Sept. 27, 1955 H. E. LAMBERT 2,718,826

PULP MOLDING DIES

Filed Jan. 17, 1952 4 Sheets-Sheet 1

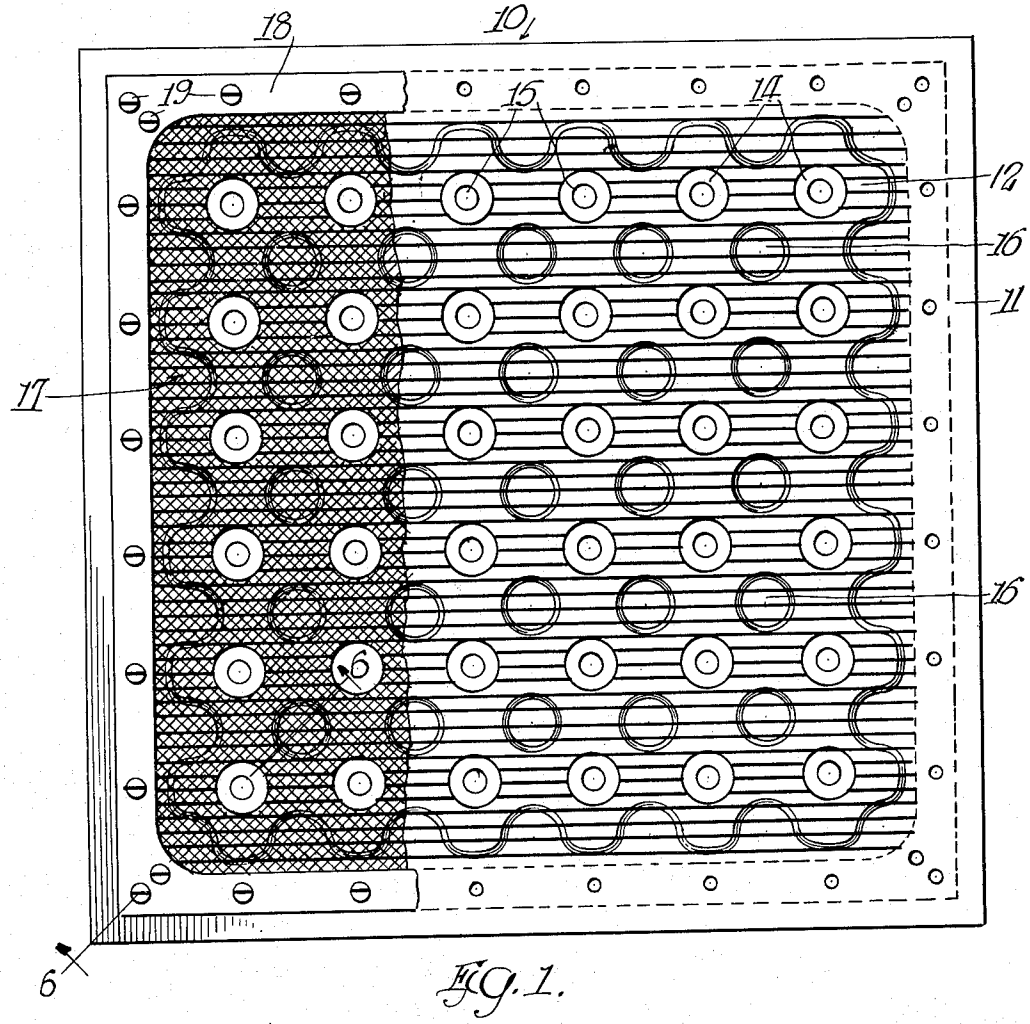


FIG. 1.

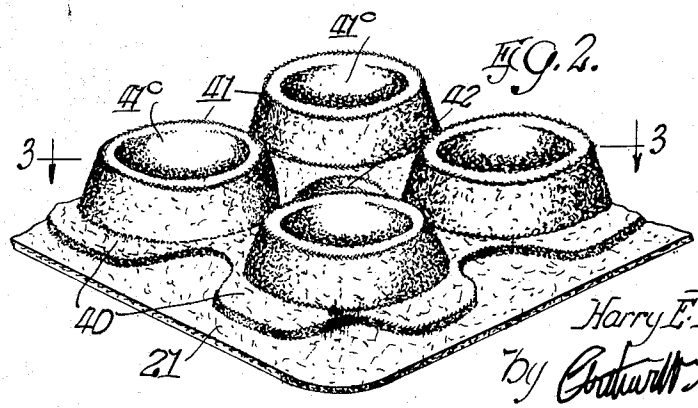


FIG. 2.

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PULP MOLDING DIES

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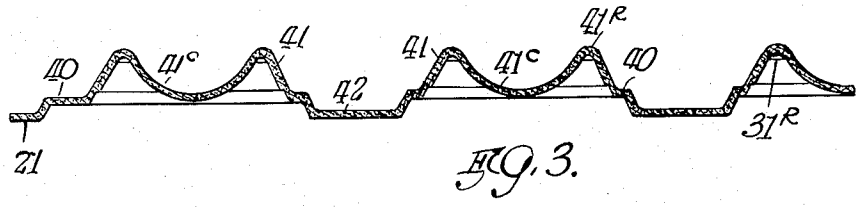


FIG. 3.

