Aug. 14, 1945. P. J. CORBIN 2,382,208

STRUCTURAL ELEMENT

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Fig. 1

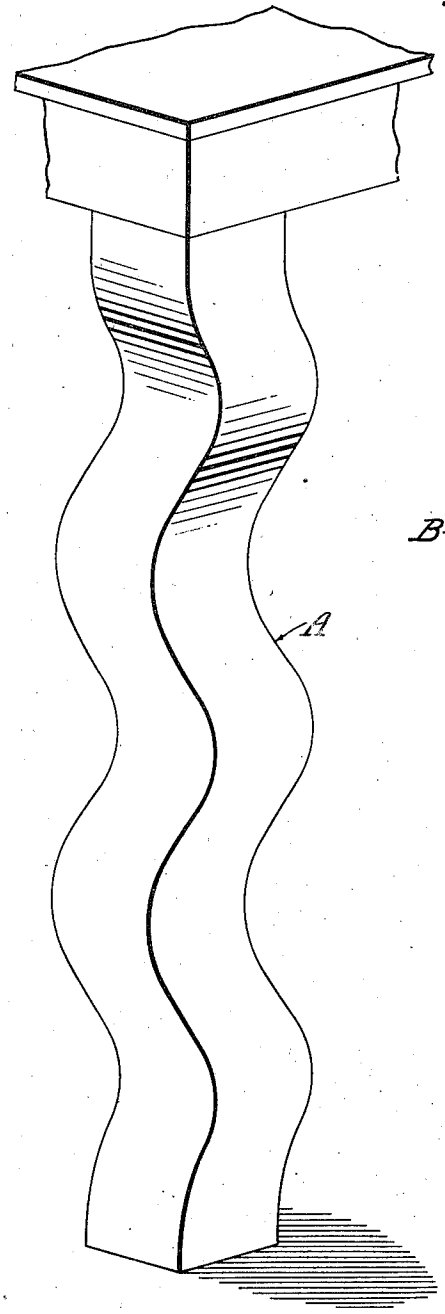


Fig. 2

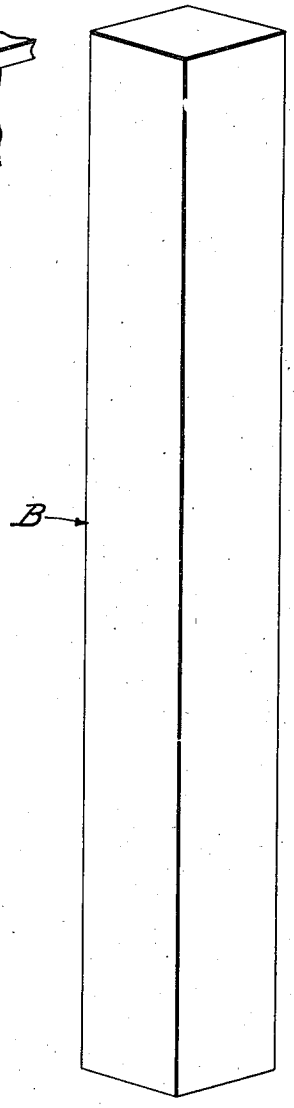
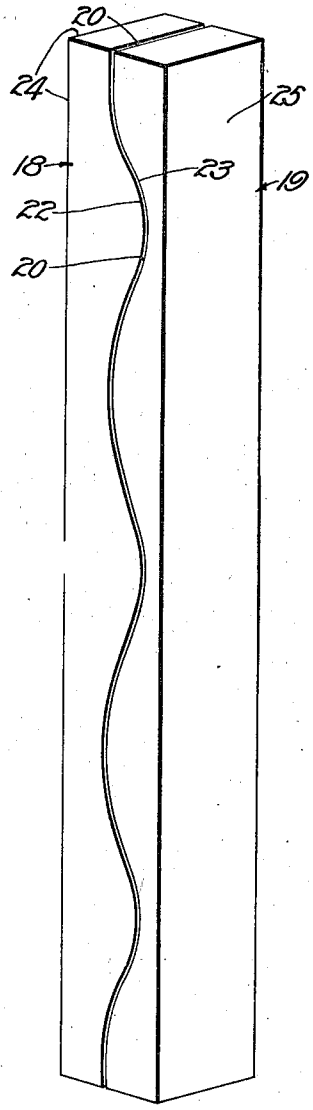


