No. 610,567. Patented Sept. 13, 1898.

H. THAME.

MANUFACTURE OF PULP WARE.

(Application filed Apr. 28, 1897.)

(No Model.)

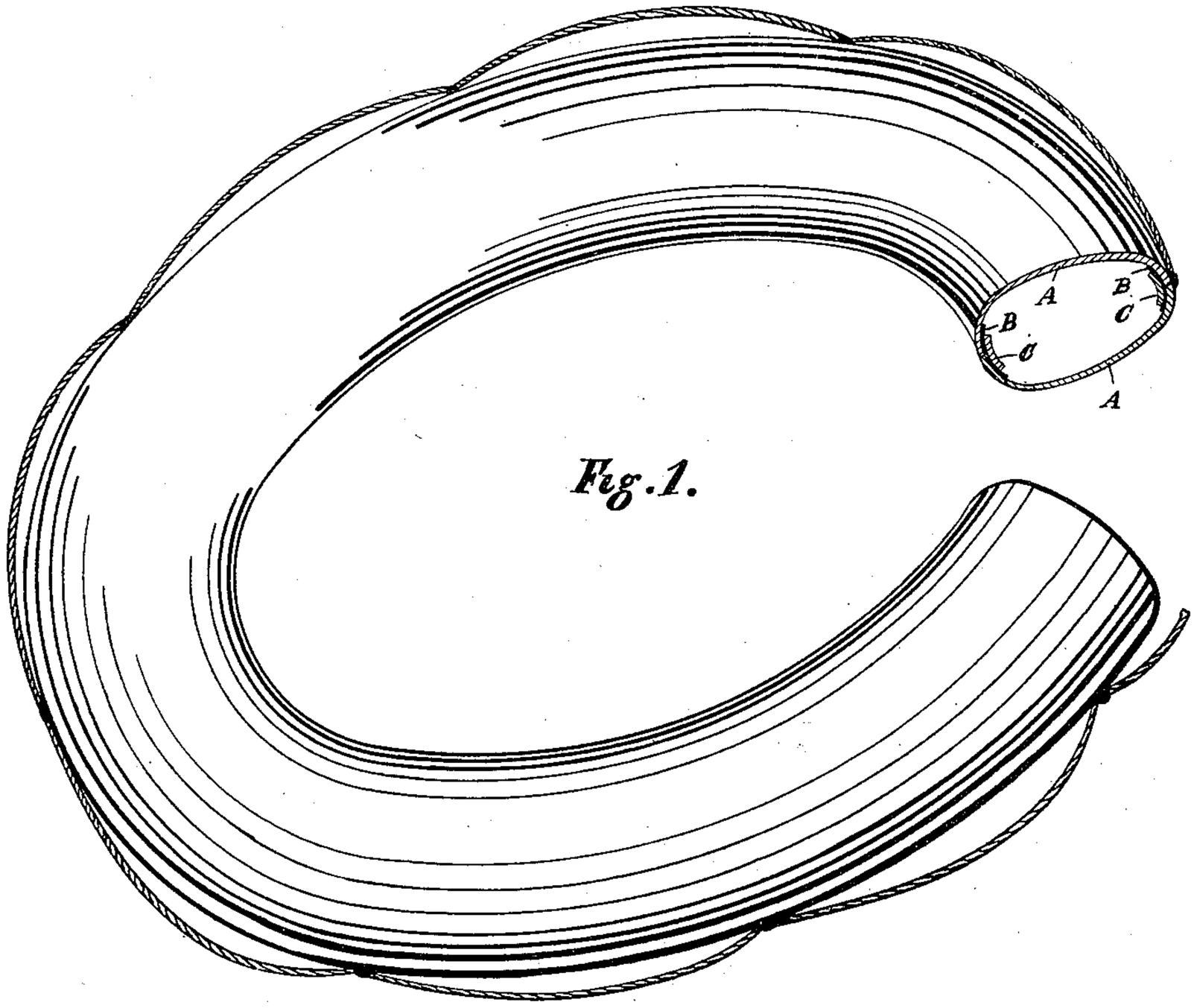

Fig. 1.

