

Feb. 25, 1930.

M. P. CHAPLIN

1,748,911

PLATE, DISH, OR THE LIKE

Filed Jan. 16, 1930

Fig.1

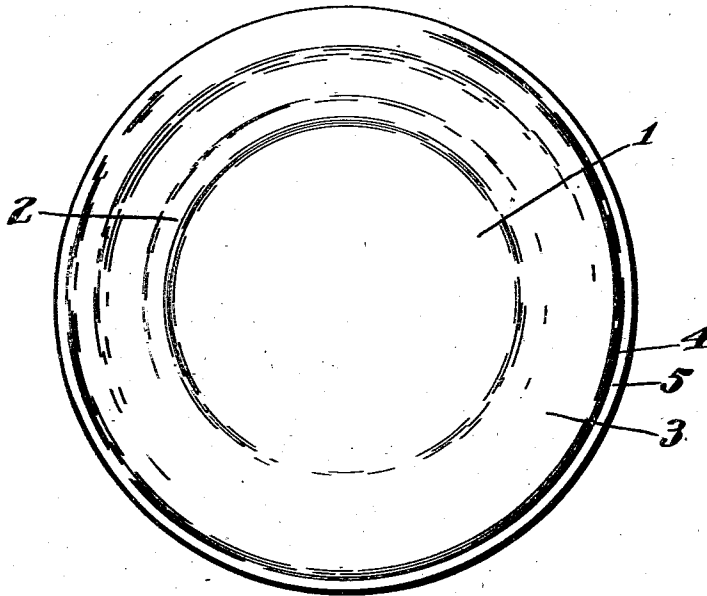
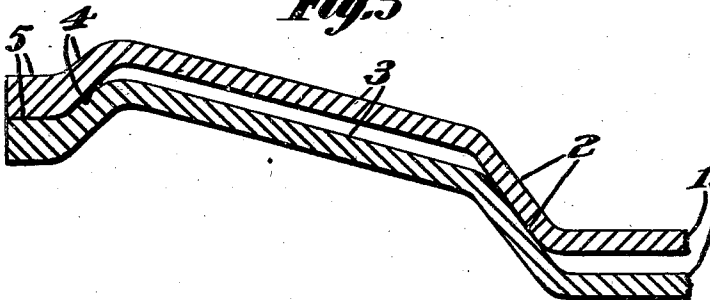


Fig.2



Fig.3



Inventor
Merle P. Chaplin
Attorney
By

UNITED STATES PATENT OFFICE

MERLE P. CHAPLIN, OF WATERTVILLE, MAINE, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO FIDELITY TRUST COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE,
AS TRUSTEE

PLATE, DISH, OR THE LIKE

Application filed January 16, 1930. Serial No. 421,165.

For use in the household, in restaurants, lunchrooms or picnics, etc. there is a very considerable demand for serviceable table plates and containers which can be thrown away after a single use.

These plates or containers must be of relatively low cost and for this reason can be most economically produced by molding from a fibre stock such as wood pulp, etc.

The economical commercial production of such articles requires very careful development of machinery and equipment so that the maximum strength and serviceability is secured from the fibre stock used, the desiderata being a finished article of sufficient strength and rigidity to support any reasonable load without buckling, sagging or tearing, thus enabling the filled plate or container to be supported by one edge only without danger of collapse.

In other words, the ultimate article, if a plate, must be capable of being filled, passed and handled at the table in the same manner and with the same degree of security as the plates now ordinarily used.

To the end therefore of providing a plate, dish or similar food container embodying the foregoing desiderata, I have devised my present invention.

Briefly, I utilize certain parts or elements of the generally uniformly, integrally deposited fibre in such manner as greatly to increase the strength and rigidity of the finished article, and I do this without any increase in the minimum weight of fibre stock used. Besides being uniform and integral and besides having the stock so distributed as to give the greatest strength and rigidity with the minimum amount of material, I also arrange for an increased amount or distribution of stock in the edge area thereof where it may be necessary or desirable to increase the serviceability of the article.

As a result, the article is an article of definitely increased strength and rigidity in which the various fibre deposits combine with each other to provide that degree of strength and stiffness throughout the article and particularly at its edge so necessary in an article of this general type and purpose.

Specifically plates or other containers made in accordance with my present invention are sufficiently strong to resist circumferential rupturing strains whereby tearing of the article edge is avoided and sufficiently rigid to resist transverse bending stresses when the article is loaded with food and lifted at its edge, so as to avoid buckling or collapse.

These factors of strength and rigidity result from the incorporation into the article during its process of manufacture of an integral reinforcing annulus of inverted channel section and of stiffened edge construction which annulus provides in effect a circumferential channel beam continuously girdling the article and strengthening and stiffening it in the very area where it is normally weakest and hence most susceptible to rupture and/or collapse.

