

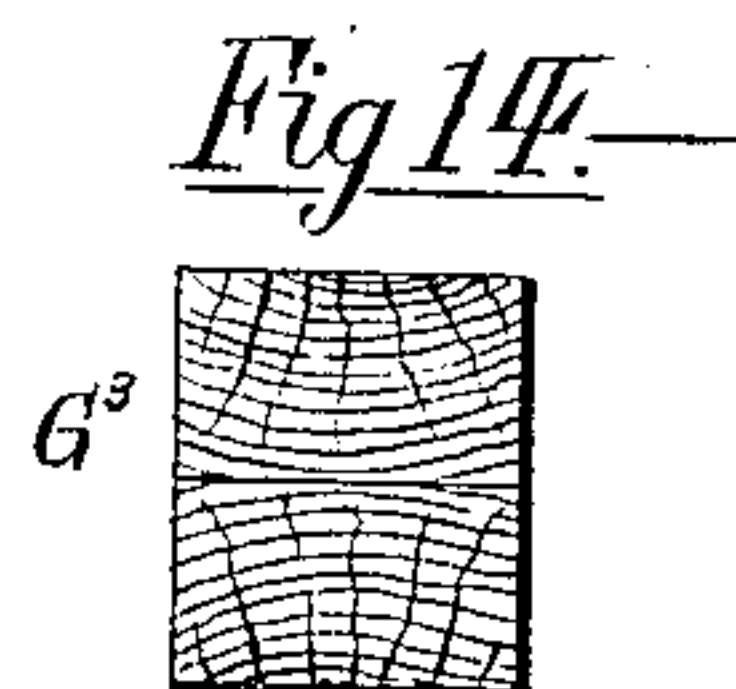
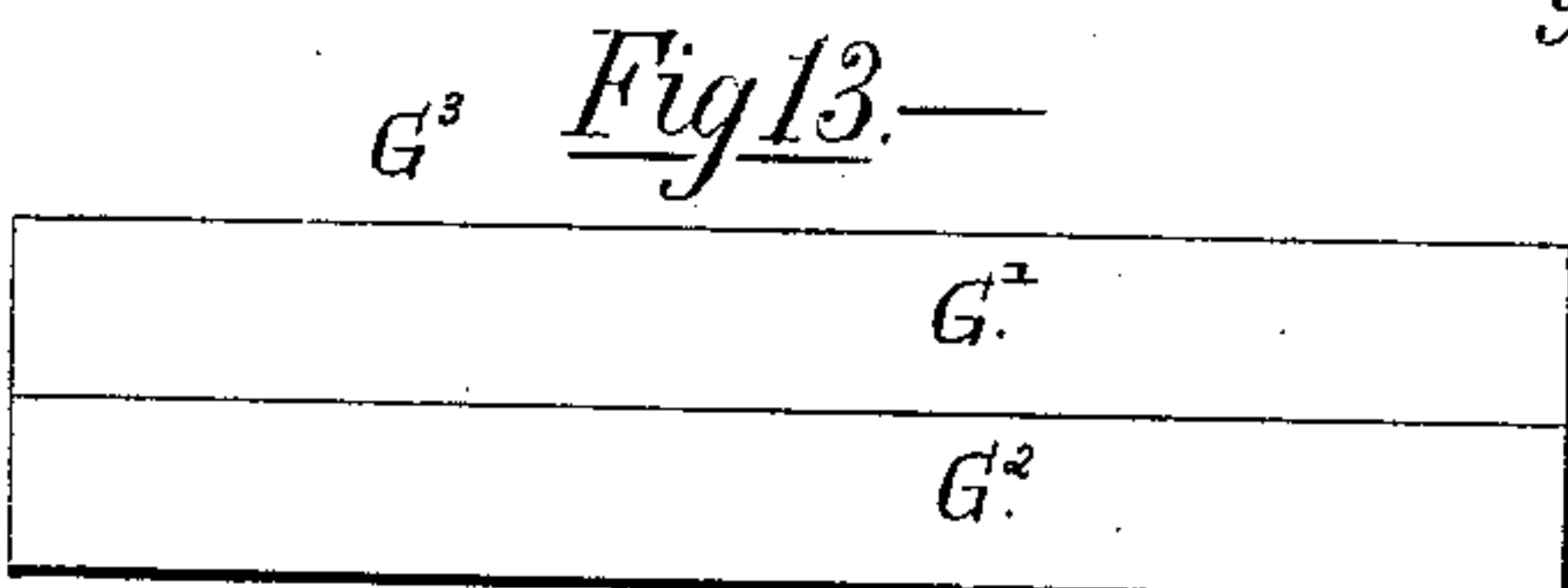
