I. NAYLOR & H. B. RUGGLES.

REINFORCED DRUM OR BARREL.

APPLICATION FILED DEC. 26, 1912. RENEWED JULY 10, 1916.

1,215,970. Patented Feb. 13, 1917.

Fig. 1.

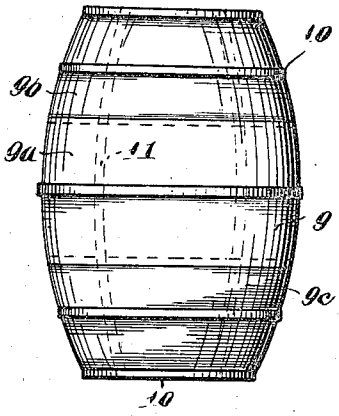


Fig. 2.

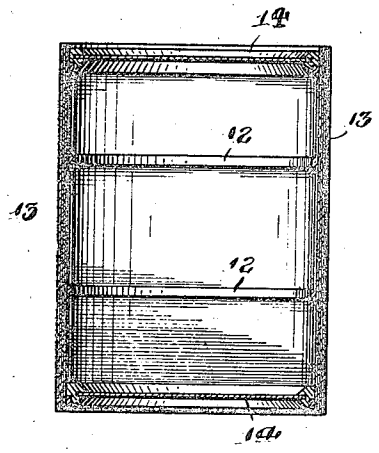


Fig. 4.

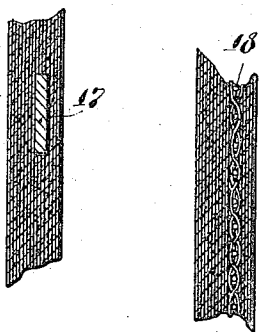
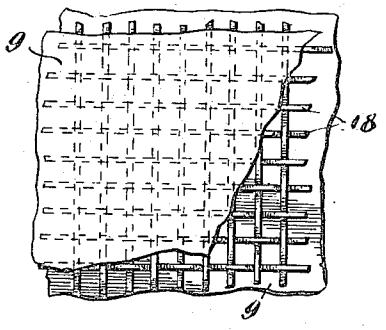


Fig. 3.

Fig. 5.



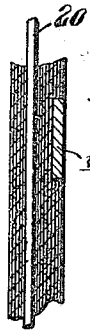
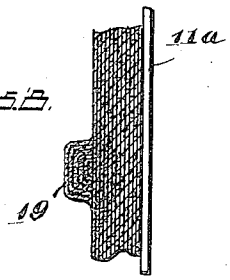


Fig. 6.

Fig. 7.



Fig. 8.



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UNITED STATES PATENT OFFICE.

ISAAC NAYLOR AND HENRY B. RUGGLES, OF CHICAGO, ILLINOIS, ASSIGNORS TO AMERICAN PRODUCTS COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

REINFORCED DRUM OR BARREL.

1,215,970. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed December 26, 1912, Serial No. 738,584. Renewed July 10, 1916. Serial No. 108,447.

To all whom it may concern:

Be it known that we, ISAAC NAYLOR and HENRY B. RUGGLES, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reinforced Drums or Barrels, of which the following is a specification.

This invention relates to improvements in barrels, drums, boxes and other containers or receptacles, and particularly to the manner in which they are constructed and the materials which enter into their structure.

The especial object of the present invention is to produce a strong and light receptacle that may be made practically air and water-tight if desired.

A further object is to produce a barrel, box or the like from fibrous and cementitious materials combined under pressure and reinforced by metallic members which may be wires, rods, bands or woven wire fabric arranged either upon the surface of the material which forms the body of the structure, or embedded within such material and run longitudinally or transversely of the article.