Fig. 3



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STRUCTURAL ELEMENT

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Fig. 4

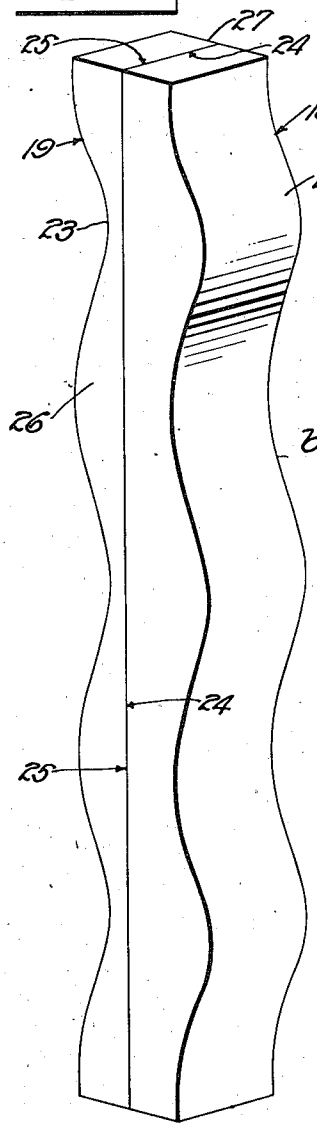


Fig. 5

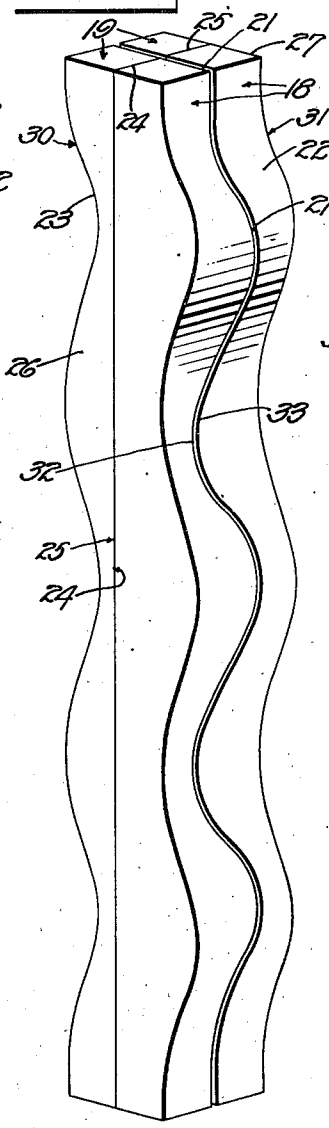
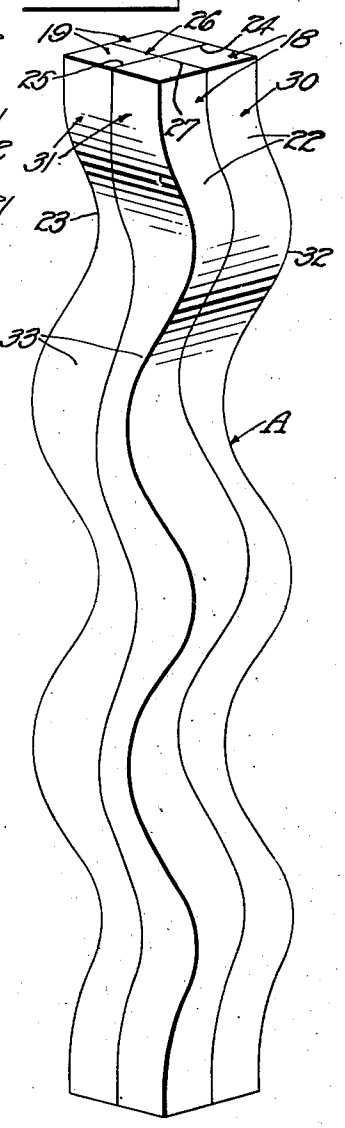