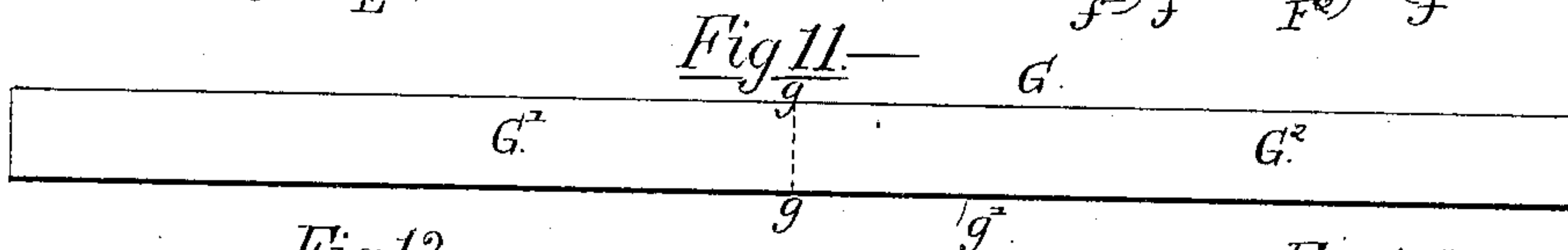
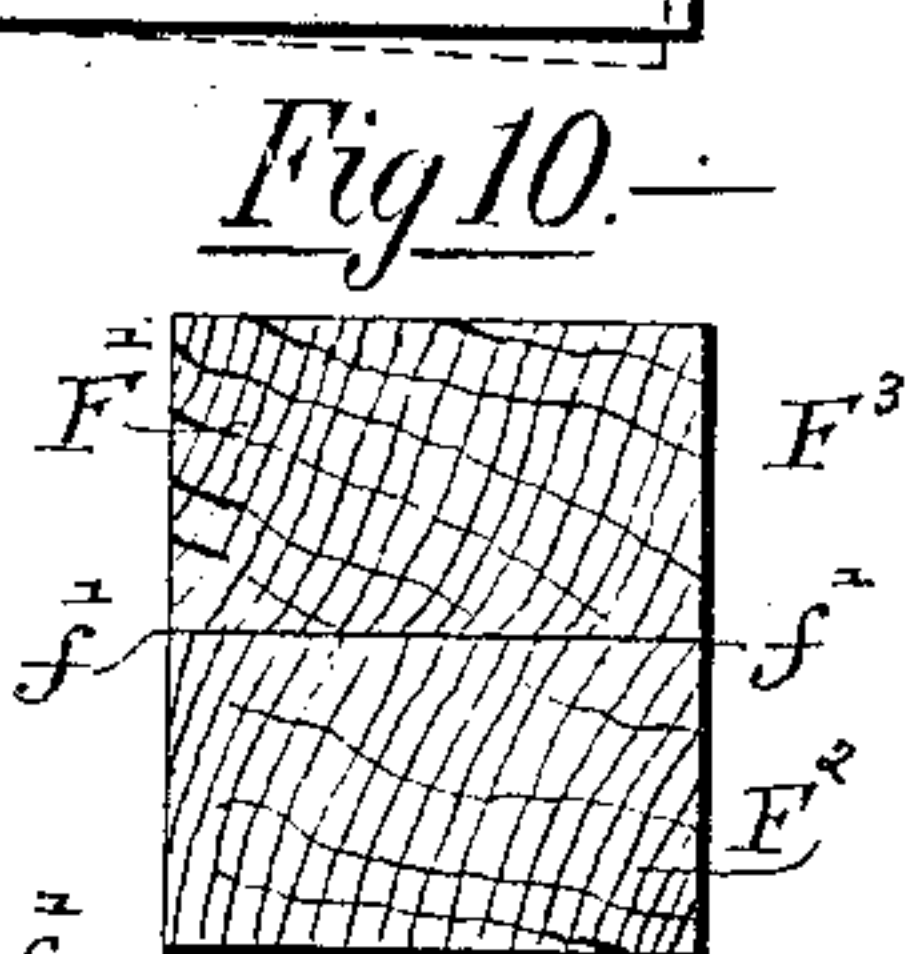
