

The Story of the Barrel

INTERESTING POINTS ABOUT ITS USE. HOW IT IS MANUFACTURED ON THE PACIFIC COAST

The Western Cooperae Company will soon authorize an issue of 7 per cent preferred stock, paying dividends quarterly, par value \$100.00 per share.

This descriptive article is published for the information of the investing public and all who may directly or indirectly have any interest in barrels or their manufacture. Detailed information as to the stock issue may be obtained by application at the head offices of the company, Portland, Oregon.



THIRTY centuries ago the barrel was looked upon as the solidest, soundest, safest vessel for holding drink and food. Ancient writers tell that armies and navies relied on hooped casks to protect provender from briny water and pestilential suns. Long before the Christian era the cooper established his trade and fashioned waterproof tanks, tubs and kegs. Indeed, the barrel was the first hollow form built by man that held its shape, whether empty or filled, withstanding pressure both from inside and outside. It was the pattern for the arch and the truss, antedating those architectural triumphs by ages.

Today the tight barrel is relied upon as the one perfect package. Airproof, waterproof, crush-proof, wear-proof—it is the one safe container for shipping glassware, crockery, bottled liquors, spirits, chemicals, foodstuffs. Piled deep in car or ship, barrels survive without strain the lurching and banging of ocean and railroad transportation. It is the lightest container known, in proportion to strength, and each barrel is used over and over again. Driving the hoops down tight after usage makes it as solid as new.

Like Slicing a Melon.

Precision in shaping the stave is the secret of air-tightness in a barrel. No cement or glue is used. Where the staves join each other they must be perfectly flat to each

FIG. 2—STAVES READY FOR COOPER

(1) Testing shape of staves. (2) Bundling staves so each bundle holds a certain number of staves, averaging a certain width and gauging a certain total width, as needed. Poor staves culled; those bundled being vertical and straight-grained. (3) Packer marks length, thickness and bilge, using his own color, so defect will trace back to him. (4) Staves drying in kiln; on end, to prevent warping and checking.



other, so the tightening of the hoops will make them absolutely airproof and waterproof. This means they must be so shaped that the flat edge of each stave is on an exact line with the center of the barrel. Each stave, with its curve and shape, must be made just as if it were sawed



FIG. 3—SAWING BARREL HEADS

(1) Heading bolter; splitting blocks; squaring up; removing bark, heart and defects. (2) Automatic heading machine, saw revolves horizontally, cutting boards (to desired thickness), which drop downstairs.

out of a barrel by sawing right up and down through the middle of the barrel, like cutting a watermelon endwise.



(1) Sawing mighty logs into bolts of stave length; splitting bolts into blocks to keep straight grain.



Skillful, indeed, were the coopers who used to make staves by hand. Just think how long it would take you to make a barrel if you had to hew staves exactly the right shape and smooth them so they would join perfectly at the right angle.

Machines Make Them Right.

Now, all this is done by machinery. This insures perfect accuracy. Of the thousands of staves daily manufactured at the plants of the Western Cooperae Company, every one will join perfectly with its fellows, without any fitting or adjusting. Driving the hoops tight around them will make them airtight.

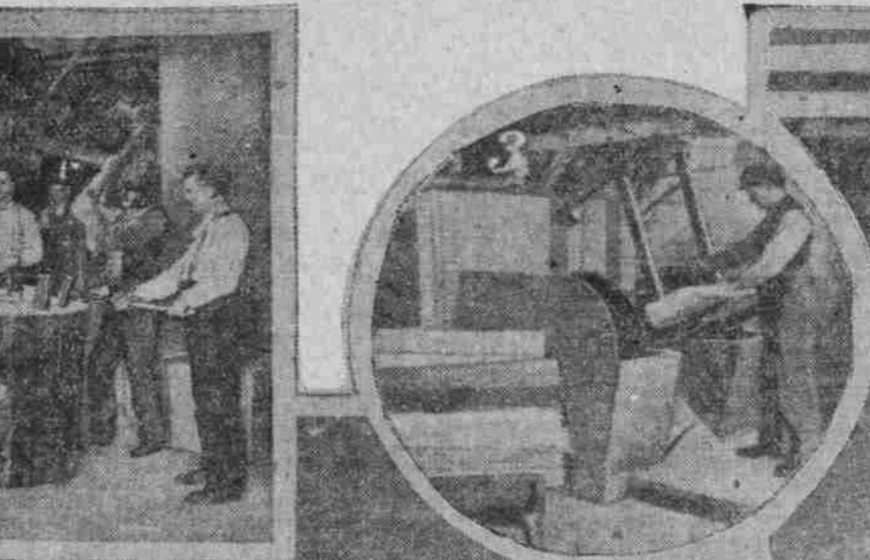
Old as is the industry, the manufacture of barrels from the log to the finished package entirely by machinery is of comparatively recent date. This entire process, as illustrated and explained in photographs, involves the use of special machinery for each of over 40 different steps. As a rule, staves and headings are manufactured by one company, and the barrels, kegs and tanks made by another. On this Coast there is one company which unites all of these processes under one ownership—from cutting the tree to delivering the barrel—the Western Cooperae Company.

