(No Model.)

W. HARVEY.

ARTIFICIAL HORN AND METHOD OF PRODUCING THE SAME.

No. 460,086. Patented Sept. 22, 1891.

Fig. 1.

Fig. 2.

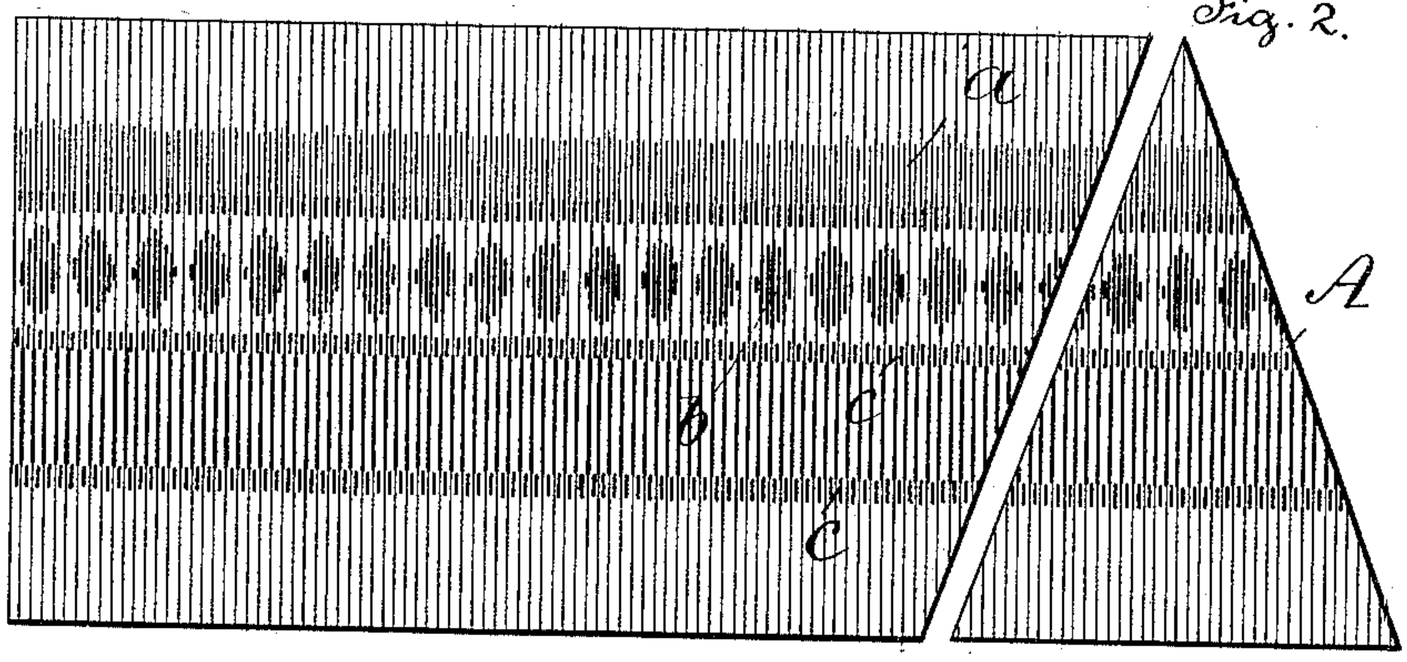

Fig. 3.

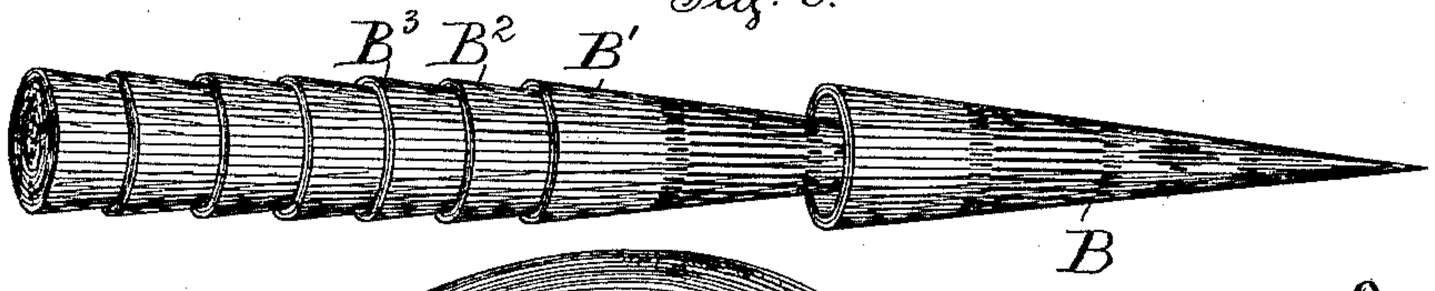

Fig. 5.

