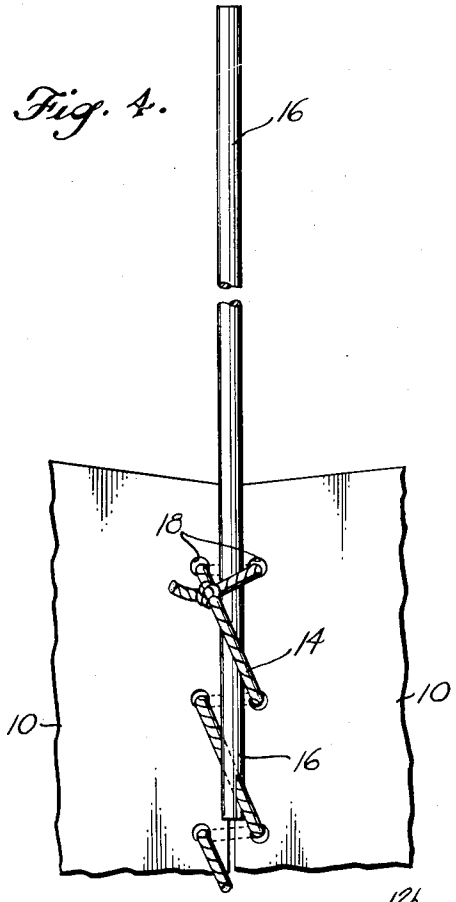
July 17, 1956 R. G. JOHNSON ET AL 2,754,550

TOY SHELTERS

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Fig. 4.



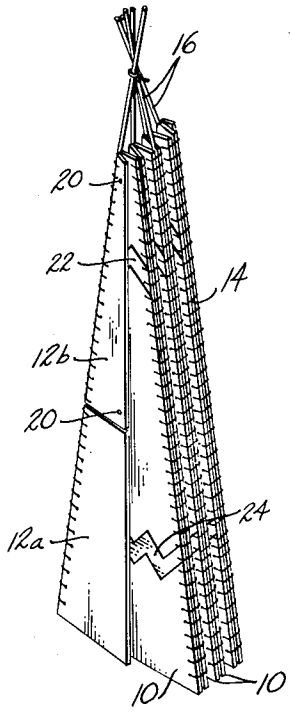


Fig. 5.

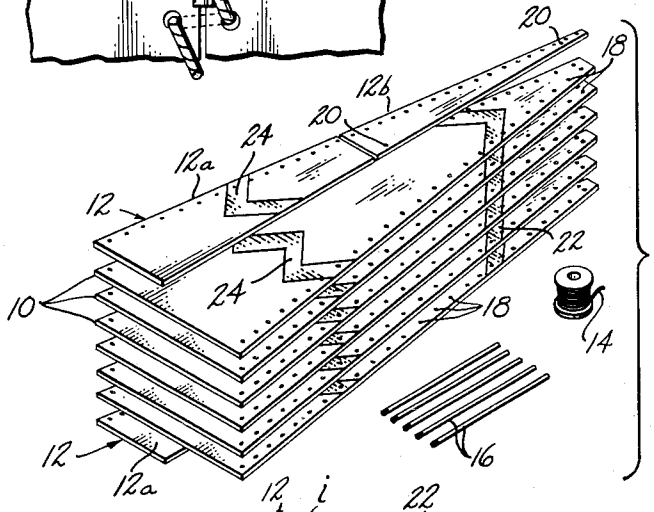


Fig. 1.

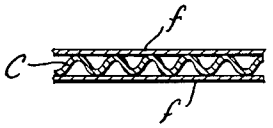


Fig. 8.

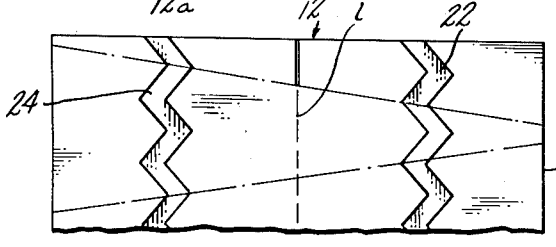


Fig. 7.