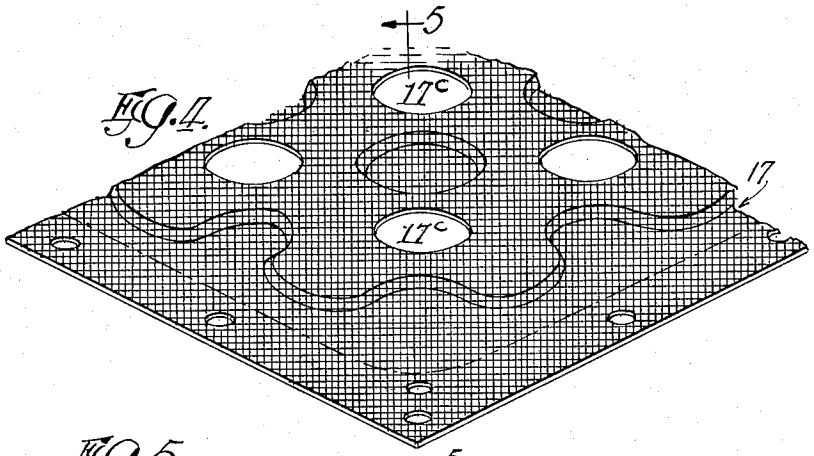


FIG. 4.

FIG. 5.

FIG. 6.

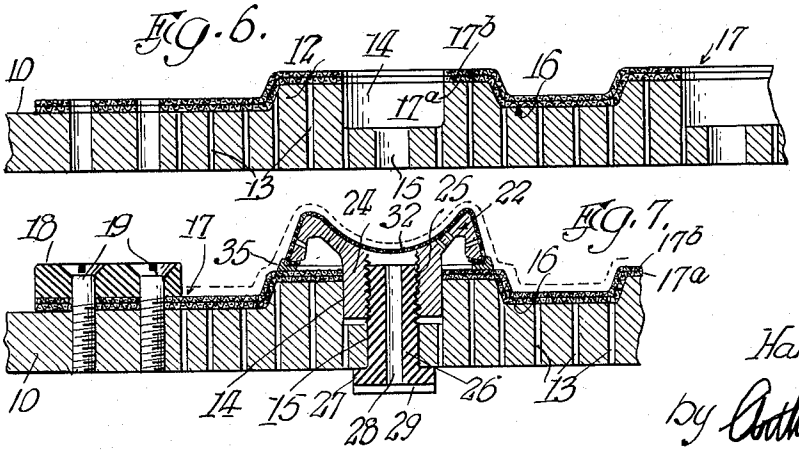


FIG. 7.

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PULP MOLDING DIES

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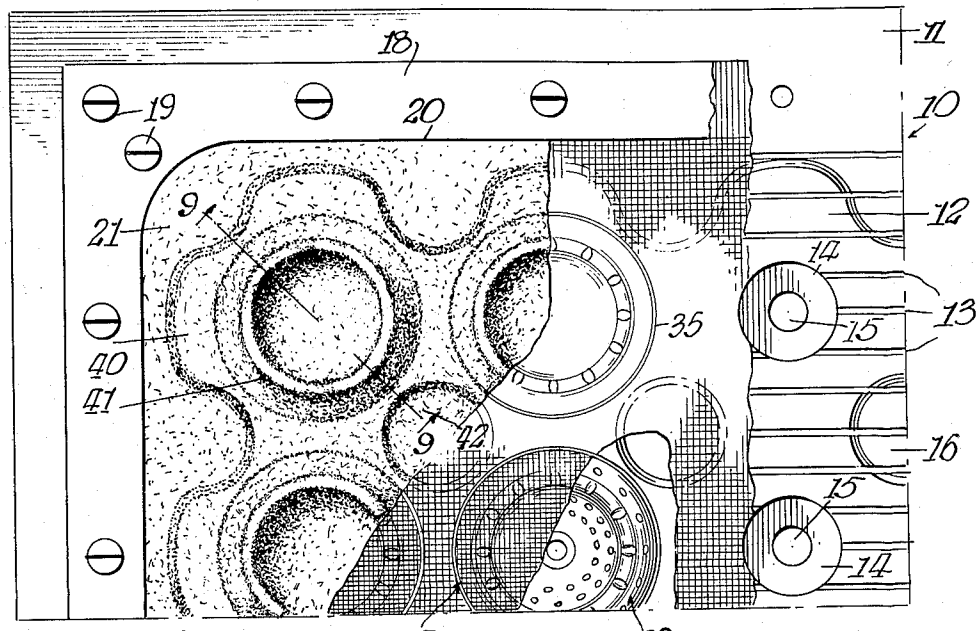


FIG. 8.

