Sept. 4, 1934. G. D. HARRIS 1,972,773

TOBACCO HANGER

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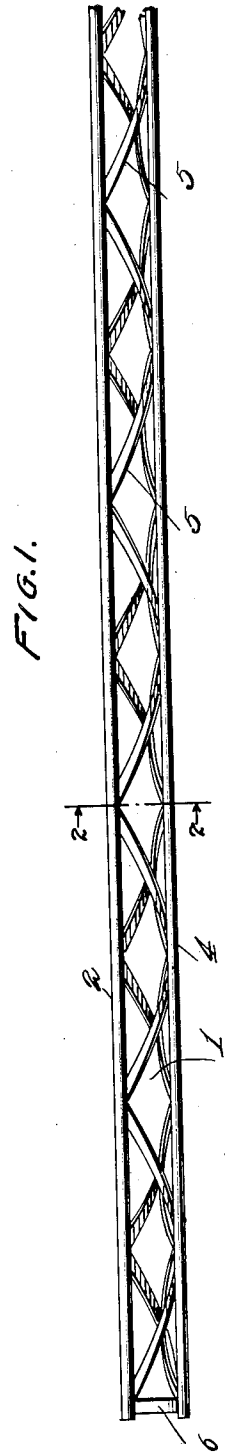


FIG. 1.

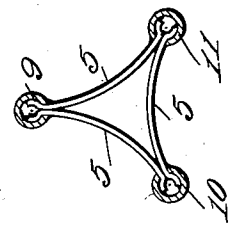


FIG. 4.

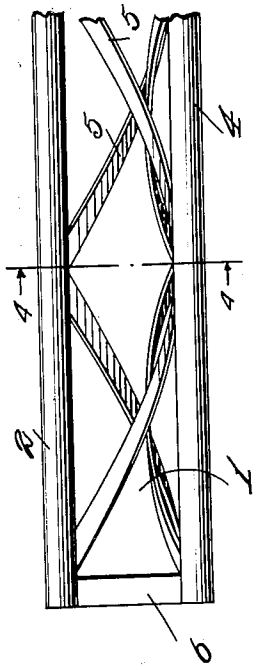


FIG. 3.

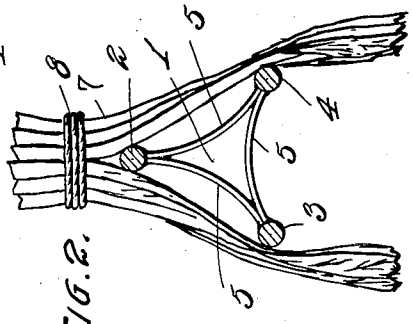


FIG. 2.

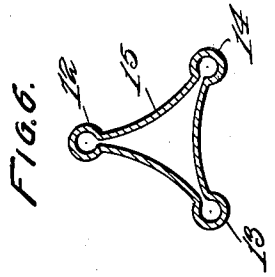


FIG. 6.

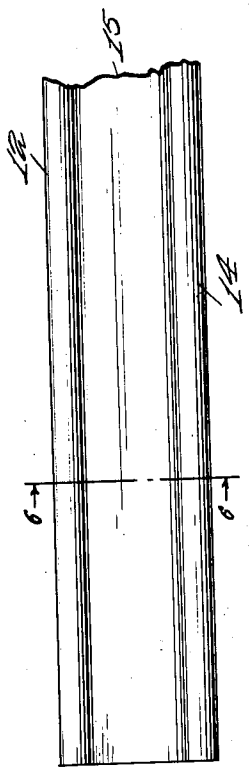


FIG. 5.