Fig. 6



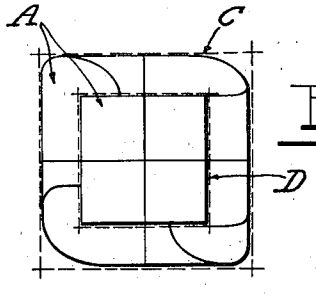


Fig. 7

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Fig. 10

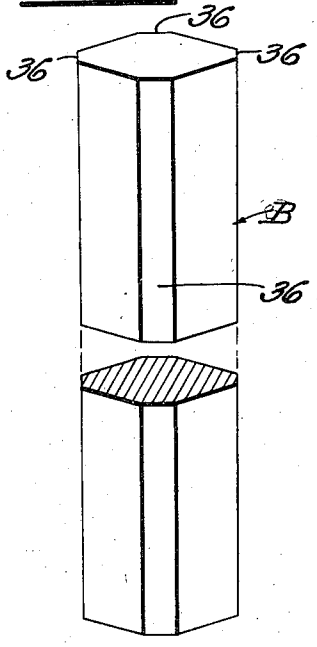


Fig. 8

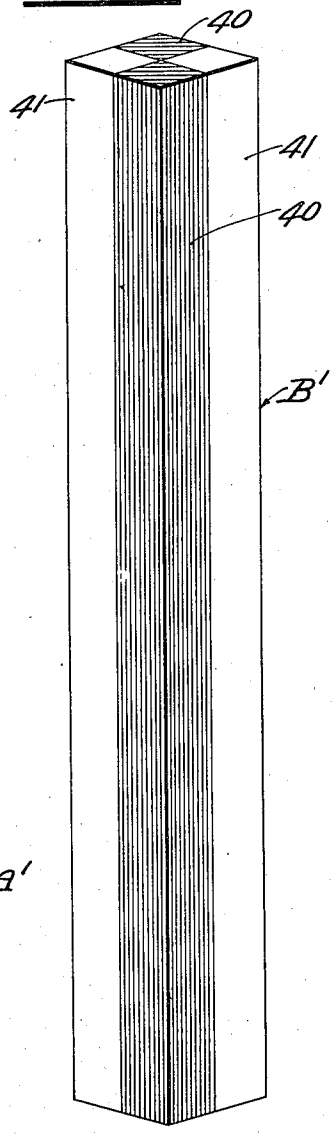
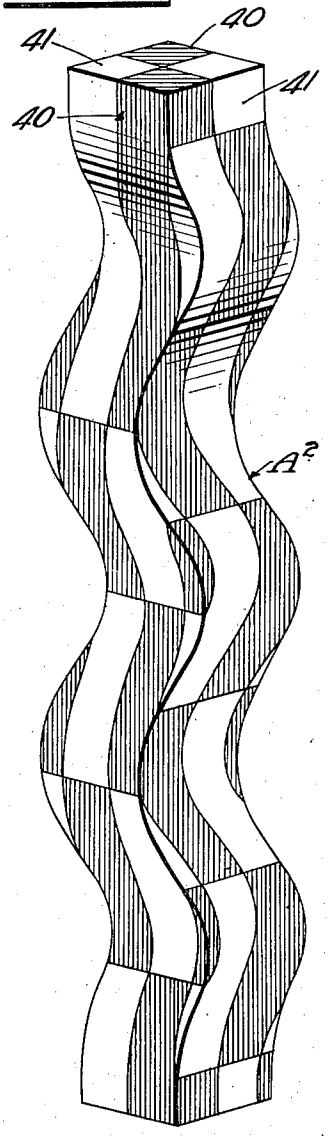


