Jan. 11, 1944. E. F. REBHOLZ 2,338,738

TOY

Filed Oct. 2, 1942 2 Sheets-Sheet 1

Fig. 1

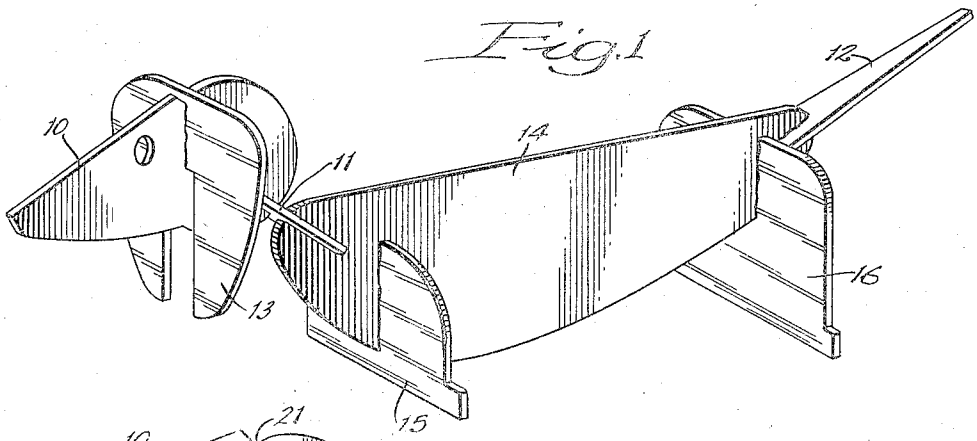
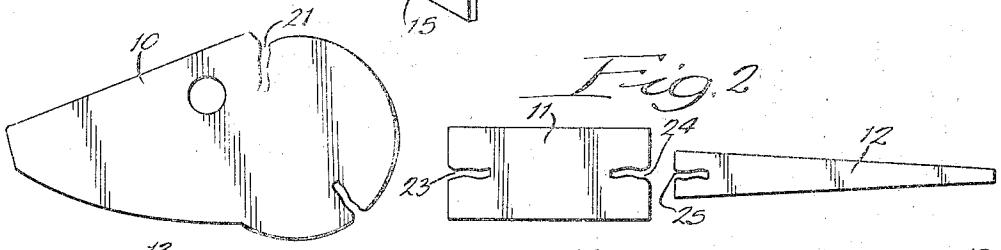