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TOBACCO HANGER

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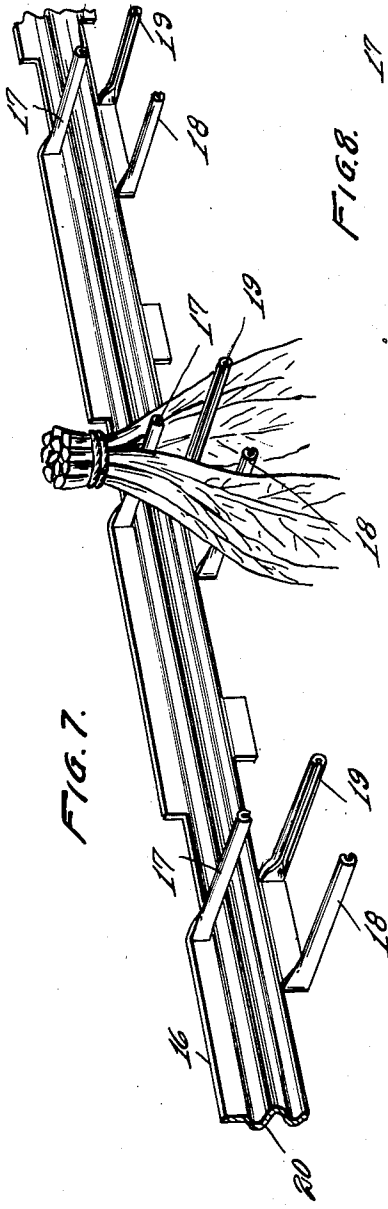


FIG. 7.

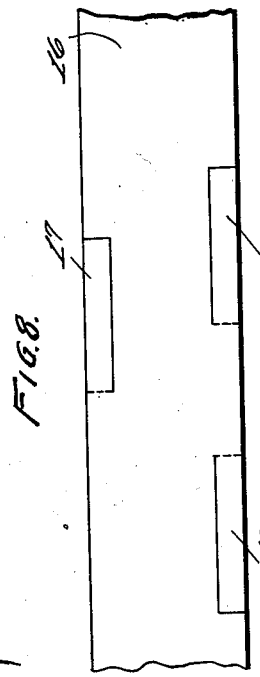


FIG. 8.

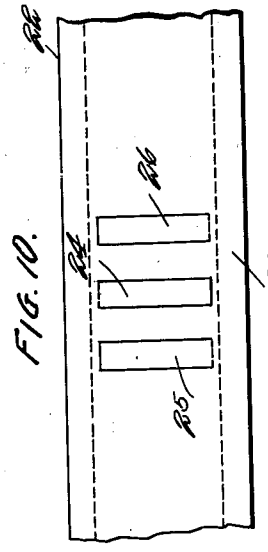


FIG. 10.

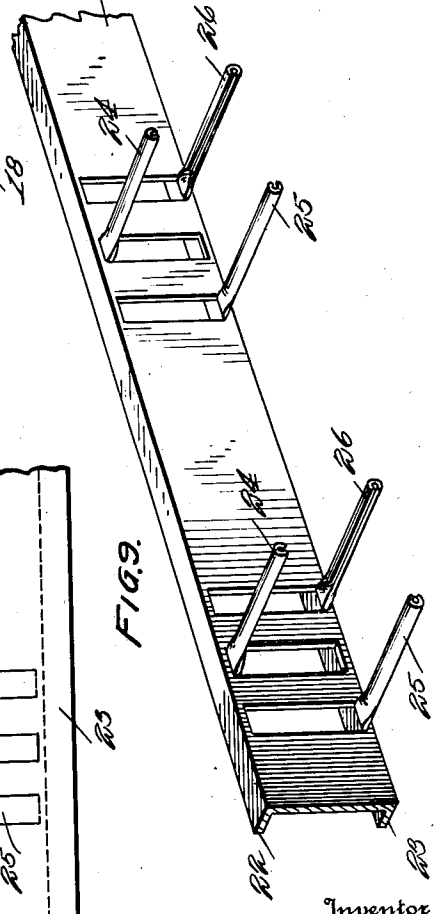


FIG. 9.

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TOBACCO HANGER

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Application February 24, 1931, Serial No. 517,943

9 Claims. (Cl. 131—21)

This application is a continuation in part of application Serial No. 482,083, filed September 15, 1930.

This invention relates to the treatment of tobacco and other material, and more particularly has reference to methods and apparatus for suspending hands of tobacco and other material during treatment.

Heretofore in the treatment of tobacco with gases to dry or condition the same, the tobacco is generally placed in bundles which are known as hands. A plurality of hands of tobacco are arranged on what is termed "tobacco carrying sticks". These sticks are positioned within the treating chambers of the tobacco conditioning apparatus in any desired number. The treating apparatus in many instances is constructed so that a plurality of the tobacco carrying sticks are arranged therein either fixedly or detachably.