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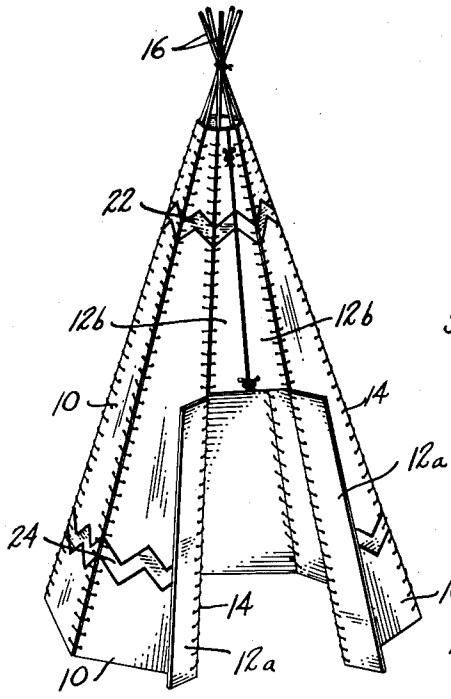


Fig. 3.

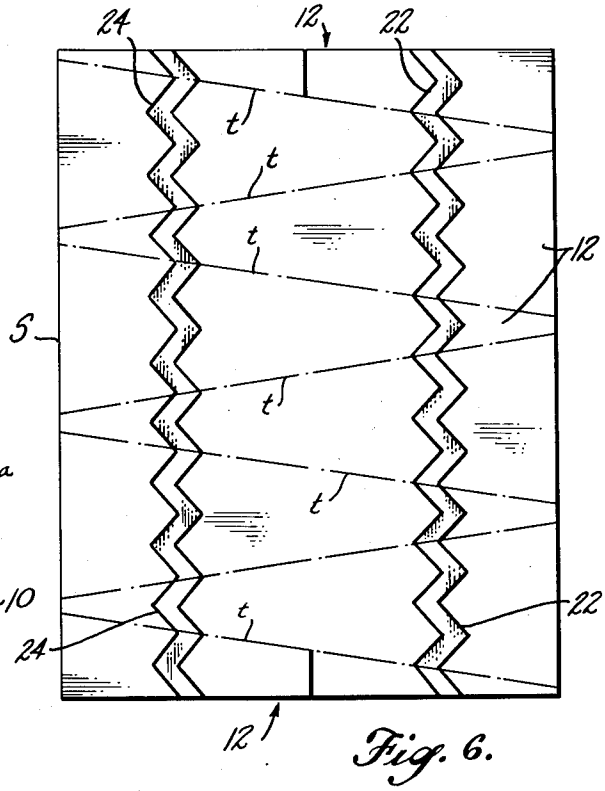


Fig. 6.

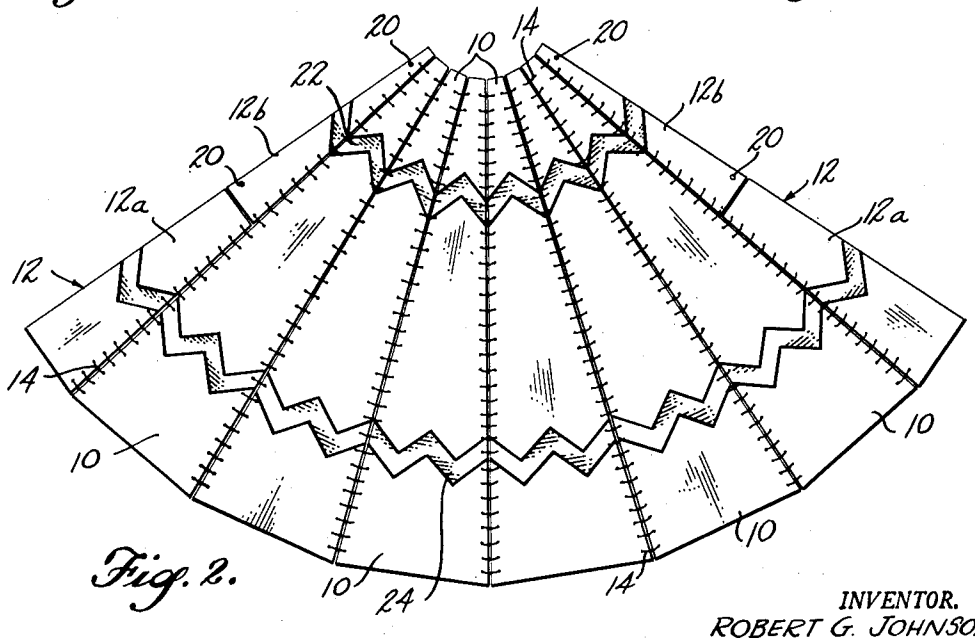


Fig. 2.