Fig. 2



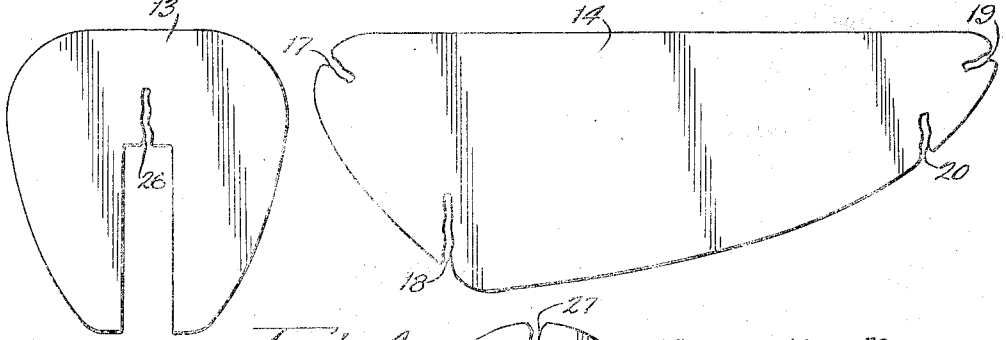


Fig. 4

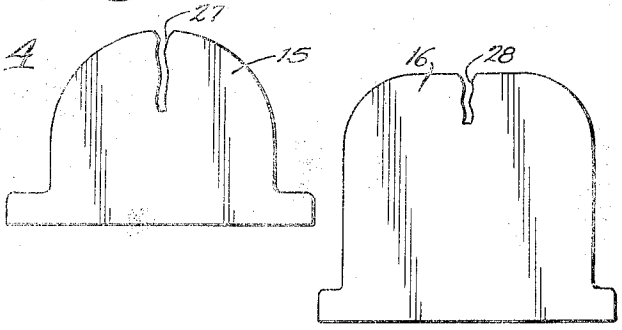
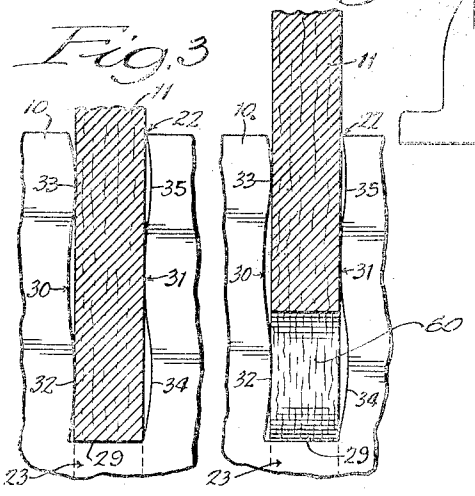


Fig. 3



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Fig. 5

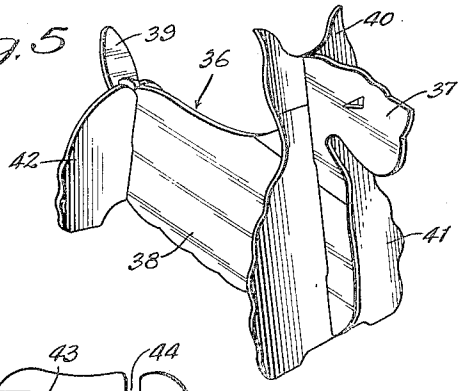


Fig. 6

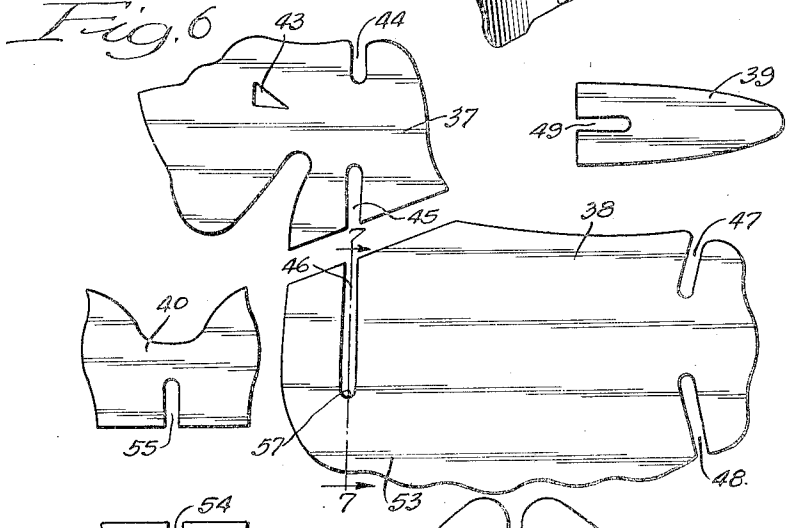
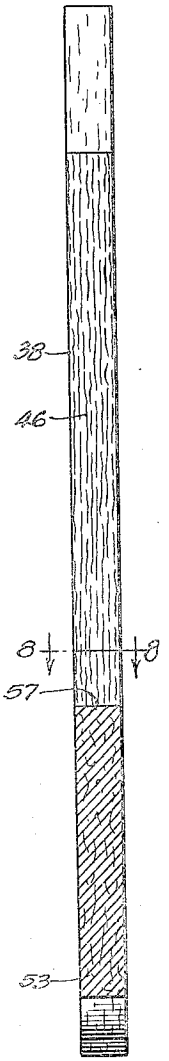


Fig. 7



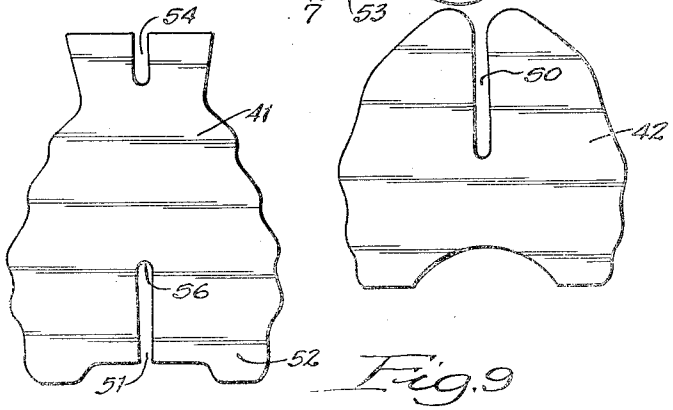


Fig. 9

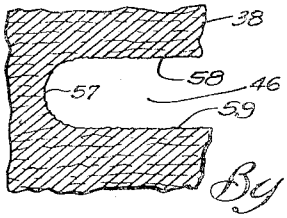
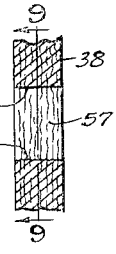


