C. INGERSOLL.

Manufacture of Paper Dish.

No. 221,234. Patented Nov. 4, 1879.

Fig. 1.

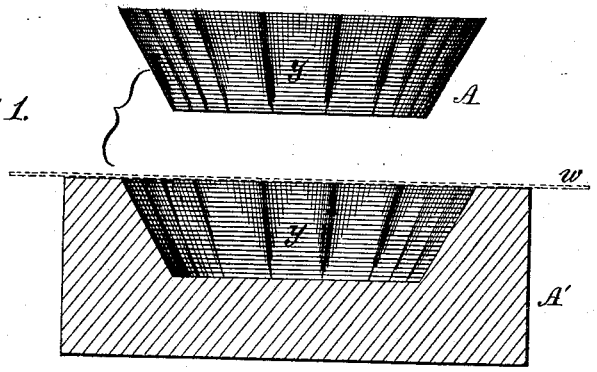


Fig. 2.

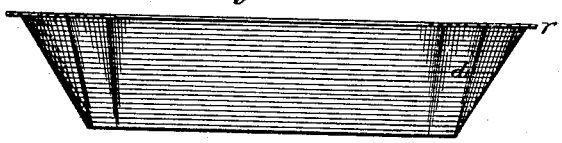
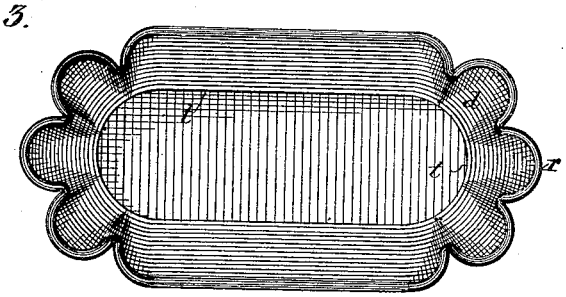


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHALMERS INGERSOLL, OF BELOIT, WISCONSIN.

IMPROVEMENT IN THE MANUFACTURE OF PAPER DISHES.

Specification forming part of Letters Patent No. **221,234**, dated November 4, 1879; application filed June 25, 1879.

To all whom it may concern:

Be it known that I, CHALMERS INGERSOLL, of Beloit, Rock county, and State of Wisconsin, have invented certain new and useful Improvements in the Manufacture of Dishes of Paper, &c., of which the following is a specification.

My invention consists in the improved dies for and improved mode used in the manufacture of dishes from unmalleable materials, as fully described hereinafter.

In the drawings forming part of this specification, Figure 1 is a view illustrating the dies used in the improved mode of manufacture, the lower die being in cross-section; Fig. 2, a side elevation of the dish; Fig. 3, a view showing a plan of the dish.

Before the date of my invention dishes of tin, glass, or crockery ware were commonly employed as receptacles for groceries, and from the expense of manufacture in the first instance, and from breakage, were a source of considerable expense both to dealers and consumers.

The object of my invention is to provide such a cheap substitute for such articles that the receptacles can be given away by the dealer with the goods sold, as are the paper bags and wrappers often employed. In my efforts to produce such articles I employed paper, veneer, and other materials, but found that while receptacles suitable for holding the various kinds of goods might be made, all ordinary modes of manufacture used in connection with such materials were too expensive to be practicably employed. In endeavoring to stamp paper and veneer by means of dies it soon became apparent that ordinary dies were unsuitable. It was found that if plain regular dies were employed—such, for instance, as would form a dish of the shape of an ordinary bowl or saucer—the material would fold, and the folds overlap in turning up the edges to form the sides, so that when the dies came together they would bear only on the thicker parts, the dish would not be set or stiffened throughout by the pressure, and would be apt when subsequently wet to unfold, lose its shape, and spill the contents. While it was palpable that this defect could be obviated by using dies that would fold or flute the turned-up sides, and thus take up the surplus material, it did not seem possible that any article so fragile as paper, especially when wet and pulpy, could be shaped in this way with sufficient expedition to render this process available. I found, however, that it could be done, but that ordinary dies used in the manufacture of metal dishes were not available for the purpose, as their construction resulted in the stretching or overlapping of the material operated on, whereas wet paper and other unmalleable materials are not capable of being distended to any appreciable extent, and rupture under such operations.

To obviate this difficulty the tools were constructed so as to fold the material where turned up to form the sides into flutes or corrugations *d*, but without crowding or distending the same, the tools being merely folding and turning appliances, and not means for stretching and condensing, like dies constructed to operate upon malleable metal. With such dies it was found that paper, veneer, &c., could be stamped into dishes having deep sides almost as readily and speedily as malleable and less fragile materials could be stamped, so that the dishes could be made at a mere nominal cost, exceeding but little in some cases that of the ordinary paper bags. It was further found that, as there were no folds in the paper, the dies would press uniformly on the whole surface, producing a finished article, and condensing and stiffening the whole dish, so that when it was dried (which drying was effected, preferably, while the dish was on a mold) it would be stiff, rigid, and not liable to lose its shape under the action of moisture.

The form of the dies depends upon the shape of the dish. For an oblong dish I use dies with the flutes or corrugations *y y* at the ends, the depth of the corrugations increasing as the sides of the dish are brought more nearly vertical. Thus the corrugations terminate at the periphery of the bottom, which will be more clearly defined as the corrugations decrease in width. When narrow and close together the periphery will practically coincide with a straight or curved line, *t*, Fig. 3, according to the general outline of the dish. It will be apparent that such dishes may be made of any suitable form.

I am aware that paper dishes have been

made from sheets of pulp, which necessitates the use of a paper-making machine directly in connection with the dies, and the article produced is soft, absorbent, and often unsuitable for retaining liquids, while my improved dish may be used for holding sirups, oil, honey, and like materials.

I do not claim, broadly, the manufacture of paper dishes by molding sheets of moist paper between dies which fold up the edges to form the sides, as this is shown in the patent granted to Jarboe, January 25, 1870.

I do not here claim the dish shown and described; but

I claim—

1. The within-described dies for the manufacture of dishes of paper and like unmalleable materials, the same having at the sides corrugations vanishing at the periphery of the bottom, substantially as and for the purpose set forth.

2. The within-described improvement in the art of making dishes of unmalleable material, consisting in softening a sheet of said material by the action of moisture, then turning up the edges to form sides, simultaneously forcing the same into regular corrugations which vanish at the periphery of the bottom, and then drying the same, all substantially as and for the purpose set forth.

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

CHALMERS INGERSOLL.

Witnesses:
I. N. MANVILLE,
W. F. ROWE.