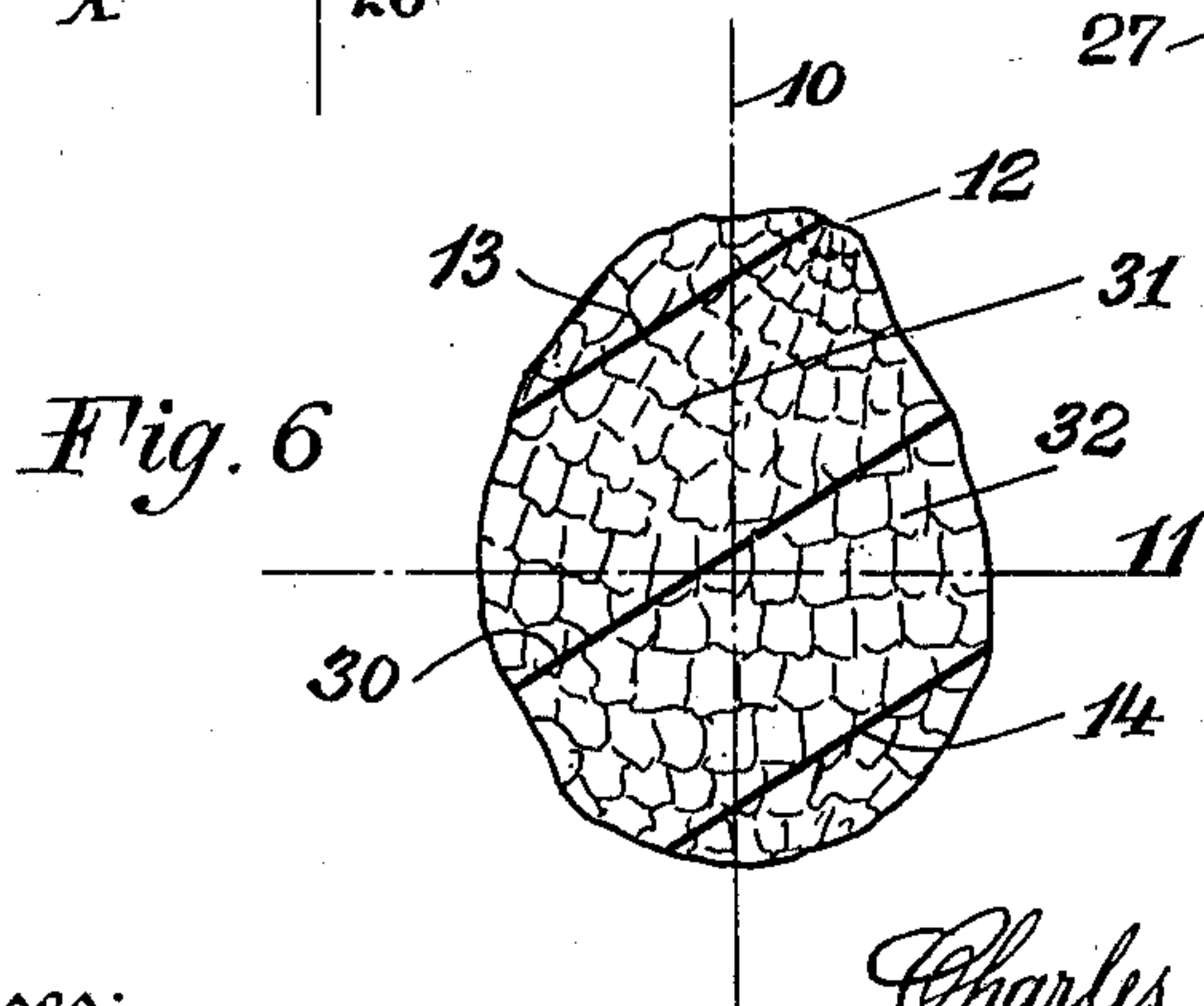
