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J. C. H. WENDES

2,107,018

COLLAPSIBLE FORM

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Fig. 1.

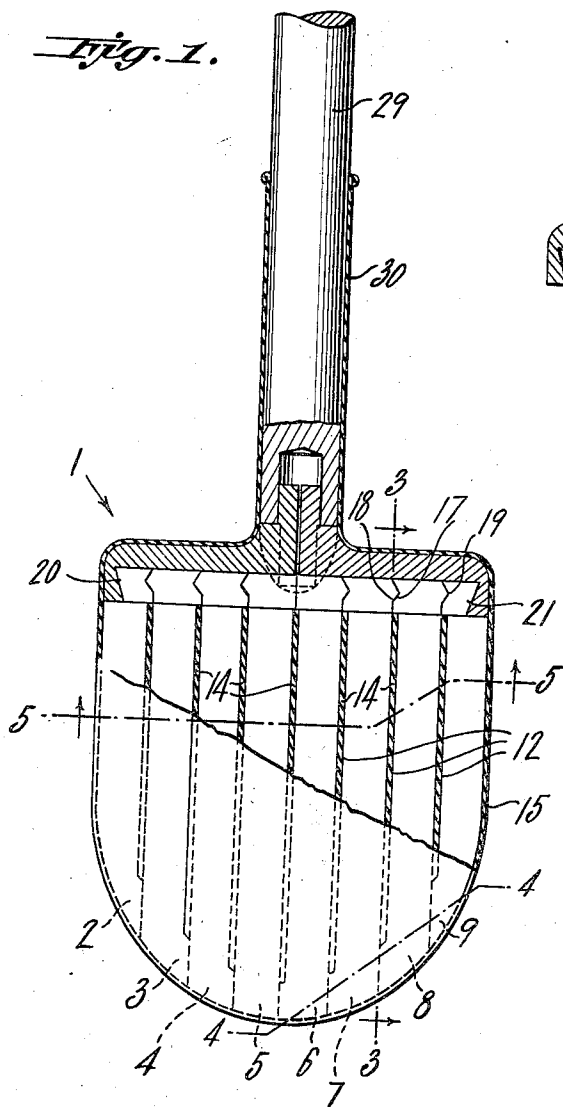


Fig. 2.

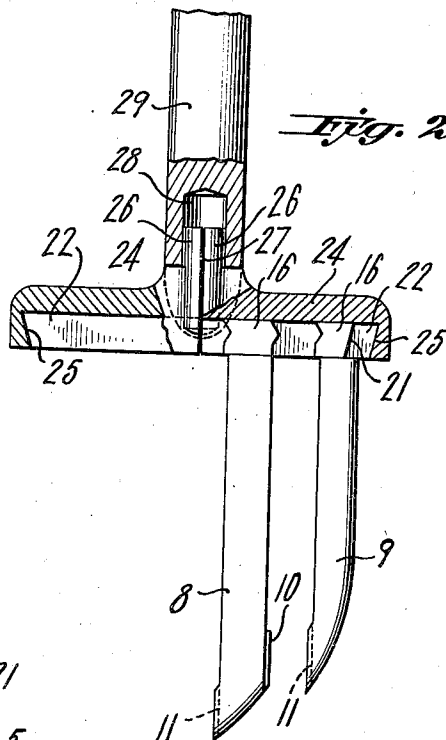


Fig. 3.

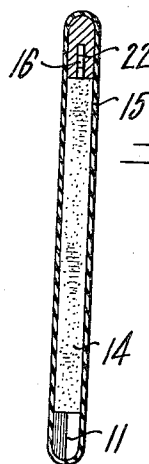


Fig. 4.

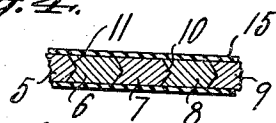


Fig. 5.



BY

INVENTOR.
JOHN C. H. WENDES
Walter L. Types
ATTORNEY.

UNITED STATES PATENT OFFICE

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COLLAPSIBLE FORM

John C. H. Wendes, Naugatuck, Conn., assignor
to United States Rubber Products, Inc., New
York, N. Y., a corporation of Delaware

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7 Claims. (Cl. 18—41)

My invention relates to collapsible forms, and more particularly to collapsible forms for forming hollow articles with cross walls by dipping processes. The present invention is particularly useful in the forming of articles by the deposition of solid content of rubber latices.