Fig. 9



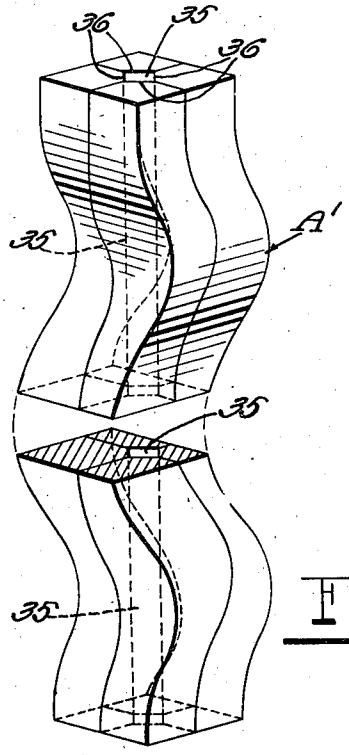


Fig. 11

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STRUCTURAL ELEMENT

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Fig. 12

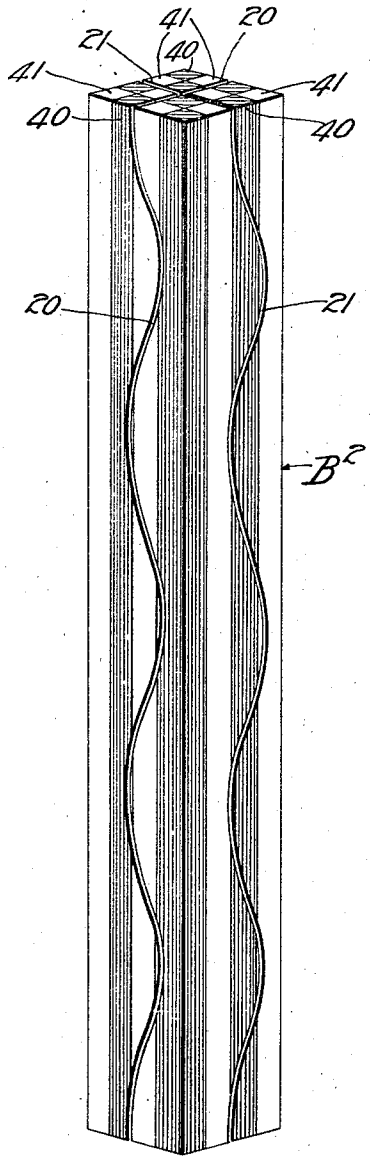
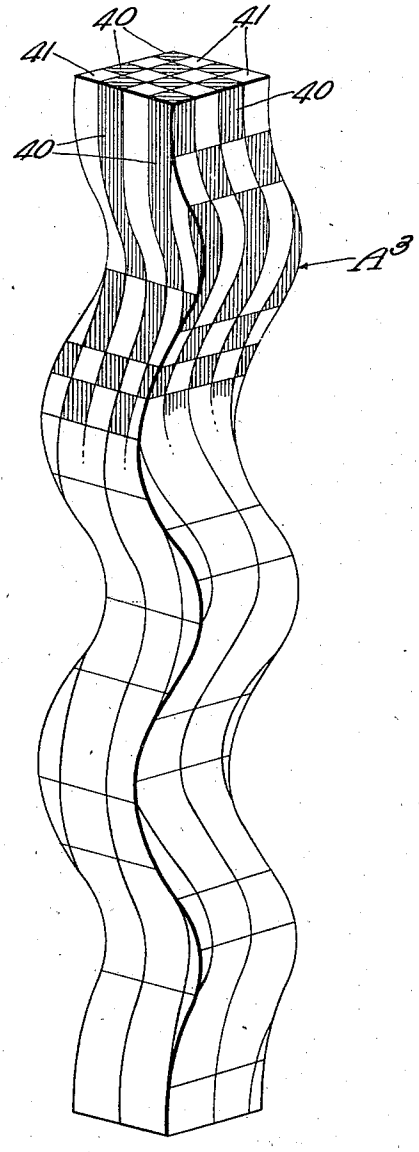


Fig. 13



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Patented Aug. 14, 1945

2,382,208

UNITED STATES PATENT OFFICE

2,382,208

STRUCTURAL ELEMENT

Philip J. Corbin, Salisbury, Mass.