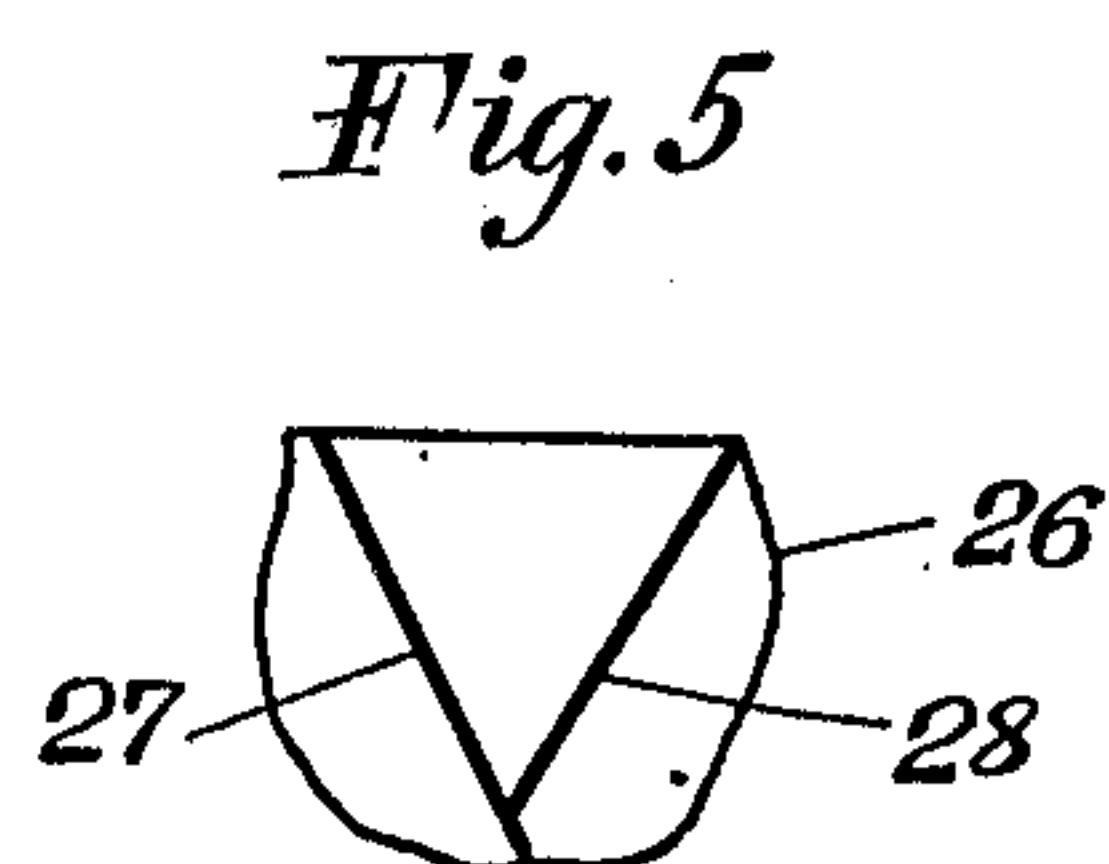