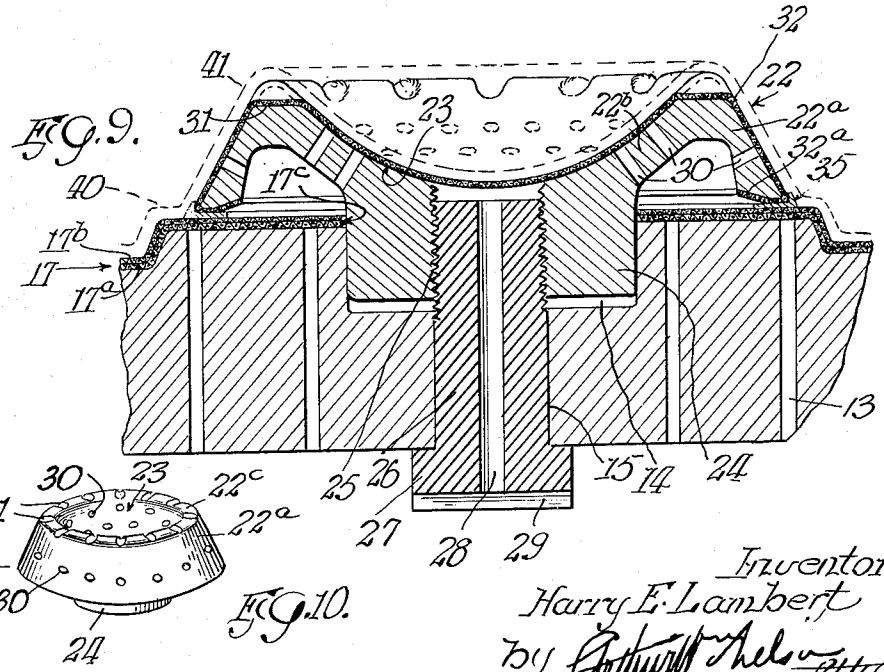


FIG. 9.

FIG. 10.

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PULP MOLDING DIES

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FIG. 11.

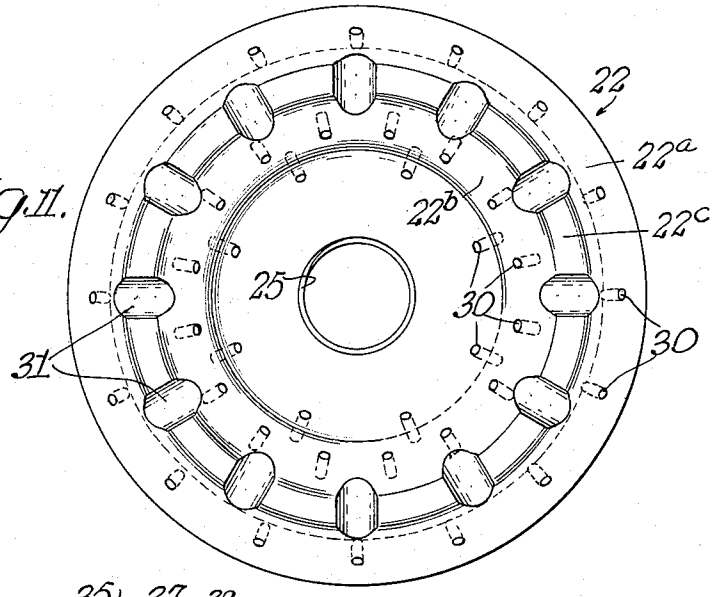
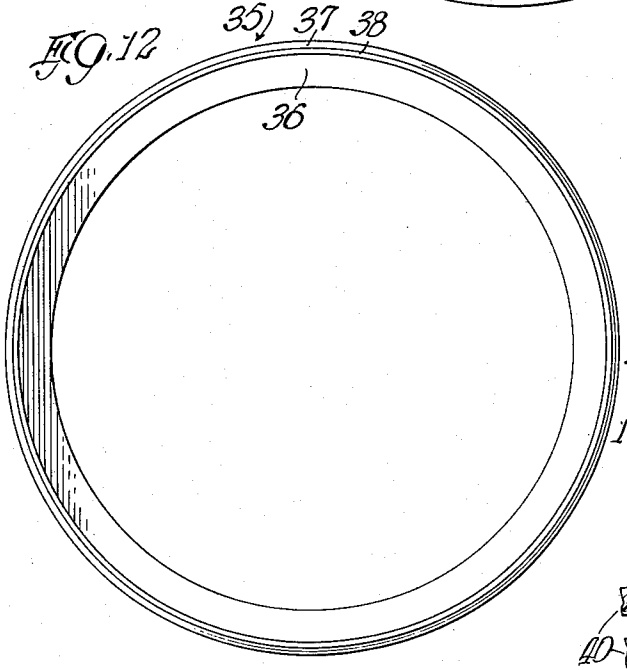


FIG. 12



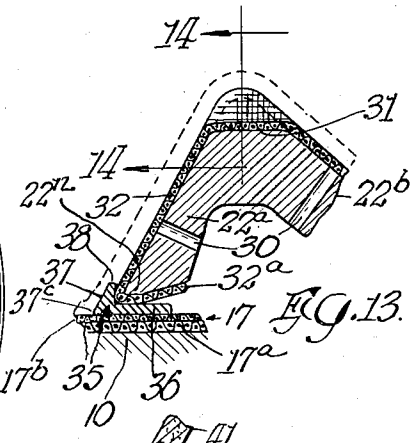
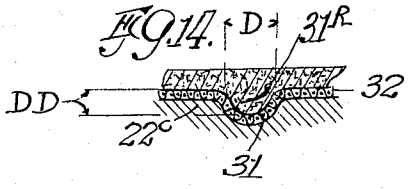


FIG. 13.

FIG. 14.



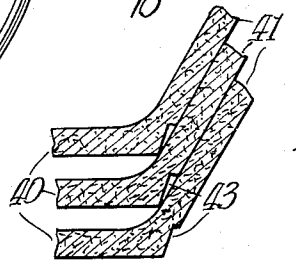


FIG. 15

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United States Patent Office 2,718,826 Patented Sept. 27, 1955

2,718,826

PULP MOLDING DIES

Harry E. Lambert, Gary, Ind., assignor, by mesne assignments, to Central Fibre Products Company, Quincy, Ill., a corporation of Delaware

Application January 17, 1952, Serial No. 266,945

8 Claims. (Cl. 92—54)

This invention relates to pulp molding dies of the type which are provided with wire mesh screen material overlying drainage surfaces of the die and to the method of making the same.

