been proposed to help do this; but they have proved too complicated and uncertain to be commercially practical.

My invention as distinguished from what has before been done proceeds on an entirely new principle, so far as I am informed.

In the practicing of my invention the line of type is set up in the ordinary manner by

the compositor or by machine with the ordinary types; but instead of using the common form of type-space a novel type-space is used between each word. The line is set up by the compositor or machine less than the proper length and as near to the proper length as is convenient. The same kind of type-space is used between each word. This type-space consists of a piece less than type-high, having an inclined face, which face is preferably formed on the top end thereof, so that there will be a tapered guideway or throat formed between each type-space and adjacent type. With the line set up in this manner with these novel type-spaces thin justifying-shims are inserted and forced into the line of type between the type-spaces and adjacent types, and in this way the type-line is brought out to full length, or justified. By proceeding in this way the line of type as originally set up with the particular type-spaces does not have to be disturbed. All that is necessary to justify the line is to force the necessary number of shims into the throats or guideway in the line of type. A line of type justified in this way is very even and accurate, because very thin shims can be used and the same can be inserted progressively from one space to a succeeding space until the line is justified. This particular way of justifying a line of type may be practiced by hand or machinery.

I propose in further applications for patent to claim improved mechanism for justifying type by the previously-described method; but in this application I claim the particular type-space and combinations used in justifying the line.

Referring now to the accompanying sheet of drawings, forming part of this application, Figure 1 is a perspective view of a line of type justified according to my improvement. Fig. 2 is an enlarged view of two words, showing how a shim is introduced. Fig. 3 is a view similar to Fig. 2, showing the shim in place. Figs. 4 to 8, inclusive, are elevations of various forms of type-spaces that I may employ; and Fig. 9 is a cross-sectional view of the type-space illustrated in Fig. 8.

In detail, as shown in Fig. 1, *a* designates a number of types set up into a line. In the particular line chosen for illustration seven words are shown. Between each word is

placed a type-space b , less than type-high, which has an inclined guiding-face, the preferred form thereof being indicated in the first five figures and consisting of a type-space having its upper end beveled or cut off, as at 10, so that when the type-space is in place an inclined throat or guideway 11 will be formed between each type-space and adjacent type. To justify the line, thin shims c are then introduced into the line. These thin justifying-shims can be very quickly and accurately forced into the line between a type-space and the adjacent type by reason of the inclined face of the type-space. These justifying-shims are made of thin strips of metal of the body thickness of the type and of a height a little less than that of the type-spaces. The shims are preferably made of a harder metal than type-metal, such, for example, as steel, so that they will last for a long time. The shims may be slightly beveled off on their ends which are to enter the type-line, although thin strips of metal are generally sufficient.

The line is justified by starting at one space and going progressively across the line from one space to the next until the type-line is brought out to the required length. If necessary, the operation can be continued back and forth across the line.

In Fig. 1 two shims are shown between the first two type-spaces and their adjacent types and a single shim between each of the other type-spaces and their adjacent types, this being supposed to justify the line.

It will be seen that the space between any two words of a line justified by this method cannot vary more than one shim and that by practicing this method the spaces throughout the entire line will be very even.

I preferably make the type-spaces unnicked on the front side where the types are nicked, so that the line of type can be introduced into automatic mechanism and the type-spaces cause the mechanism to act to introduce the shims.

If it is desired to nick the type-spaces for the purpose of distribution, this can be done on the back sides thereof.

The preferred form of type-space with the inclined end may be turned either way when in the line, as shown in Figs. 4 and 5.

A type-space b' , having two inclined faces 13 13 at the end, as shown in Fig. 6, may be used.

A type-space b^2 with its bottom end inclined, as at 12, as shown in Fig. 7, may be used, so that the shims can be introduced from the bottom instead of the top of the line.

A type-space having its inclined face on the side thereof may be used, so that the shims can be introduced laterally instead of longi-

tudinally into the line, if desired, and such type-space b^3 is shown in Figs. 8 and 9 with an inclined side face 14.

The inclined face on the type-space is preferably cut on a straight line, but may be cut on a curve and may cut off the whole or part of any one of the ends or sides of the type-space.

The invention is also applicable to the justifying of logotype matter.

The specific forms herein shown may be further varied by a skilled mechanic without departing from the scope of my invention as expressed in the claims.

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

1. A type-space less than type-high having an inclined face for guiding justifying-shims into place to fill out the line, substantially as described.

2. A type-space less than type-high having an inclined face at its end for guiding justifying-shims into place to fill out the line, substantially as described.

3. A type-space unnicked on its front side, less than type-high, and having an inclined face for guiding justifying-shims into place to fill out the line, substantially as described.

4. The combination in a line of type, of the types and type-spaces less than type-high having inclined faces, whereby tapered throats or guideways are formed between the spaces and adjacent types, for the reception of justifying-shims, substantially as described.

5. The combination in a line of type, of the types and type-spaces unnicked on their front sides, of less than type-high having inclined faces, whereby tapered throats or guideways are formed between the spaces and adjacent types to receive justifying-shims, substantially as described.

6. The combination in a line of type, of the types and type-spaces having inclined faces, and shims guided into place between the type-spaces and adjacent types by said inclined faces of the type-spaces, substantially as described.

7. The combination in a line of type, of the types and type-spaces having inclined faces, and shims made of a harder metal than type-metal, such as steel, guided into place between the type-spaces and adjacent types by said inclined faces of the type-spaces, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES H. COCHRANE.

Witnesses:

FREDERICK H. DAVIS,
ANNA J. IVERS.