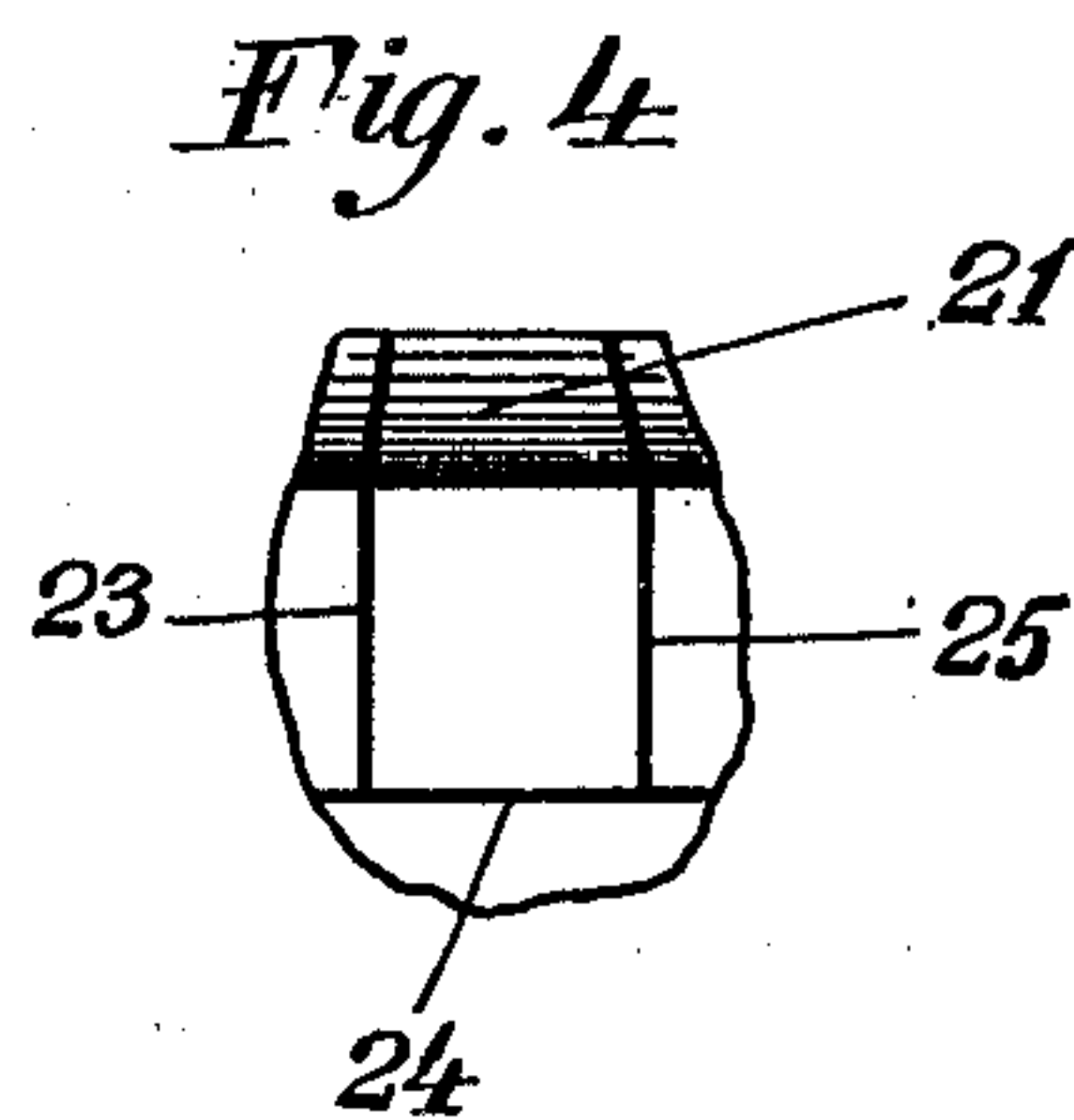
