E. M. SLAYTON.

MANUFACTURE OF PAPER-BARRELS.

No. 191,618. Patented June 5, 1877

Fig. 1.

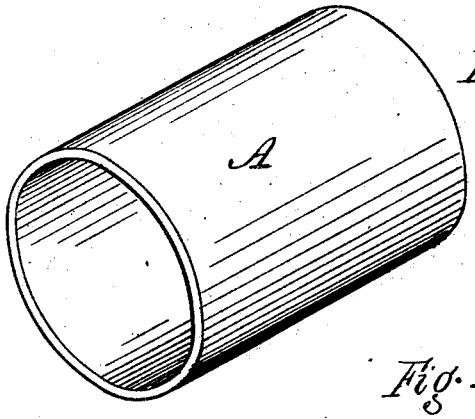


Fig. 2.

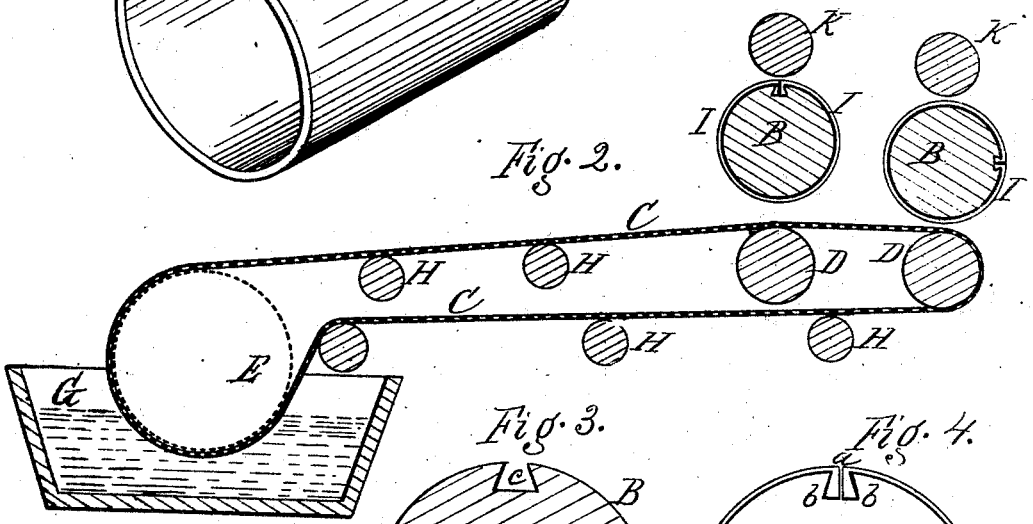


Fig. 3.

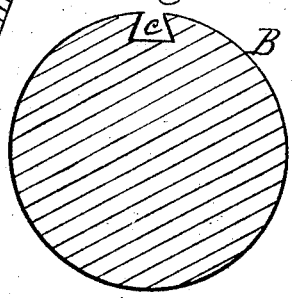


Fig. 4.

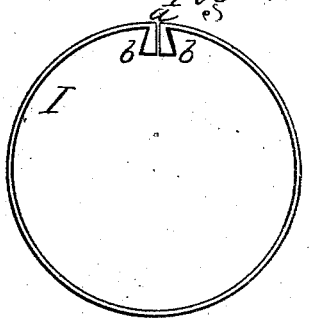
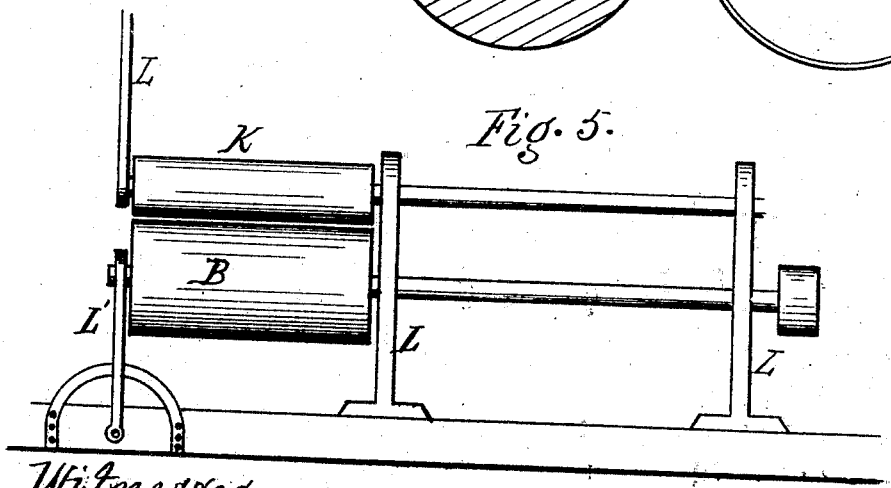


Fig. 5.



Witnesses.
C. B. Scott.
Louis Spahn.

Inventor.
Edwin M. Slayton,
per R. F. Osgood, Atty.

UNITED STATES PATENT OFFICE.

EDWIN M. SLAYTON, OF PORT BYRON, NEW YORK, ASSIGNOR TO SLAYTON PAPER BARREL COMPANY, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN THE MANUFACTURE OF PAPER BARRELS.

Specification forming part of Letters Patent No. **191,618**, dated June 5, 1877; application filed June 6, 1874.

To all whom it may concern:

Be it known that I, EDWIN M. SLAYTON, of Port Byron, county of Cayuga, State of New York, have invented certain new and useful Improvements in the Manufacture of Barrels, Casks, and similar cylindrical articles, of which the following is a full, clear, and exact description.