In the accompanying drawings:—

Fig. 1 is a plan view of such an article.

Fig. 2 is a cross-section, and

Fig. 3 is an analysis of the stacking space relative to the thickness of fibre stock.

As characteristic of the several shapes of container in which my invention can be produced, I show a plate comprising a depressed bottom portion 1, an upwardly and outwardly curved side wall 2 and an integral surrounding reinforcing annulus of inverted channel section, presenting a relatively straight inclined web 3 extending upwardly and outwardly from the wall 2 and terminating in a down-turned portion 4 which extends outwardly as a thickened edge 5.

Although capable of being made of other materials and by other methods, my plate, dish or like container may be and preferably is made of compressed pulp. Such pulp may be deposited by suction on any suitable forming die and compressed by a coacting die. Suction is maintained on the forming die during pulp deposition, and compressed air is sent through said die and suction simultaneously applied to the coacting die to effect transfer of the formed article from the forming die to the coacting die.

The article thus formed is of general uniform thickness but carries an extra amount

of stock for a certain distance in from its edge so that the entire edge of the article is reinforced by the presence of this additional stock.

Inasmuch as the use of fibre table ware requires that the plate or other articles be capable of being lifted by means of the edge or rim of the plate without tearing or bending, it is necessary in order for the plate to give satisfactory service, first, that the tensile strength along the edge of the plate in a circumferential direction shall be sufficient to prevent rupture of the plate at the point where the plate is lifted, and second, that the rigidity and stiffness of the plate transversely across from the point of support shall be sufficient to prevent the plate from buckling or bending to any great extent.

The extra strength to prevent rupture of the edge is secured by an increased thickness of pulp deposit around this edge. This can be extended back from the edge any desired distance but should not extend to the sloping side or rim. The necessary rigidity or stiffness of the plate to resist buckling through the center is provided by the channel section which extends entirely around the plate and which effects in reality two channel beams extended from the point of support to the opposite side of the plate and supporting between them the flat bottom section on which the food is placed.

Another important feature which must always be considered in the production of table ware of this character is the space which it occupies before use. The ordinary methods of making ceramic or china table ware has been to provide heavy thick sections at certain points either for supporting the plate or other container on the table or to prevent the edge from becoming nicked, chipped or broken during the use of this plate and particularly during the washing or cleaning of it after use. On table ware of this character the space which it occupies when not being used is not of great importance as only a comparatively few of the various sizes are necessary in the ordinary household. However, on single service plates such as this invention covers it is necessary to store a greater number of these plates as they are thrown away after each use, and hence do not require cleaning.

In order to provide for the minimum space which these plates occupy before being used, the vertical thickness at any section of the plate is maintained reasonably uniform or consistent over the entire area as illustrated in Fig. 3, wherein two plates are shown as stacked or nested.

The rigidity, stiffness and strength of my novel article is maintained and the effective thickness is increased where strength is necessary without increasing the total space occupied.

Referring to the effective space occupied by the plate or container, it will be noted that the greatest vertical stacking or storage space required is ordinarily determined by the vertical depth at point *a*, and that it is possible to increase the thickness of the plate at any point without increasing the stacking or storing space provided it is not greater than the vertical distance through point *a*. Fig. 3 illustrates this and it will be noted that the vertical thickness or stacking space required is not greater at the rim section than it is at point *a*, but that the amount of stock or thickness of the article is very materially increased for strengthening and stiffening purposes at its edge portions 4—5.

It will also be noted that the effective thickness or depth of the entire flange section of the plate is increased to several times the actual thickness of the plate itself by reason of the peculiar shape of the flange of this plate which is in effect an inverted channel sloping up from the bottom of the plate to form a suitable rim.

Various modifications in size, shape, and materials may obviously be resorted to within the spirit and scope of my invention as defined by the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. A dish formed of compressed pulp material having a bottom, a rim, and an outer edge part curved relative to said rim, a second part merging into said bottom and curved relative to said rim and spaced from said first part by said rim, to form a dish having sides, channel shaped in cross section, thereby minimizing buckling and bending of the dish when held by the rim or edge parts, said outer edge part terminating in an outwardly extending portion disposed at an angle thereto and having more stock therein than the remaining portions of the dish whereby to constitute an annular stiffness and reinforcing frame surrounding said outer edge part.

2. A dish formed of compressed pulp material having a bottom and a surrounding side portion, the said portion comprising central and inner and outer edge parts, the inner edge part being curved with respect to the central part and merging into the bottom of the plate and the outer edge part extending downwardly with respect to the central part, whereby said side portion is channel shaped in cross section, said outer edge part terminating in an outwardly extending portion disposed at an angle thereto and having more stock therein than the remaining portions of the dish whereby to constitute an annular stiffening and reinforcing frame surrounding said outer edge part.

In testimony whereof I affix my signature.
MERLE P. CHAPLIN.

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