The die of the present invention is especially designed for and adapted to the manufacture of relatively large articles in which the surface contour comprises portions which are disposed in rather widely separated high and low planes. Examples of articles of this type are so-called fruit packing trays such as are illustrated in the Friday United States Patent 2,351,754, various types of egg flats such as have upwardly extending egg seats and downwardly extending hollow posts and other molded pulp articles for packing various fragile articles.

It has long been known that in molding dies for pulp articles having portions in such widely separated planes it is difficult, if not impossible, to draw or form a single piece of wire mesh screen into the necessary shape without objectionable distortion.

Thus in the Ball United States Patent 183,444 a die structure is disclosed in which there is a main wire screen sheet, the size of the entire article, arranged in a single plane, the main wire screen sheet being provided with a number of spaced openings each adapted to receive a separately formed wire mesh dome. The wire mesh dome is provided with a lower flange portion which is positioned in the main sheet opening and in the plane of the wire screen main sheet so as to form an extension partly in the plane of the main sheet. Thus the dome portion extends upwardly the entire distance from the plane of the main sheet to the highest point or plane. According to the Ball patent the flange portion of the "dome" is secured to the adjacent edge portion of that part of the main sheet forming the opening, by sewing or stitching the "dome" portion to the main sheet so that the "dome" portion and the main sheet constitute a unitary screen sheet. In the Ball arrangement all of the "draw" or displacement of the wire between the highest and lowest planes of the article to be formed must be provided in the dome portion alone. This acts as a limiting factor as to the extent of the distance between the highest and lowest planes which can practically be provided because the wire screen material is capable of only a limited amount of distortion or stretching without rupture or other deformation as either makes it unfit for its intended purpose or so weakens the material as to result in premature breakage in use.

Furthermore the matter of stitching the various "domes" in place is a laborious operation and does not permit of the ready removal and replacement of damaged "dome" portions.

Another approach to a solution of this difficult problem has been to provide a plurality of vertically disposed foraminous die sections assembled in edge to edge relation with separate pieces of wire mesh screen, each conforming to the molding face of one of the die sections and having flange portions which underlie the customary clamping ring at the top of the die and other flange portions which project from the deepest plane of the molding surface in directions normal or perpendicular to the general extent of the molding surface.

It has also been suggested that a single foraminous die structure be provided with a plurality of slots extending across the molding surfaces at the deepest areas or plane of the die, the slots dividing the die as a whole into a plurality of vertical sections, each vertical section in turn being covered with a separate wire screen. In both of the instances, to which reference has just been made, each screen extends from the highest plane to the lowest plane of the molding surface. There is thus a very considerable amount of draw or deformation required considering the fact that there are flange portions in the highest plane, and also in the lowest plane, which flanges are perpendicularly disposed relative to each other and also intermediate portions which must be substantially offset from the plane of other portions. Furthermore, along the meeting edges of the various separate screens elongated grooves are formed which in the finished article result in undesired irregular ridges which deface the intended smooth surface of that portion of the article facing the wire screen during the forming operation.

In another die structure heretofore designed for molding pulp articles the structure includes a main die body having a working face with water passages therethrough, there being wire screen means on the working face and conforming to the contour thereof and a plurality of foraminous members separate from the wire screen and spaced apart on the working face, extending outwardly therefrom and being removably secured to the working face. Such a die structure has features of advantage in that it makes for a simpler die structure as a whole, permits the molding of articles wherein parts of the articles to be molded are in rather high and low planes, permits part of the projection of the article to be formed by shaping the main wire screen and the remainder by the formation of the removable members with the line of separation in a plane parallel to the working surface. These features simplify manufacture and assembly of the die as a whole and also facilitate the maintenance and repair.

In a molding operation with a die of this kind, however, pulp would at times enter an annular space formed at the base of the removable member and the adjacent main screen resulting in the formation of a fin or flash extending around the inside of the article in a plane coincident with the junction of the base of the removable member and that of the main sheet-like body of the article. Such a fin or flash had certain inherent objections. It made difficult the removal of the "green" molded article from the die. It also interfered to some extent with the nesting of the articles in a stack for shipment and more particularly made more difficult the subsequent separation of the articles in the stack one from the other for use.

Also, when the removable support of the die structure is drawn up tight, there is danger of the flange of the foraminous member, which is disposed under the base of the removable support, being "squeezed" in such a manner as to cause it to flow or move outwardly from the base. Whenever this action obtained the shaped fit of the corner which joins the flange to the base of the body of the foraminous member moved outwardly away from the edge of the base of the support. The result is to loosen the engagement or fit of the foraminous member on its support so that the hollow members on the body of the molded article were misshapened and uniformity of shape of such hollow members became impossible. Also, such action resulted in increasing the size of the fins, before mentioned, which is objectionable.

One of the objects of the present invention is to pro-

vide a die structure which retains the advantages of the general die structure, last above mentioned, and at the same time overcomes certain of the objections inherent therein.

