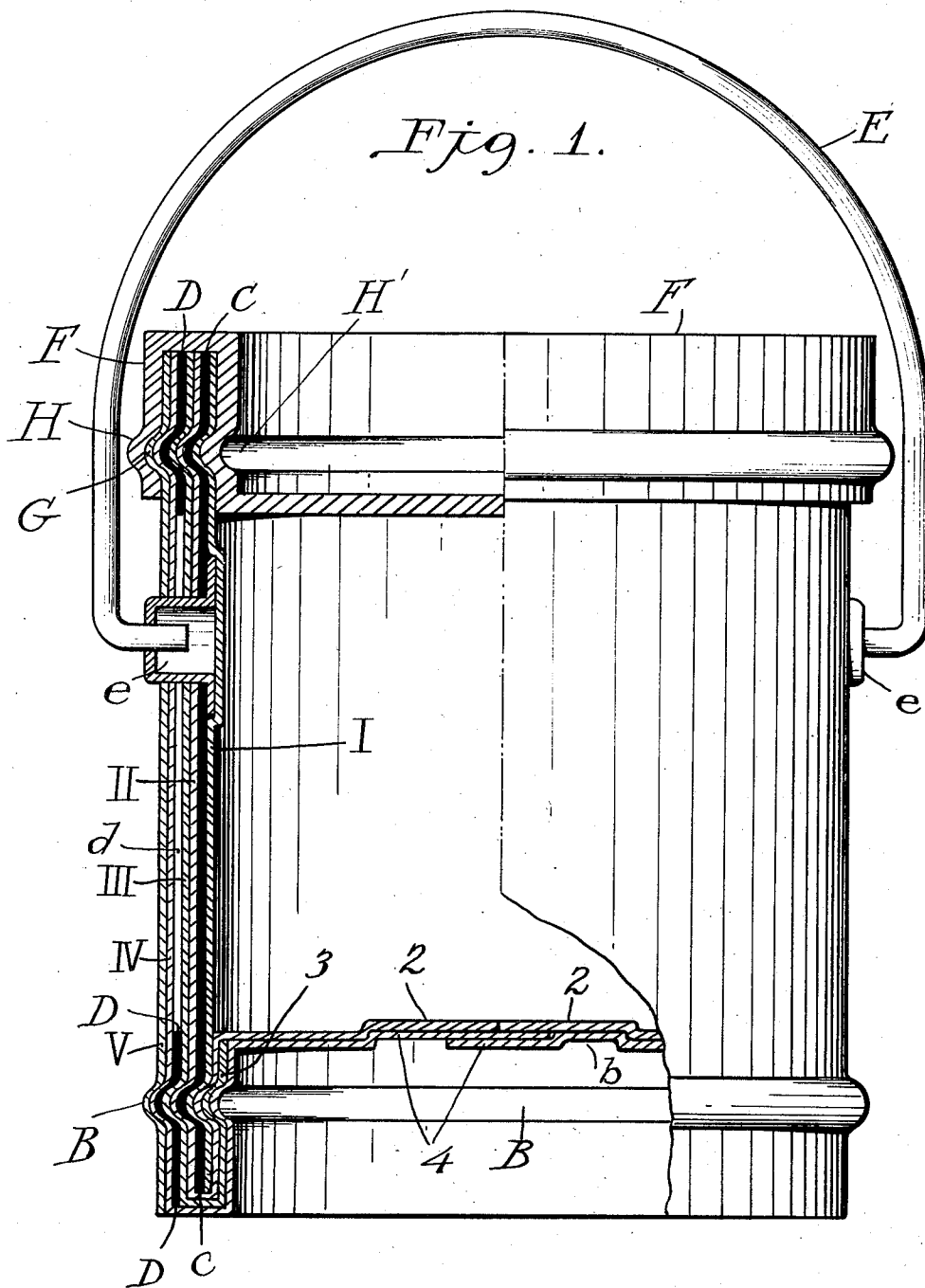


C. J. MULLIN.
PAPER RECEPTACLE.
APPLICATION FILED DEC. 29, 1913.

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Patented Aug. 6, 1918.
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