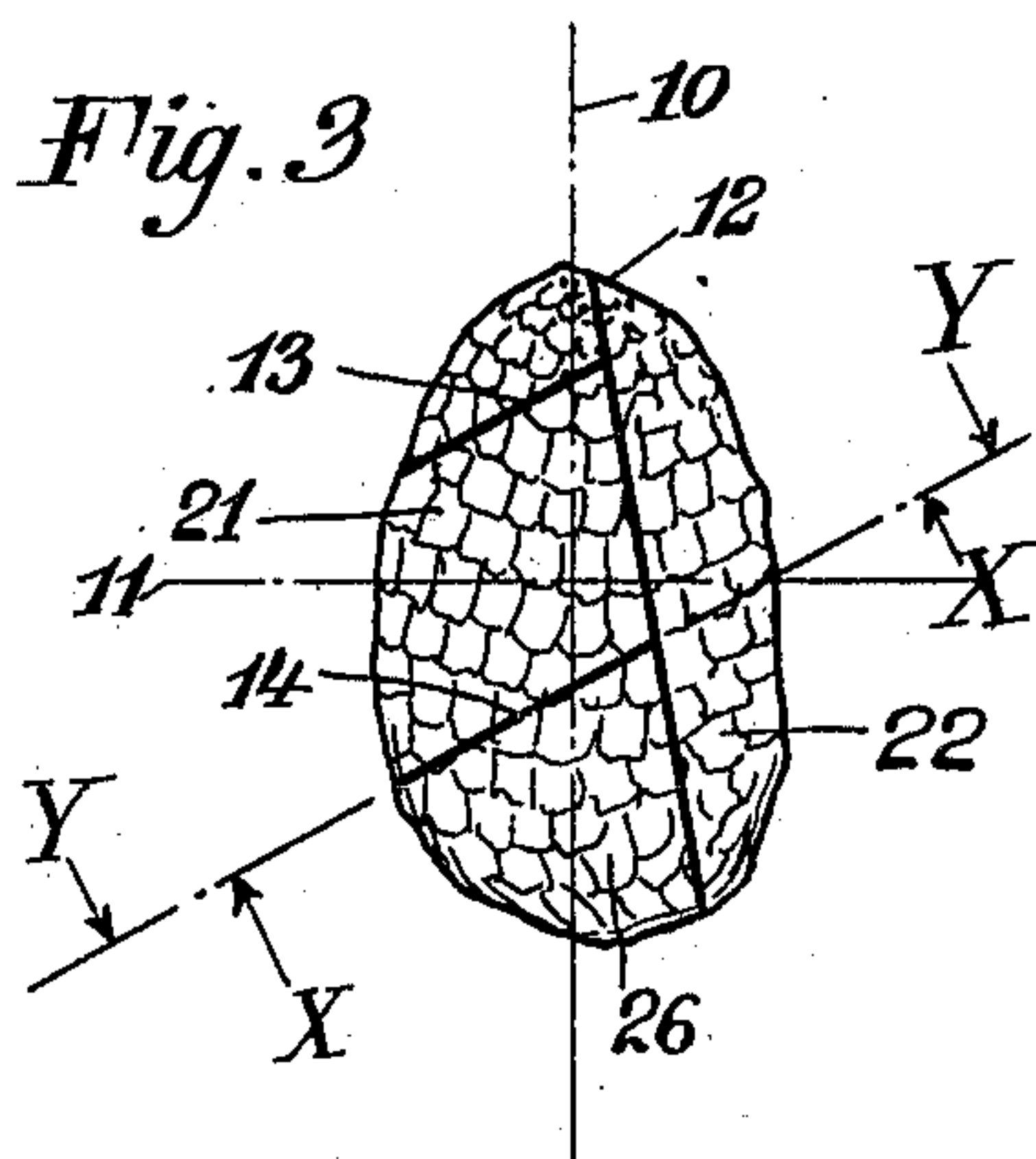