Fig. 8



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UNITED STATES PATENT OFFICE

2,338,738

TOY

Elmer F. Rebholz, Chicago, Ill., assignor to James F. Barnes, as trustee

Application October 2, 1942, Serial No. 460,481

7 Claims. (Cl. 46—22)

This invention relates to a toy, and more particularly to a toy in which a plurality of separable parts are releasably held in engagement with each other by the cooperative action of slots in the parts.

An object of the invention is to provide in a toy, a plurality of members which may be releasably secured to each other. Another object is to provide slots in the members by which the members may be joined together in a predetermined relation. Still another object is to provide in each of the members at least one slot adapted to receive a slot in another member, the slots being adjustable in position with respect to each other.

Yet another object of the invention is to provide in a toy, a plurality of separable members which are joined together by cooperating action of slots in the members, whereby the members are tightly held together in frictional engagement with each other, preventing their separation by chance movement, but at the same time permitting adjustability in the relation of the members with respect to each other by the exertion of substantial pressure on the members. A further object is to provide in the parts of a toy, slots deformed or irregular in contour, whereby the slots are adapted to receive cooperating slots of other members in tight frictional engagement throughout the length of the slot. Still another object is to provide slots having side walls with roughened surfaces adapted to frictionally engage throughout the length of the slot another member which is received within the slot.

Another object of the invention is to provide in a toy, a plurality of members having slots therein which are adapted to releasably engage each other to bring the members into assembled relation, at least one of the slots being sufficiently deep to permit the member in which such slot is disposed to extend across and beyond the cooperating member with which the first member is brought into engagement.

Other features and advantages of the invention will appear from the following specification and drawings, in which—

Fig. 1 is a perspective view of a toy embodying the invention; Fig. 2 is a collective plan view of the various members of the top in separated relation; Fig. 3 is a fragmentary detail sectional view of one of the slots with the adjacent member received therein; Fig. 4 is a fragmentary detail sectional view of the members shown in Fig. 3 with the slots in engagement throughout only a portion of their length; Fig. 5 is a perspective view of another embodiment of the invention; Fig. 6 is a side elevational view of the parts of the toy shown in separated relation; Fig. 7 is a vertical sectional view taken along the line 7—7 of Fig. 6; Fig. 8 is a transverse sectional view taken along the line 8—8 of Fig. 7; and Fig. 9 is a vertical sectional view taken along the line 9—9 of Fig. 8.

The invention contemplates a toy in which a plurality of separable members are assembled in releasable engagement with each other in fixed relation to form an appropriate figure or outline. In the specific embodiments, the figure is that of a dog, although it is obvious that figures of other animals or of persons, etc., may be made in this manner.

In the specific embodiment of the invention described herein and shown particularly in Figs. 1 to 4, the members 10, 11, 12, 13, 14, 15 and 16 are each provided with at least one slot therein. The member 14 representing the body portion of the animal is equipped with four slots 17, 18, 19 and 20. The members 10 and 11 are each equipped with a pair of slots 21 and 22 and 23 and 24 respectively. The members 12, 13, 15 and 16 are provided with the slots 25, 26, 27 and 28 respectively.

Any suitable arrangement of the slots, both as to number and location, may be worked out according to the type of figure desired.

When the toy is to be assembled, the slots are brought into engagement with each other, with the slots 22 and 23, for example, being engaged as shown in Fig. 3 and Fig. 1. In this position, the sides of each of the slots engage the adjacent member of the toy, the width of the slot preferably being slightly greater than the thickness of the adjacent member, whereby the member may be received within the slot but is frictionally engaged thereby. Each of the slots is provided with a wall 29 at the base thereof, the wall being adapted to engage the corresponding wall in the adjacent slot and limit the movement of the members towards each other.