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TOY SHELTERS

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6 Claims. (Cl. 20—2)

This invention relates to an instructional toy, and more particularly concerns a novel toy shelter, which, in its preferred form, realistically simulates an Indian's tepee or wigwam and is of ample size to be occupied by children at play. In accordance with the invention this play tepee may be made available as a previously assembled unit, ready to be erected by simple unfolding and securing operations. It is much preferred, however, that it be merchandised as an assembly kit, the components of which may be put together first by the child for the instruction and pleasure to be derived therefrom. The novel toy shelter is herein illustratively described by reference to the preferred form thereof, as shown in the accompanying drawings, but it will be readily appreciated that the scope of the invention is not necessarily confined to the particulars of the illustrative example.

An important object of this invention is a low-cost, novel and attractive toy of the nature described, which may be manufactured out of very inexpensive materials and by use of simple adaptations to existing manufacturing equipment already extensively used for other purposes requiring similar material handling and cutting techniques. A related purpose is to permit utilization of materials of which thus far no serious scarcities have appeared or are likely to arise.

Another object is a novel toy combining imaginative appeal, manual instruction and educational values, historic and otherwise, as well as affording continuing utilitarian enjoyment throughout its useful life, which may be as long as desired if treated with moderate care.

Other objects include the use of component pieces or materials which will not be hazardous to children, nor likely to mar furniture when used indoors, which can be conveniently destroyed by burning or otherwise handily disposed of at the end of the toy's useful life, and furthermore, which are sufficiently light in weight so that, although relatively large, they can be readily handled by small children for putting the parts together and erecting and taking down the tepee. Another advantage inherent in the type of construction and the nature of materials employed, is that the toy shelter is entirely self-sustaining when erected upon a floor or other supporting surface, and requires no external bracing, anchoring or other stabilizers or supporting connections; nor are poles or special stiffeners required in the construction.

Another purpose is to achieve a type of construction which enables the toy shelter to be quickly folded or collapsed into a compact form for storage purposes, without necessity of disassembling the parts, this being an important consideration in view of the fact that the toy shelter preferably is, by comparison with other toys, relatively large and convenience may require its frequent removal to and from storage.

Still another object is to provide a technique for reducing the large wall panels of the kit to smaller packaging dimensions, so that the packaged kit may be more easily and conveniently handled, shipped and stored than

otherwise, and yet so as not to impair or weaken such components.

With the foregoing and other objects in view, as will hereinafter more fully appear, the invention resides in various features of the illustrative toy, described briefly as follows. Such a toy shelter comprises basically a plurality of generally upright, substantially flat wall sections or panels of inherently stiff sheet material which are substantially triangular, or more specifically trapezoids, such panels having ground-engaging base edges and joined together hingedly by their upright side edges in serial edge-to-edge relationship. The ends of the series of hingedly connected sections, when unfolded from stored condition and connected together, similate an Indian's wigwam, which is geometrically a pyramid, there being one or more sides of the pyramid at least partially open, or subject to opening without disturbing side panels, afford a means of ingress and egress. Preferably the upper part of the opening side of the pyramidal shelter is closed by two fractional length semi-sections hingedly fastened to the adjacent full sections and secured together at their abutting free edges in a manner permitting quickly disconnecting them to enable folding up the series of panels for storage purposes, while the lower part of such opening side of the shelter is provided with two fractional-length semi-sections hingedly connected to the respectively adjacent full wall sections to serve as doors.

