

## HOW HANDLES ARE MADE.

Very little has ever been written or published relating to this industry. Nevertheless it has taken wonderful strides and grown to mammoth proportions during the past decade. More than \$5,000,000 worth of handles and other commodities manufactured in direct connection with this industry, are turned out every year. When we come to consider that every house, store, manufactory, and barn in this broad land has from five to twenty handles in every day use, we will not be surprised, or think the above figures overdrawn. It is our intention, however, to confine ourselves more especially to the manufacture of implement handles in this article.

In the first place, it is essential that the manufactory should be situated in a locality where can be found an abundance of white ash, hickory, or maple timber. The logs are cut in bolts of from four to twenty feet long, according to the length of the handle to be made; then drawn to the factory and sawed into plank. Here, great care must be exercised to saw the timber with particular reference to the grain. Only sawyers of years of experience and adepts in their particular line should be employed. The durability and value of the handle depend largely upon the first sawing.

The planks are sawed, cut off, made of a uniform length, and taken to the latheto be turned. But a few years ago, a hundred finished handles was considered an unusually good day's work for a single man—to-day, one man with a gauge lathe, is capable of turning out from seven to 1,200 per diem, according to the length and shape of the handles. The handles are next taken to the chucking machine, where the top end is rounded and chucked; the bottom is at the same time seized or chucked to fit the ferule. This is rapidly done, one man being able to chuck half a carload per day. It should be remembered that the handles are all turned while the timber is yet green. After the chucking process, they are transferred to the dry kiln to be seasoned. If the handles are to be bent, they are steamed and placed in forms to cool, after which they are taken to the finishing room and polished on sand belts.—*Industrial World.*

**HARD SOAP BY A COLD PROCESS.**—Mr. R. F. Fairthorn, Ph. D., has contributed the following recipe to the *Druggists Circular*: A good hard soap can be easily produced if four lbs. of olive or sweet almond oil mixed with two lbs. of soda lye, of the strength of 36° Baume, are stirred until of the consistence of thick paste, when it should be poured into molds, covered by several folds of muslin and kept in a warm room for 20 hours. By this treatment the process of saponification, or union of the acids in the oils with the alkali, is complete. When these materials are first mixed the temperature of the mass rises, and in order to effect the entire union of ingredients so as to form the compound called soap, it is necessary that the heat thus generated should be maintained for some time, hence the necessity for covering the molds and keeping them in a warm room. He has found that it is desirable to use oil that is slightly rancid, or, if free from rancidity, to add about 10% of oil that has become so. Oil that is perfectly sweet requires two or three days to effect saponification.

**PHOTOGRAPHING THE CHROMOSPHERE.**—Janssen has been induced, by his late novel experiments, to undertake photographs of the chromosphere. He allows the solar luminous action to continue so long that the solar image becomes positive to the very circumference, without going beyond it. The chromosphere is then shown in the form of a dark ring, with the thickness of 8" or 10". He has compared positive and negative solar photographs, which were obtained on the same day and with the same instrument; the measurement of the diameters shows that the dark ring in question is wholly outside of the solar disk.—*Cosmos Review.*

**A NEW PROPERTY IN SELENIUM.**—M. Blondlot has communicated the results of some investigation on a new property of selenium, which is of timely interest in view of the famous researches of Bell and Tainter. M. Blondlot finds that when a piece of annealed selenium is connected to one pole of a Lippmann capillary electrometer, by means of a platinum wire, and a plate of platinum is similarly connected to the other pole, a comparatively powerful electric current is developed by rubbing the selenium against the platinum plate, as is shown by the deflection on the electrometer scale. Mere contact between the selenium and the metal produces no deviation from the zero; but the act of rubbing readily gives an electromotive force equal to that of a sulphate of copper cell. As if to take the effect still further out of the category of those already recognized, M. Blondlot has verified the facts that neither the rubbing of two metals against each other, nor an isolating substance against a metal, nor two isolating substances, can produce a change in the capillary electrometer. The current flows through the electrometer from the unrubbed to the rubbed surface of the selenium. Now a thermo-electric current set up by heating a selenium-platinum junction would, as M. Blondlot points out, flow through the electrometer from the hot selenium surface to the cold one, or in precisely the opposite direction; hence, the novel effect cannot be due to heat developed by the friction.

**LEARN TO SLEEP.**—The true art of sleeping is the power to shut one's self within one's self under any circumstances. The man who can thus take rest is refreshed and strengthened under many circumstances which would keep other people weary and wakeful. He is master of every situation as regards his own rest. Some men, by long habit, find themselves able to take sleep with the same ease that others would take a glass of water. They can sleep either while perched on a high stool or rattling along in a railroad car at 40 miles an hour. The economy of wear and tear on the lives of such people is wonderful. The man who cannot sleep unless he has first removed his clothes, put out the light and climbed into his bed is at a great disadvantage. Greater yet is his disadvantage if he can sleep in no bed but his own. There are some who are possessed with the notion that their own bed is the only one in which they can slumber. These people are utterly wretched when traveling, or obliged to absent themselves from home on business. But he who has accustomed himself to sleep, can enjoy that boon at any time or place, and is made better and happier thereby.