Fig. 6.

Fig. 7.

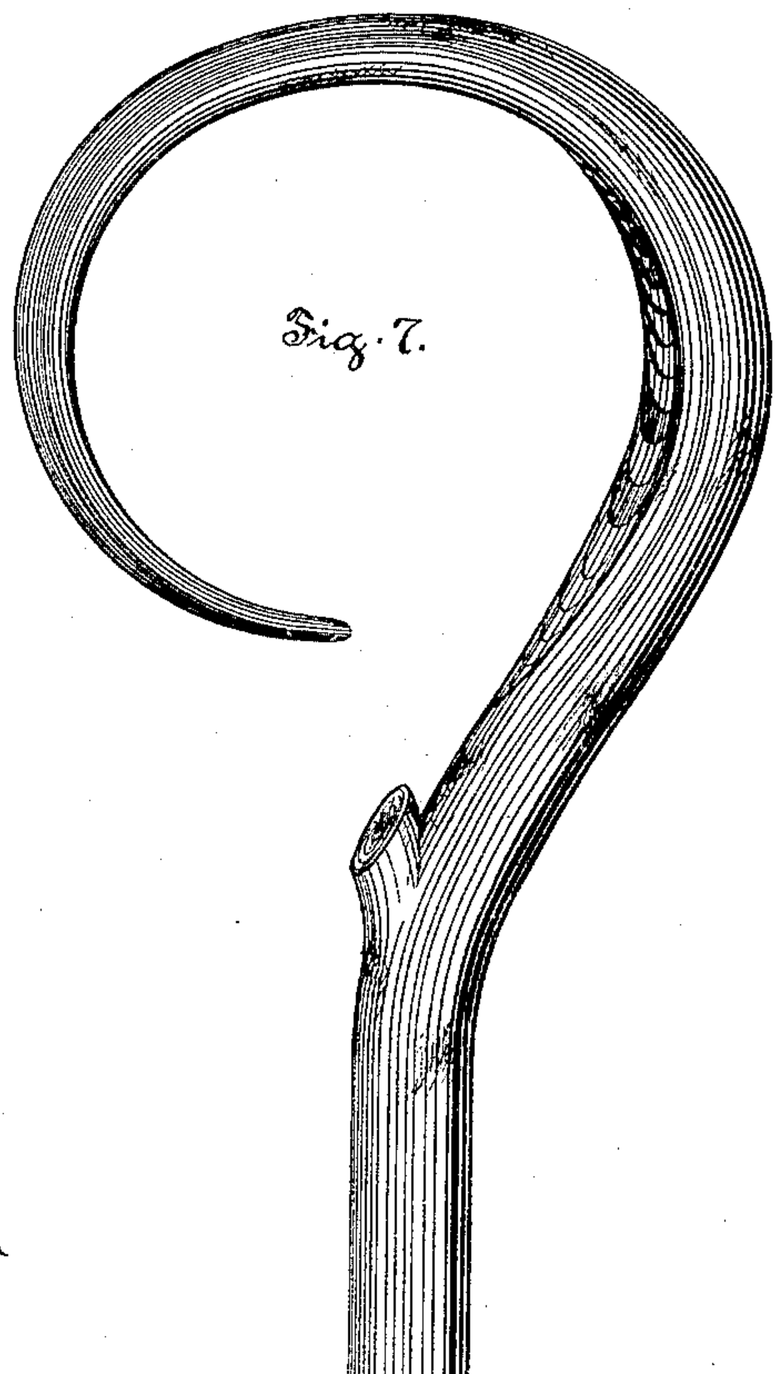

Fig. 4.

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Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM HARVEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAM HARVEY & CO., OF SAME PLACE.

ARTIFICIAL HORN AND METHOD OF PRODUCING THE SAME.

SPECIFICATION forming part of Letters Patent No. 460,086, dated September 22, 1891.

Application filed May 18, 1891. Serial No. 393,105. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HARVEY, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Artificial Horn and in the Method of Producing the Same, of which the following is a specification.

It is well known that the horn of the ox, buffalo, sheep, goat, and other animals consists of a central portion, an intermediate portion, and an external portion nested and formed together. Moreover, each of these portions comprises an opaque body having irregular streaks, fine variegated lines, and mottled or irregular spots, and when the horn is cut and polished it presents a decidedly characteristic marbled, clouded, or watered appearance, having the lines of color radiating from the top or point of the horn.

Heretofore various articles—for example, handles and ferrules for umbrellas, canes, and the like, mouth-pieces for pipes, buttons, and other articles—have been made from the horns of animals. However, these horn articles are very expensive both on account of the excessive first cost of the horn, the same being principally brought from South Africa, and on account of the labor required to manipulate the same to form the required articles therefrom.