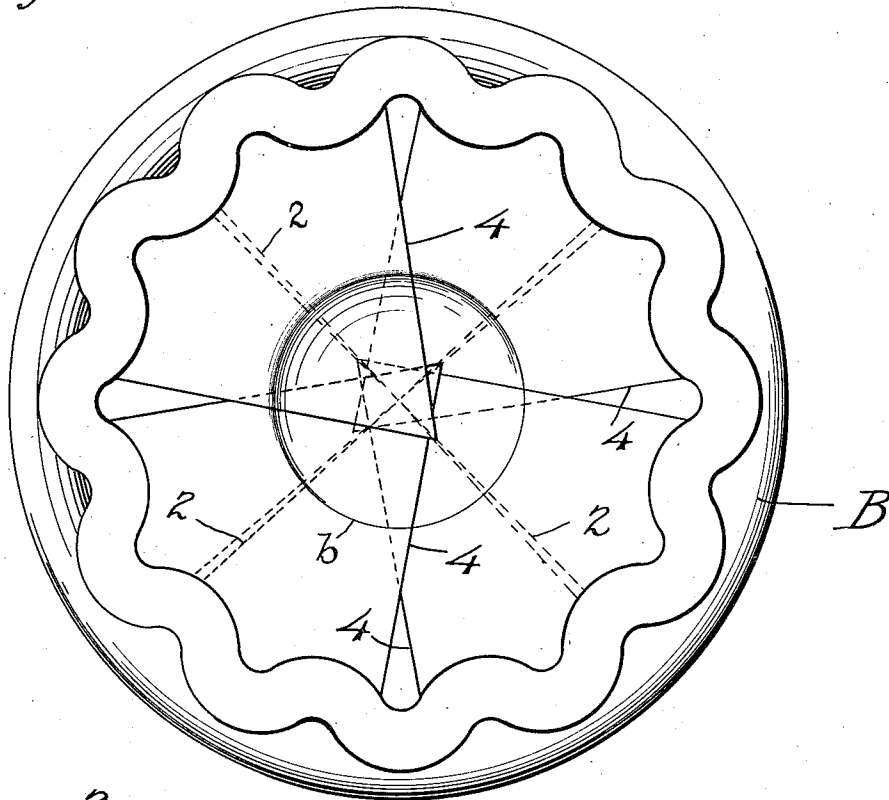
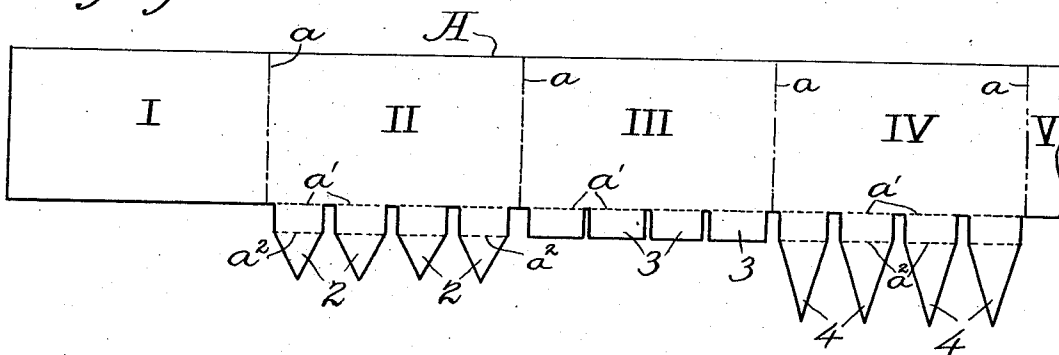


Fig. 3.



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PAPER RECEPTACLE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, COLMAN J. MULLIN, a citizen of the United States, residing at Locust, county of Monmouth, and State of New Jersey, have invented a certain new and useful Paper Receptacle, of which the following is a specification.

This invention is a paper receptacle or container and the object of the invention is to simplify the construction of the containers, increase their strength and efficiency, and to reduce the cost of manufacture.

With these objects in view, the salient features of the invention consist in an improved container constructed from a single blank or piece of material, and in such manner that maximum strength is secured with minimum expenditure of material.

Speaking generally, the container is constructed from a single blank a portion of one edge of which is provided with serrations or extensions, which blank is adapted to be wound on a mandrel to form the body of the container, and simultaneous therewith the serrations or projections are infolded to form the bottom of the container.

It will be understood that the container may be composed of as many plies of material as desired, depending on the size and strength desired, and that one or more layers of waterproof material, *e. g.*, impervious fabric may be interposed between said plies.

