For parties, such as car builders, planing-mills, and furniture and box factories, who wish to hold their lumber up to a thickness, this machine will be invaluable. This machine was on exhibition at the late Exposition, and its merits were such that it was declared entitled to a special gold medal, which was struck off and awarded to the manufacturers.

Miscellaneous Items.

CHROME-TANNED LEATHER.—It is stated by *Engineering* that an important improvement in tanning leather has been brought out in Germany which promises to be of great importance, as it dispenses with the ordinary materials. Dr. Christian Heinzerling, of Frankfort-on-the-Main, is the inventor. His process involves the use of inorganic chemical compounds only, the special member of which is bichromate of potash. Generally speaking it may be said that the other compounds, all of which are readily soluble in water, have as their function the decomposition of the bichromate of potash, so as to set free its contained chromic acid, which is really the chemical agent that exerts the tanning effect on the tissue forming the corium or lower layer of the animal hide. There are many considerations which seem to justify us in expecting great results from the adoption of the Heinzerling process. One leading fact is, that it requires for its completion a period of from four to five or six weeks, whereas the bark-tanning process requires from 12 to 20, or occasionally, even 30 months for its completion. It has already been adopted in 14 tanneries in Germany, and is being introduced into Russia, Belgium, France and Italy.

It is claimed that chrome-tanned leather has several properties which render it superior to the bark-tanned, the upper leather being more elastic, tougher, and very endurable. It is closer and finer in the grain than bark-tanned leather, the weight of the two descriptions being equal. It is also said to be much more impervious to water than any other. A prominent citizen of Biedenkopf says: I have given the leather a trial, and now beg to state my opinion of its quality. I have been able to test them in the heavy snow, through which we have been obliged to walk through the forests, etc., and never had wet or damp feet, as was invariably the case with bark-tanned ox leather and calf leather. I must draw attention to the fact that during the whole time I never used any sort of grease, and to-day the boots are as soft as at the beginning. I then tried, after walking long distances through snow and rain water, putting the boots before the warm stove to dry, and found to my great surprise that the leather did not get hard, as it does in the case of bark-tanned leather. I may just add that I never had a pair of boots that kept out all dampness and were as strong as those made of chrome-tanned leather."

DRYING UP.—Few, if any, of our readers would have suspected the fact, but it is nevertheless probable, that the earth is gradually losing her superficial water, or, in other words, is drying up. This inference, which seems to be well substantiated, has been drawn by many geologists, who have given special study to the metamorphoses which the rocks comprising the earth's crust have undergone in the past, and are now undergoing. It is generally assumed that the evaporation of water from the surfaces of our oceans, lakes and rivers, is balanced by the amount of the various forms of aqueous precipitation—rain, snow, hail, etc.—from the clouds, by which the water finds its way back again to the earth. This is strictly true in the sense that not a particle of water passes beyond the limits of our atmosphere, and that all that finds its way into the atmosphere by evaporation, sooner or later is returned again. Nevertheless, the water supply of the earth is slowly but steadily diminishing. It is not destroyed, but is so modified as to be no longer available for the sustenance of animal and vegetable life, since it is absorbed and bound up in the rocks. This disappearance of water is accounted for partly by mechanical absortion; partly by the chemical union of water with the constituents of certain of the rocks called hydration, and which is one of the phenomena generally attending the superficial weathering of the rocks; and partly by the crystallization and re-crystallization of many of the constituents of the rocks, and other extensive chemical changes going on at unknown depths in the bowels of the earth. In the course of time, though necessarily many ages from the present, it is argued, the combined result of these several cause of dessication must be the complete absorption of all the water, and its disappearance from the surface of the earth. The estimate has been made, though such an estimate can be little more than a guess, that one-seventeenth of the quality of water with which the earth was originally provided, has already been bound up chemically in the rocks, or has been absorbed beyond the possible reach of the organisms living upon her surface.