Application April 9, 1943, Serial No. 482,499

6 Claims. (Cl. 144—309)

This invention relates to the production of ornamental structural elements for use, for example, as banisters, furniture legs, lamp stands, etc.

The invention has for its general object a method of forming an element of generally helical configuration whereby such an element can be produced by simple operations and with minimum waste of stock.

The invention will best be understood from the following description of certain elements of the character to which the invention relates and certain modes of procedure which, in accordance with the invention, may be followed in producing the same, as illustrated in the accompanying drawings, these, however, being chosen for purposes of exemplification merely, as it is contemplated that the invention, as defined by the claims hereunto appended may be otherwise practiced without departure from its spirit and scope.

In said drawings:

Fig. 1 is a perspective view of an element embodying the invention in the form of a table leg or the like.

Fig. 2 is a perspective view of the piece of stock from which the element shown in Fig. 1 is produced.

Figs. 3 to 6 are perspective views illustrating the production of the element shown in Fig. 1 from the stock shown in Fig. 2.

Fig. 7 is an end view of the element, illustrating diagrammatically the saving in stock effected by the structure and mode of production.

Figs. 8 and 9 are views corresponding to Figs. 2 and 6, respectively, showing a modification.

Figs. 10 and 11 are views similar to Figs. 3 and 6, respectively, illustrating another modification.

Figs. 12 and 13 are views similar to Figs. 8 and 9, respectively, showing a further modification.

The element A shown in Fig. 1 is of substantially constant and substantially square cross section throughout its length and is longitudinally of generally helical configuration. In accordance with the invention it is produced from a piece of stock B (Fig. 2) of quadrilateral cross section corresponding to that of the element A and of a length corresponding to the length of said element. As shown, the piece B is parallelepidedal, i. e. of constant square cross section throughout. The stock B is divided longitudinally, as by a band saw or the like, into four sections by longitudinally sinuous cuts **20** and **21** (Figs. 3, 5 and 12) at right angles to one another and each extending completely through the piece from side to side, or between opposite faces of said piece, and the sections so formed are thereafter reassembled with matching plane faces thereof (that is to say, faces of corresponding size and shape), constituting parts of the exterior faces of the original piece, in engagement with and joined to one another, and the longitudinal corner edges of the original piece at the axial center of the reassembly. While the separation of the original piece into four sections by both of the two sinuous cuts is preferably done before the reassembly of the sections, as indicated in Fig. 12, the procedure illustrated in Figs. 3 to 6 may be employed.

As shown in these figures, the piece B is first divided longitudinally by the sinuous cut **20** (Fig. 3) between the two opposite plane faces **24** and **25** thereof, forming two sections **18** and **19** having matching sinuous faces **22** and **23**. The two sections are then separated and their flat outer faces **24** and **25** placed in juxtaposition and glued together, as shown in Fig. 4. The resulting secondary piece *b*, having two parallel sinuous faces **22** and **23** and two plane parallel faces **26** and **27**, is then divided longitudinally midway of the faces **26** and **27** (Fig. 5) by the sinuous cut **21** forming two composite sections **30** and **31** having complementary sinuous faces **32** and **33** and one remaining plane face each, **26** and **27**, respectively. The plane faces **26** and **27** are then placed in juxtaposition and glued together resulting in the helical element A shown in Fig. 6.

It will be seen that in the formation of the element A (shown in Figs. 1 and 6) all of the material of the original piece B (whose original cross sectional area is indicated substantially by the dotted outline D in Fig. 7) is utilized without waste except such negligible amount as may be incidental to forming the saw cuts **20** and **21**. The saving of material as compared to the waste which would be involved by working the element A out of a solid or unitary piece of stock is diagrammatically illustrated in Fig. 7, wherein the cross section of the solid piece required to work out the element is indicated substantially by the dotted outline C, and it will be seen that such a piece would be of nearly four times the cross sectional area of the piece B required. The simplicity of the procedure above described as compared to that of working out the element from a solid piece will be obvious without further elaboration.