The use of a plurality of generally triangular or trapezoidal wall sections, together with the two segmented semi-sections to form the entire wall structure of the toy wigwam enables cutting all wall sections from a uniformly wide strip of sheet material without any waste entailed, all cut pieces being usable. The main feature reducing the toy's cost, however, is the use of regular commercial carton grade of laminar cardboard sheet material for the wall sections, such material preferably comprising two thin facing sheets and a corrugated stiffener lamination sandwiched therebetween. By cutting such cardboard so that the corrugations run heightwise of the panels, which is easily done with existing carton cutting machinery at very low cost, and by edge joining the adjacent sections as described, each supporting and bracing the other, a remarkably strong and rigid structure results, yet the total weight is very low.

Another feature of the invention is a toy shelter assembly kit including a plurality of inherently stiff triangular sheet material sections, such as of the described cardboard material, which are punched at intervals along their upright edges, to receive lacing, which the child himself can apply to assemble the sections, and preferably also a plurality of doweling sticks adapted to be secured in the upper portions of the laced joints to project upwardly therefrom in resemblance to regular tepee frame poles, although such sticks do not serve any structural purpose.

By transversely creasing or scoring (without puncturing) one side of each main wall section generally intermediate its ends (preferably half-way between top and bottom) the sections may be folded in half for packaging purposes and thereby approximately halving the considerable length of a package containing unfolded sections (of the order of 5 feet in a typical case), and yet when these sections are unfolded for assembly purposes the fold line or crease does not noticeably weaken the erected tepee because of the manner in which the interconnected sections brace and support each other.

As an incidental feature, for Indian design marking purposes there is printed on the blank cardboard strip two longitudinal parallel zigzag design marking lines, which lines are spaced by equal distances from the respective nearest adjacent edges of the strip. When the strip is cut transversely into sections, the cutting lines

intersect such marking lines at corresponding locations, such that when the sections are secured together in assembled relationship there will appear around the completed tepee two continuous zigzag design bands because of registry of the segmental markings of adjacent sections.

The foregoing and other features, objects and advantages of the invention, including preferred details of form and construction thereof, will become more fully evident from the following detailed description by reference to the accompanying drawings.

Figure 1 is a perspective view of the kit of components which go to make up a complete tepee following the illustrative design.

Figure 2 is a face view of the tepee wall sections all laced together and spread out in a single plane.

Figure 3 is a perspective view of the completed tepee in erected position.

Figure 4 is a detail view illustrating the preferred way of securing the frame-pole-simulating doweling sticks in place.

Figure 5 is a perspective view of the tepee folded up for storage purposes.

Figure 6 is a face view of a strip of sheet material out of which the wall sections for a single tepee are cut.

Figure 7 is a fragmentary view of the strip appearing in Figure 6, and marked with a dotted line along which the material is creased to facilitate folding of the cut panels into shorter lengths for greater convenience in packaging and handling.

Figure 8 is an enlarged cross section through the preferred type of cardboard sheet material comprising the wall sections.

A complete assembly kit, as shown in Figure 1, comprises a plurality of wall sections or panels **10** of approximately triangular form, a pair of semi-sections **12** each of which is severed transversely generally intermediate its ends to provide complemental fractional length pieces **12***a* and **12***b*, a supply of yarn or other lacing material **14**, which may be provided in bulk as shown or in cut lengths, and a plurality of doweling sticks **16**. While any suitable number of triangular sections may be employed in the construction of a tepee, depending upon the design form preferred, a convenient number, as illustrated, is six full sections **10** and the two semi-sections **12**. In a typical case these full sections will be about five feet long and of such a width at the base (about twenty inches) that the erected tepee will be about four feet across at the bottom. These sections are not pointed at their tips but are actually trapezoidal (about 2 inches wide at the tip) to allow for an opening in the top of the assembled tepee. The sticks **16** are preferably of quarter-inch doweling, about 16 inches long and notched inwardly, as by a saw kerf, at one end.