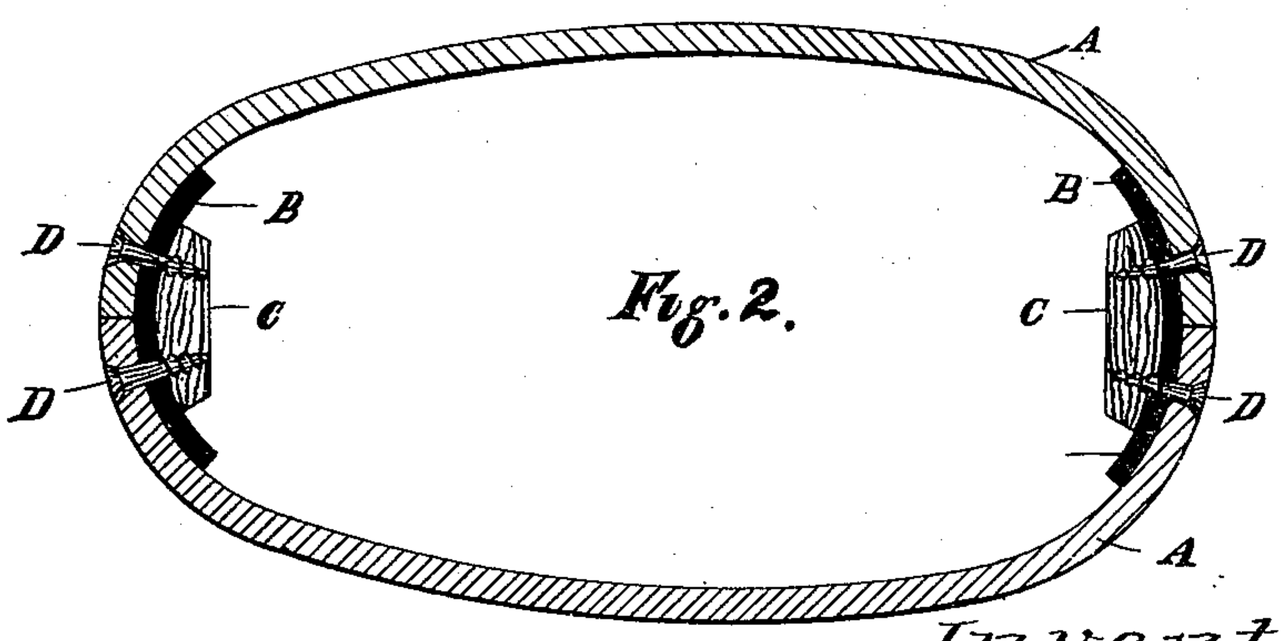

Fig. 2.

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UNITED STATES PATENT OFFICE.

HENRY THAME, OF LONDON, ENGLAND, ASSIGNOR TO FRANCIS SWANZY AND WILLIAM CLEAVER, OF SAME PLACE.

MANUFACTURE OF PULPWARE.

SPECIFICATION forming part of Letters Patent No. 610,567, dated September 13, 1898.

Application filed April 28, 1897. Serial No. 634,252. (No model.) Patented in England March 12, 1896, No. 5,603, and April 20, 1896, No. 8,309.

To all whom it may concern:

Be it known that I, HENRY THAME, residing at Yiewsley, London, in the county of Middlesex, England, have invented new and useful Improvements in the Manufacture of Pulpware, of which the following is a specification.

The invention has been patented in England, No. 8,309, dated April 20, 1896, and No. 5,603, dated March 12, 1896.

This invention relates to the manufacture of pulpware, and is particularly applicable for the manufacture of articles having buoyant qualities or which have to hold or resist the entry of liquids, and has for its object the jointing of parts of pulp or fibrous material to form any hollow-recessed or other article, so as to be water-tight at the joint and to be of considerable strength at that part, and also the treatment of the external surface of the article to render it impervious to water or similar liquid.

By reason of its particular features this invention is peculiarly applicable for the manufacture of hollow life-buoys formed of pulp, or for the fellies of wheels for cycles and other vehicles made of pulp, or of other articles in which it is desirable that the joint should be strong and the material of which the article is made shall be unaffected by external liquid, moisture, or damp.

