

to the deviation from the circular form.

In a cylinder, made with flat ends, the strength imparted by these renders it less liable to stretch at the extremities than at mid-length. Such a cylinder has thus a tendency, under internal pressure, to assume the form of a barrel.

Assuming the material to be sufficiently pliable, like india-rubber, and able to bear sufficient stretching, the sides would be further curved, and the spherical form be eventually attained by sufficiently increasing the pressure.

In very short cylinders, the ends play an important part in increasing the resistance to bursting longitudinally; and where the length does not exceed the diameter, the strength approaches that of a sphere. In practice, however local weakness arising from various causes—such as corrosion of plates and rivet heads, flaws, &c.—may lead to failure, against which the aid from the ends cannot be counted upon.

Again, in oval shaped boilers, the end plates assist materially in maintaining the shape against the tendency to become circular under internal pressure. Since the aid lent by the ends diminishes as the distance from these increases, an oval boiler is most liable to change of form at mid length.

In consequence of their tendency to alteration of shape under pressure, it is almost impossible to give any rules for the strength of elliptical boilers, as their resistance varies with every change of shape, according to very complicated laws.—*Boston Lumber Trade.*

CONSOLIDATION OF THE TRUCKEE (CALIFORNIA) LUMBER COMPANIES.

The *Truckee Republican* of July 18th says: "The Sierra Nevada Lumber Association has recently filed articles of incorporation in the office of the Secretary of State, at Sacramento. All of the owners of lumber mills on the Truckee river and its branches (except one) are represented in this association. We understand it is not the design of this combination of the lumber interests of this section to raise the price of lumber. One of the principal objects is to have a uniform price. Heretofore each mill has had to send out its separate agent to Salt Lake and other remote places, at heavy expense, to make lumber contracts. In this one item each mill would spend perhaps \$1,000 or \$1,500 per annum for traveling expenses, amounting in the aggregate to from \$10,000 to \$15,000. A considerable portion of this extra expense can be saved by the consolidation which has been effected, without increasing the price of lumber. It will benefit contractors and lumber dealers from abroad. They will not be compelled to travel around to each and every mill to see where the dry lumber is that they want. Now they will only have to apply to the officers of the association to obtain at once the information they desire. A detailed statement will be kept by the association of the amount and kind of lumber on hand at each mill and the length of time it has been sawed. There is no doubt but that if the association perfects its organization and carries out its plans as they have been foreshadowed, the results that follow will be beneficial not only to the mill owners, but to this entire community.

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