In the manufacture of many articles by a deposition process it is customary to immerse a form in a liquid, withdraw the form, and permit the liquid to dry and/or coagulate thereon. A number of methods of so treating rubber latices, solvated rubber cements, and the like, are well known and need not herein be described. In such processes difficulty has heretofore been experienced in withdrawing the form if it is desired to have a cross wall or cross rib part way across the interior of the article.

The present invention relates to collapsible forms in which such cross walls may be formed during the deposition of rubber or other materials derived from solutions. It is to be understood, however, that the invention may also be used in ordinary molding processes where the covering material, usually in a plastic state, such as sheet rubber, is shaped around a form before it is subjected to heat, or other curing processes.

I provide a collapsible form in which a plurality of sections are provided with complementary nesting edges which collectively, when assembled, make the desired outline of the form. Cross ribs between the material on the opposite sides of the form are formed in spaces occurring between the opposing edges of the adjacent sections. The sections are all provided with securing means, preferably in the form of tail pieces or fins, groups of which are inserted in separate seating members. The seating members, in turn, are held together by any known securing means, preferably a handle, having a readily detachable connection therewith. When the handle is in place, the form is held in its extended condition, but upon the removal of the handle from the seating members the entire form collapses so that the component parts may be separately withdrawn from the shaped article through the handle opening without destroying the cross wall or walls.

The accompanying drawing illustrates a present preferred embodiment of my invention, in which:

Fig. 1 is a plan view, partially in section, showing a form embodying my invention enclosed in a formed sack or pocket;

Fig. 2 is a diagrammatic view, partially in sec-

tion, illustrating the details of the assembly of the form;

Fig. 3 is a sectional view of the form taken along the section line 3—3 of Fig. 1;

Fig. 4 is a sectional view of a portion of the form taken along the section line 4—4 of Fig. 1; and

Fig. 5 is a cross sectional view of a portion of the form taken along the section line 5—5 of Fig. 1.

Referring to the drawing, a collapsible form 1 comprises a plurality of sections 2 to 9, inclusive, which collectively, when assembled, make a desired shape, herein illustrated as of the general paddle shape. The intermediate sections 3 to 8, inclusive, are provided with complementary nesting edges which interfit, as is clearly shown in Fig. 4. The nesting is accomplished by having one edge 10 of each section slope outwardly to a peak and the opposite edge has a re-entrant surface 11 to receive the peak 10 of the adjacent section. The outer sections 2 and 9 are provided with a peak or re-entrant surface, as the case may be, only along their inner edges for engagement with the edges of the adjacent inner sections. Their outer edges are smooth or rounded to the desired contour of the form. The opposing edges of one or more of the sections may be separated slightly for a portion of their lengths to form slots 12 extending through the assembled form in which are formed cross ribs 14 of the sack or article 15 which is to be shaped on the form. The slots 12 do not extend to the extreme curved or outer edge of the form, but stop short of that edge by a distance sufficient to secure a firm engagement between the peaks 10 and the re-entrant surfaces 11 of the adjacent sections.

The inner ends of the sections are provided with securing means herein illustrated in the form of thin flat tail pieces or fins 16, which have complementary nesting surfaces 17 and 18. The surfaces 17 and 18 are preferably provided with an acute angle or corner 19 so as to be interlocking and prevent longitudinal withdrawal when assembled. The outer sections 2 and 9 are provided with diverging corners 20 and 21, respectively.

As is particularly shown in Fig. 2, groups of tail fins 16 are assembled in slots 22 in seating members 24. Each slot 22 is open at the inner end of its seating member, but is closed at the outer end by a sloping wall 25 which overhangs the sloping corner 20 or 21, as the case may be, on one of the outer members 2 or 9 to form a

snug engagement. When the nesting section, illustrated as section 8 in Fig. 2, is pushed into nesting engagement with the section 9 and the latter is forced against the wall 25, a snug engagement is established. The tail fins 16 of additional sections are then inserted in the slot 22 until it is filled. Likewise sections are assembled in the other seating member 24. The open ends of the slots 22 are then brought into aligned relation.