Another object of the invention is to provide a die of the kind mentioned which eliminates the formation of the fins or flashes on the article molded thereon, whereby the article may be more readily removed from the die, whereby better nesting in a stack is possible, and whereby articles so stacked may be readily separated from each other, when required.

Also, it is an object of the invention to provide a die structure of this kind wherein the hollow foraminous members are held against a lateral spreading at the base thereof, thereby maintaining a better fit on the associated support and at the same time preventing the deformation of such foraminous members.

Again it is an object of the invention to provide a die of this kind wherein both the foraminous member and its support are formed to coact in providing structure in the ridge where two walls of the formed hollow members are joined, which structure resists "rolling" of the wall inward under the action of axial pressure imposed upon said member, thereby preventing collapse or a breaking down of said member.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawings:

Fig. 1 is a top plan view of the base plate and superposed wire screening, comprising parts of the complete die, part of the wire screening being broken away in order to show the underlying base plate in full lines.

Fig. 2 is a fragmentary perspective view showing a corner of the molded pulp article of the type which may be produced by the die of this invention.

Fig. 3 is a section through the molded pulp article on the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary perspective view showing a corner of the main screen sheet which constitutes part of the die structure.

Fig. 5 is a sectional view on the line 5—5 of Fig. 4.

Fig. 6 is a sectional view on the line 6—6 of Fig. 1.

Fig. 7 is a sectional view similar to Fig. 6, but showing removable projecting members in position overlying the main screen sheet and showing molded article in dotted lines.

Fig. 8 is a plan view of a fragment of the die on a scale enlarged with respect to the scale of Fig. 1, with a fragmentary part of the molded article thereon, and with parts of the forming screen on the face of the die body broken away better to show the underlying part.

Fig. 9 is a vertical sectional view through a portion of the die as taken on the line 9—9 and on a scale of about three times that of Fig. 8, the molded pulp article however being shown by dotted lines better to disclose the die structure.

Fig. 10 is a perspective view of a supporting device for one of the hollow projection forming wire mesh members attached to the working face of the die body, substantially on the scale of Fig. 8.

Fig. 11 is a top plan view of the member appearing in Fig. 10 on the scale of Fig. 9.

Fig. 12 is a top plan view of a certain crevice sealing ring employed in connection with the base of the member appearing in Fig. 11.

Fig. 13 is a detail view of parts appearing in section in Fig. 9, on a scale enlarged thereover and which will be more fully referred to later.

Fig. 14 is a detail sectional view through parts appearing in Fig. 13 as taken on the line 14—14 thereof, and

Fig. 15 is a detail sectional view through corner parts of a number of the articles such as are molded upon the die, showing the manner in which said articles nest in a stack and further showing the absence of any fin or flash thereon.

The invention, as by way of illustration and not by way of limitation, embodies a die structure for molding articles from pulp, each of which includes a sheet-like body and longitudinal and transverse intersecting rows of spaced apart hollow projections on one side thereof, with each projection being of a truncated shape and including an outer annular wall that inclines upwardly and inwardly from its base on the sheet-like body terminating as a ridge into which a cup-like inner wall merges. Such an article is best exemplified in a molded cushion pad or flat used in packing eggs in a crate, wherein the hollow projections afford cushioned seats for the eggs. Also in the present instance, the said projections are of circular shape when viewed from above, but they may have other shapes without departing from the invention.

Referring now in detail to that embodiment of the invention illustrated in the drawings, the improved die includes a rigid rectangular die body **10** having a flat marginal portion **11** on one side thereof that surrounds a raised or terraced portion **12**, the die body being thicker in the latter portion than in the marginal portion. The die body is provided with a plurality of laterally spaced slots **13** for the passage of water through the body.

In the raised or terraced portions of the die body are laterally and longitudinally extending rows of evenly spaced recesses **14** centrally of each of which is a hole **15** that opens through the other face of the die body. The purpose of said recesses and holes will appear later.

The first mentioned side of the die body, in its raised or terraced portion **12**, is provided with a shallower recess **16** centrally between each four adjacent recesses **14**, the bottom surface of the recess **16** being in the plane of the top surface of the margin **11**.

Upon the first mentioned side of the die body a wire mesh means **17** is provided, the same being contoured within its margin to snugly engage the raised or terraced portion **12** of the die body as well as the shallow recesses **16** therein. The margin of said wire mesh means overlies a part of the margin **11** of the die body. The marginal part of the wire mesh means is secured to the die body by means of a hold down frame **18** which, in turn, is secured to the die body by screws **19** that pass through said frame and wire mesh margin, being threaded into the die body. The inner edge **20** of the hold down frame **18** defines the effective edge of the active or working face of the die as well as the outline edge of the sheet-like body **21** of the molded pulp article of the type which may be produced by the die.

In the present instance the mesh means **17** comprises two sheets **17***a* and **17***b* of wire mesh, sheet **17***a* being of relatively coarse mesh and being engaged with the contoured side of the die body **10** while the sheet **17***b* is of finer mesh and being positioned in overlying contacting engagement with wire sheet **17***a*. Both sheets of wire mesh screen have registering holes **17***c* therein of a size and shape matching the recesses **14** in the die body, with which they also register.