As will appear from the hereinafter detailed description, an important feature of the invention consists of a one-piece container wherein the bottom thereof is supported by the body of the container, and above the lower edge thereof.

Another feature of the invention consists in the novel construction of the cover, and the manner in which it is secured in place on the body.

Features of the invention other than those specified will be apparent from the following description read in conjunction with the accompanying drawings.

In the accompanying drawings, I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 shows a receptacle constructed according to the present invention, said view illustrating the receptacle partly in section and partly in elevation.

Fig. 2 is a bottom plan view of the receptacle shown in Fig. 1.

Fig. 3 shows, on a greatly reduced scale, a portion of the blank from which the receptacle of the present invention may be constructed.

Referring to the drawings, and more particularly Fig. 3, I have illustrated the blank, A, from which a receptacle embodying the present invention may be constructed. For clearness and simplicity of description I have divided this blank, by means of the dot and dash lines, *a*, into a plurality of sections, I, II, III and IV. As will be more clearly stated hereinafter, this blank is not composed of these four sections only, but sections shown forming the first cycle of the construction of the receptacle of usual size and strength. If, however, an increased strength is desired, the blank may continue to include several more sections which would be very similar, in their contour, to the sections illustrated.

It will be noted that section I is practically uninterrupted along its bottom edge, but sections II, III, and IV, are provided with projections of varying shapes and sizes, according to the sections in which they are positioned.

Having described the blank from which the receptacle is formed, the manner in which it is manipulated will next be set forth.

The blank, A, is wound upon a mandrel, the section, I, being long enough to extend at least once around said mandrel, and this first winding of the section, I, forms an inner ply of the material forming the body of the receptacle. The blank, A, is provided on its surfaces with a suitable adhesive so that when portions thereof are brought together, they will be adhesively retained in position. The operation of winding continues and the section II is wound.

Simultaneously with the winding of section II, the projections, 2, formed on the lower edge of the blank, are turned in and folded on the dotted lines, *a'*, *a''*, and these

projections, 2, are of such length that they will reach to the center of the receptacle. Thus when the winding of the second section is completed, the bottom of the receptacle will be substantially closed by the projections, 2.

The third section, section III, is next wound, and the projections, 3, formed thereon are simultaneously inturned. The projections, 3, are of such length that they overlap the bottom edge of the receptacle, thus far formed, so that their free edges about the bottom formed by infolding the projections, 2. Thus an annular ring is formed around the receptacle, and beneath the interior layer of the bottom, so that the weight of the material carried therein will be sustained on the vertical portion of the projections, 2, 3, etc.

Section IV is next wound, and the projections, 4, are infolded after the manner of procedure set forth in connection with section II, with the exception that the projections, 4, are so arranged on a blank relative to the projections, 2, that they will be staggered with relation thereto so that the joints between the projections, 2, will be closed by the projections, 4, and vice versa. Moreover, the projections, 4, are somewhat longer than the projections, 2, and are thus adapted to overlap the center of the receptacle and effectually render the same impervious at that joint.

The foregoing manner of constructing my improved receptacle accomplishes a one-piece container which, in many cases, will be adequately strong and impervious for commercial uses, yet I prefer to provide additional features which greatly enhance the strength, imperviousness, and lasting qualities of the receptacle. After the container has been formed in the manner specified, I preferably emboss a ring or form a recess, *b*, in the center of the bottom, as shown in Fig. 1. This operation will cause a portion of the receptacle bottom to be in relief from the remainder of said bottom, whereby the bottom of the receptacle, is drawn taut. This operation draws the projections, 2-4, tightly together and takes up any slack which may be occasioned during the making, and the bottom is thus rendered taut and rigid. Although it is not essential I preferably finish the winding of the body of the receptacle with a section, V, similar to section, I, *i. e.*, a section devoid of projections along its bottom edge. This gives a finished appearance to the receptacle and covers the ends of the slits between the projections of the other series. The annular bead, B, is next formed in the receptacle at a point just below the bottom, and simultaneously with the forming of the bead that portion of the body intermediate the bead and the bottom is corrugated vertically, which operations

greatly strengthen the receptacle, and imparts rigidity and stiffness thereto.