Hands of tobacco to be treated are held in the desired spaced relations by means of the tobacco carrying sticks. One method of positioning the hands of tobacco on the sticks comprises separating the leaves of tobacco constituting a hand into two equal portions and placing the hand over the stick so that the two equal portions of leaves straddle the stick. In this instance, the stick may be made triangular so as to better fit the hand of tobacco straddling the same.

Other developments have been made in which the hands of tobacco are attached to the tobacco carrying sticks by various devices. For instance, the hands of tobacco may be attached to sticks by spring clips or other means for frictionally retaining the same in engagement with the sticks. In other instances, wire hooks are provided adapted to pierce the stems of the tobacco so as to retain the same in engagement with the sticks. Still other devices consist of prongs or wire attachments for passing between the leaves of tobacco so as to hold the same in proper relation to the tobacco carrying sticks.

While many developments have been made in the prior art to produce a variety of means for suspending the tobacco in the treating chamber, nevertheless, there is as yet no device which serves adequately to support and spread the leaves of tobacco so as to permit the most advantageous access of the conditioning gas to all portions of the tobacco undergoing treatment.

Analogous disadvantages are encountered in the treatment of other materials such as yarn, leather and similar substances and articles to increase the moisture content thereof.

The major object of this invention is to devise a method and apparatus for hanging tobacco and other materials in a treating apparatus which avoids the disadvantages inherent in the prior art.

Another object of this invention is to provide a method and apparatus for suspending tobacco and other material in a treating chamber so as to permit the maximum degree of access of the conditioning gas to all portions of the tobacco or other material undergoing treatment.

Still another object of this invention is to provide a method and apparatus for hanging tobacco in a manner so as to support and spread the leaves thereof and yet engage the tobacco at only three lines of contact.

Yet another object of this invention is to provide a tobacco carrying stick adapted to engage a hand of tobacco at only three lines of contact.

A further object of this invention is to provide a tobacco carrying stick having means formed thereon, onto which hands of tobacco may be placed, and which both support and spread the leaves of a tobacco hand.

With these and other objects in view, which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements comprising my invention may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claims.

Devices constructed in accordance with the present invention consist of tobacco carrying sticks comprising three members arranged in the form of a skeleton of a triangular prism. The members may consist of rods, tubular elements, or of strips curved so as to present a smooth surface to the tobacco leaves. The rods or other members are held in spaced apart relation by means of braces or structures similar to those employed in the formation of triangular girders for constructional purposes. In addition, the present invention contemplates the provision of tobacco carrying sticks formed of members of substantially triangular cross section, which members have the faces of the triangular prism like structure deformed or grooved inwardly so that only the angular edges of the triangular prism engage with the tobacco supported thereby.

A modification of the present invention consists in the formation of tobacco carrying sticks with members attached thereto adapted to support a hand of tobacco and spread the same.

This modification of the invention may consist of metallic strips having members struck out therefrom, and formed so as to support and spread the leaves of a tobacco hand.

In order to make my invention more clearly understood, I have shown in the accompanying drawings, means for carrying the same into practical effect, without limiting the improvements in their useful applications, to the particular constructions which, for the purpose of explanation, have been made the subject of illustration.

In the drawings:

Figure 1 is a side elevational view of a tobacco carrying stick constructed in accordance with the present invention.

Figure 2 is a sectional view taken on line 2—2 of Figure 1, and showing the manner in which a hand of tobacco is supported and spread by the tobacco carrying stick.

Figure 3 shows a modification of the present invention in which a tobacco carrying stick is formed of hollow members arranged in triangular prism like formation.

Figure 4 is a sectional view taken on line 4—4 of Figure 3.

Figure 5 is a view of a still further modified form of the present invention in which the device is constructed in the form of a triangular prism, the faces of which are of convex form.

Figure 6 is a sectional view taken on line 6—6 of Figure 5.

Figure 7 illustrates still another modification of the present invention, in which members are formed on a tobacco carrying stick adapted to support and spread a hand of tobacco.

Figure 8 is an illustration of a strip of blank material showing how the members may be struck therefrom in accordance with the present invention.

Figure 9 is a view somewhat similar to Figure 7 showing a further modification of the present invention.

Figure 10 is an illustration of a blank of material adapted to be manufactured into a tobacco carrying stick similar to that shown in Figure 9.