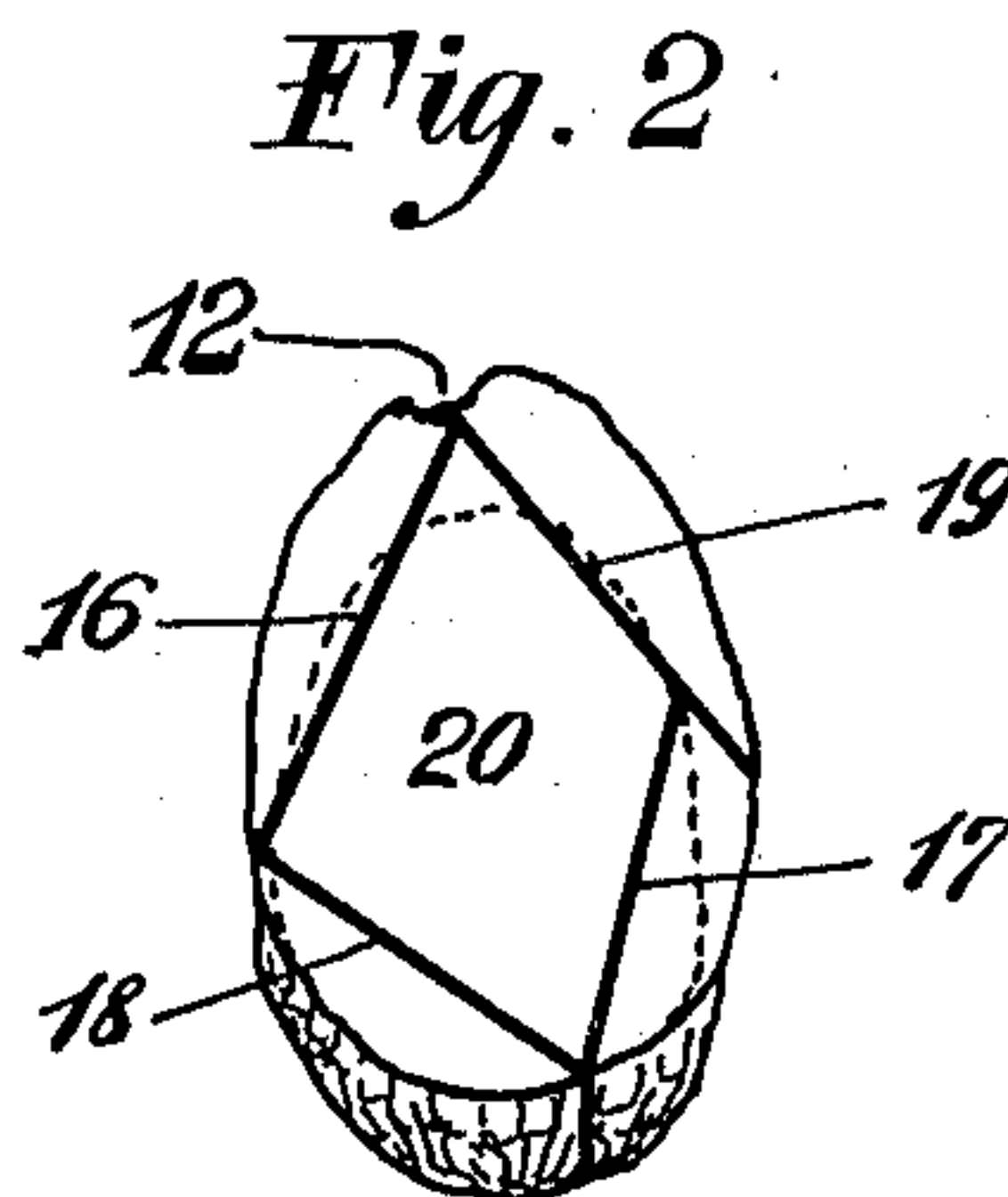