MARK TWAIN, RUSKIN, AND TURNER.—"What a red flag is to a bull, Turner's 'Slave Ship' was to me, before I studied art. Mr. Ruskin is educated in art up to a point where that picture throws him into as mad an ecstasy of pleasure as it used to throw me into one of rage, last year, when I was ignorant. His cultivation enables him—and me, now—to see water in that glaring yellow mud, and natural effects in those lurid explosions of mixed smoke and flame, and crimson sunset glories; it reconciles him—and me, now—to the floating of iron cable chains and other unfloatable things; it reconciles us to fishes swimming around on top of the mud—I mean the water. The most of the picture is a manifest impossibility—that is to say, a lie; and only rigid cultivation can enable a man to find truth in a lie. But it enabled Mr. Ruskin to do it, and it has enabled me to do it, and I am thankful for it. A Boston newspaper reporter went and took a look at the Slave Ship floundering about in that fierce conflagration of reds and yellows, and said it reminded him of a tortoise-shell cat having a fit in a platter of tomatoes. In my then uneducated state, that went home to my non-cultivation, and I thought, 'Here is a man with an unobstructed eye.' Mr. Ruskin would have said, 'This person is an ass.' This is what I would say now."—*Mark Twain's Tramp Abroad.*

AZOTINE—A NEW PRODUCT FROM WOOL.—The *Annales Industrielle* notes a new discovery by M. Heddebault, which consists in the separation of wool from cotton in rags and waste products in which these two textiles are mixed, by treating them with steam at a 150° C. under a pressure of five atmospheres. Under the influence of this temperature the wool is decomposed, fuses, and flows off into a lower receptacle, while the cotton, flax, and in fact all vegetable fibre, are unattached. It is then only necessary to pound and wash the latter to obtain products containing no longer any traces of wool, and which are admirably adapted for bleaching and manufacturing into paper. The solution of wool, evaporated by dryness, has been named by the inventor *azotine*. Owing to the increase in value of mixed cotton and woolen rags thus treated, especially for paper making, the cost of the operation is virtually covered, and the new product—*azotine*—costs really nothing. This material which is completely soluble in water, and which contains all its nitrogen in a soluble form, is to be used, mixed with dried blood, as a fertilizer. The invention is said to be an important one, both for the paper-making industry and for agriculture.

DON'T BLOW INTO YOUR WATCH.—A correspondent of a German paper calls attention to the injudicious practice of blowing dust off the watchwork. He says that the operation looks so harmless that but few ever think of the destructive consequences attendant on the contact of humid breath with polished steel surfaces and springs. At lower temperatures a kind of veil covers the parts at once after blowing, which gradually disappears again, but it is in fact nothing else than a watery deposit, or steam reduced to water. Generally the deposit evaporates as the object gets warmer, but this is not always the case. Many watchmakers must have observed that polished steel surfaces are sometimes dotted over, apparently with particles of dust, which on closer examination are found to be rust. Perhaps many have been puzzled to account for rust spots between the coils of a spring, very minute, but still sufficient to render the article useless. These serious defects, says our authority, may in most cases be put down to the evil influence of warm breath, microscopic particles of water, for want of sufficient heat to evaporate, having remained on the surfaces and done the mischief described.

WOMEN'S HEADACHES.—The New York *Herald*, which devotes most of its space to news, has published a brief editorial on women's headaches, which is certainly more suggestive than many of the articles in that paper. One principal reason why women suffer more than men with headache, is the fact that their life is largely indoors, and they are not able to take so much physical exercise. There is very little complaint of headache at summer resorts, where the windows are always open, and games and excursions constantly tempt people into the open air. Girls who ride, row, sail and shoot, seldom have headaches, and the same is true of those who work in the fields, as women in many countries do. Headaches might almost be banished from civilized society by a wise and careful system of physical training, and a rational system of diet. We ought to be ashamed of having a headache as of being unable to read or write, or speak our language correctly.—*Herald of Health.*