Bend But Not Break.

Staves and headings are manufactured at plants in Aberdeen, Wash., and Houlton, Oregon. Thousands of acres of the best timber lands in the Pacific Northwest are owned by the company, an inexhaustible supply of timber, where it cuts its own raw material. In buying these lands, discrimination and foresight were used, to secure those varieties best suited for the different kinds of staves. Straight-grained, clear logs can alone be used for staves, as the wood must be free from all knots and defects, tough and strong enough to bend without breaking. Fir and spruce are the principal timbers used, hemlock, cedar and cottonwood being consumed in limited quantities for certain grades.

Saws Are Like Bandboxes.

Special equipment—radically different from sawmill equipment—is used in manufacturing staves. In fact, the entire principle is different from sawing lumber. Every step is a specialty. Like oak for the handsomest quarter-sawn furniture, the log (cut stave length) must be split into eighths, and those eighths cut into narrow flitches, as thick as a stave is wide, so the staves can be sawed off one by one right straight with the grain—again just like quar-



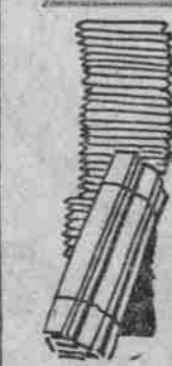
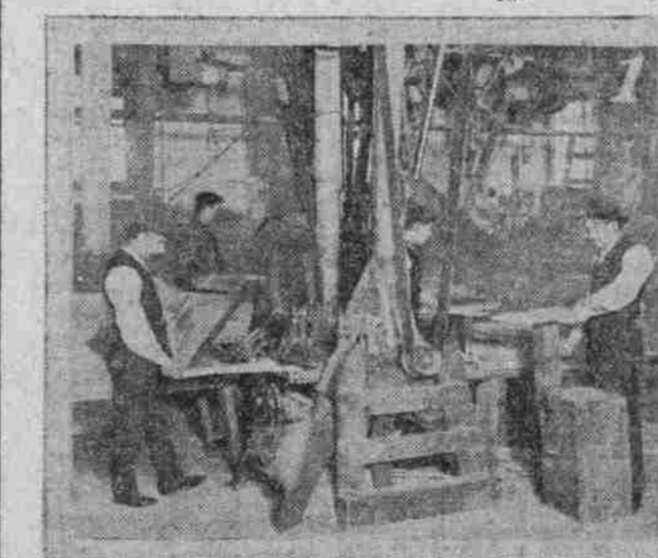
ter-sawn oak. And this sawing off of the staves requires special machinery, in the form of saws shaped like tall bandboxes—a different sized bandbox for each size of barrel. The flitches are fed against these bandbox saws, or cylinder saws, to term them correctly, and as they are fed the saw trims off a stave in curved form. Quite different from sawing lumber. Then, planing the inside and outside of these curved pieces is quite different from ordinary lumber surfacing.

Bungling Bundling Won't Do.

Where greatest precision is required is in shaping the edges of these curved pieces so they will join perfectly when bent to barrel shape. This shaping of the edges to join is what makes the stave. There is a different adjustment for each size and shape of barrel. Bundling, so each package of staves comes out exactly even in number of staves of a certain average size, is in itself a specialty, quite different from bundling shingles. Drying in the kiln is done differently, so as to prevent any possible warping or checking.

Heads Are Turned Here.

Similar care is required in manufacturing barrel heads. Like staves, the heads must be vertical



(1) Planing. (2) Heading jointer, cutting straight, square joint on each piece. Revolving wheel has six knives.



(3) Large sizes doweled or pinned together with pieces of California flag (bulrushes). These rushes recognized for generations as best for purpose. (4) Smaller sizes glued together. (5) Turning headings; machine chamfers bevels around rim; makes perfectly round; is fed automatically. Note unturned headings in background; also unjoined headings for cheap barrels; also bundled headings.

