

BALANCE WHEEL ON SHAFTING.

What good will a balance wheel do on a long line of shafting? How can it give more power or make the machines run any better? It is all right on an engine to carry the crank over the centres, but on a long shaft with the motor at one end and the wheel at the other, where does the gain come in? This question of shafting, like that of belting and gearing, has its best working conditions. Belting is liable to slip when a heavy load is thrown upon it; gearing cannot slip; it must make the regular number of turns, give a tooth for every one it takes, but can vary in the rate of speed in the different parts of every turn; and so with shafting. One end of the long shaft must make as many turns as the other during the day, but they are not connected in a rigid manner. The power applied at one end to turn the shaft, and the load at the other, tends to hold it still, twists the shaft through a portion of a turn till the load is conveyed to the driver wheel, as shown in the amount of power or in the load to be overcome. Affect the amount of torsion in the shaft, and the result will be a variation in the rate of the speed of each end of the shaft as compared with each other. A machine that is subject to unequal strains must offer an unequal load on the shaft and cause an irregularity in speed. All that a fly wheel can do is to even up the load and bring a less variation in speed. Without the fly-wheel the shaft might be checked for an instant when a heavy load was thrown upon it, while the shaft at the driving end was still in motion, and gain a part of a turn in the same time when the load was thrown off. In weaving the loom should be driven with a constant speed, and a machine that will check the speed for an instant would be noticed by the weaver, if it should happen when the shuttle was about to be thrown from one box to the other, and the fly-wheel with its equalizing influence must keep the loom at work.—*Boston Journal of Commerce.*

WHAT BECOMES OF OUR TIMBER.

There are very few people in this country, says the *Lumberman's Gazette*, who have not some conception of what becomes of the pine forests of the country which are being denuded so rapidly. The piles of lumber reared in almost every city, village and hamlet in the country, which are removed and replaced so often for building purposes, tell the tale of the denudation of the pine forests. But very few have any conception of the uses to which the hardwood timber is put, and rarely give it a passing thought. The *Bongor, Maine, Journal* throws considerable light on the latter question as follows:—There are 2,000 clothes pin factories in this country. Were it not for our forests of white birch, beech and other kinds of hardwoods, the world's wash day would be dark indeed, as nearly every clothes pin used in the world is made in the United States. There are some 200 factories in Ohio and Pennsylvania. Maine has several. One of these is at Strong, a thriving town under the shadow of Mount Blund. This mill is owned and operated by a firm who also turn out large quantities of croquet sets, base ball sets, ten-pins, staves, excelsior, and wooden articles of various descriptions too numerous to mention. The clothes pin is made of white birch, which is the best of all hardwoods in the lathe, but must be worked green or it roughs up. Two machines make the clothes-pin; one turns it and another saws the slot. Then ten bushels of pins are dumped together in a large drum, which is made to revolve rapidly; in this way the pins are rubbed against each other and polish themselves. There is a machine which turns out a complete clothes-pin, doing both the sawing and slotting; but this pin is straight and its prongs have no spring to them, while the prongs of the pin made by the two machines are concaved, and the pin is not so easily split. Croquet sets are turned out here with astonishing rapidity, by means of a variety of lathes. They are made of all kinds of hardwood. A maple bolt is chopped into round balls at the rate of 2,000 an hour by knives that shape the opposite hemispheres of two balls at once. One clip makes a ball, that is, half of one and half of another. By means of patterns and travelling knives, mallet heads and handles are made to a variety

of shapes. The fashionable mallet the past season had a head twice as long as the old fashioned mallet and a handle about half as long. The mallet heads are subjected to the same shaking up and self-polishing in the drum that smooths the clothes pins. The sets are decorated by machinery, the stakes, mallets, and balls being placed in a painter's lathe, and one revolution makes a stripe. As to base ball bats, the dealers fairly begged for them. The supply failed for some reason or other, and they could get their orders filled nowhere. Ash and willow make the favorite bats. Willow timber is not easily had, however, as the manufacturers of artificial legs manage to secure all the supply. There is nothing equal to willow for a wooden leg!

MAPLE AND ELM.

Now that the tree planting season is upon us—according to the almanac, that is to say—the Canadian desires to make a suggestion to intending planters. Plant elm. The maple is a magnificent tree, and no patriotic Canadian would deare to overlook its many virtues; but, as a shade tree for a town, the elm so far outranks it that there really is no comparison between the two. The bark of the maple is especially attractive to animals, which gnaw it whenever opportunity offers, to the lasting injury of the tree; its habit of growth is to a close and bushy top; and its foliage is so dense that a street, thickly planted with maples, becomes a sort of tunnel, dark in summer twilight, and damp and mildewy in the gloomy days of autumn. The elm, on the contrary, has all the qualities of a perfect shade tree. It is of hardy habit, and as its rough and bitter bark offers no inducements to gnawing horses, it runs little risk of injury in its early years. Unlike the close and compact maple, the elm grows to a great height, throws out widespreading branches which in well grown trees will interlace with each other across an ordinary street; and its open habit of growth and the curious peculiarity that its leaves turn edgewise to the light, make of its foliage just the screen required to break the force of the summer sunshine, without shutting it out to the creation of an unhealthy dampness below. The difference between the two species is indicated by the contrasting facts that when a maple-shaded street in a Canadian town becomes a thoroughfare, it is taken for granted that the maple must go; whereas some of the business streets in Boston and other New England cities are lined with noble rows of century old elms, whose wide spreading arms tower above factory roofs and five story business blocks, and interlace midway of the thoroughfares in magnificent arcades, the pride of the citizens, and the envy of all comers. The maple is a splendid tree, and we are all patriotic Canadians. But when it comes to a question of shade trees, plant elms.—*Sarnia Canadian.*

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