In the accompanying drawing, we have illustrated our invention in several forms, all of which embody the same essential characteristics. In said drawings:—

Figure 1 is an elevational view of a barrel constructed according to our invention; Fig. 2 is a vertical sectional view of a drum embodying our invention; Fig. 3 is an enlarged fragmentary sectional detail showing a portion of the fabricated material which constitutes the main body portion of our improved containers; Fig. 4 is a sectional detail similar to Fig. 3, but showing a different form of reinforcement; Fig. 5 is a fragmentary plan view of the construction shown in Fig. 4; Figs. 6, 7, and 8, show different methods of reinforcing employed in the construction of our improved receptacles or containers.

The several varieties of our improved containers are formed from a pulpy or fibrous mass capable of being subjected to indurating processes after being sheeted, so as to constitute a flexible paper-like material, fabric or tissue of any desired thickness. The articles being formed or fabricated by winding the said sheets or strips in a number of superposed layers upon suitable forms or mandrels, it is possible to partially or entirely embed within the walls of the structure the various forms of reinforcing means hereinafter described. The sheets or strips are especially adapted to thorough impregnation with waterproofing substances, and also, by reason of the thinness of the layers, are capable of being disposed about the reinforcing means, so as to leave no interstices, thus constituting the structure a substantially solid or homogeneous mass.

It is possible, of course, to advantageously mold certain portions of the structure from the pulpy mass without first sheeting it, but our present invention relates more particularly to structures formed from the fabricated sheets or strips with desired reinforcing means applied thereto during the formation of the container or receptacle.

When it is desired to produce a container of the usual barrel type with its characteristic bulge or curved longitudinal outline, as 9, we find it desirable to form the sides from several strips of paperlike material so that they will lie smooth as they are wound upon the mandrel, the edges of the strips overlapping so that no seams or joints will be formed, such arrangement being indicated at 9^a, 9^b, 9^c, Fig. 1. The sides of the barrel are embraced by hoops 10, which may be formed or applied in any convenient manner and be of any suitable size, arrangement or material. The walls of the structure may be reinforced by longitudinal ribs 11, also arranged as desired.

A straight or parallel sided cylindrical container illustrated in Fig. 2, may have its side walls made from a single continuous sheet of the paper-like material with the adhesive cementitious substance applied as the sheet is wound in concentric superposed layers. Hoops 12 may be arranged on the former or mandrel, and the sheets wound over them to form the walls 13, the hoops appearing on the interior of the finished structure and adapted to resist crushing strains to which the receptacle may be subjected in use. The structure is then provided with suitable ends, heads or covers 14 such as are shown in our co-pending application for patent.

In forming the walls of the structure, we may press wires 15 into the fibrous layers after they are built up to the desired thick-

ness and while in a soft or semi-plastic condition, or we may accomplish the same end, by building up the layers of fibrous materials around the wires 21, the resulting fabric being indicated in Fig. 7.

In Fig. 6, we have shown flat bands 16 embedded in the inner surface of the built up fabric walls and running horizontally or concentrically of the article made therefrom. We also show incorporated with the walls, flat bands 20 arranged vertically or longitudinally of the structure. In Fig. 3, we show a flat band as 17, incorporated with the walls, and entirely inclosed by the superposed layers.

In Figs. 4 and 5, we show a reticulated wire fabric 18 arranged between layers of the fibrous sheets 9.

Instead of reinforcing or stiffening the built up fibrous sheet with metal members, we may pile up the thin sheets at certain points in the structure, thus producing ribs 19, which are homogeneous with the walls of the structure and may extend longitudinally or transversely thereof and with or without metal bands 11^a.

In forming the structure shown in Fig. 8, we merely increase the number of plies or sheets of paper where the ribs 19 are to be formed.

The various forms of structure result from the methods employed in producing the fabricated material which constitutes the body of the article. We do not, however, wish to claim herein this method, but what we claim and desire to obtain by Letters Patent, is:—

A container, the walls whereof comprise a sheet of pulpy fibrous material wound upon itself, the layers thereof being united into a homogeneous unit, and reinforcing members incorporated longitudinally and transversely of the container, said members being completely embedded in the walls of the finished container.

In testimony whereof we affix our signatures in the presence of two witnesses.

ISAAC NAYLOR.
HENRY B. RUGGLES.

Witnesses:
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