The main characteristics desired in the panel sheet material are that it be safe, harmless to infants and finished surfaces, inexpensive, relatively stiff or self-supporting, easily cut, light in weight and that it be readily disposed of after serving out its useful life. The preferred sheet material satisfying these requirements is ordinary laminated cardboard of the type illustrated in Figure 8, consisting of two face plies *f* and an intermediate corrugated core ply *c* adhesively bonded between the face plies. A regular commercial grade of cardboard used for cartons in which staple foods and other merchandise are normally packaged is admirably suited to the purpose. For example, cardboard of this type having an original thickness of about three-sixteenths of an inch is satisfactory. As a matter of interest but of no serious consequence, when this cardboard is run through feeder rolls in the presently contemplated type of cardboard container manufacturing machinery that applies the design markings to the strip and performs the cutting operations its thickness is reduced to approximately one-eighth of an inch.

Each full wall section **10** has its opposite side edges punched or perforated with lacing holes **18** at regular intervals along their entire length. The semi-sections **12** are provided with similar perforations along only one side, as illustrated. Fewer (two) securing holes are provided along the opposite edge of the narrower of the two fractional length segments of the semi-sections **12** for a purpose to be explained hereinafter.

By laying one wall section on a flat horizontal supporting surface with the design markings facing upwardly, and placing another wall section in congruent position directly upon it and with the design markings of the upper section facing downwardly, the adjoining edges at one side of the sections may be laced together along their full length, as illustrated, tying the lacing at both ends to secure it in place. This process is repeated for adding additional sections to the next preceding ones in the series, until the fan-shaped assemblage constituting the completed wall structure of the tepee appearing in Figure 2 is achieved, the pair of two-part semi-sections **12** being similarly laced to main sections at opposite ends of the series.

The lacing provides a hinge type of joint and is the preferred, although not necessarily the only, type of securing means by which the wall panels may be edge connected, the preference for a laced joint between panels being due to its authentic appearance, low cost, and to the instructive pleasure it affords children in "sewing" together the parts of the structure. The appearance of lacing could be achieved by lines printed on the panel edges and the actual connections made by other means, such as with familiar twisted wire brush type smoker's pipe cleaners looped through panel holes, or by a flexible binding tape, with or without design markings, if desired.

The next step in the erection of the tepee is to raise the fan-shaped structure appearing in Figure 2, swing the end panels toward each other until the free edges of the fractional length semi-sections **12***b* meet, whereupon such edges may be secured together by pieces of lacing tied with bow knots, or with other fastenings, preferably of a temporary nature, passed through the adjacent holes **20**, so that the structure may be taken down quickly when desired. The doweling pieces **16** simulating wigwam frame pole tips are simply passed down through one or more turns of lacing at the top of each joint for which a doweling piece is provided. A turn of lacing is lodged in the notch of each doweling stick to prevent its slipping down further than a desired distance, as shown in Figure 4. The several doweling sticks may then be tied together at the nape or cross-over point, as shown in Figure 3. The wider of the fractional-length segments of the semi-sections **12**, namely the portions **12***a*, form hinged doors which may be opened and closed in order to complete the dwelling. When thus assembled the various components of the structure unite to closely simulate an authentic Indian wigwam or tepee.

When the two semi-sections **12***b* are disconnected from each other, the entire tepee may be collapsed and folded accordionwise into the compact arrangement appearing in Figure 5, a form in which the assemblage may be packaged for sale, if desired, instead of as an assembly kit illustrated in Figure 1. When compressed, the folded assemblage reduces to a total thickness substantially no greater than the sum of the thicknesses of the several panels or sections making up the structure, which is normally a total of no more than about one or two inches. Such a unit may therefore be stored conveniently in toy closets or in any other suitable storage place, despite its considerable length and width, which it must necessarily have in order to serve its intended purpose, as the wall

panels of relatively stiff material should not be rolled or otherwise distorted except as hereinafter described.

As shown in Figure 6, the original strip of material S from which the wall sections are cut is of uniform width and is provided with two zigzag design mark lines **22** and **24** extending parallel to each other lengthwise of the strip, the respective lines being spaced inward equal distances from the adjacent opposite side edges of the strip. These design marks have a repeating zigzag pattern which is intersected by the transverse cutting lines *t* by which the strip is cut into the several sections **10** and the semi-sections **12**, and the points of intersection with the design pattern lines always correspond. For example, in the illustrated case the respective points of intersection of each cutting line with the two design mark lines are represented by the inwardly directed peaks or points of the zigzag line patterns. The result is that when the sections are assembled together as in Figure 2, two continuous uninterrupted zigzag pattern lines will appear as bands extending around the completed tepee structure. It will also be apparent from Figure 6 that with a correct length of strip material S the transverse oblique sectioning cuts will divide up the strip into useful sections consuming every square inch of material. Longitudinal slits in the semi-sections **12** (Figure 6) divide them into their two segments **12***a* and **12***b*.