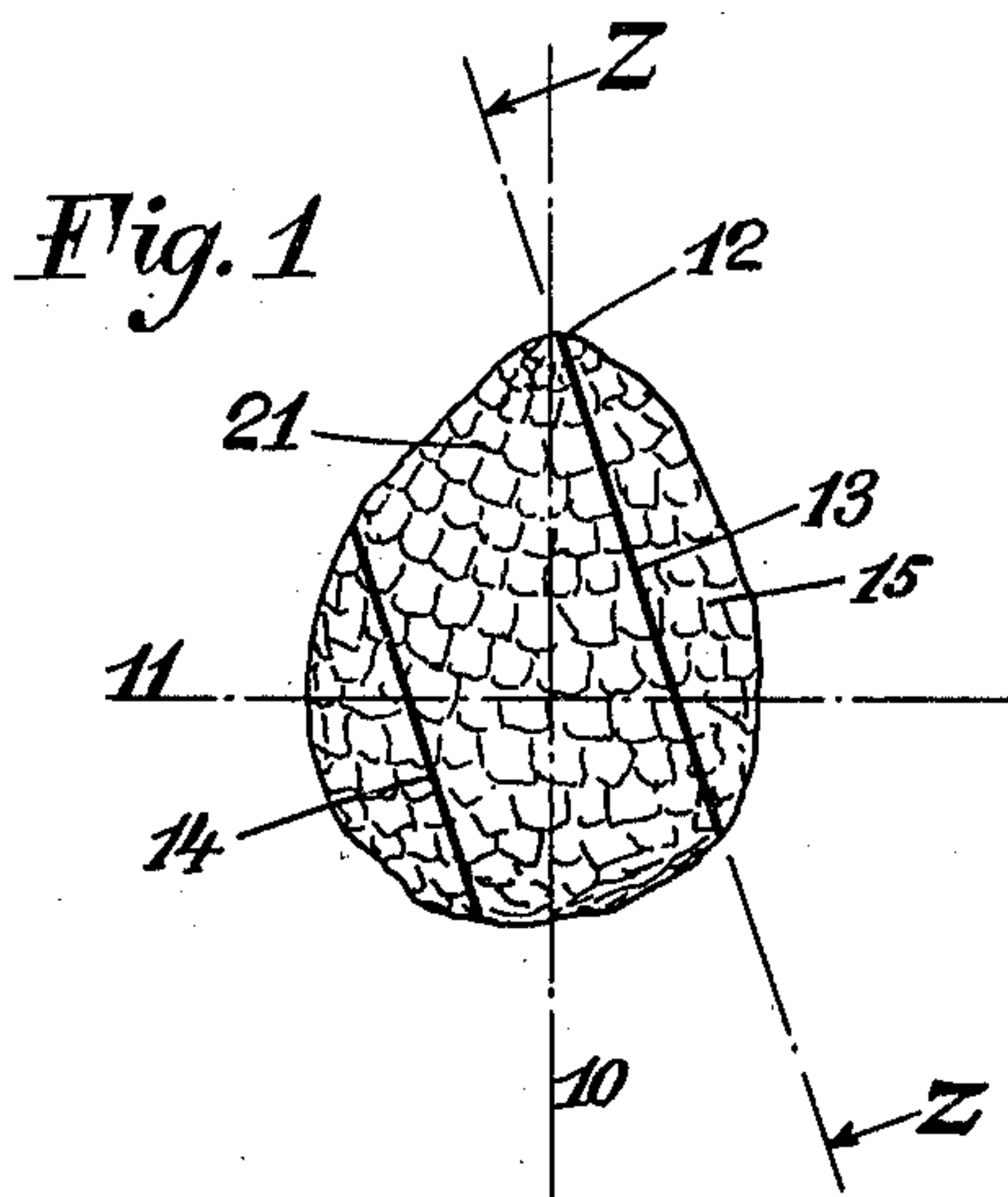