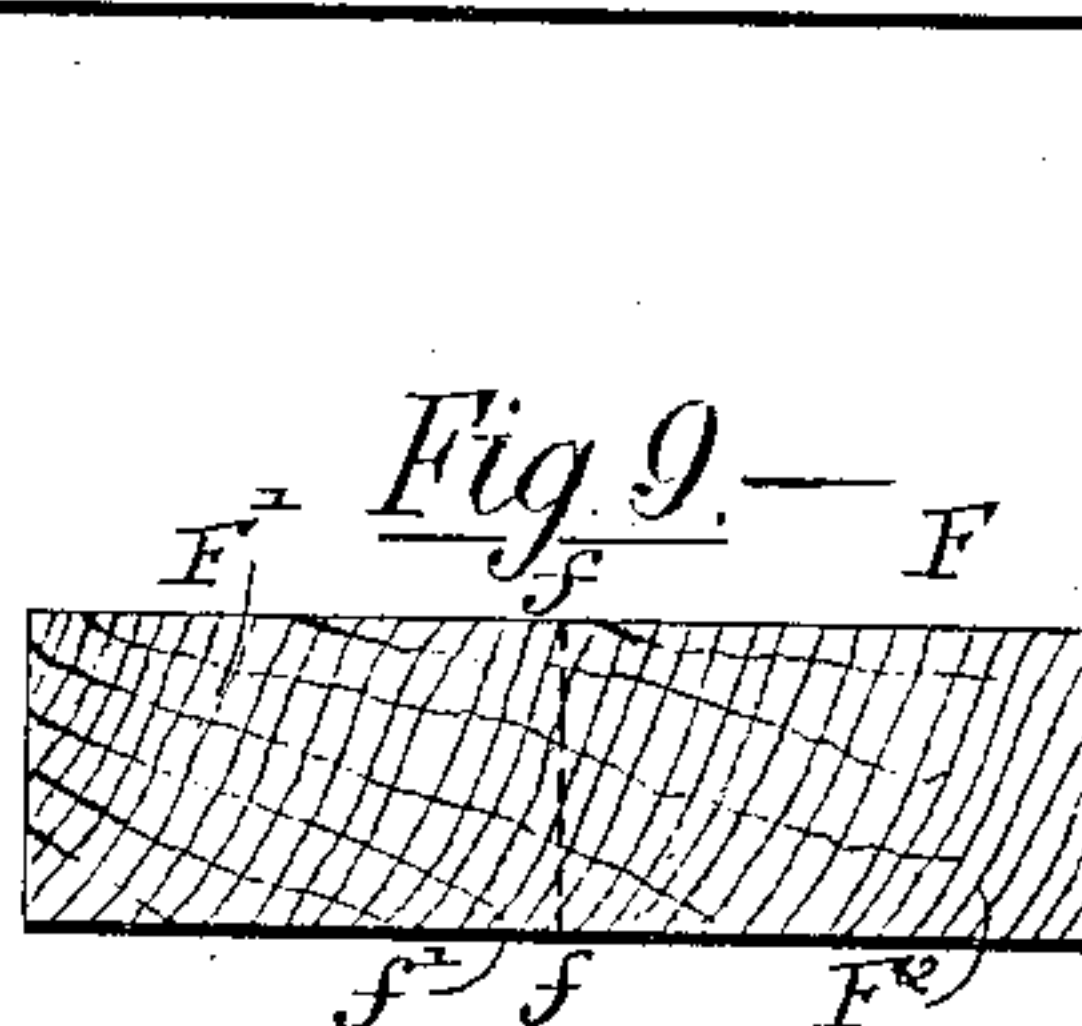
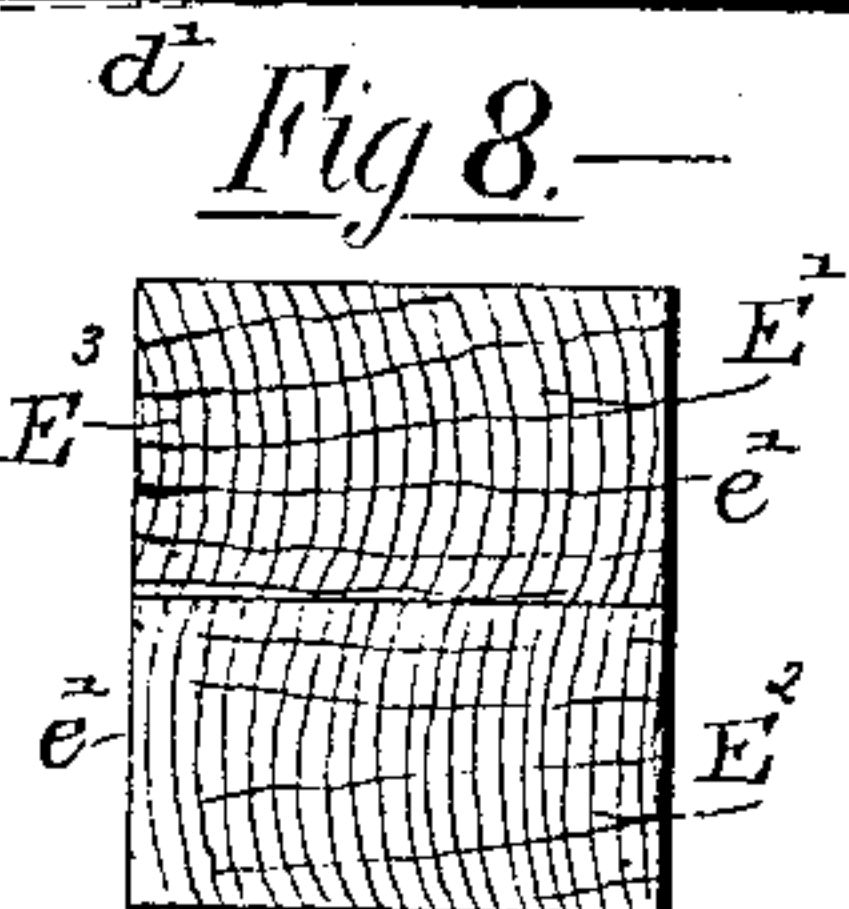
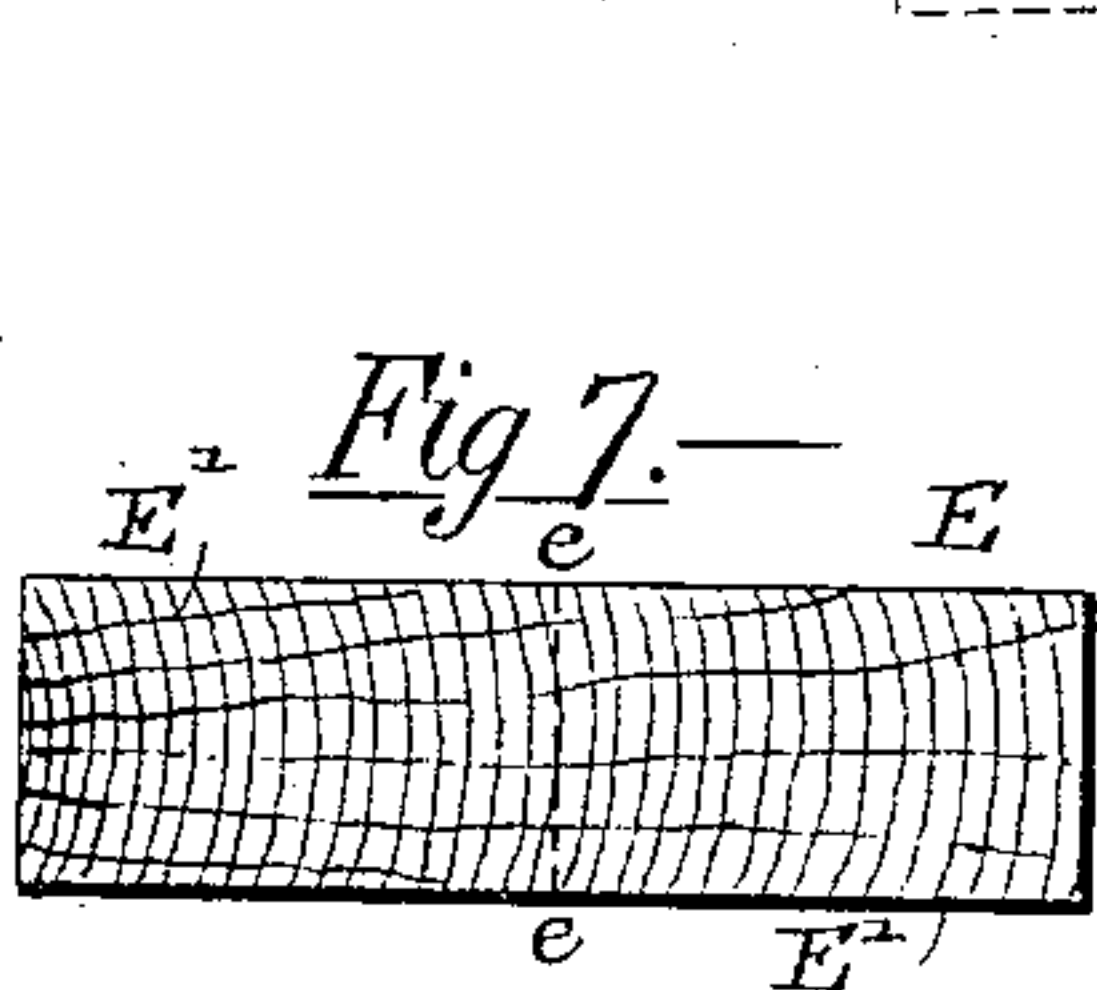