Where an element A' (Fig. 11) having a longitudinal bore **35** to receive a reenforcing rod or (in the case of a lamp stand) electric wiring

is required, this can be conveniently provided by chamfering off the outer edges of the original piece B as shown at 36 in Fig. 10. Since the outer edges of the original piece are brought to the center of the completed element as a result of the reassembly above described, the surfaces formed by chamfering these edges will be spaced from one another to form the central bore 35 as shown in Fig. 11.

A surface ornamental effect can be produced (Figs. 8 and 9) by building up an original stock piece B' from several strips 40 and 41 of glued-together wood of contrasting colors, for example, walnut and maple. The joining faces of the strips 40 are so disposed as to be repeatedly crossed by the sinuous cuts, thereby alternately exposing parts of different strips along the sinuous faces so that the variegated effect shown in the element A^2 illustrated in Fig. 9 is produced. This variegated effect can be further developed by building up the stock piece B^2 from a greater number of smaller strips of material of contrasting colors disposed in alternating and staggered relationship, as shown in Fig. 12, thereby producing the surface ornamentation of the element A^3 shown in Fig. 13.

While the element embodying the invention, as above described and as shown in the drawings, is of helical configuration and of constant cross section throughout its length, it will be obvious that the helical configuration may be interrupted at its ends, or at one or more intermediate points, to facilitate framing, as by interrupting the sinuous cuts by straight portions: also that, by starting with an initially tapered stock piece, a correspondingly tapered element, i. e., an element having a cross section whose area varies at different points in its length, will result.

The article produced by the method above described is not claimed herein, being covered by the claims of a divisional application filed November 21, 1944, Serial No. 564,522.

I claim:

1. The method of forming a generally helical structural element which comprises separating a piece of stock into sections by a plurality of longitudinal sinuous cuts disposed transverse to one another and extending entirely through said piece, and reassembling the sections by joining together faces thereof of corresponding size and shape and constituting parts of the faces of the original piece.

2. The method of forming a structural element which comprises separating a parallelepipedal piece of stock into sections by a plurality of longitudinal sinuous cuts disposed perpendicular to one another and each extending entirely through said piece, and reassembling the sections by joining together faces thereof of corresponding size and shape and constituting parts of the plane faces of the original piece.

3. The method of forming a structural element which comprises building up a piece of stock from strips of material of contrasting colors, separating said piece into sections by a plurality of longitudinal sinuous cuts disposed transverse to one another and each extending entirely through said piece, the joining faces of said strips being so disposed as to be intersected by said sinuous cuts, and reassembling the sections by joining together the faces thereof of correponding size and shape and constituting parts of the faces of the original piece.

4. The method of forming a structural element which comprises separating a parallelepipedal piece of stock into two sections by a longitudinal sinuous cut extending entirely therethrough between two opposite plane faces thereof, joining together said plane faces to form a secondary piece having two parallel sinuous faces and two parallel plane faces, dividing said secondary piece into two sections by a second sinuous cut extending entirely therethrough between said last named plane faces to form sections each having one remaining plane face, and joining together the plane faces of said last named sections.

5. The method of forming a generally helical structural element which comprises separating into sections of substantially equal size a piece of stock of quadrilateral cross section by a plurality of longitudinal sinuous cuts disposed transverse to one another and each extending completely through the piece between opposite faces thereof, and reassembling the sections by joining together faces thereof of corresponding size and shape and constituting parts of the faces of the original piece.

6. The method of forming a generally helical structural element which comprises separating a piece of stock into sections collectively constituting substantially the whole of said piece by cutting said piece longitudinally by a plurality of longitudinally sinuous cuts disposed transverse to one another and each extending entirely through said piece, and reassembling the sections by joining together faces thereof of corresponding size and shape and constituting parts of the faces of the original piece.

PHILIP J. CORBIN.