C. J. SPILL.  
METHOD OF DIVIDING IVORY NUTS.  
APPLICATION FILED OCT. 25, 1910.

978,501.

Patented Dec. 13, 1910.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

CHARLES J. SPILL, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO UNITED BUTTON COMPANY, A CORPORATION OF NEW YORK.

## METHOD OF DIVIDING IVORY-NUTS.

978,501.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed October 25, 1910. Serial No. 588,974.

*To all whom it may concern:*

Be it known that I, CHARLES J. SPILL, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Methods of Dividing Ivory-Nuts, of which the following is a specification.

The present invention relates to the art of dividing ivory nuts into slabs or pieces, preparatory to turning said pieces into buttons.

Before the ivory nuts are sawed into pieces, they are dried or cured so as to obtain the proper hardness and texture of the material. The nut, in drying however, shrinks from the center to the outside in all directions, and the center or core becomes soft and cracked; sometimes entirely hollow. In consequence of this, only the outside of the nut can be used; and it is therefore of the greatest importance that the nut be so cut as to make as much of the outside material usable as possible.

In the art, as it is practiced at the present time, two primary cuts are first made substantially at right angles to the longitudinal axis or "length" of the nut, thereby removing the ovoid ends. The remaining "block" presents a section roughly circular or triangular. Owing to the shape of this "block" only three secondary cuts can be made, these cuts being made in planes at right angles to the plane of the primary cuts. This method is wasteful for two reasons. First because one of the ovoid ends contains the "germ" of the nut and cannot be used; secondly because the slabs or pieces removed by the secondary cuts are oblong, which can be used only for buttons of a diameter equal to the narrowest width of the oblong pieces. The net production per nut by this method is therefore four pieces, viz: one ovoid end, and three oblong pieces. In the prior art it has also been customary to employ a free hand method. When this is used the nut is cut in half through its "diameter" (the thickness of the nut) or at right angles to the "length" of the nut. These two halves are then sawed into three pieces each, leaving a triangular "core" with about ten per cent. of good material on the "core" ends. Inasmuch as ivory nuts are irregular as to "length" and "diameter",

and fully fifty per cent. of the same are too small to be cut in half, it follows that the six pieces obtained by this method were practically worthless, since a sufficiently large button could not be obtained from the pieces produced. To make material large enough for merchantable buttons, by this process, the "length" of the nut must be at least one and one-half inches. Moreover this process necessitates the services of a skilled sawyer, as it requires a judicious selection of cutting planes to obtain the best results.

The object of the present invention is to divide the nut in such a manner that waste is avoided and substantially the entire outside of the nut is made available for the cutting of buttons of a sufficient size.

Accordingly the invention consists in dividing the nut so that the "germ" end will be nullified, and so as to increase the available surface of the "block" or main portion of the nut. This is accomplished by making a plurality of primary cuts on lines inclined with respect to the "length" of the nut, one of said cuts passing substantially through the germ end. In this way two ovoid pieces are severed from the nut, and a "block" is produced which is not limited by the "diameter" of the nut, and which forms substantially an oblique oval cylinder, the major axis of the cylinder-block being greater than the "diameter" of the nut. Secondary cuts are then made from this "block" in a plane at an angle to the plane of the primary cuts, one or more of said secondary cuts passing substantially through the "germ" end of the nut. One of the primary cuts and one or more of the secondary cuts will thus meet substantially at the germinal point, and as the germ will be in the edge of the slabs or pieces, all of the pieces can be utilized. Furthermore, on account of the length of the major axis of the cylinder block, and the consequent greater area of the available working surface, four or more secondary cuts can be made, and the pieces produced by these secondary cuts will not be oblong, but will be, though irregular shaped, of substantially the same area as the square of the height of the cylinder block. In this way the net production per nut is six slabs or pieces, viz: two ovoid pieces produced by



the primary cuts, and four pieces of available size produced by the secondary cuts. The saving of material is therefore about twenty per cent. over the method first here-  
 5 in described. Incidentally, it may be remarked that the two ovoid pieces produced by the present method are as large as the single available ovoid piece produced by the method first herein described, and can  
 10 both be used. Furthermore no skilled sawyer is required to divide the nut according to my method, as no judicious selection of cutting planes is necessary, the cutting always taking place according to a uniform  
 15 system and along substantially the same lines.

In the accompanying drawings the lines along which the nut is divided are shown.

In the said drawings: Figure 1 is a view  
 20 of the nut showing the lines along which the primary cuts are made. Fig. 2 shows a top view of the oblique oval cylinder produced by the primary cuts, looking in the direction of the arrows Z—Z of Fig. 1. Fig.  
 25 3 shows the line along which a slab may be cut from the nut for large buttons before the primary cuts are made, and the lines along which the primary cuts are made after the removal of the large slab. Fig. 4 is a  
 30 view of the cylinder block looking in the direction of the arrows X—X of Fig. 3, after the primary cuts have been made, and showing in this case three secondary cuts. Fig. 5 is a view of one of the slabs removed  
 35 by one of the primary cuts, looking in the direction of the arrow Y—Y, and showing, in this instance, two secondary cuts. Fig. 6 shows a modification of the primary cuts of Fig. 1 for a large size nut.