As hereinbefore pointed out, the present invention relates to the provision of means for supporting hands of tobacco in a treating apparatus so as to permit the maximum access of the conditioning gas to all portions of the leaves of the tobacco. It has also been pointed out that the prior art devices did not serve the purpose of both supporting and spreading the leaves of a hand of tobacco, so that the treating gases could contact with all portions of the tobacco. The present invention provides a structure which will both support and spread the leaves of a hand of tobacco, so as to permit the treating gases to reach all portions of the leaves.

Triangular tobacco carrying sticks or laths over which the hands of tobacco may be straddled have been used in prior art devices. Tobacco carrying sticks of this type were disadvantageous, however, in that relatively extensive areas of the stick contacted with the leaves of tobacco, thereby preventing the conditioning gas from reaching all portions of the leaves. Necessarily, this lack of access to the conditioning gas causes non-uniform conditioning of the leaves of tobacco and a consequent waste of the tobacco, as well as the production of tobacco of an inferior grade.

The present invention overcomes the prior art distadvantages by providing a skeleton like triangular member over which the tobacco hands may be arranged. As shown in the drawings, a tobacco carrying stick 1 may be constructed consisting of a plurality of rod-like members 2, 3 and 4, arranged in the form of a skeleton triangular like prism. In order to maintain the members 2, 3 and 4 in the proper spaced relation, a plurality of braces or struts 5 extend between the members, as is clearly shown in Figures 1 and 2 of the drawings. These braces 5 may be of any desired width or thickness, as will be found most suitable for the purpose. Any convenient method or means for attaching the struts 5 to the several members 2, 3 and 4 may be employed. For instance, the struts may be welded, brazed or soldered, or attached to the members 2, 3 and 4 in any other manner.

At the ends of the tobacco carrying sticks, braces or struts 6 may extend between the members 2, 3 and 4, so as to provide a reinforced end construction. If found desirable, the ends of the tobacco carrying structure may be further reinforced by means other than those shown. It may be particularly advantageous to reinforce or strengthen the end of a tobacco carrying stick adapted to be inserted in a wall socket adapted to support the stick in cantilever fashion.

Figure 2 clearly shows the manner in which a hand of tobacco consisting of a plurality of bunches of tobacco leaves 7 secured together by a tie-string 8 may be arranged over the tobacco carrying stick just described. As shown in Figure 2, the uppermost rod or member 2 which forms the apex of the triangular prism structure serves to support the hand of tobacco and the lower members 3 and 4 engage the leaves of the hand of tobacco for the purpose of spreading the leaves apart, so as to permit the maximum degree of access of the conditioning gas thereto.

While in the foregoing description the members 2, 3 and 4 have been described as being rods, I wish it to be clearly understood that tubular members may be employed to equal advantage for this purpose.

In addition to the construction just described, tobacco carrying sticks similar to those shown in Figures 1 and 2 may be constructed of strips of material bent so as to present a smooth surface to contact with the tobacco leaves. As shown in Figures 3 and 4, tobacco carrying sticks may be constructed of members 9, 10 and 11 arranged in the form of a skeleton triangular prism. The members 9, 10 and 11 as shown, may consist of strips bent so as to present a smooth surface to the leaves of tobacco of the hands adapted to be carried thereby. The strips may be bent substantially in the form of tubes or in the form of members having U-shape or V-shape cross sections. As in the case of the structure shown in Figures 1 and 2, the members 9, 10 and 11 may be connected and braced by suitable struts or braces 5. In Figure 4, the struts or braces 5 have been shown attached to the members 9, 10 and 11 by having the members 9, 10, and 11 clasped about spread ends formed on the struts 5. Of course, other methods of attaching the struts 5 to the members 9, 10 and 11 may be employed.

A further modification of the present invention is shown in Figures 5 and 6, in which tobacco carrying sticks of triangular prism like formation are constructed from a single piece of material. As clearly shown in the drawings, this form of the invention may be constructed from tube like members deformed so as to present a structure of substantially triangular prism like appearance. The device so formed, however, is

different from a true triangular prism in that the angular edges 12, 13 and 14 are enlarged so as to present a rounded smooth surface rather than a sharp knife-edge which would tend to injure the leaves of tobacco.

It will be appreciated, therefore, that the rounded angular edges 12, 13 and 14 serve as the means for supporting and spreading the leaves of a hand of tobacco.

