

## VIEWS AND INTERVIEWS.

Orderly  
Disorder

There are certain peculiarities which not only affect mill operatives, but mechanics in other trades. One of the first things that is impressed upon the young man who learns a trade, says the Woodworker, is the necessity of good habits, such as punctuality, order in the way in which he does his work, neatness in finish, etc. Comparatively few persons, however, save those specially endowed by nature, succeed in exemplifying, in the best manner, the idea of order until they have gone through a long course of discipline. Very fortunately their affairs for a considerable period are in such a condition as to merit the term "systematic disorder." Take it in the matter of the keeping of their tools. Instead of having an apartment of some kind with a place for everything and everything in its place, their tools will be in various places and so scattered about that gathering them together for any purpose whatsoever is a matter of no small labor. "Orderly disorder" is the term perhaps that describes the condition in which they keep things. Now disorder of this kind is worse than the usual form, for ordinary disorder is so baneful that sooner or later an effort is made at reformation; but orderly disorder on the other hand frequently deceives the victim into believing that he is orderly, so it remains unchecked and works the greatest harm.

European  
Cork Forests.

According to a recent report of a visit to the cork forests of Spain and Portugal made by M. Hiekel, of the forestry department of France, the area of the Spanish cork forests is estimated by the Forest Department of that country at about 620,000 acres, distributed as follows: Gerona, 198,000; Huelva, 134,000; Caceres, 80,000; Seville, 74,000; Cadiz, 55,000; Ciudad Real 28,000; and Cordova 23,500 acres, the remainder being in ten provinces, of which the principal are Badajoz, Jaen, Malaga and Toledo. The cork-tree is only found in any considerable quantities in the northern provinces of Burgos, Santander, Zamora, Salamanca, Avila and Saragossa. As regards the volume of production, it appears difficult of estimation, more especially in the absence of any data relating to the home consumption. Some idea may be formed when it is considered that the quantity of prepared cork exported to France in 1891 amounted to \$5,811 hundredweights, representing about 172,000 hundredweights of raw cork. Cork in the rough is represented by a quantity of about 20,000 hundredweights, thus making a total of about 200,000 hundredweights. To this amount must be added the total quantity devoted to home consumption and the amount exported which does not pass through France. According to the Spanish trade accounts, the total value of the cork exported from Spain to all countries in 1891 was \$5,370,000. Some Spanish authorities have estimated the total quantity produced at 275,000 hundredweights. As a cork-producing province Gerona holds the first rank in Spain, and Barcelona the last. The cork forests of Catalonia are concentrated in these two provinces. As regards the yield of the Portuguese cork forests, the trade returns of that country show for the year 1890 a total export of 453,650 hundredweights of cork in the rough and 42,427 hundredweights of cork manufactured.

What is  
Electricity?

The rapid advances that have been made during the past ten years, both in the practical application of electricity to the service of mankind in the knowledge of the principles of the science, have brought us in the opinion of S. F. Walker (in the London Electrical Engineer) to the point at which we are obliged to ask ourselves, What is electricity? If the advance is still to continue? Up till very recently, notwithstanding the wonderful guesses that have been made by those not actually engaged either in the study or the practice of electricity, and the closer and closer approximations that have been made by those mathematicians who have given attention to the subject, it may fairly be said that we knew absolutely nothing as to what the mighty force we dealt with was. And, in addition to this, it has not been necessary that we should know what electricity

was, so long as we were thoroughly cognizant of what it could be made to do. As far as the writer is able to understand the matter now, electricity is simply motion of the molecules of the different systems which are the subjects of electrical action, just as heat, light and sound are, and the only difference between these forces is the rate of the motion. The motion of sound, as we all know, is comparatively slow; that of heat and light very rapid. That of electricity would appear to be somewhat between the slow motion of sound and the rapid motion of the heat waves, whose motion is slowest. And it would appear that the wonderful adaptability which electricity shows for every kind of work is due entirely to the position which its rate of motion occupies in the scale of the energies. It would also appear that the reason this wonderful agent lay dormant for so many ages, and is even now only partially developed, is very largely, at any rate, because we have no sense which responds to the particular periods of vibration comprised within the electrical range. The writer will conclude this brief notice by remarking that heat currents would be far more efficient than electric currents if we could make use of them as we do the latter, and that, as he before remarked, the reason electricity is such a useful agent appears to be because its rate of vibration is sufficiently high to admit of rapid transmission, yet not sufficiently so to be destructive. It only becomes destructive when it is transformed into heat.

## HEATING BY EXHAUST STEAM.

THE idea is very prevalent that it is expensive to heat a mill or factory by exhaust steam, says a paper devoted to steam matters. By this we mean that many mill owners, superintendents and shop hands believe this to be true, and this belief is founded on the fact that it is often expensive in practice; but we maintain that where this is the case it is due to an improper application of the system and not because the system itself is defective. A few days ago we indicated an engine where the whole of the exhaust steam is used for heating the feed-water. Under these conditions there is but one pound back pressure above the atmosphere; and even with a heavier load this was increased but little.