(2) Sawing blocks into flitches, same as quarter-sawing; thickness of flitch conforming to desired width of stave. Elevator carries flitches to upper floor.

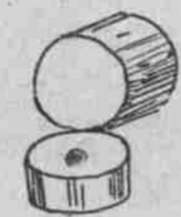


FIG. 1—FROM LOG TO STAVE

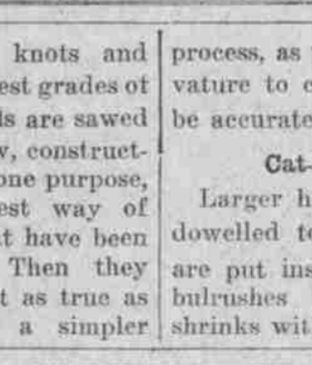
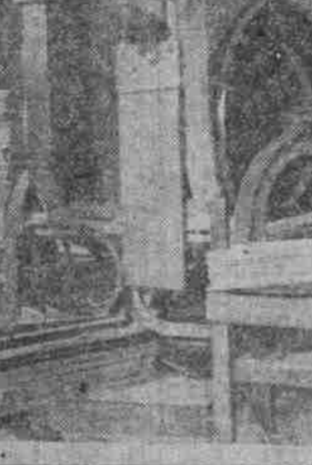
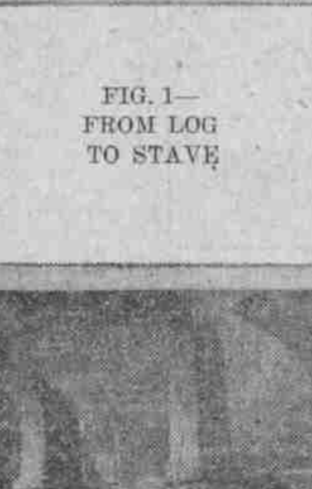


FIG. 4—FINISHING THE HEADINGS



(5) Turning headings; machine chamfers bevels around rim; makes perfectly round; is fed automatically. Note unturned headings in background; also unjoined headings for cheap barrels; also bundled headings.

(3) Trimming flitches to exact stave length. (4) Cylinder-sawing staves from flitches, on drum saws. Drums of different diameter for various sizes. (5) Planing staves, when so ordered. (6) Stavejointer shaping edges of staves to join perfectly. Machines are large, concave, revolving discs; 6 quick-cutting knives to each disc. Right adjustment makes staves even at both ends and gives correct bilge for barrel shape.

grained, clear from knots and made from the very best grades of live timber. The heads are sawed off by a horizontal saw, constructed especially for this one purpose, as the quickest, easiest way of handling the bolts that have been split and trimmed. Then they have to be joined just as true as the staves. This is a simpler

Cat-Tails in Joints.

Larger headings are pinned or doweled together and bulrushes are put inside the seams. These bulrushes swell as the wood shrinks with usage and under cli-

matic influences, and keep the joints perfectly tight. Machines have been perfected for turning the headings, with their bevels all around the rim, all at one process. There is nothing in the manufacture of these materials for the barrel that is not in itself a specialty—requiring specialists and special machinery.

At Los Angeles and Seattle, the Western Cooperae Company has plants for manufacturing barrels from the staves and headings made by itself.

Softened by Steam.

Heavy rings are used temporarily instead of hoops to hold the barrel in shape until it is ready to be hooped. When one-half of the barrel is in these rings, the entire barrel is steamed to soften the staves. Then, by a power windlass, the other half of the barrel is pulled together and held by two more temporary rings. The barrel then is dried over an oil heater to remove every vestige of moisture and fix the staves in their permanent shape. This steaming and drying sterilizes the barrel perfectly, making it pure for food or wine. A special machine presses the temporary rings down tight, closing the staves together firmly so their flat joints become perfectly airtight.

On another machine the rim of the barrel is shaped and grooved so as to hold the barrel-head. One of the most important machines draws the staves up to a tight fit around the barrel-head, and then presses the head hoop onto the end of the barrel.

Another machine, driven on the remaining hoops, driving them so tight that the light barrel is as solid and sound as the heavy log from which its staves were made. Special machines are used in finishing, sandpapering, boring bungholes, testing, etc. Then the barrels are kept in the warehouses ready for prompt shipment.

Keeps Food Clean and Pure.

Truly an interesting article is the modern finished barrel—so clean and tight, substantial and