W. H. DRAKE.

PROCESS OF MANUFACTURING ARTICLES FROM PULP.

APPLICATION FILED JUNE 28, 1917. RENEWED JAN. 25, 1918.

1,305,203. Patented May 27, 1919.

Fig. 1.

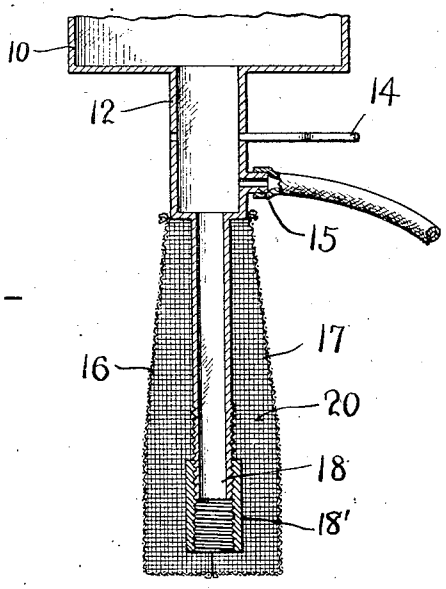
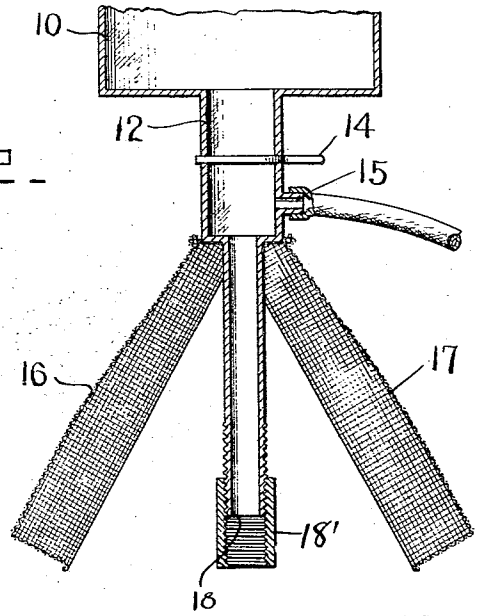


Fig. 2.



Witnesses

L. B. James

E. M. Springer.

Inventor

W. H. Drake

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

WALTER H. DRAKE, OF SAN FRANCISCO, CALIFORNIA.

PROCESS OF MANUFACTURING ARTICLES FROM PULP.

1,305,203. Specification of Letters Patent. Patented May 27, 1919.

Application filed June 28, 1917, Serial No. 177,580. Renewed January 25, 1918. Serial No. 213,820.

To all whom it may concern:

Be it known that I, WALTER H. DRAKE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Processes of Manufacturing Articles from Pulp, of which the following is a specification.

This invention relates to a process of forming articles from pulp and the object is to provide an improved process which may be employed in connection with wood pulp, paper pulp, or any similar material, and which shall include the agitation of the material within the mold and the deposit thereof in a uniform manner over the entire surface of the mold sections.

A further object is to provide for varying the thickness of the side and bottom walls of the article by varying the point at which the air is introduced near the bottom of the mold.

That the apparatus claims presented in this application have been divided out and form the subject matter of divisional application, Serial Number 262574, filed November 14, 1918.

With the foregoing and other objects in view, the invention consists in the novel steps of the process hereinafter set forth.

In the drawings is shown conventionally one form of apparatus which may be employed in carrying out the process.

Figure 1 shows a mold in vertical section, the members of the mold being in closed position, and Fig. 2 is a further view in vertical section with the members of the mold in open position.

The receptacle containing the pulp is designated 10 and from this receptacle a duct 12 passes downwardly to the mold proper. This duct is closed by means of a cutoff device 14, and the duct is provided also with a connection 15 for introducing air under pressure. The mold comprises a plurality of sections 16 and 17 adapted to swing outwardly, these sections being formed of wire mesh or other foraminous material for the purpose of permitting the water to be forced out of the pulp under air pressure.

A duct 18 extends downwardly through the central portion of the mold terminating at a suitable distance from the bottom of the latter, so that air introduced under pressure will force the pulp upwardly, through the space provided by the annular chamber 20 between the side walls of the mold and the duct, and will deposit this pulp evenly throughout the entire surface of the mold sections, forcing the water out through the mold walls. The relative thickness of the side and bottom walls of the article being formed is varied by varying the distance between the lower end of the duct 18 and the bottom of the mold. The lower section 18′ of the tube 18 is adjustably connected with the tube proper, for the purpose indicated.

The pulp is admitted by operating cutoff 14, and the mold filled with the material, after which the member 14 is again operated for the purpose of discontinuing the flow. The material is deposited by gravity within the mold as a spongy mass, a large proportion of the water passing out through the screen. Air is then introduced under pressure through connection 15 and agitates the pulp and forces it upwardly within the annular chamber 20 and causes it to be deposited uniformly throughout the extent of the surface of the mold sections. Upon opening the mold the article will be discharged by gravity.

Among the many advantages realized in employing the process is that an elaborate and expensive equipment is done away with, so that any large dairy or other concern may have its own plant for manufacturing containers or other articles, and may use any number of molds according to the output required.

One of the difficulties heretofore experienced in the production of hollow articles from pulp has been that the walls are not smooth and uniform and must be subsequently treated in order to make them so. I avoid this objection by introducing the air in the manner specified, producing an even deposit of the material.

It is apparent that containers of all types and sizes may be made for use in putting up food of various kinds, tobacco, and other products as well as articles other than containers.

No vacuum chamber is employed as in the case of certain other processes for the manufacture of articles from pulp, and it is therefore possible to use the method described under conditions in which it could

not otherwise be employed. The pulp is introduced under the action of gravity and is distributed by air under pressure.

It is obvious that steam may be employed instead of air under pressure if desired.

The mold may be inclosed by any suitable casing or the like.

What is claimed is:

1. The process herein described which consists in filling a mold formed of foraminous material with pulp, introducing fluid under pressure at a point near the bottom of the mold and forcing the pulp upwardly along the sides of the mold in a direction opposite to that in which the fluid is introduced, and simultaneously freeing the pulp from the water contained therein.

2. In the process of forming articles from pulp in a mold having foraminous walls, the step of introducing fluid under pressure into the central portion of the mold and causing it to pass in the opposite direction from that in which it is introduced and along the sides of said mold; and varying the point at which the fluid is brought into contact with the walls of the mold, for varying the relative thickness of the side and bottom walls of the article.

3. The process of forming articles consisting in employing a foraminous mold introducing a pulp-carrying fluid into the mold employing means to overcome the tendency of the pulp to be deposited by gravity and employing means to force the fluid carriage through the walls of the foraminous mold.

In testimony whereof I affix my signature.

WALTER H. DRAKE.