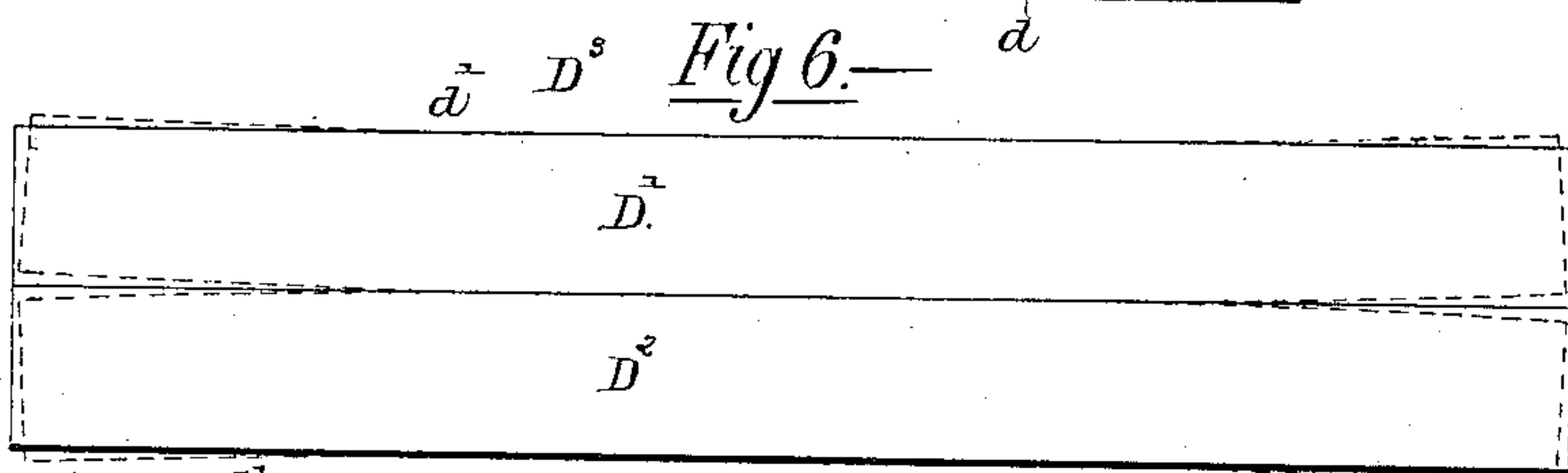
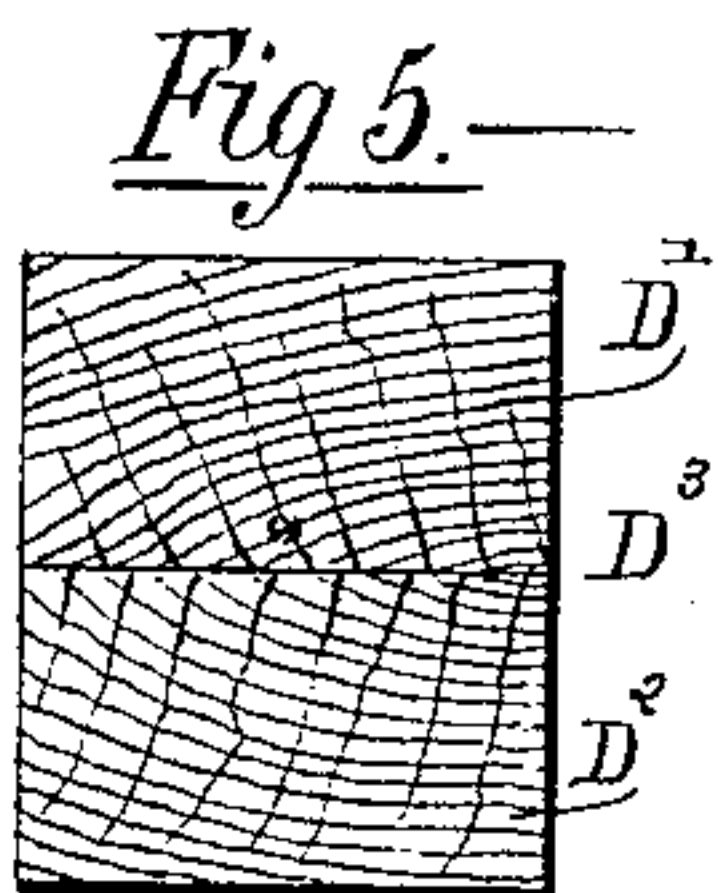