In some forms of receptacle I find it advantageous to interpose a layer of fabric, C, properly treated to render it impervious and rigid, between the plies of the body during the winding of the blank. I have shown this fabric as interposed between the plies of the body of the container only, but it will be understood that if so desired, this fabric may be provided with suitable projections along its bottom edges which projections may be infolded between the plies of the bottom.

Another feature which I may employ in some forms of container is the provision of an air space, *d*, intermediate to two or more of the plies. In which case the adjacent plies of the body are held in spaced relation by means of filler strips, D, extending annularly between said plies at the top and bottom of the receptacle.

In certain forms of containers, *e. g.*, those adapted for the reception of lard, etc., it is preferable that a suitable bail or handle, E, be provided, and I have, accordingly, embodied improved means in my invention for allowing of this. When a bail is desired, retaining pieces *e*, preferably in the form of a shell having an annular flange, are built in the wall of the receptacle. The retaining pieces, *e*, are positioned so that the flanges thereof are built in between the plies of the receptacle body, and such plies as are wound after the insertion of the members, *e*, are provided with apertures, *e'*, so as to allow the members, *e*, to project out through the side of the receptacle for the reception of the ends of the bail.

The foregoing description sets forth in detail the form of my invention embodying a certain number of plies, but it will be manifest that the number of plies may be varied according to the size and strength of the container required. If the number of plies are increased, section similar to I to IV, inclusive, are duplicated to form a bottom of increased thickness and consequent strength.

The top of the receptacle may be provided with a cover of any form or type, but I prefer to use the form illustrated in Fig. 1 of the drawings. This cover, F, embodies a disk having a peripheral, U shaped, member which, when the cover is in position on the receptacle, straddles the upper edge of the body thereof. The wall of the receptacle is provided with an annular bead, G, and the cover, F, is provided with complementary beads, H, H', which cooperate with the bead, G, on the exterior and interior of the wall of the receptacle, respectively. Portions of the cover which engage the walls of the receptacle, are preferably coated with an adhesive so that after the cover has been

sprung into place, the adhesive and coöperating beads maintain the cover against displacement and form an impervious joint.

A receptacle of the present invention is neat in appearance, strong, and durable, and embodies many novel features. It will be understood that some of these features may be utilized in the manufacture of the receptacle without necessarily employing all. *E. g.*, I do not consider the air space or the fabric ply essential in all cases yet, in such cases as they are applicable they materially enhance the value of the receptacle.

The top closure of the receptacle, *i. e.*, the cover, F, is highly efficient from the commercial standpoint in that it may be easily and cheaply manufactured, and when placed upon the container forms a thoroughly impervious cover therefor. The cover, F, I have shown in the drawings as stamped from a blank embodying one thick ply of material. I wish it to be understood, however, that if desired, I may construct the closure in the manner in which the receptacle itself is formed.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:—

1. A paper receptacle formed from a single blank of material and having a bottom formed by infolding portions of said blank and securing them together by an adhesive, a portion of the receptacle bottom thus formed being in relief from the remainder of said bottom to draw the bottom of the receptacle taut.

2. A multi-ply paper receptacle formed from a single blank of material, having a bottom formed by infolding a portion of said blank, said bottom being positioned above the lower end of the container, a portion of the body of the container intermediate the bottom of the receptacle and lower edge being corrugated longitudinally of the receptacle said corrugations causing the plies of the receptacle to be tightly forced together for the purpose of rendering said receptacle impervious.

3. A multi-ply paper receptacle formed from a single blank of material, having a bottom formed by infolding a portion of said blank, said bottom being positioned above the lower end of the container, a portion of the body of the container intermediate the bottom of the receptacle and lower edge being corrugated longitudinally of the receptacle and beaded circumferentially thereof, said corrugations and beading causing the plies of the receptacle to be tightly forced together for the purpose of rendering said receptacle impervious.

4. A multi-ply paper receptacle formed from a single blank of material embodying an elongated strip having a series of lateral projections along one of its edges, which

series of projections is infolded, as the body of the receptacle is formed, to form a bottom for the receptacle, and an adhesive for uniting the successive plies of the body and securing the infolded projections together, said bottom being positioned intermediate the ends of the receptacle, and that portion of the body intermediate the bottom and lower edge of the body of the receptacle being corrugated longitudinally of the receptacle, for the purpose of forcing the plies together and rendering the receptacle impervious.