The side walls 30 and 31 of each of the slots are preferably irregular in shape and may, if desired, be undulating in contour. As seen particularly in Fig. 3, the undulating surfaces of the walls of the slot provide a slot which is substantially uniform in width, but which is itself undulating in character. The inwardly-extending projections on each of the walls 30 and 31 are preferably disposed opposite to the recesses in the opposing wall. Thus, the high points 32 and 33 of the wall 30 are opposed to the recesses 34 and 35 of the wall 31. The width of the slot

is preferably only slightly greater than the thickness of the member which is to be received therein. The width should be such that if the member to be received were perfectly rigid, it would be difficult, if not impossible, to insert it in the slot. The members which are used are slightly flexible so that when inserted in the various slots, they are tightly frictionally engaged by the walls of the slot throughout the entire length thereof.

The members of which the toy is composed are not only slightly flexible, but are also preferably thin and flat and, as stated, of a thickness only slightly less than the width of the slot. When the members are brought into frictional engagement by the joining of the slots, the body of each member, as well as the walls of the slot, will yield slightly if the pressure becomes sufficiently great.

With this flexibility of the member, the member tends to conform to the shape of the slot when inserted therein. As a result of the frictional engagement which is obtained throughout the length of the slot, the members may be adjusted in their relation with respect to each other to change the shape of the figure. The members may be fixed in position with the slots engaging the members throughout only a portion of the length of the slots, as shown in Fig. 4, or, on the other hand, the members may be inserted into the slots until stopped by the wall 29, as shown in Fig. 3. In either event, the frictional engagement of the members is sufficiently tight to prevent their movement with respect to each other under ordinary pressure.

The material of which the parts are composed may be paperboard, which is of well known and conventional construction. The slots may be formed in the material in any suitable manner.

The toy is arranged to be set up with the various members in predetermined relation to each other, but at the same time adjustments of this relation may readily be made by means of which many unusual and attractive variations in the figure are possible. With the construction of the present invention, the general relation of the members to each other is predetermined. However, by reason of the arrangement of the slots wherein a tight frictional engagement may be obtained with only a portion of the length of the slot in actual engagement with the adjacent member, the relation of the members and slots may be substantially varied by adjusting the depth of the engagement of the slots with each other. For example, in the embodiment described herein, the leg members 15 and 16 may be changed in position with respect to the body member so as to lengthen or shorten either the front or rear legs or both of the animal.

In the embodiment of the invention shown in Figs. 5 and 6, the toy is in the form of a dog, the animal being shown at 36 in assembled relation. The toy in this embodiment of the invention includes a plurality of separable sections or members, including a head member 37, a body member 38, a tail member 39, an ear section 40, a fore leg section 41, and a rear leg section 42.

The head section or member 37 may be in the shape of a head for the dog, and may include an aperture 43 of suitable shape disposed in the central portion of the section and representing the eyes of the dog. This section may be provided with a pair of slots 44 and 45, the slot 44 being for receiving the ear section, and the slot 45 for engaging the fore leg section 41. The body section or member 38 preferably includes slots 46, 47 and 48, suitably disposed for receiving the fore leg and rear leg sections and the tail section. The slot 47 is adapted to receive the tail section 39, with the slot 49 in the tail section engaging the slot 47. The slot 48 cooperates with the slot 50 in the rear leg section 42.

The slot 46 in the forward portion of the body section or member is preferably very deep and is adapted to cooperatively engage the slot 51 in the fore leg section. Slot 51 is preferably also of substantial depth so that when the fore leg section is mounted on the body section and the slots 46 and 51 are brought into cooperative relation, the lower part 52 of the fore leg section may extend beyond the lower portion 53 of the body section to provide the fore legs of the animal. This construction or arrangement is seen particularly in Fig. 5. The fore leg section 41 is equipped with a slot 54 at the upper portion thereof for cooperatively engaging the slot 45 in the head section 37.

A slot 55 in the ear section 40 is adapted to cooperatively engage the slot 44 in the head section 37.

As seen in Figs. 7, 8 and 9, the walls of the slots may be roughened to provide opposed surfaces 58 and 59 containing innumerable minute projections and recesses. These minute projections and recesses are found in the transverse as well as the vertical plane, as illustrated in Figs. 8 and 9.