While the form of invention shown in Figures 5 and 6 has been described as being formed from a tubular member deformed to the shape of a triangular prism, I wish it to be clearly understood that the structure may be formed from a single strip of material shaped as shown in Figures 5 and 6. When completed, the structure shown in Figures 5 and 6 is somewhat similar to the forms of invention shown in Figures 1 and 3, in that three members 12, 13 and 14 are provided which support and spread the leaves of a hand of tobacco and are maintained in the proper spaced relation by means of the webs 15. Webs 15 which are described as being integral with the members 12, 13 and 14, may, if desired, be formed separately as in the case of Figures 3 and 4, and welded or otherwise secured to the members 12, 13 and 14.

Furthermore, in place of a solid web 15 shown in Figures 5 and 6, a web having apertures or slots formed therein to permit the free flow of gas therethrough may be provided. As a further modification, the structure shown in Figures 5 and 6 may be formed from a solid stick or bar, in which case grooves will be formed in the three faces provided by the triangular prism, so as to provide a structure approaching the form of a skeleton triangular prism which may support and spread the leaves of a hand of tobacco with a minimum amount of contact between the supporting and spreading means and the leaves of the hand of tobacco.

A structure somewhat similar to that shown in Figures 5 and 6 may be formed by attaching members to the angular edges of an ordinary triangular tobacco carrying stick now used in the art. In attaching the large members to the angular edges, a hand of tobacco could be placed over the stick and would contact only with the members arranged on the edges. By preventing contact between the faces of the triangular stick now in use with the leaves of the hand of tobacco, a greater degree of access of the conditioning gas to the leaves of the tobacco would be provided.

A further modification of the present invention consists in the provision of a tobacco carrying stick or lath having means associated therewith for supporting and spreading the leaves of a hand of tobacco. One means for carrying this modification into practical effect has been shown in Figure 7 of the drawings. This structure comprises a strip of material 16 having members 17 struck out from the upper edge thereof, and members 18 and 19 struck out from the lower edges thereof. The members 17, 18 and 19 are bent substantially at right angles to the lath or stick 16 and are struck out from the stick in such a relation as to provide when bent at right angles to the stick 16, a skeleton of a triangular prism. In order to avoid cutting or otherwise damaging the leaves of tobacco, the members 17, 18 and 19 are curved as shown in Figure 7 to provide a smooth surface adapted to contact with the leaves of the tobacco.

When arranged as shown in Figure 7, the members 17, 18 and 19 struck out from the lath or stick 16 receive a hand of tobacco as is clearly shown in Figure 7. The member 17 struck out from the upper edge of the strip serves as a means for supporting a hand of tobacco and the members 18 and 19 struck out from the lower edge of the stick or strip serve as means for spreading the leaves apart to permit access of conditioning gas thereto. In order to rigidify or strengthen the lath or stick 16, one or more corrugations 20 may be formed therein. Suitable means, not shown, may be formed on the ends of the stick or lath 16 by means of which the same may be supported by the wall of a tobacco treating apparatus.

It will be appreciated that the structure just described is advantageous in that it may be readily formed from a flat strip of material. A blank strip of material is shown in Figure 8 with the solid lines indicating how the members 17, 18 and 19 are struck from the strip, and the dotted lines indicating the line at which the members are bent relative to the stick 16. When completed, the members 17, 18 and 19 may taper slightly toward each other at their free ends to facilitate the positioning and removal of hands of tobacco thereon.

A modification of this form of the invention is shown in Figures 9 and 10. This modification consists of a tobacco carrying stick or lath 21 of substantially channel-shape formation, that is, the upper and lower edges of the strip 21 are bent at right angles to form flanges 22 and 23 which serve to rigidify and strengthen the entire structure. Members 24, 25 and 26 are struck from the body of the strip 21 in order to provide means for supporting and spreading the leaves of a hand of tobacco. Members 24, 25 and 26 are formed slightly differently from the corresponding members 17, 18 and 19, shown in Figure 7, in that the member adjacent the upper portion of the stick, as well as those adjacent the lower portion of the stick, are all struck out vertically from the strip 21, the upper member 24 being struck out so that the portion integral with the stick is adjacent the upper edge thereof, and the lower members being struck out so that the portion integral with the stick is adjacent the lower edge thereof. This construction is clearly shown in Figures 9 and 10, Figure 10 showing a blank provided with dotted lines indicating the lines about which portions are bent and the solid lines indicating where the members 24, 25 and 26 are cut from the body of the stick or strip 21. It will be appreciated that the structure described above provides a tobacco carrying stick or lath which may be easily constructed and which is sufficiently rigid to properly support and space the leaves of a plurality of hands of tobacco.