5. A blank from which a one-piece multi-ply paper receptacle may be formed, embodying an elongated strip of material having separate series of lateral projections along one of its edges, said projections being so arranged that a series of projections, all of which are substantially the same, will be disposed about the circumference of the receptacle at one convolution thereof, and different series of projections at subsequent convolutions.

6. A paper receptacle formed from a single blank of material, the body of the receptacle embodying one or more plies, said receptacle having a bottom formed by infolding a portion of the blank, said bottom being positioned above the lower edge of the receptacle, the infolded portion intermediate the lower edge of the body of the receptacle and the bottom thereof forming a supporting abutment for the bottom of the receptacle and stiffening the lower edge of the body thereof, and the portion of the receptacle body intermediate its lower edge and the bottom of the receptacle being corrugated longitudinally of the receptacle for the purpose of tightly forcing the infolded portion of the blank into intimate engagement with the wall of the body of the receptacle.

7. A receptacle formed from a blank embodying an elongated strip provided along one of its edges with a plurality of series of interspaced integral projections, said strip being adapted to be wound to form a receptacle body having a plurality of plies, and the projections infolded to form the bottom of the receptacle, the different series of projections being so relatively positioned that, when infolded, each successive series breaks joints with the preceding series, whereby a strong, rigid, impervious bottom, integral with the body of the receptacle, is formed.

8. A receptacle formed from a blank embodying an elongated strip provided along one of its edges with integral interspaced projections, some of which are relatively long and others relatively short, said strip being adapted to be wound to form a receptacle body having a plurality of plies, and the projections infolded to form the bottom of the receptacle, the relatively short

projections fitting together to form a flush interior surface, and the relatively long projections overlapping the short projections and each other to seal the joints at the edges of the short projections.

9. A paper receptacle formed from a single blank of material embodying a strip having integral lateral projections along one edge thereof, said strip being adapted to be wound to form a receptacle body having a plurality of plies, and the projections infolded whereby the receptacle bottom is formed of a plurality of plies integral with the body of the receptacle, a portion of said bottom being in relief from the remainder thereof for the purpose of drawing the bottom taut.

10. A receptacle formed from a blank embodying an elongated strip provided along one of its edges with a plurality of series of integral projections, the projections of one series differing from the projections of another series, said strip being adapted to be wound to form a receptacle body embodying a plurality of plies and the projections infolded to form the bottom of the receptacle, the different series of projections being so relatively positioned that, when infolded, each successive series breaks joints with the preceding series, and an adhesive for securing the infolded projections together, whereby a strong, impervious bottom, integral with the body of the receptacle, is formed.

11. A blank of such length that, when wound, a receptacle body of a plurality of plies will be formed, that portion of the blank forming one ply of the receptacle having a series of projections along one of its edges and another portion of the blank, forming another ply, having another series of projections along its corresponding edge, whereby, when said blank is wound to form a receptacle body of a plurality of plies, the projections along the edge thereof may be infolded to form the bottom of the receptacle, and an adhesive for securing the infolded projections together, said projections being so disposed that one series of projec-

tions will overlap the joints between the other series for the purpose of forming a receptacle impervious to liquids.

12. A receptacle formed from a single blank of material provided along the greater portion of one of its edges with a plurality of projections, said blank being wound to form a receptacle body embodying a plurality of plies and the projections infolded to form the bottom of the receptacle, said projections being so disposed that, when infolded, the projections corresponding to one ply break joints with the projections of a preceding ply, and an adhesive for securing the infolded projections together, whereby a rigid bottom, impervious to liquids, is formed integral with the body of the receptacle.

13. A paper receptacle formed from a single blank of material, which blank is provided along one of its edges with differently shaped lateral projections, said blank being rolled to form the body of the receptacle of a plurality of plies and the projections infolded, certain of said projections forming a bottom to said receptacle, which bottom is positioned intermediate the upper and lower edge of the body, and certain other of said projections forming a support for the outer edge of said bottom.

14. A paper receptacle formed from a single blank of material, which blank is provided along one of its edges with a plurality of series of lateral projections, said blank being rolled to form a receptacle body of a plurality of plies and the projections infolded, one series forming a bottom to the receptacle intermediate the upper and lower edges of the body, and another series forming a flange extending upwardly from the lower edge of the receptacle and abutting the outer edge of the bottom.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

COLMAN J. MULLIN.

Witnesses:

CORNELIUS ZABRISKIE,
A. A. CARNEY.