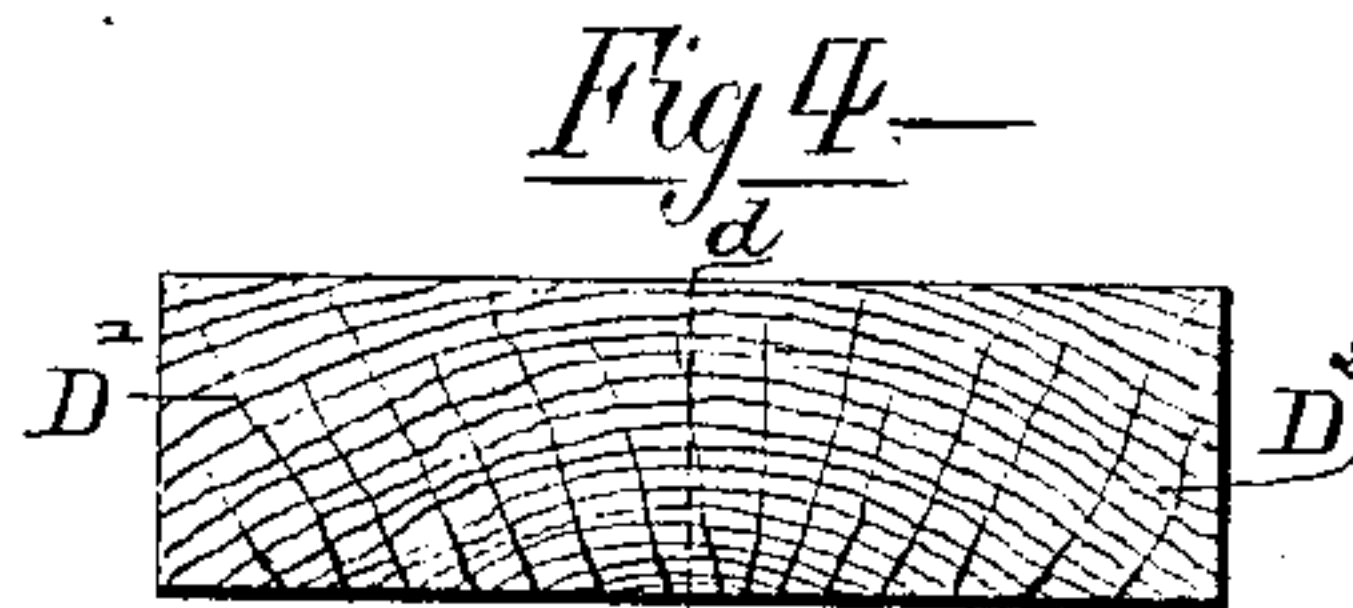
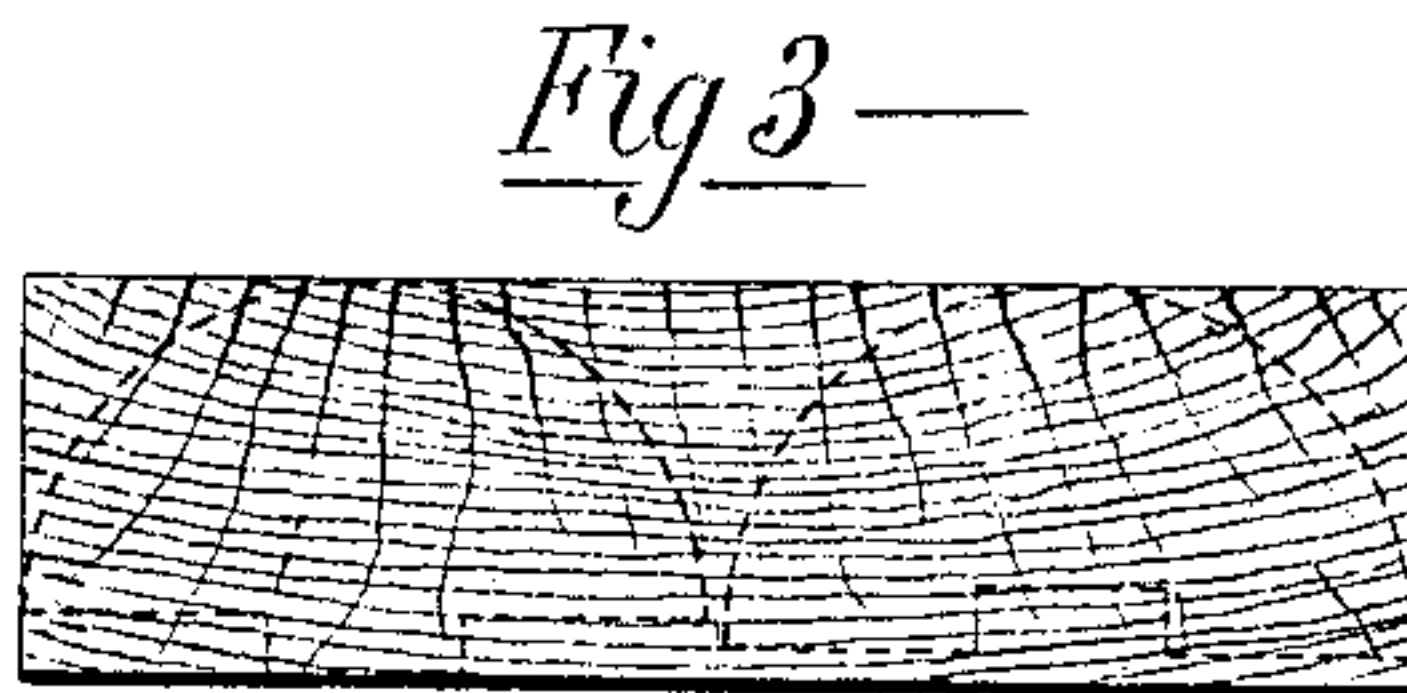