Since the material in which the slots are formed is preferably of paperboard or cardboard, the minute projections are slightly flexible and may be distorted under pressure. At the same time, the projections are slightly resilient or elastic when distorted under pressure, and by reason of this quality, will exert a tight frictional engagement with the member which is tightly inserted in the slot.

Any suitable means may be used in providing the desired roughness on the opposed surfaces of the side walls of the slots. The roughened surfaces may be formed, for example, by applying under pressure to the side wall of the slot, a plate or die having a surface of the character which is desired in the wall of the slot. The roughened surface may also be formed in the cutting of the slot. If the surface is not sufficiently rough, the roughness may be increased by applying an abrasive, such as a sanding band. In any event and regardless of the method of roughening the surface, the opposed surfaces of the side walls of the slot should contain a very large number of minute projections and recesses.

The width of the slot should be substantially the same as the external diameter of the portion of the member which is to be received therein. In fact, the width of the slot as measured between the peaks of the minute projections should be slightly less than the thickness of the member to be inserted. However, by width of the slot is meant the average width calculated by averaging the height of the minute projections with the depth of the minute recesses. The fact that the width of the slot is substantially the same as the thickness of the member to be inserted therein causes the minute projections on the side walls of the slot to be slightly distorted upon the insertion of the member therein. The distortion of the minute projections against the

resiliency thereof causes these projections to exert a pressure on the surface of the member which is received within the slot and the member is thereby tightly gripped within the slot.

The tight frictional engagement between the slot and the member inserted therein makes possible a simple adjustment by which the parts may be inserted in the slots to any suitable depth and will be tightly gripped by the slot regardless of the depth of insertion. Thus, the member is tightly received within the slot throughout any portion of the length of the slot.

The construction and arrangement of the slots in the various parts of the toy and the assembling of the toy may substantially correspond to that of the structure shown in Figs. 1 to 5. As seen at 60 in Fig. 4, the surface of the side walls of the slots in the construction illustrated in Figs. 1 to 5 may also be roughened to provide a tighter frictional engagement. In both constructions, the members are brought into releasable engagement with each other by the cooperative action of the slots in the various parts in the same manner.

In the construction illustrated in Figs. 5 to 9, the slot 46 and the slot 51 are preferably of a combined length greater than the depth of the body section at the forward end thereof. By reason of the length of these slots, the fore leg section may be placed at the upper forward portion of the body section 38, and when the wall 56 at the base of the slot 51 engages the wall 57 at the base of the slot 46, the lower portion 52 of the fore leg section will extend across and beyond the body portion to provide fore legs at the forward lower portion of the body section.

If desired, the slots may be of the shape illustrated in Figs. 5 to 9, wherein the open end of the slot is slightly narrower than the inner portions thereof. In this construction, the edges of the slot at the open end thereof should be slightly beveled to provide for ready insertion of the member therein. In this event, the narrow portion of the slot at the open end thereof may be of a width slightly less than the thickness of the member to be inserted therein. When the member is inserted in the slot, it causes a slight distortion thereof, and the natural slight resiliency of the material urges the walls of the slot at the edges adjacent the open end thereof into tight frictional engagement with the member received therein.

This application is a continuation-in-part of my co-pending application Serial No. 383,263, for Toy, filed March 14, 1941.

While there are shown and described herein certain specific embodiments of the invention, it is to be understood that these are for the purpose of illustration only and that many modifications and changes may be made without departing from the spirit and scope of the invention.

I claim:

1. A toy of the character described, comprising a plurality of separable members, each of said members being provided with at least one slot therein adapted to cooperatively receive a slot in another member and to engage said other member adjacent the slot therein, the side walls of the slots being spaced apart by a distance only sufficient to permit the insertion therein of the member to be engaged thereby with the walls of the slot in tight frictional engagement with the member, each of said slots being provided with a wall at the base thereof, each of said walls being adapted to engage a corresponding wall in another slot to limit the movement of the members toward each other, said members being so constructed and arranged as to be brought into releasable engagement in a predetermined relation by the joining of said slots, said relation being adapted to be varied by adjusting the depth of the members in the slots.

2. A toy of the character described, comprising a plurality of separable and slightly flexible, thin, flat members, each of said members being provided with at least one slot therein adapted to cooperatively receive a slot in another member and to tightly frictionally engage said member adjacent the slot therein, each of said slots being equipped with undulating surfaces on the sides thereof with the projecting portions of one side disposed opposite the recesses in the other side whereby a slot of undulating contour is provided, the width of the slot being substantially uniform and being slightly greater than the thickness of the member to be engaged thereby, said members being so constructed and arranged as to be brought into releasable engagement with each other in a predetermined relation by the joining of said slots, said relation being variable with the adjustment of the depth of engagement of said slots with each other.