In the accompanying drawings, which form a part of this specification, Figure 1 is a perspective view, showing the body or cylinder from which the barrel is made. Fig. 2 is a sectional view, showing the apparatus by which the body or cylinder is formed. Fig. 3 is a cross-section of the forming-mandrel. Fig. 4 is an end view of the removable jacket which fits upon the mandrel. Fig. 5 is an elevation at right angles to Fig. 2.

This invention relates to the manufacture of barrels, casks, and similar cylindrical articles, from paper; and it consists in an apparatus which has two or more forming-mandrels, so arranged with respect to the web-carrying belt that they may be alternately brought into operative adjustment therewith; in providing such forming-mandrels with jackets or casings, which are supplied with means for preventing their circumferential displacement upon the mandrel, as well as in the details of their construction; and in a body for a barrel or similar package formed from a continuous web of pulp wound upon itself in superposed layers.

The ordinary method of constructing paper barrels is to wind previously-formed paper or board about a mandrel, and join the meeting edges by overlapping, dovetailing, or nailing the same together. The objection to such a mode is that it produces an article with a joint which extends directly through the wall of the package, and constitutes its weakest point, and one which will be liable to rupture in rolling or packing.

Paper barrels have been made by winding a web of made paper upon itself, the contiguous surfaces being joined by cementing; but barrel-bodies so made are liable to have their layers separated in the rough handling which they have to endure in their transportation, and thus cause the walls of the body to become flabby and weak.

In constructing my improved barrel I take the web of pulp up from the apron or belt upon which it is led out from the paper-machine, and direct it around a forming-mandrel until it has, by winding upon itself, built up the desired number of superposed layers to constitute a cylinder whose walls are thick enough to have the strength required. The web of pulp is in the condition of half-stuff—that is, paper-stock or paper-pulp which still holds a quantity of water in suspension, which is usually expelled by pressing and drying; and consequently when its surfaces are brought together, as in being wound upon itself, they readily adhere together, the mucilaginous matter contained in the stock aiding the fibrous matter to form a bond of union which produces a seam or joint not easily parted, and which, being of spiral form, may not be readily opened or ruptured by the strain incident to handling or packing.

In the drawings, G is the vat of pulp, from which the endless belt or apron C which passes around the exhaust cylinder E takes up an even layer of pulp, and conveys it in the form of a web to the forming-mandrel B.

This endless apron C is stretched from the cylinder E to rollers D, and is supported in proper position upon rollers H.

The end of the web of pulp is directed around the forming-mandrel B, upon which it is wound, layer upon layer, until the desired number are thus superposed, the weight of the mandrel being sufficient to press the layers together between its periphery and that of the roll D, upon which it rests.

When this is accomplished the web is parted and its new end is directed upon another mandrel—as, for instance, the rearmost one shown in the drawings—and a second cylinder is formed as was the first. This part of the operation, and the means aiding it, will be more particularly hereinafter described.

In order that the cylinder or barrel-body thus formed may be disconnected from the cylinder upon which it is formed, said cylinder is provided with a casing or jacket, I,

which is preferably of a sheet of metal bent into cylindrical shape, and having its meeting edges bent inwardly, so as to form projecting lips or flanges *b*, which fit into a longitudinal groove or dovetail slot, *c*, with which the mandrel is provided.

When thus held upon the mandrel the lips or flanges *b* will not only hold the edges of the jacket close together to form a continuous surface, but they will prevent the jacket from moving upon the mandrel when the same is rotated. The edges of the jacket might be connected by clasps or any other means for holding its edges together, and its circumferential movement upon the mandrel be prevented by simple pins passing from one into the other, or by arms extending from one edge and toeing into the end of the mandrel.

By providing the mandrel with such a support upon which to form the body or cylinder, said body or cylinder may, when wound to the requisite thickness, be removed, together with the casing or jacket, and allowed to remain thereon until properly dried, and may be readily disconnected therefrom by collapsing the jacket within it, as is apparent.

Two mandrels, B, are shown, each being mounted on a shaft in a suitable frame-work in such a manner as to be capable of being raised vertically by a cam or similar means. The front ends of the mandrel-shafts are borne in a bearing-frame, L', capable of being turned back, so as to release the journal and permit this vertical adjustment.

The pressure upon the layers of pulp as they are wound upon the mandrel may be supplied by top rollers K. These rollers K are arranged to rise and fall with the mandrel as it is adjusted up and down.

When one mandrel has been covered with a suitable number of layers to constitute a barrel-body the web of pulp is directed upon the other mandrel, and the first or filled one is raised vertically, and its casing supporting the barrel-body is slipped off from it, as before described. When resupplied with an empty jacket or casing it is ready to be again brought into contact with the apron C just before its companion is raised to have its jacket and formed barrel-body removed from it.

The mandrels are thus brought successively into contact with the apron C, and a continuous operation is thereby produced.

The cylinders or bodies thus produced may have strengthening-hoops built upon them, or be supplied with external hoops after they are formed in this machine. Heads, either of paper or other material, may be fitted in their ends to complete their structure.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a delivering apron or belt, of two or more revolving mandrels for forming-barrels, casks, or similar packages, from a continuous web of paper stock, said forming-mandrels operating in such respect to the apron or belt as to be brought alternately in action therewith, substantially as described.

2. A jacket or casing provided at its meeting edges with inwardly-projecting lugs *b*, in combination with a mandrel having a longitudinal slot, *c*, substantially as described.

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

EDWIN M. SLAYTON.

Witnesses:
R. F. OSGOOD,
E. B. SCOTT.