

## WIRE ROPE HISTORY

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the machine at high costs. In the course of time more and more manufacturers did not remove the preforming head from the machine.

Going back in time to gather up some loose ends – no pun intended – John Lang was the production manager of R.S.Newall & Co. in England. He studied the wear characteristics of wire ropes and found out that the free length of a single wire would increase on the surface, if the wires in the strands were twisted in the same direction as the strands in the rope. From this finding he also concluded that the pressures in the sheaves would be distributed along a greater length, which would reduce the amount of the pressure and consequently reduce the wear.

That was John Lang's error. It is true that the wire showed a greater free length on the rope's surface. But Lang failed to realize that for this reason the wire appeared less frequently on the surface. He may be pardoned though. Even today his error can be found in the publications of many a firm. His ideas led however to the development of the Lang lay rope for which he was granted a patent in 1829.

His employer R.S.Newall & Co. was not impressed by the advantages of the Lang lay rope and therefore John Lang joined Craddock Company and granted them the exclusive right to manufacture ropes of his patented design. In the English-speaking world these ropes are still called Lang lay.

In the long term ropes made of high-tensile fiber may eventually displace wire ropes in many fields of application. They are lighter, not susceptible to corrosion and – at least a number of them – surprisingly fatigue-resistant. In other fields, however, steel wire ropes no doubt will maintain their place for the predictable future: after all, wire ropes have a higher modulus of elasticity and are less sensitive to scraping and mechanical impairment than their light-weight rivals.

What is more, in contrast to numerous ropes of high-tensile materials, steel wire ropes are tolerant of ultraviolet radiation as well as reliably showing their condition prior to the point of needing to be discarded. Their most crucial asset, however, is the fact that the makers and users of wire ropes can lean on the in-the-field and real time education of nearly 170 years of wire rope history – and there will certainly be more to learn in the coming decades. **WRN**

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