In the production of small articles, as buttons, the horns of animals mentioned are usually softened by steeping in water, then cutting or working by placing in a chuck to assume the required forms and also to develop the edge grain thereof, and then polishing for use. One of the principal objections, however, that has been met with in the adaptation of horn for use as the hooked handles of umbrella-sticks has been the difficulty experienced in securing horn long enough and sufficiently solid for the purpose, and even when it has been possible to obtain such character of horn the excessive first cost thereof and the amount of labor and time involved in the formation of the required articles therefrom have in many cases prohibited its use for such purposes.

The principal objects of my present invention are, first, to provide artificial horn having the characteristic structure and marbled, clouded, or watered appearance of natural horn and of any required size or dimension; second, to furnish an inexpensive substitute for natural horn especially adapted for all the uses for which the heretofore expensive animal-horn has been employed, and, third, to provide a simple, inexpensive, and expeditious method of preparing such artificial horn as a substitute for the natural horn and its many uses.

My invention consists of an artificial horn comprising laminated and nested sheets of celluloid, pyroxyline, zylonite, or other somewhat analogous plastic material or materials having party-colored or variegated and lined layers or strata, whereby the characteristic structure and color effect of natural horn are produced therein and thereon.

My invention further consists of artificial-horn articles made from cones formed or composed of lined sheets of celluloid, pyroxyline, zylonite, or somewhat analogous material or materials having party-colored or variegated layers or strata and the sheets nested and laminated, with the lines and colored portions of the respective sheets in alignment with and overlapping each other in the rod, bar, or other figure formed of the cones in order that the spots of color and lines of union of the sheets appear disposed around the center, or thereabout, of the material or materials, as in natural horn.

My invention further comprises the method of producing artificial-horn articles, which consists in coloring sheets of celluloid, pyroxyline, zylonite, or other somewhat analogous material or materials in layers or strata, then forming the same into conical-shaped figures or forms while in a semi-plastic state or condition, and then nesting or laminating and uniting said figures or forms to form a solid rod, body, or configuration for various purposes.

My invention further comprises the method of producing artificial-horn articles, which consists in coloring sheets of celluloid, pyroxyline, zylonite, or other somewhat analogous material or materials in layers or strata, forming the same into figures or forms, then nesting or laminating and uniting the figures or

forms to form a solid rod, bar, body, or configuration, and then manipulating and polishing the laminated rod, bar, body, or configuration to form the required articles for the different uses; and my invention further consists in the improvements hereinafter described, and pointed out in the claims.

The nature and characteristic features of the invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a top or plan view of a sheet of celluloid, zylonite, pyroxyline, or other somewhat analogous material colored, spotted, and lined or striped and adapted to be worked into the required form. Fig. 2 is a similar view of a triangular-shaped piece of a sheet of celluloid, zylonite, pyroxyline, or other somewhat analogous material colored, spotted, and lined or striped and adapted to be worked so as to assume a conical form for use according to my invention. Fig. 3 is a perspective view of several cones of uniform sizes and respectively colored and lined and nested together or laminated and united so as to constitute an integral rod or other figure closely imitating or resembling natural horn. Fig. 4 is a transverse sectional view comprising several cones respectively colored and lined and united together and laminated so as to present the appearance and structure of natural horn. Fig. 5 is a view in elevation of a rod composed of a series of laminated and nested or united cones suitably turned off at the points of union of one cone with the other and forming a rod according to my invention, and showing also how the rod thus formed is cut obliquely in order to form a hooked handle for an umbrella-stick therefrom. Fig. 6 is a view in elevation, showing a rod made according to my invention and cut obliquely in order to show the internal grain or nerve tissues in imitation of natural horn; and Fig. 7 is a similar view showing the hooked handle of the umbrella-stick formed by bending and shaping the obliquely cut bar or rod illustrated in Fig. 5 or 6.

In carrying my invention into effect, a sheet of celluloid, zylonite, pyroxyline, or other somewhat analogous plastic material or materials having layers or strata of spots and colors and lines, as brown, gray, light smoke, ivory-white, olive, green, dark smoke, transparent, semi-transparent, or other colors adapted to produce the required color or spotted effects as existing in natural horn, is cut up by means of a die or other suitable appliance into a triangular or other somewhat similar shaped sheet adapted to be formed while slightly heated around or over a suitable core into hollow cones adapted to be combined so as to form a solid rod, body, or other required figure. These lined and colored or laminated cones are then nested together and secured in place by means of cellulose or other suitable cementing substance in any preferred manner, so as to constitute a solid laminated body closely resembling natural horn both in structure and in color effect.