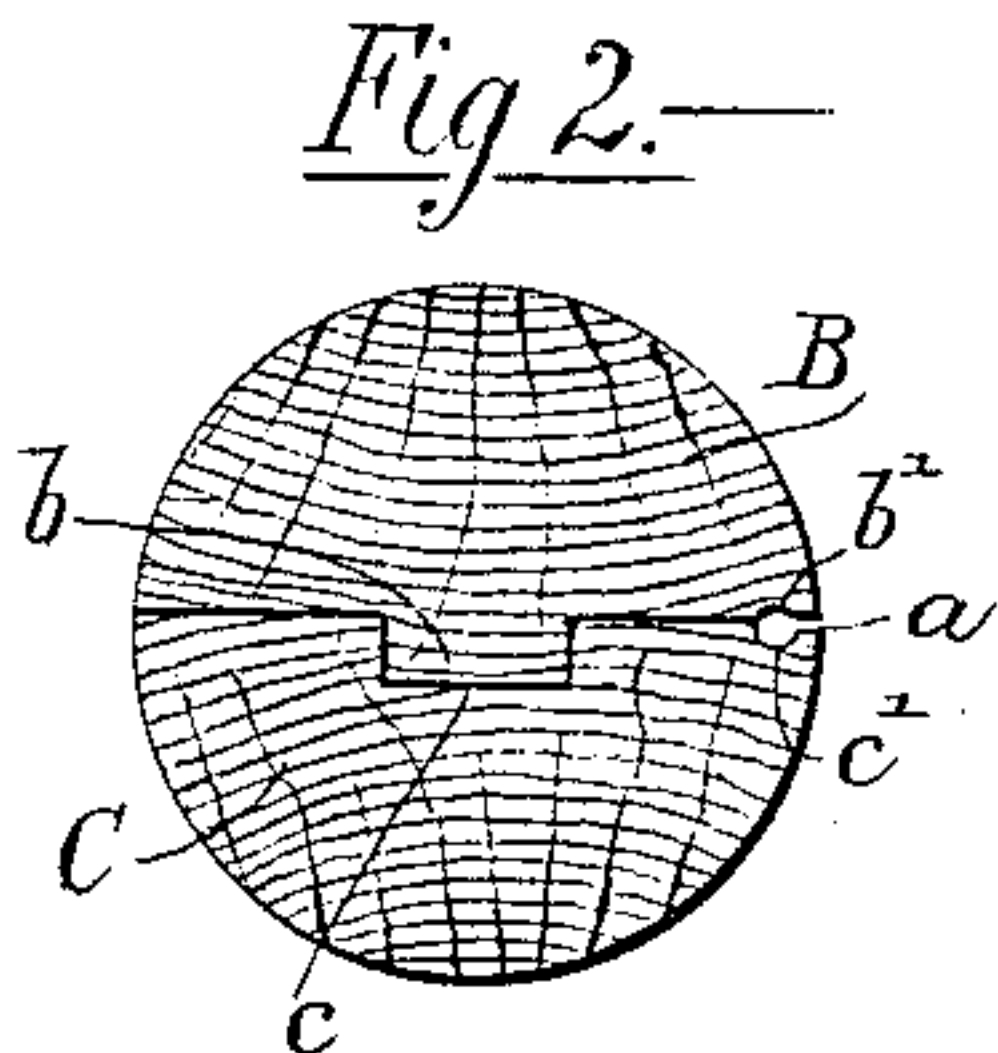
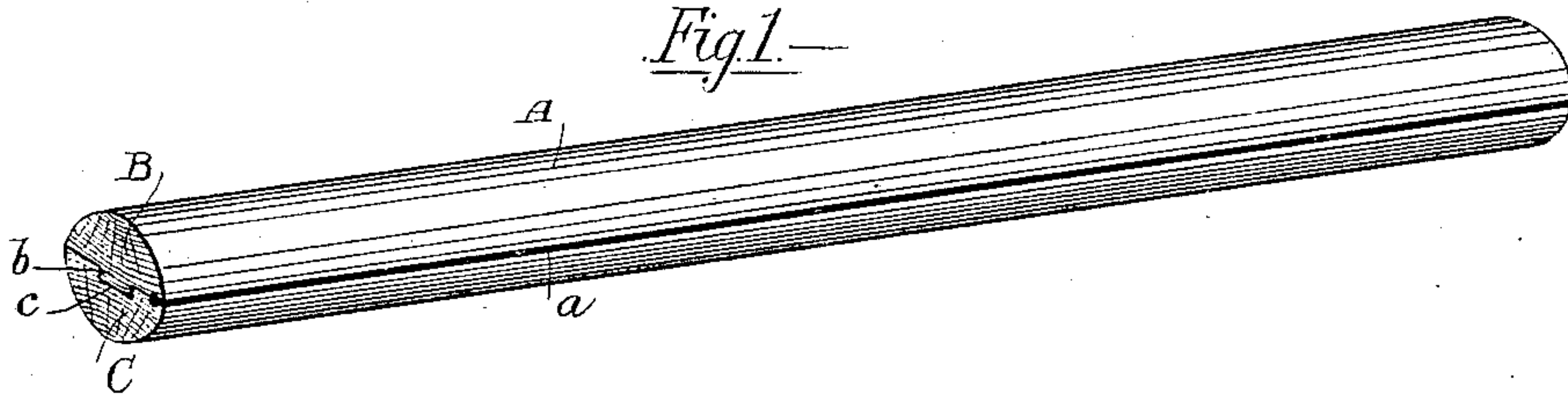
(No Model.)