To carry my invention into effect, I take wood or other pulp carefully beaten in any of the well-known ways, and I form the article by means of pressure in suitable molds either with or without the use of a vacuum or in any well-known manner, or the article may be formed direct from millboard after being soaked in water or half-stuff or wood-pulp lightly pressed from the beater-engine and pressed into shape in suitable molds. The articles are then dried and are placed in a solution of boiled or linseed oil and rosin for the purpose of rendering them non-absorbent and for facilitating the adhesion of the waterproof coating hereinafter described. The articles, if made in parts or hollow, are then jointed in the following manner: A solution of rubber and sulfur in naphtha or other suitable solvent is made, and the parts to be joined are moistened with the said solution. When the solvent has evaporated, a thin strip of india-rubber or gutta-percha or other vulcanizable gum or gums prepared with thirty to fifty per cent. of sulfur is applied to the parts to be joined. Such parts are then brought together and maintained in contact by pressure applied thereto by clamps or other means. The articles thus clamped together are placed inside a suitable vulcanizing apparatus and kept at a temperature of 320° Fahrenheit for one or two hours or for such other time as is requisite to insure a perfect hardening of the prepared rubber. By this means a perfectly firm and water-tight joint is obtained. The ends and divisions of hollow or other pulp ware of any form and shape can thus be formed in any article by the same method.

When the constructive details of the article have been completed and it is desired to waterproof the whole of the external surface, it is coated with a thin solution of rubber, gutta-percha, or other vulcanizable gum mixed with sulfur and dissolved in a suitable solvent. When the solvent has sufficiently evaporated, a thin sheet of rubber or other vulcanizable material prepared with forty to fifty per cent. of sulfur is applied to the outer surface of the article, which is then placed in a vulcanizing apparatus and vulcanized at the same time as the joints hereinbefore described in the usual way. This vulcanizing process transforms the thin sheet-rubber or other vulcanizable material into an impervious coating of hard material, or, equivalently, the prepared rubber or vulcanizable material may be dissolved in any suitable solvent and applied in the form of a paint or varnish and afterward vulcanized to form a hard-rubber coating, thus rendering the article impervious to water and other liquids.

A feature of utility in this invention is the great saving of time effected by the drying of the boiled oil and rosin and the vulcanizing of the rubber joints and covering by the one treatment by heat when the vulcanizing is effected. The rubber strip is free from treatment by a solvent, and the vulcanizing

treatment being performed under dry conditions will produce a hard-rubber joint.

Figure 1 is a perspective part-sectional view of a life-buoy made according to my invention as a convenient example. Fig. 2 is an enlarged detail section of the same.

The two halves A A of the life-buoy, made of pulpware, are placed together with the rubber strip B, covering the joint internally, the strip B being kept in position and pressed against the pulp halves by means of a wooden ring C, drawn up tight by screws or their equivalent passing through the pulp halves and rubber strip into the wooden ring. When the whole has been put together, the article is put into a dry vulcanizer, and the rubber forming the joint is vulcanized.

Having now described this invention, I declare that what I claim, and desire to protect by Letters Patent, is—

1. The process of manufacture of articles of pulp consisting of the impregnation of the pulp with boiled or linseed oil and rosin or equivalent gum; the treatment of the parts to be joined with a solution of rubber and sulfur in naphtha or other equivalent solvent, the application of a thin strip of india-rubber or gutta-percha or other vulcanizable gum or gums incorporated with thirty to fifty per cent. of sulfur to the parts to be joined the pressing of the said parts and the treatment of the articles under such pressure in a vulcanizing-furnace at a temperature of about 320° Fahrenheit to dry the linseed or boiled oil and to vulcanize the rubber forming the joint the said strip being free from treatment by a solvent and the vulcanizing treatment being performed under dry conditions to produce a hard-rubber joint.

2. An article of pulpware consisting of the separate pulpware parts and the joint between the parts consisting of the rubber strip vulcanized in place, and forming a hard-rubber joint substantially as described.

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

HENRY THAME.

Witnesses:
REGINALD WILLIAM JAMES,
CHARLES H. CARTER.