Articles produced in the above-described manner as compared with articles of natural horn are far less expensive and can be readily produced of any required length and present the same attractive color and structural effect as does natural horn as now treated and transformed to adapt the same for the different uses in the arts.

A description of my invention will now be given with reference especially in that connection to Figs. 1, 2, 3, and 4. A sheet of celluloid, zylonite, pyroxyline, or other somewhat analogous material or materials having layers or strata of lines *a*, spots *b*, and bands *c*, of suitable colors for producing the color effect of natural horn—for example, brown spots or lines, light smoke, ivory-white, dark-smoke bands, and black, dark-brown, olive, green, gray, transparent or semi-transparent lines—is cut up by means of dies into triangular sheets A and then bent around or over a core or other suitable appliance into a hollow and conical-formed figure B. It may be remarked that each of the sheets A may be of any required size or dimension, and any preferred number of the hollow conical-shaped figures may be nested and united with one another. In the present instance eight of the hollow conical-shaped figures B, B′, and B^2 are nested together or laminated and attached or secured together by means of an adhesive substance or cement, so as to form a solid integral conical figure. At the respective outer points of union of the series of cones B, B′, and B^2 with one another the projecting edges by a gentle rolling operation are turned off in such manner as to form one solid integral rod or bar, such as shown in Figs. 5 and 6. In this operation care should be exercised not in any way to destroy the color, line, or spotted parts or portions of the united conical figure or body in imitation of the grain or nerve tissues of the natural horn. Furthermore, in the union of the respective conical-shaped figures with one another care must be exercised to place the spots *b* of one conical-shaped figure in proper alignment with the corresponding spots on the other conical-shaped figure in order that in the finished article the spots will appear disposed around about the center and extend therefrom in the tip or internal portion of the structure, whereby a most desirable variety of radiating colors and lines in imitation of the grain or nerve tissues of natural horn will exist therein.

In order that my invention may be still further understood a description will now be given of the method of making an artificial horn-hooked handle for an umbrella-stick, and in this connection reference is made especially to Figs. 5, 6, and 7, in which D is a rod or bar cut obliquely at *d′*, as shown in Fig. 5. This bar is made up of a series of conical-shaped figures B B′ B^2, &c., formed

from sheets of celluloid, pyroxyline, zylonite, or other somewhat analogous plastic material or materials having layers or strata colored with fine lines, spots, and bands of dark brown, dark green, light or dark smoke, olive, green, gray, ivory-white, transparent or semi-transparent, or other preferred colors adapted to produce the color effect of natural horn in the finished article or to expose to view in the oblique portions of the rods the characteristic marbled, watered, or clouded effect corresponding with the grain or nerve tissues existing in natural horn. The rod or bar D, being cut obliquely, as shown in Fig. 5 or 6, is then bent in any preferred manner, so as to assume the hooked form shown in Fig. 7, when the bar or rod thus treated is polished in any preferred manner for use. It may, however, be remarked that the polishing operation may be resorted to before the bar or rod D is caused to assume its curved or hooked form.

It will be manifestly obvious to those at all skilled in the art to which the present invention most nearly appertains that modifications may be made therein—for example, in the colors used or in the steps of the method of working the artificial horn to produce articles for the various purposes—without departing from the spirit of the invention.

Having thus described the nature and objects of the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, artificial horn consisting of cones formed into different configurations and composed of united or nested, laminated, and party-colored, variegated, and lined sheets of plastic material or materials, such as celluloid, pyroxyline, or zylonite, substantially as and for the purposes set forth.

2. As a new article of manufacture, artificial horn comprising lined sheets of celluloid, pyroxyline, or zylonite having party-colored or variegated layers or strata formed into cones nested, laminated, and united together to constitute bars, rods, or other configurations with the lines and colored portions of the respective sheets of the united cones in alignment with and overlapping each other in the structure, substantially as and for the purposes set forth.

3. The method of producing artificial horn, which consists in coloring sheets of plastic material, such as celluloid, pyroxyline, zylonite, or analogous material or materials in layers or strata, then cutting the sheets into triangular-shaped pieces or forms, then causing them to assume a conical shape around or over a core or other appliance and nesting and uniting them, and then rolling and turning off the projecting edges of the series of nested and united cones to constitute a solid laminated mass, rod, body, or configuration, substantially as and for the purposes set forth.

4. The method of producing artificial horn, which consists in coloring sheets of celluloid, pyroxyline, or analogous material or materials, then cutting said sheets into conical figures or forms, then nesting or laminating and cementing the conical figures or forms together, then gently rolling the edges of the united conical figures or forms, and then manipulating and polishing the laminated and nested or united rod, body, or mass to form the same into articles, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WILLIAM HARVEY.

Witnesses:

HERMANN BORMANN,

RICHARD C. MAXWELL.