A. M. COOLEY.

PROCESS OR METHOD OF MAKING WOODEN SHADE ROLLERS OR POLES.

No. 379,685.

Patented Mar. 20, 1888.



*Witnesses*—

*Wm. J. Henning.*  
*Louis M. F. Whitehead.*

*Inventor*—

*by— Arthur M. Cooley.*  
*Wayton & Poole*  
*Attorneys.*



# UNITED STATES PATENT OFFICE.

ARTHUR M. COOLEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO AUGUSTUS G. BURTON, OF SAME PLACE.

PROCESS OR METHOD OF MAKING WOODEN SHADE ROLLERS OR POLES.

SPECIFICATION forming part of Letters Patent No. 379,685, dated March 20, 1888.

Application filed April 15, 1887. Serial No. 234,904. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR M. COOLEY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful  
5 Improvements in Shade-Rollers, Curtain-Poles, and Similar Wooden Articles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the  
10 letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved process or method of making wooden shade rollers and poles.

15 The process or method of making rollers, poles, and similar articles constituting my invention consists in severing a single piece or slab of wood into two separate pieces or strips and then joining or attaching said pieces or  
20 strips to each other in a position the reverse of that which they originally occupied with reference to each other. In carrying out this method the separate strips may be produced by severing the original pieces of wood longitudinally, in which case the strips are secured  
25 together with their sides or faces which were originally side by side in contact with each other; or the strips may be made by severing in its middle a piece twice the length of the proposed article, and then turning one of the  
30 pieces end for end and placing the sides of the strips which were originally at the same side of the main strip in contact with each other. In either case the strips are secured together  
35 throughout their entire length, glue being preferred as a means of joining them.

It is a well-known fact that in the shrinking or warping of a piece of timber the sap part of the timber, or that nearest the bark of the  
40 tree, shrinks more than the heart portion, or that part which is at the middle of the tree. It follows that in the shrinking or warping of the wooden boards or strips the sap side of the wood becomes concave and the heart side convex or bowed out, so that in case of a roller or  
45 pole made of a single piece of wood the roller or pole will always become warped or bent to a greater or less extent by shrinkage, unless the article happens to be taken from the exact  
50 center of the tree—a condition which can sel-

dom occur in practice. In case an article like a rod or roller is made up of two pieces glued together, also, the article will tend to warp or shrink in one direction and thereby become  
crooked if the heart side of the two strips is 55 placed toward the same side of the article, and the same will be true if the heart and sap sides are relatively so disposed as not to oppose or counterbalance each other. By the novel method above set forth I am enabled in every  
60 case to produce the exact result desired—namely, an exact counterbalance of the tendency to warp in the two strips—by placing the strips together in a position the reverse of which they occupied in the tree—as, for in- 65 stance, if the strips are secured together with the heart sides in contact, both will tend to become concave on their outer surfaces, and one will thus counterbalance the other and both will remain straight. Similarly, if two 70 strips are attached side by side, with the heart side of the two strips at opposite margins of the faces which are in contact, the tendency to bend by shrinkage in one direction in one strip will be counteracted by a similar tendency in 75 the other strip to bend in an opposite direction.

The general result above stated will be obtained when pieces or strips are selected promiscuously, but secured together with the heart sides or the sap sides of the strips opposed to each 80 other; but a reliable and satisfactory result cannot be obtained unless the strips which are secured together originally formed adjacent parts of the same piece of wood. It is entirely obvious, for instance, that no two pieces taken from 85 different trees, or from different parts of the same tree, could commonly be found which would shrink or warp to the same extent. It is entirely obvious, also, that if two pieces or strips are taken from the same tree, by cutting 90 the grain at different angles the tendency to shrink will be different—that is to say, one piece may tend to shrink most at a corner and another at one of its flat sides, so that the tendency to warp would not be mutually coun- 95 teracted, and the article made therefrom would become more or less crooked.