At not a very great distance from where this engine is located there is another, where the exhaust from it is used for the same purpose, but in this case the back pressure amounts to nearly fifteen pounds above the atmosphere, simply because the arrangement of the pipe is defective. The idea is that the exhaust steam must have free access to the atmosphere, and where the pipes which convey it do not incline downwards from the engine, suitable drips must be provided. If this is done, it matters not whether the exhaust pipe is ten feet or 5,000 feet, so far as creating a back pressure is concerned. When some men put up pipes for steam heating, it seems to be one of their objects to save in the first cost of pipe as much as possible, without much regard to what the results will be when they come to put them to practical use. This is worse in the case of heating by exhaust steam, for a small exhaust pipe means unnecessary back pressure, and this in turn means an increased forward pressure on the piston, which means more steam used, and more steam means more fuel, which costs money. Thus we can reason from cause to effect in a way that any one can understand if they will give it a little consideration.

Suppose the steam is to be carried from the engine room to the mill where it is to be used, the distance between the two buildings being 50 feet. Now, if we are to use live steam, the pipe in this open space should not be any larger than is actually needed to convey the necessary amount of steam, in order that the passage may be made as quickly as possible, to avoid excessive condensation; but if exhaust steam is to be used, then the pipe should be as large as the size of the cylinder calls for, or else the increased back pressure will far overbalance the benefits derived from a rapid passage of the steam. In either case they should be well protected from the cold air.

Valves and elbows are an obstruction, as a matter of course, but not to such an extent as some engineers would have us believe, provided they are large enough for the duty required and the valves have a full open-

ing; or, in other words, if the passage through the valves is equal to the capacity of the pipe. If the exhaust steam will not go through the pipes in the system with a light pressure, study out the cause of the trouble and apply a remedy in an intelligent manner.

## WOOD TOOL BELTS.

ONE of the largest items in the bill of running expenses, aside from knives and cutters, is belting, says a writer in the Age of Steel. It is only necessary to look over the pile of old and so called worn out belts to be found in almost every wood working establishment, to satisfy one that not one in ten of the belts that are thrown aside as worthless are half worn out, but are simply rotten and spoiled by bad use and neglect. There are so many causes that contribute to destroy a belt before it is half worn out that it is impossible to enumerate them all. One of the most fruitful causes is improper tension. A belt is just as liable to be injured by running it at too great tension as by running it too slack, but some operators are never satisfied unless it is strained to its utmost strength, while others will never take up a belt so long as it can be coaxed to remain on the pulleys. In some cases of over-tension, however, it may not be wholly the fault of the operator. The driving pulleys may be too small, or too narrow face, to transmit the necessary power without submitting the belt to a ruinous tension. In such cases the only effectual remedy is to substitute either a pulley of greater diameter upon both the machine and line shaft of the same face, thereby increasing the speed of the belt or substitute a pulley of the same diameter, but wider face, thereby increasing the power.

In many cases, where there is ample belt power at a proper tension, belts are neglected and allowed to run too loose, and slip and burn. The operator should fully understand that the slipping of a belt generates heat, and heat has a tendency to rot the leather, just in proportion to the temperature. Another practice to be condemned is, whenever a belt becomes loose and begins to slip, instead of taking it up at once, to begin to dose it with rosin, machine oil, soap or anything else that may come to hand. Such materials may cause the belt to adhere to the pulley for the time being, but soon cease to act, and the belt is left in a worse condition than before. A belt of proper size and proportion to transmit the power required at a tension not exceeding 100 pounds to the inch in width, should last and do good service until it is worn down to one half the original thickness.

## DANGEROUS PRACTICE.

IT is always dangerous, says Locomotive, to calk leaky joints, or screw up nuts, about boilers that are under pressure, and many accidents result from doing so. The other day we learned of an accident of this kind. The engineer undertook to tighten up a leaky cap on a sectional boiler while the boiler was under steam pressure. A slight twist did not seem to do any good, so he gave the cap a good, vigorous wrench. Immediately steam and boiling water began to pour out, increasing in quantity every instant. He could not get away quickly enough and was severely scalded all over the upper part of his body. His assistant was down in a pit in front of the boiler and was immediately overcome by the scalding cloud. The assistant was dead when the cloud had subsided enough to allow of his removal.

## DON'T PUT IT OFF.

DON'T let anything connected with the boiler in your charge run from bad to worse, with the idea that at some certain time you will have a general overhauling and repairing, because an accident may occur at any moment, involving serious loss of life and property.

## NOISY OIL FUEL.

IF oil is to be the future fuel for steam making, some inventor who will devise an easy way to get around the noisy part of the burning, will be a benefactor if he doesn't make a cent, says an exchange.