

Plate iron has to stand bending when cold, through certain angles, according to its thickness and whether it is bent with or across the grain.

Plate of any thickness must stand bending, when hot, 120° with grain, and 90° across it.

Both bar and plate iron must stand a strain with the fibre of 22 tons (English) per square inch, and of 18 tons (English) against the fibre.

Malleable cast iron is a term applied to castings of certain iron, which, by an after process of annealing, become a sort of steel. It is very tough, and refuses to weld.

Steel is received as "blister," "shear," or cast steel, and tested practically as to its qualities.

There are three principal alloys made use of, all technically known as metal.

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| Copper, | 86.8 | { | For pipe boxes and sheaves of blocks.
This is the hardest, as it contains most tin. |
| (1) Tin, | 12.4 | | |
| Zinc, | .8 | | |
| Copper, | 86.5 | { | For rollers. |
| (2) Tin, | 10.83 | | |
| Zinc, | 2.68 | | |
| Copper, | 84.2 | { | For bearings and nuts of elevating screws, &c. |
| (3) Tin, | 7.9 | | |
| Zinc, | 5.24 | | |
| Lead, | 2.62 | | |

The usual method of preparing the alloy is to melt all the tin, zinc and lead, with a small proportion of copper, and cast this into ingots. These ingots are broken up and melted, and the rest of the copper added.

LEATHER, ROPE, &c.

The leather used is tanned with oak bark, and not by chemicals. To prove this, cut a small piece and moisten the edge; a black mark down centre of edge denotes chemical tanning; a brown colour shews oak tanning.

Well tanned leather must not crack when doubled up.

Leather must be periodically dubbed, being first well cleaned. If in use, every three months. If in store, once in two years.

Malleable
cast iron.

Steel.

Metal.

Leather.

Preservation.