In Figure 7 there is illustrated a portion of the material strip S into which is impressed a crease or fold line indentation *i* extending longitudinally substantially the full length of the strip halfway between opposite sides thereof. After the wall sections are cut from this strip, they may be folded, each in half, so that they may be packaged in a comparatively small package, i. e. 2½ feet long as compared with approximately 5 feet long, for convenience in handling and storage. Nevertheless, when these sections are unfolded after removal from the box in which they are packaged or stored, they are as good for their intended purpose as if they had never been folded. The transverse fold line, which does not crack or sever the material, extends along the girth of the tepee and because of the manner in which each wall section affords support to and receives support from the other wall sections, any resultant weakness in longitudinal bending of the panels at their fold lines does not appreciably reduce the strength or rigidity of the completed structure. In other words, the folded portion is not in any event required to assume bending stress in the completed structure.

We claim as our invention:

1. An instructive toy shelter in the nature of an Indian tepee, comprising a plurality of generally upright, flat wall sections of inherently stiff sheet material, said wall sections comprising panels of substantially triangular form, each having a substantially straight ground-engaging base edge and two substantially straight upwardly convergent opposite side edges extending from said base edge upwardly to a tip, the side edges of said wall sections being perforated at a series of locations along their respective lengths, lacing means engageable in said perforations for connecting together said upright wall sections one to another in successive relationship to form the development of a substantially pyramidal structure, and means for releasably interconnecting the opposite end edges of said pyramidal structure development, said lacing means permitting accordionwise folding of the serially connected wall panels after release of said releasable interconnecting means.

2. The toy shelter defined in claim 1, wherein the end wall sections of the pyramidal structure development comprise similar substantially triangular panels of a materially shorter length than the first-mentioned substantially triangular panels to form an entrance opening in the completed structure, and wherein the means for releasably interconnecting the opposite end edges of the development structure comprise perforations in the mutually adjoinable edges of said short-length panels, and lacing for releasably fastening said latter edges together by engagement in said perforations thereof.

3. An instructive toy shelter in the nature of an Indian tepee, comprising a plurality of generally upright flat wall sections of inherently stiff sheet material comprising laminar cardboard sheet material including a corrugated stiffener lamination therein, said wall sections comprising panels of substantially triangular form each having a substantially straight ground-engaging base edge and two substantially straight upwardly convergent opposite side edges, means hingedly connecting together said upright wall sections by their side edges one to another in successive serial relationship to form the development of a substantially pyramidal structure, and means for releasably interconnecting the opposite end edges of said pyramidal structure development, said hingeable connecting means permitting accordionwise folding of the serially connected wall panels after release of said releasable interconnecting means.

4. The instructive toy shelter defined in claim 3, wherein the hingeable connecting means comprise perforations located at intervals along the side edges of the wall sections, and lacing engageable in said perforations for hingedly connecting the wall sections together.

5. The toy shelter defined in claim 4, wherein the end wall sections of the pyramidal structure development comprise similar substantially triangular panels of a materially shorter length than the first-mentioned substantially triangular panels to form an entrance opening in the completed structure, and wherein the means for releasably interconnecting the opposite end edges of the development structure comprise perforations in the mutually adjoinable edges of said short-length panels, and lacing for releasably fastening together such latter edges by engagement in said perforations thereof.

6. The toy shelter defined in claim 4, and a plurality of sticks removably inserted down into and through the lacing connecting together different pairs of wall sections to project upwardly above the tips of said wall sections and into mutually crossed relationship resembling the crossed frame poles of an Indian tepee, the lower ends of said sticks being slotted for reception of a stretch of lacing, which holds each such stick against sliding downward from said projecting position.

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