Associated with each recess **14** of the die body is a supporting member **22** substantially frustroconical in shape. The supporting member **22** includes an outer annular wall **22***a* that is tapered upwardly and rearwardly from its base and an inner convexed wall **22***b* which joins the outer wall to form an annular ridge **22***c*, the portions thus defining a cup shaped depression **23**. Depending from the central portion of the supporting member **22** is a boss **24** that fits snugly in its associated recess **14**, said boss having a centrally threaded hole **25**. A retaining member **26** extends through the hole **15** in the die body from below to engage the threaded hole **25** in the boss, said member having a bottom end head **27** for engaging the bottom surface of the die body. The member **26** has a central water drainage passage **28** therethrough that opens through a screw driver slot **29**

in the head 27. It is obvious that by turning the member 26 in the proper direction it will draw the member 22 toward the die body 10.

The bottom surface of the wall 22*a* of the member 22 is flat at its outer periphery and tapers upwardly and inwardly at its inner periphery as best appears in Figs. 9 and 13. In said walls 22*a*—22*b* are water passages 30 and in the ridge of the member is a plurality of arcuately spaced radially extending recesses 31.

The exposed surfaces of the walls 22*a*—22*b* are enclosed in a preformed covering of wire mesh 32, the margin 32*a* thereof being turned or tucked under the flat and inwardly tapering peripheral surface portions of the base of the wall 22*a*, as best appears in Fig. 13. This mesh is contoured in the forming thereof to fit snugly upon said surfaces of said walls 22*a*—22*b* as well as to have portions thereof fit snugly in the recesses 31 in the ridge 22*c* of said member 22, as best appears in Figs. 9, 13 and 14. The margin 32*a* of the mesh 32 is bent to fit around the peripheral corner edge of the base of the wall 22*a* and with which it is firmly held by means shortly to be described.

Disposed between the mesh margin engaged with the base of the wall 22*a* and that portion of the mesh means 17 which it overlies, is an annular member or ring 35 having a flat base portion 36 and an upstanding outer peripheral flange 37 which is of such height as to terminate as a flat top edge 38 disposed in a plane slightly above the base of the wall 22*a* of the member 22. The outer face of this ring follows the inclination of the outer surface of the wall 22*a* while the inner face is perpendicular to the base portion 36 and this face of the flange is snugly engaged by the corner of the mesh 32 where it joins its flange 32*a* by the rounded corner before mentioned. This flange acts as a stop shoulder therefor to prevent outward movement or spread of the wire mesh at said corner.

When this ring is in place, as best appears in Figs. 9 and 13 and the member 26 is tightened up to draw the member 22 toward the die body, the flange 32*a* is "squeezed" between the base of the wall 22*a* and the base 36 of the ring. This action tends to force the flange 32*a* radially outward, which action however is prevented by the flange 37 of the ring 35. Thus member 22 may be drawn toward the die body with sufficient force to clamp the parts firmly in place without danger of the wire flange 32*a* being pushed outwardly away from the adjacent wall of member 22 as heretofore occurred at times in somewhat similar die structures not provided with the ring member 35.

It is advisable to make the base of ring 35 quite narrow in order that when the member 22 is drawn down strong internal clamping pressure will be applied against the main wire screen sheet 17. Such action will tend somewhat to compress the wire screening where the ring base engages the same and will aid in preventing the flow of water toward the center of the hollow underside of member 22. Because of this action and because of the sharp corner 37*c* of the ring it is not possible for the pulp to flow inwardly and thus form an objectionable fin or ridge as occurs in prior art structures.

It will also be noted the bottom edge of the wall 22*a* extends upwardly and inwardly thus presenting a narrow bottom portion 22*n* whereby strong pressure is applied to the wire screen material between the portion 22*n* and the ring flange 36, thus tending to compress the screen material therebetween. This action prevents the flow of pulp water therethrough and avoids the formation of an objectionable fin or ridge which might otherwise occur at that place.

It will be understood from the foregoing description of the die that when the die parts are fully assembled the die may be used in the conventional suction method of pulp molding to form a contoured article conforming to the contoured upper or outer surface as formed by the main screen sheet 17, the screen members 32 and ring members 35 associated with the supporting members 22, within the area defined by the inner edge 20 of the ring 18. The specific die structure illustrated is designed to produce what is known in the trade as an egg flat, a fragmentary part of which is illustrated in the perspective view Fig. 2 and a fragmentary section of which is illustrated in Fig. 3.

It is evident that the molded article, which the die structure of the invention is designed to produce, is composed of portions disposed in widely separated planes. Thus there are the upwardly projecting portions 41 which form over the screens carried by the various members 22, thus providing the concave central portions 41*c* which are designed to accommodate the ends of eggs and hence are termed egg seats in the trade. The highest part of the egg seat is the annular ridge 41^R. The lowest part of the molded article is the portion 21 which constitutes the outer marginal portion of the flat and the portions 42 which are formed between groups of egg seats, as best illustrated in Figs. 2, 3, 7 and 9. Additionally there are the portions 40 which are disposed in a plane intermediate the highest and lowest planes of the article.

As is clear from the drawings and description, the construction is such that part of the upwardly projecting portion can be formed in the main screen sheet and the remainder in separate screen members which are carried by the removable members 22, with a line of separation parallel to the working face of the die body. This makes it feasible to produce articles wherein parts are positioned in widely separated planes without danger of objectionably distorting or weakening the screen wire. That is to say, part of the offset or projection may be formed in the main screen sheet (see Figs. 4, 5, 6 and 7) and the remainder by the screen material fitted around the removable supporting members 22.

Also as before explained, provision of the annular flanged ring 35 at the base of the members 22 avoids objections which obtain in similar arrangements that are not so equipped.