**NEW PATENTS.**—Dewey & Co.'s SCIENTIFIC PRESS Patent Agency has received official notice of the issue of the following patents to Pacific coast inventors, for the week ending January 18, 1881:

236,708, wick ratchet, E. H. Judkins, S. F.; 236,730, ore separator, E. W. Stephens, S. F.; 236,857, horse collar pad, J. T. Stoll, Sacramento, Cal.; 236,862, corset fastening, Isidor Ulman, Santa Cruz, Cal.; 236,864, wagon standard, J. S. Van Eps, Mammoth City, Cal. January 25, 1881.—236,993, car brake, E. & J. E. Dawson, Red Bluff, Cal.; 237,011, glove, O. Guttard, S. F.; 237,015, bottle stopper, B. Hegele, San Jose, Cal.; 236,896, music chart, Minna Knapp, S. F.; 237,034, gas regulator, J. Merritt & A. Ford, S. F.; 237,038, ironing board, M. Miles, Gilroy, Cal.; 236,907, plow, C. Mowrey, Stockton, Cal.; 236,935, carriage, A. Claude, S. F.

"MRS. SAGE, I should like to know whose ferry boats those are that I stumbled over in the hall!" "Ferry boats indeed, sir! Those are my shoes! Very polite of you to call 'em ferry boats." "Didn't say ferry boats, Mrs.; you misunderstood me—"fairy boots" I said, my dear friend."

## BOYS AND CIGARETTES.

Physicians and moralists alike are pained by the spectacle, growing more common every day, of pale-faced lads, ranging in age from 16 to 20 years, who are puffing their little lives away in cigarette smoking. Day and night they throng the streets, where the peculiarly offensive odor generated by cigarettes made of cheap paper and bad tobacco renders their smoking as obnoxious to others as it is hurtful to themselves. Every evening before the doors of the theaters, they raise a cloud of foul smoke that is equally injurious to their own rickety constitutions and to the noses of their victims. Doubtless, also, they carry their pernicious habit into their homes—when they are old enough to do so without risk of the spanking they deserve—thus still further doing harm to themselves and making other people uncomfortable.

The cheap cigarette is a modern invention, and a peculiarly vicious one. Twenty years ago, when the cigarettes all came from Cuba and were wrapped in rice paper, smoking them did no great harm. Moreover, being made of Honduras, or some brand of equally strong tobacco, only a boy of stout stomach could smoke more than two or three of them at a time. But to meet the boyish demand cigarettes are sold nowadays both cheap and weak. They are made of mild, often bad tobacco, and for the most part they are wrapped in ordinary white paper. Rice paper wrappings necessarily increase the cost, and the boy who wishes to prove by the ordeal of smoke that he is not a boy but a man, much prefers the article that he can get the most of for his money. Moreover, the boy does not know the difference apparent to the sight between rice paper and ordinary paper, any more than he knows that while rice paper burns away with scarcely any smoke at all, common paper burns with a foul smoke that cuts like a saw into the chest and throat. So he spends his money on cheap cigarettes and makes everybody around him uncomfortable while he smokes himself away into an untimely grave.

Of course, the boys do not intend to sin against themselves and their neighbors. They do not realize what a bad smell their nasty little cigarettes make, and they are very far from knowing what serious injury the smoke from them inflicts upon their throats and bronchial tubes and lungs. They smoke in innocency, not knowing what they do, but most earnestly believing that their smoking makes men of them. Down in the depths of their hearts the most of them have no sincere affection for smoking; and in the depths of their stomachs, they not infrequently entertain a feeling of positive aversion toward it. But they hang on to their pestilent habit with a persistency that, in a better cause, would be worthy of all praise, stifling the dictates of conscience and asserting a bad mastery over the rebellions of the flesh. And, if reasoned with, they answer in the words of dear John Leech's bad boy, "But what is a fellow to do, when all the men of his own age smoke?"

**THE CHASE COAL MINE FIRE.**—Advice from Victoria are to the effect that the fire in the Chase mine has burned through the roof of the No. 2 chamber, and is burning at a fearful rate in the slate stratum above. Owing to the intense heat and dense smoke it is impossible to ascertain the extent of the fire, or the direction in which it is traveling. The fire engine, however, is kept constantly at work day and night, but owing to the peculiar position of the fire the streams can only be sent up among the flames at intervals. Some incline to the opinion that the fire has struck a "pocket of coal;" others that the seams have split and the fire is now in another seam of coal. It is almost impossible to state the exact nature of the fire, for nearly every person working in the mine has a different opinion from his fellow-workman. One thing is certain; the fire is raging and, beyond causing a heavy daily expenditure of funds, is causing a great anxiety to the officers of the company and to citizens generally.