40 Similar characters of reference indicate corresponding parts in the different views.

Referring to Figs. 1 and 2, the major axis or "length" of the nut is indicated by 10, and the thickness or "diameter" is indicated by 11. 12 is the germinal point, shown in dotted lines in Fig. 1, as it extends  
 45 down into the nut. The nut is divided by means of the primary cuts 13 and 14 which run inclined to the length of the nut. The  
 50 cut 13 passes substantially through the germinal point. It will be noticed that the slab or piece 15 produced by the cut 13 is imperfect at one edge, but this imperfection is so slight in its extent that a good button  
 55 blank nevertheless can be produced from the piece. The removal of the two slabs or pieces by means of the primary cuts 13 and 14 leaves a "block" 21 which is substantially in the form of an oblique oval cylinder.  
 60 The secondary cuts 16, 17, 18 and 19 are now made in a plane at an angle to the plane of the primary cuts, as shown in Fig. 2, where 20 indicates the face from which the slab 13 has been removed. By looking  
 65 at Fig. 2, it will be noticed that the major

axis of the cylinder "block" 21 is greater than the "diameter" of the nut, thus permitting four secondary cuts to be made. The number of these secondary cuts varies, but generally four can be made. Two of  
 70 these cuts, viz: 16 and 19, pass substantially through the "germinal" end of the nut, and meet the primary cut 13 substantially at the "germinal" point. The slabs or pieces produced by the secondary cuts will be irregular  
 75 shaped, but will have an area equal to substantially the square of the height of the cylinder "block" 21, between the flat faces produced by the primary cuts. Sometimes a slab 22 to be used for a large button is  
 80 cut preliminarily from the nut as indicated in Fig. 3. Then the primary cuts 13 and 14 are made. The cylinder "block" 21 of the nut can then receive three or more secondary cuts 23, 24 and 25, as shown in Fig. 4, and  
 85 the slab 26 can then receive two or more secondary cuts 27 and 28, as shown in Fig. 5. These cuts will serve to illustrate the many modifications of which the invention is susceptible.  
 90

When a very large nut is used it is sometimes advantageous to have three primary cuts as shown in Fig. 6, where the third primary cut is indicated at 30. Secondary cuts are then made from both of the cylinder  
 95 "blocks" 31 and 32 as previously.

What is claimed is:

1. That improvement in the art of dividing ivory nuts into pieces, which consists in making a plurality of primary cuts on lines  
 100 inclined to the "length" of the nut, one of said cuts passing substantially through the "germ" end, thereby severing a plurality of pieces from the nut and producing a "block" forming substantially an oblique  
 105 oval cylinder, the major axis of which cylinder is greater than the "diameter" of the nut.

2. That improvement in the art of dividing ivory nuts into pieces, which consists in  
 110 making a plurality of primary cuts on lines inclined to the "length" of the nut, one of said cuts passing substantially through the "germ" end of the nut, thereby severing a plurality of pieces from the nut and pro-  
 115 ducing a "block" forming substantially an oblique oval cylinder, the major axis of which cylinder is greater than the "diameter" of the nut, and then cutting irregular-shaped pieces of substantially the same area  
 120 as the square of the height of the cylinder "block," from said cylinder "block" in a plane at an angle to the plane of the primary cuts.

3. That improvement in the art of divid-  
 125 ing ivory nuts into pieces, which consists in making a plurality of primary cuts on lines inclined to the "length" of the nut, one of said cuts passing substantially through the "germ" end of the nut, thereby severing a  
 130



plurality of pieces from the nut and producing a "block" forming substantially an oblique oval cylinder, the major axis of which cylinder is greater than the "diameter" of the nut, and then cutting irregular-shaped pieces of substantially the same area as the square of the height of the cylinder "block," from said cylinder "block" in a plane at an angle to the plane of the primary cuts, one or more of which secondary

cuts pass substantially through the "germinal" point of the nut.

Signed at Springfield in the county of Hampden and State of Massachusetts this 20th day of October A. D. 1910.

CHARLES J. SPILL.

Witnesses:

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GURDON W. GORDON.