In the storage and transportation of flats, a portion of one of which is shown in Fig. 2, it is customary to arrange them in a stack with the egg seat of the underlying flat telescoped within the hollow underside of the next overlying flat. A considerable number of such flats would normally be arranged in a single stack. In order to provide a compact bundle, pressure would then be applied to press the flats into intimate conforming relation with adjacent flats of the stack. When flats were made on dies which resulted in the formation of an internal fin, the applied pressure would force the fins of one flat into the outer wall surface of the projection on the underlying flat, thus forming an annular groove in the latter corresponding in shape to that of the fin. Not only did this groove deface the external surface of the flats, but there resulted such interlocking of the various flats in the stack as made separation of the flats quite difficult.

As before explained, in the absence of the ring member 35 there would be danger of the wire screen portion 32*a* being forced outwardly of the base to a greater or lesser extent on the various members 22. Hence this would result in the formation of egg seats or projections of slightly different sizes. Obviously if such flats were arranged in stacked relation it would be difficult to interfit the flats in telescopic relation and if pressed into position might result in causing distortion of the projections. In any event it would result in such a tight fit as to make it difficult to separate the flats one from the other. With the present die structure the ring 35 serves as a sizing ring so that the various projections forming the egg seats are more nearly of the same size, thus avoiding certain of the objections to which reference has been made.

As appears in Fig. 15 the pulp stock assumes a curved

shape between the surface **40** and the upstanding wall **41**. The exact shape of this curvature and of the thickness of the stock in the adjacent portion of wall **41** is difficult to control within fine limits since the shape and thickness are dependent upon a number of factors. Thus there may be variations in the character of the pulp stock and its flow which cannot always be controlled and which would result in the radius of curvature being more or less and in the thickness of the adjacent wall varying. As clearly appears in Fig. 15, which illustrates fragmentary parts of a number of flats arranged in a stack, the die ring **35** results in the provision of an annular recess **43** which forms a relief space to accommodate oversize portions of adjacent underlying wall portions. This arrangement again permits the close nesting of the flats in a stack without danger of causing distortion of the hollow projections and without causing such tight gripping as to make separation of the flats of a stack difficult.

The specific die disclosed in the present application is designed to mold a so-called egg flat which is used in packing eggs in connection with the conventional filler strips in a standard egg case. The projections which form the egg seats, it is noted, are circular in shape, which shape is advantageous for the reception of articles, such as eggs. However when the seats mentioned are of the round or circular type, a downward pressure thereon tends to roll the circular top edge or ridge thereof inwardly and downwardly. This results not only in changing the original cross-sectional contour of the seats, but also weakens them so that in some instances they collapse and lose the cushioning action they are designed to afford. If means could be provided whereby the circular seat could be used and the objectional tendency to "roll" the ridge overcome, it would be advantageous. This has been accomplished by the die structure herein disclosed.

As before explained, the removable supporting member **22** is provided with a plurality of recesses **31** in the ridge portion thereof. Also, as before explained, the supporting member is covered with wire screen **32** which conforms to the outer wall surfaces of the member **22** and as clearly shown in Figs. 13 and 14 also conforms to the shape of the recesses **31**. The purpose of this depression and the conforming of the wire screen thereto is to form a thicker layer of pulp across the ridge at the various points where the depressions or recesses **31** occur.

There is thus provided at each depression a thicker layer of stock which results in the formation of a cross rib-like portion **31R**. Since there are twelve recesses **31** in the ridge of the member **22** it is obvious twelve cross ribs **31R** will be formed. These twelve ribs considerably strengthen the ridge and aid greatly in resisting the tendency of the ridge of the seat to roll inwardly and downwardly when downward pressure is applied axially. At the same time the formation is such as will not destroy the desired cushioning action of the seat.

It should be understood that in molding pulp articles the tendency is for the stock to build up on the screen to a uniform thickness and to conform to the shape or contour of the screen. As a matter of first impression, therefore, it might seem that the pulp would follow the contour of the screen where it conforms to the shape of the recesses or depressions **31**. It has been found possible, however, to build up additional thickness at these points, as is best illustrated in Fig. 14, by a proper correlation of stock thickness of limited dimension across the depression or recess and depth of the depression. As by way of illustration and not by way of limitation, the desired result can be obtained if the dimension D across the "dip" in the wire is of the order of 1/16". The depth DD is not so critical. Good results can be obtained when the depth DD is about 3/4th the thickness of the molded stock. That is to say, under such conditions, the pulp will build up to greater thickness at such places, thus forming the desired reinforcing ribs for the ridge of the egg seat. It should be added that the thickness of the flat is a factor. If the flat were much thinner there would be a tendency for the stock to follow the contour of the wire screen at the groove points. On the other hand, if the thickness of the flat or sheet is greater, it is possible to increase the size of the groove without causing the stock to follow directly the contour of the wire screen on the side opposite the wire screen. It is believed the foregoing statements will be sufficient to teach those skilled in the pulp molding art the principles which underlie the formation of thickened portions where required.

In the use of the dies for molding purposes certain parts will, from time to time, wear out and require replacement or repair. The projecting portions are generally subject to greatest wear and tear. However, the supporting members **22**, screen material carried thereby and the rings **35** are all readily removable so that they may be repaired or replaced without disturbing the main die body and main screens, if those parts do not require attention.

Should the main screen sheet require repair, it can, of course, also be removed from the die body by simply removing the clamping ring **18**.