While in Figures 7 and 9, the tobacco supporting and spreading means have been shown extending from only one side of the tobacco carrying lath or stick, I wish it to be clearly understood that if desired, the supporting and spreading members may extend from both sides of the stick, so as to support hands of tobacco on each side thereof.

The forms of invention shown in Figures 7 and 9 are of advantage in that hands of tobacco may be easily placed on the members for supporting and spreading the leaves thereof, and may be easily removed from the supports by merely tilting the laths or sticks so as to dump the hands therefrom.

It will be appreciated that the structures herein disclosed provide means which may be easily constructed at rather low cost and which serve adequately for supporting and spreading the leaves of tobacco hands in a manner so as to permit a high degree of access of conditioning gas thereto.

The devices herein described may be formed from any desired material found suitable for the purpose. It may be found advantageous to form the structures of metal, particularly those in which the supporting and spreading members are struck out therefrom. In other instances, however, the structures may be formed either of metal or other materials such as wood.

In the foregoing description, the invention has been illustrated as being specifically applicable to the treatment of tobacco. For instance, the supporting means have been described as being advantageous for supporting and spreading the leaves of a hand of tobacco so as to permit the access of a conditioning gas to substantially all parts of the hand of tobacco undergoing treatment.

While the structures shown in the drawings and described in the specification serve very satisfactorily for supporting hands of tobacco during treatment thereof with a conditioning gas, the structures serve equally well as means for supporting other material being treated with conditioning gas. For instance, it is common practice to recondition yarns after they have been dried bone dry so that they will make a certain regain in moisture content. The type of supporting means set forth in this application serve very satisfactorily for supporting skeins of yarn. For instance, the yarn may be set over the hangers in such a manner that a conditioning gas will have ready access to all portions of the yarn.

The structure of the present invention can also be used satisfactorily for supporting welting for use in the manufacture of shoes. The welting usually comes wound in coils and such coils may be very advantageously supported by the structure herein described.

Of course, any other material which could be supported upon hangers of the type described herein may be treated satisfactorily in accordance with the present invention.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

I claim:

1. A tobacco carrying stick comprising a plurality of relatively stiff rods arranged in the form of a skeleton triangular prism and having bracing means lying wholly within the triangle bounded by the rods.

2. A material carrying stick comprising a plurality of relatively stiff rods arranged in the form of a skeleton triangular prism and means for maintaining the rods in triangular prism-like formation, said means lying wholly within the triangle bounded by said rods.

3. A material carrying stick comprising a plurality of rods arranged in the form of a skeleton triangular prism and braces extending between the several rods and positioned within the prism like structure at a material distance from the imaginary outer surface defined by the skeleton prism like structure.

4. A material hanging structure comprising a stick consisting of a plurality of parallel relatively stiff sections arranged in a triangular prism like formation and bracing structure lying wholly within the boundary of the prism.

5. A tobacco hanger comprising a stick constructed of three relatively stiff members arranged in the form of a skeleton triangular prism, the member forming the apex of the prism serving to support hands of tobacco and the other members being so arranged relative to the supporting member so as to spread the leaves of a tobacco hand and spirally arranged bracing members joining the three first mentioned members and lying wholly within the boundary of the triangle formed by said three first mentioned members.

6. A material carrying stick comprising a plurality of strips of substantial U-shaped section arranged in the form of a skeleton triangular prism.

7. A material carrying stick comprising a plurality of strips of substantial U-shaped section arranged in the form of a skeleton triangular prism, and means for maintaining the strips in prism like formation.

8. A material carrying stick comprising a plurality of strips of substantial U-shaped section arranged in the form of a skeleton triangular prism, and braces extending between the several strips and positioned within the prism like structure at a material distance from the imaginary outer surface defined by the skeleton prism like structure.

9. A skeleton like triangular material carrying stick whose edge pieces are of substantial stiffness adapted to support suspended material, and having bracing means lying wholly within the triangle bounded by the edge pieces.

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