3. A paperboard toy of the character described, comprising a plurality of separable members, each of the members being provided with at least one slot therein adapted to cooperatively receive a slot in another member and to engage the wall of said other member adjacent the slot therein, a wall at the base of each of said slots adapted to engage a corresponding wall in another slot to limit the movement of the members toward each other, the side walls of the slots being undulating in contour with the projections on one wall being disposed opposite the recesses in the other wall, the width of the slot being substantially uniform throughout the length thereof and being only slightly greater than the thickness of the wall of the member engaged thereby whereby the member may be inserted in the slot only by slightly distorting the walls of the slot or of the member, the member being frictionally engaged by the walls of the slot throughout any portion of the length of the slot, said members being so constructed and arranged as to be brought into releasable engagement in a predetermined relation by the joining of said slots, said relation being adapted to be varied by adjusting the depth of the members in the slot.

4. A paperboard toy of the character described, comprising a plurality of separable members, each of the members being provided with at least one slot therein adapted to cooperatively receive a slot in another member and to engage the wall of said other member adjacent the slot therein, the opposed walls of each of the slots being equipped with inwardly-extending projections along the same for frictionally engaging said other member, the projections on one wall of the slot being out of register with the projections on the other wall of the slot, the width of the slot being only slightly greater than the thickness of the member to be engaged thereby whereby each of said slots is adapted to tightly frictionally engage the adjacent member throughout any portion of the length of the slot, said members being so constructed and arranged as to be brought into releasable engagement with each other in a predetermined relation by the joining of the slots.

5. A toy of the character described, comprising a plurality of separable members, each of said members being provided with at least one slot therein adapted to cooperatively receive a slot in another member and to engage said other member adjacent the slot therein, each of said slots being provided with a wall at the base thereof adapted to engage a corresponding wall in another slot to limit the movement of the members toward each other, the side walls of each of said slots being provided with opposed roughened surfaces spaced apart by a distance substantially equal to the thickness of the portion of the member to be engaged thereby whereby said roughened surfaces tightly and frictionally engage the member throughout any portion of the length of the slot, said members being so constructed and arranged as to be brought into releasable engagement in a predetermined relation by the joining of said slots, said relation being adapted to be varied by adjusting the depth of the members in the slots.

6. A paperboard toy of the character described, comprising a plurality of separable members of paperboard, each of said members being provided with at least one slot therein adapted to cooperatively receive a slot in another member and to engage the wall of said other member adjacent the slot therein, each of said slots being provided with a wall at the base thereof adapted to engage a corresponding wall in another slot to limit the movement of the members toward each other, the side walls of each of said slots providing opposed roughened surfaces having innumerable minute projections and recesses therein, said projections being slightly flexible and slightly resilient when distorted by the application of pressure thereto, the width of each of said slots being substantially equal to the thickness of the portion of the member to be engaged thereby whereby the insertion of the member in said slot causes the minute projections to be distorted and the member to be tightly and frictionally engaged by the opposed side walls of the slots, said members being so constructed and arranged as to be brought into releasable engagement in a predetermined relation by the joining of said slots, said relation being adapted to be varied by adjusting the depth of the members in the slots.

7. A toy of the character described, comprising a plurality of separable sections including a body section, a fore leg section, a rear leg section, a tail section, a head section, and an ear section, each of said sections being provided with at least one slot therein adapted to cooperatively receive a slot in another section and to engage said other section adjacent the slot therein, the width of each of said slots being only slightly greater than the thickness of the section to be engaged thereby, whereby the sides of the slot frictionally engage the section, each of said slots being provided with a wall at the base thereof, each of said walls being adapted to engage the corresponding wall in another slot to limit the movement of the sections toward each other, the body section being provided with a slot at the upper forward portion thereof for engaging the fore leg section, said slot in the body section and the cooperating slot in the fore leg section being of a combined length greater than the depth of the body section whereby the fore leg section may extend across and beyond the body section from the upper portion thereof to provide fore legs at the lower forward portion of the body section.

ELMER F. REBHOLZ.