I claim:

1. A die for forming molded pulp articles, comprising a rigid die body having outer and inner faces and being provided with water drainage passageways therethrough, wire screening in conforming contact with and overlying said outer face, at least one outstanding rigid die member having water drainage passageways therethrough and having an annular base portion and an outer face portion, other wire screening in conforming contact with and overlying the outer face portion of said outstanding rigid die member, means comprising an annular sealing member surrounding and confining a portion of the wire screening on the outer face of the rigid die member adjacent the base thereof, said annular member having a base part which is positioned between the base of the outstanding rigid die member and the adjacent part of the wire screening which overlies the outer face of said die body, and means for securing the outstanding rigid die member and said rigid die body together with said adjacent part of the overlying screening and said base part of the annular sealing member therebetween.

2. A die construction according to claim 1, in which there is a plurality of the outstanding rigid die members, their associated wire screening and annular sealing members being spaced apart as units over the wire screening which overlies the rigid die body.

3. A die for forming molded pulp articles, comprising a rigid die body having outer and inner faces and being provided with water drainage passageways therethrough, wire screening in conforming contact with and overlying said outer face, at least one outstanding rigid die member having water drainage passageways therethrough and having an annular base portion and an outer face portion, other wire screening in conforming contact with and overlying the outer face portion of said outstanding rigid die member and having a part which underlies the annular base thereof, means comprising an annular member surrounding and confining a portion of the wire screening on the outer face of the rigid die member adjacent the base thereof, said annular member including a part which is positioned between that portion of the screening which underlies the base of the outstanding rigid die member and the adjacent part of the screening which overlies the outer face of the die block, and means for securing said outstanding rigid die member and said rigid die body together with said adjacent part of the overlying screening, said base part of the annular member and said underlying screening therebetween.

4. A die construction according to claim 3, in which there is a plurality of outstanding rigid die members, their

associated wire screening and annular sealing members being spaced apart as units over the wire screening which overlies the rigid die body.

5. A die for forming molded pulp articles, comprising a rigid die body having outer and inner faces and being provided with water drainage passageways therethrough, wire screening in conforming contact with and overlying said outer face, at least one outstanding rigid die member having water drainage passageways therethrough and having an annular base portion and an outer face portion, other wire screening in conforming contact with and overlying the outer face portion of said outstanding rigid die member and having an annular part which underlies the annular base thereof, a sealing member having an annular upstanding flange portion surrounding and confining a portion of the wire screening on the outer face of the rigid die member adjacent the base thereof and an angularly disposed annular base part which is positioned between said annular screening part which underlies the base of the outstanding rigid die member and the adjacent part of the wire screening which overlies the outer face of said die body, and means for securing the outstanding rigid die member and the said rigid die body together with said adjacent part of the overlying screening, said annular base part of the sealing member and said annular underlying screening part therebetween.

6. A die for forming molded pulp articles, comprising a rigid die body having outer and inner faces and being provided with water drainage passageways therethrough, wire screening in conforming contact with and overlying said outer face, at least one outstanding rigid die member having water drainage passageways therethrough and having an annular base portion and an outer face portion, other wire screening in conforming contact with and overlying the outer face portion of said outstanding rigid die member, means comprising an annular member surrounding and confining a portion of the wire screening on the outer face of the rigid die member adjacent the base thereof, said annular member having a base part which is positioned between the base of the outstanding rigid die member and the adjacent part of the wire screening which overlies the outer face of said die body, and means for detachably securing the outstanding rigid die member and said rigid die body together with said adjacent part of the overlying screening and said base part of the annular member therebetween.

7. A die for forming molded pulp articles, comprising a rigid die body having outer and inner faces and being provided with water drainage passageways therethrough, wire screening in conforming contact with and overlying said outer face, at least one outstanding rigid die member having water drainage passageways therethrough and having an annular base portion and an outer face portion, other wire screening in conforming contact with and overlying the outer face portion of said outstanding rigid die member, a sealing member having an upstanding flange surrounding and confining a portion of the wire screening on the outer face of the rigid die member adjacent the base thereof, said sealing member having a base part which is positioned between the base of the outstanding rigid die member and the adjacent part of the wire screening which overlies the outer face of said die body, the outer surface of said flange being substantially parallel to the adjacent outer face of the upstanding die member and the inner face thereof, being disposed to form an acute angle with said outer face, and means for securing the outstanding rigid die member and said rigid die body together with the overlying screening and annular member part therebetween.

8. A die for forming molded pulp articles, comprising a rigid die body having outer and inner faces and being provided with water drainage passageways therethrough, wire screening in conforming contact with and overlying said outer face, at least one outstanding rigid die member having water drainage passageways therethrough and having an annular base portion and an outer face portion that slopes upwardly and inwardly from its base and a depressed inner face joining the outer face as a ridge, said ridge having a plurality of transverse recesses that open at their ends through said inner and outer faces, other wire screening in conforming contact with and overlying the outer face portion of said outstanding rigid die member including the said transverse recesses, means comprising an annular member surrounding and confining a portion of the wire screening on the outer face of the rigid die member adjacent the base thereof, said annular member having a base part which is positioned between the base of the outstanding rigid die member and the adjacent part of the wire screening which overlies the outer face of said die body, and means for securing the outstanding rigid die member and said rigid die body together with said adjacent part of the overlying screening and said base part of the annular member therebetween.

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