By cutting the strips which are to comprise the finished article from the same piece of wood, by severing the latter into two pieces, as pro- 100



posed by me, the same conditions as to shrinkage will be present in each piece, so that in reversing them in the manner above described an approximately perfect result will in every case be produced. The result stated can be better produced by severing a single piece of slab than by cutting a long strip into two parts, for the reason that while the opposite end portions of a long strip may have very nearly the same tendency to shrink, yet, on account of knots or twists or other irregularities in the wood, the grain may be quite different in the opposite ends of such long strips, so that when the parts are severed and brought together a part with crooked grain may oppose a part with straight grain, and the tendency to warp would thus be unequal. In the case of two strips formed by severing a slab or strip longitudinally, however, each strip will partake of the peculiarities of the strip secured to it, so that a counterbalance of the distorting effect of unequal shrinkage is obtained in all parts of the finished article.

The invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a shade-roller constructed in accordance with my invention. Fig. 2 is an end view of the same. Fig. 3 is an end view of a slab out of which the two halves or strips comprising the said roller may be formed, the shape of the two strips being indicated in dotted lines. Fig. 4 is an illustrative diagram showing the grain in the end of the wooden slab of sufficient width to form two strips. Fig. 5 is a view of two strips, formed by severing longitudinally the slab shown in Fig. 4, as secured together to form a rod or bar. Fig. 6 is a side view of the connected strips shown in Fig. 5. Figs. 7, 8, 9, and 10 illustrate slabs and strips in which the grain of the wood is differently disposed. Fig. 11 is a side view of a single strip adapted to be severed in two pieces by a central cross-cut. Fig. 12 is an end view of the same, showing the grain therein. Fig. 13 is a side view of the two severed ends of the bar shown in Fig. 11 when placed together. Fig. 14 is an end view of the same.

As shown in said drawings, A, Figs. 1 and 2, is a roller consisting of two strips or parts, B and C, which are secured together by glue. Preferably one of the strips, as B, is provided with a tongue, *b*, fitting a groove, *c*, in the other strip, C, said tongue and strip serving to aid in holding the parts together, especially as regards relative lateral motion, and against strain which would be produced in case one strip tended to warp edgewise in one direction and the other strip edgewise in the other direction. The said strips B and C are furthermore shown as provided with opposing grooves *b'* *c'* near their edges at one side of the roller, such grooves forming a cylindric passage, *a*, to the outside of the roller. Said passage and slot are for the purpose of enabling

a curtain to be readily attached to the roller by inserting the folded edge of the curtain containing a cord into said passage *a* in a well-known manner.

The strips B and C are shown in Fig. 2 as being placed together with their sap sides innermost. When thus arranged, the said strips will tend to become concave to an equal extent upon their inner or contact faces, and such tendency being the same in each the roller will remain straight.

Fig. 3 illustrates a slab from which the strips A and B may be cut, the outlines of the said strip being shown in dotted lines as they will appear after they have been cut from the slab. It will of course be understood that in making two strips like the strips C and B shown both will be cut at once from a single piece or slab in the manner clearly indicated in said Fig. 3. Devices for shaping the strips in this manner are well known and need not here be described.

Fig. 4 shows a slab, D, adapted to be divided longitudinally upon the dotted line *d d* to form two strips, *D'* *D''*, as seen in Fig. 5, which shows in end view the said two strips as secured together to form a single bar, *D'*, with the heart sides of the strips in contact with each other. The manner in which the strips *D'* *D''* will tend to warp is indicated in dotted lines in Fig. 6, in which figure, as well as in Figs. 4 and 5, *d'* *d''* indicate the sap sides of the slab and of the said strips *D'* *D''*, it being entirely apparent that inasmuch as the force exerted by the shrinkage of the sap wood is equal in both strips the bar *D'* will remain straight.

Fig. 7 shows in end view a flat slab, E, cut from the tree with its flat sides about radial, or, in other words, with its narrower sides or edges parallel with the layers or rings of the grain. If this slab E is severed longitudinally upon the line *e e*, two strips, *E'* *E''*, will be formed, which may be reversed and secured together to form a bar, *E'*, as indicated in Fig. 8.

In Figs. 7 and 8, *e'* indicates the sap sides of the strips, or the sides which will become concave in the shrinkage of the strips. When the strips are placed together, as shown in Fig. 8, the sides tending to become convex will be located at opposite sides of the bar, so that the latter must remain straight, provided the connection between the bars is unbroken.

Figs. 9 and 10 show an instance in which the tendency to the greatest shrinkage is in one corner of the original bar F, Fig. 9, and in corners *f' f'* at opposite sides of the compound bar *F'* when the strips *F'* *F''* are secured together. The result in this case is obviously the same as in the other instances illustrated.

Figs. 11, 12, 13, and 14 show a bar, G, which may be cut upon the line *g g* into two parts, *G'* *G''*, shown in Figs. 13 and 14 as secured together to form a compound bar, *G'*. In this case, as in those before mentioned, the sap side *g'* of the bar G will tend to become convex,



and the compound bar will be caused to remain straight by the opposing action of the reversed bars G' G<sup>2</sup>.

5 A bar, pole, roller, or other similar article made of the same piece of wood cut in two parts, which are reversed and secured together, being in itself new, an article thus made is herein claimed as part of my invention.

I claim as my invention—

10 The herein-described method of making shade rollers and poles, which consists in severing a single piece of wood into two parts or strips, then applying a coating of glue or cem-

ent to the sides to be united, and then permanently uniting the said parts or strips together 15 longitudinally in a relative position the reverse of that originally occupied by them, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of 20 two witnesses.

ARTHUR M. COOLEY.

Witnesses:

CHARLES T. LORING,  
AUGUSTUS G. BURTON.