For securing the seating members 24, each member is provided with an extension 26. The adjacent faces of the extensions 26 are separated by a slot 27, although the ends of the members 24 at the slots 22 preferably make a tight fit. The extensions 26 are inserted into a socket 28 formed in the end of a handle 29, making a snug fit therewith by reason of the presence of the slot 27. With this construction the entire form is held in its assembled relation by a readily detachable connection of the handle 29 with the extensions 26.

The form so assembled may be immersed in a solution, an example of which is a rubber latex solution, and a coating of the solution deposited thereon. This may be dried and/or coagulated in any suitable manner. The form may be reimmersed for forming additional layers of the same or a different deposit, if desired. During these operations the cross walls 14 are also formed. If desired, the form may be covered with plastic material, an example of which is unvulcanized sheet rubber, and then subjected to vulcanization.

After the desired shape of the article 15 has been formed, preferably after vulcanization in the case of rubber, the handle 29 is withdrawn from the extensions 26 and the entire form collapsed. The component parts of the form may then be worked out through the neck 30 of the article formed by the handle 29. This may be done without injury to the cross walls or ribs 14.

Accordingly, I have provided a collapsible form which is particularly useful in shaping articles having intermediate connecting walls extending for less than the entire dimension of the article. The form is easily assembled and is collapsed by the simple operation of removing the handle from the extensions of the seating members, thereafter permitting the sections defining the walls 14 to be removed through the handle opening without destroying such walls.

While I have shown and described a present preferred embodiment of my invention, it is to be understood that this invention may otherwise be embodied within the spirit thereof and the scope of the appended claims.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:—

1. A collapsible form comprising a plurality of separable sections having one or more complementary nesting edges and defining straight slots therebetween, when assembled, each of said sections having a tail piece, separable complementary seating members each engaging some of the tail pieces, and a common clamping member engaging said seating members with a readily detachable connection for securing the form in its assembled condition.

2. A collapsible form comprising a plurality of separable elongated sections having one or more complementary nesting edges, at least some of the edges having complementary shapes to define

straight slots therebetween, when assembled, a tail piece projecting from one end of each section, clamping means each engaging and holding some of the tail pieces, and a common handle having a readily detachable connection with all of the clamping means for securing the form in its assembled condition.

3. A collapsible form comprising a plurality of separable elongated sections having one or more complementary nesting edges, at least some of the edges having complementary shapes to define straight slots therebetween, when assembled, securing means projecting from one end of each section, clamping means each engaging and holding some of the securing means, and a common handle having a readily detachable connection with all of the clamping means for securing the form in its assembled condition.

4. A collapsible form comprising a row of separate sections having complementary nesting edges, each section having a flat fin extending from an end thereof, each of said fins being in alignment and in removably fitted relationship with the fin adjacent to it, complementary seating members positioned normally to the sections, each seating member having a groove and a shoulder engaging aligned fins, and a common clamping member engaging the seating members with a readily detachable connection for securing the form in its assembled condition.

5. A collapsible form comprising a plurality of separable sections having complementary nesting edges, the faces of said sections being aligned in the same plane, each section having a flat fin extending from an end thereof, each of said fins being in alignment and in removably fitted relationship with the fin adjacent to it, complementary seating members positioned normally to said sections, each seating member having a groove and a shoulder engaging aligned fins, and a common clamping member engaging the seating members with a readily detachable connection for securing the form in its assembled condition.

6. A collapsible form comprising a row of separable sections having complementary nesting edges to retain the faces of said sections in the same plane, said edges defining slots therebetween, each section having a flat fin extending from an end thereof, each of said fins being in alignment and in removably fitted relationship with that fin adjacent to it, complementary seating members positioned normally to said sections, each seating member having a groove and a shoulder engaging aligned fins, and a common clamping member engaging the seating members with a readily detachable connection for securing the form in its assembled condition.

7. A collapsible form comprising a row of separable sections having complementary nesting edges so shaped as to define a plurality of surfaces in intersecting planes, some of which extend internally through the form to define passageways, each section having a flat fin extending from an end thereof, each of said fins being in alignment and in removably fitted relationship with the fin adjacent to it, complementary seating members positioned normally to said sections, each seating member having a groove and a shoulder engaging aligned fins, and a common clamping member engaging the seating members with a readily detachable connection for securing the form in its assembled condition.

JOHN C. H. WENDES.