

Coloring Principle of Wines.

The solid residue deposited from wines in the process of fermentation is treated while still fresh with four or five parts of alcohol at 60°, and allowed to macerate for about a fortnight; it is then filtered under pressure, and the filtrate distilled in a water bath, so as to get rid of the alcohol; what remains behind is evaporated under a vacuum, at a moderate heat, the residue of this last evaporation, refiltered, forms the natural coloring principle of wines. This is readily miscible with white or nearly colorless wines, imparting a pleasing natural hue, without introducing any injurious ingredient

IMPROVED SPRING BED.

We illustrate herewith a simple form of spring bed, constructed of wood, in pieces shaped as represented in Fig. 2, at A, and connected by bands of rubber, B. The rubber is fastened to the wood by rivets, a piece of sheet iron being put over that part of the rubber which is joined to the wood, so that the former is tightly pressed and prevented from tearing away. The advantages claimed are that the springs can be fitted to any bedstead of any shape or make; its elasticity can be increased or diminished by increasing or diminishing the thickness of the rubber. It is durable, easily cleaned, and comfortable.

For further particulars address the inventor, Mr. Henry S. Cate, Millers-town, Butler county, Pa.

A Hundred Years' Progress in Piano Making.

A harpsichord, said to have been played upon by Mozart, and bearing the date 1776, was lately offered for sale in this city at an auction of old furniture. As a musical instrument it was of small account, and the evidence of Mozart's use of it was too weak to give it much value as a relic; nevertheless it was a notable curiosity as an index of the past century's progress in the evolution of the piano. It was doubtless one of the best instruments made in that day. It had four and a half octaves, and the case is described as looking like a badly shaped coffin resting on a common table. The pedal was a plain piece of wood, the connecting string from which ran on the outside of the case. It could probably be made to-day for \$50; its original price was about ten times that sum.

The recent development of the piano has been very rapid. Forty-five years ago, when Jonas Chickering began to make them in Boston, the best pianos were of five and a half and six octaves in compass and were made entirely of wood. The first American grand was made in 1824. The invention of the iron frame, in 1837, revolutionized the trade, and now our leading manufacturers have branch warehouses in Europe and export largely. The patented improvements have been numerous, the Steinways having secured fifteen, some of great importance. Weber has now a piano in his wareroom valued at \$5,000, nine tenths of the value residing in the elaborate case. First rate grands are rated from \$1,750 down to \$1,000; squares from 1,000 down to \$650; uprights, the same. Very good instruments, however, can be had at much lower prices.

IMPROVED GRINDING MILLS.

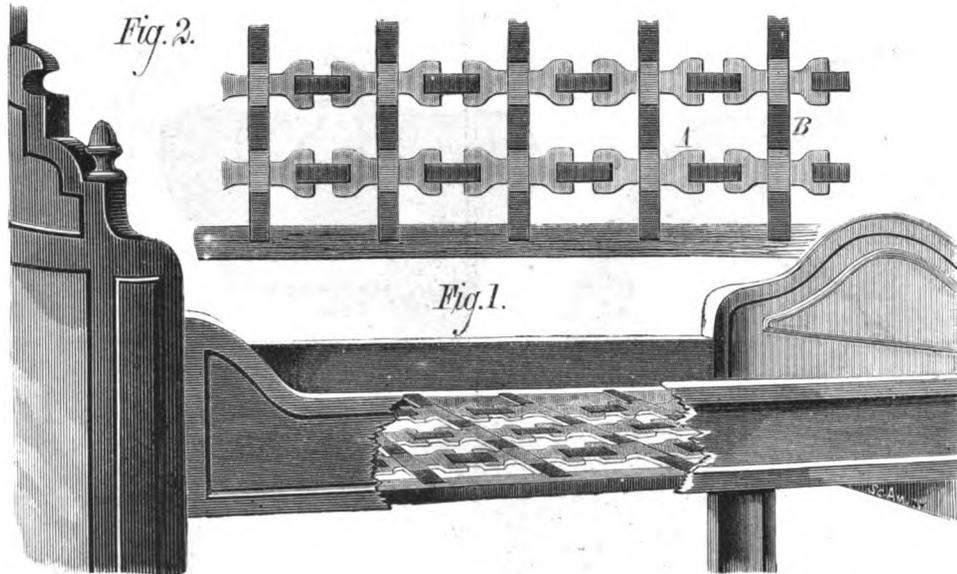
The accompanying engraving represents an improved twenty-two inch mill, adapted to grinding quartz, feldspar, foundry facings, chemicals, paints, and all kinds of grain. The shaft is placed horizontally, and the runner is rigidly secured to it, admitting of high speeding. Both runner and head stone are inclosed in a heavy case, cast in two parts. Each half is cast with its respective part of the frame and boxes, in which the shaft is journaled. On the outer faces of the cases trunnions are provided, to which the trunnion jack may be applied for taking the mill apart in making repairs or dressing. The inner portions of the case fit together with overlapping joints, and form a scroll extending around the burrs for ventilation and for the discharge of the product. The end of the shaft which receives the thrust in grinding is journaled in a partitioned bridge-tree box, in which there is an oil chamber in which the end is more or less submerged. The box fits in a sleeve formed in a very strong bracket arm, and is operated by a hand wheel in adjusting the burrs at either end of the mill. The shoe conveying the grain from hopper to stones contains screens, through which a strong current of air is forced by the fan attached to and operated by the shaft, making a final separation and cleansing of the grain. The shaft has a transverse slot through the end, in which a wrist pin can be adjusted for operating a reciprocating bolter.

The machine is strongly built of the best and most substantial materials. The husk case is sufficiently deep to receive the heaviest imported solid twenty-two inch French burrs. It makes from 500 to 1,200 revolutions per minute, requiring from eight to thirty horse power, and grinding we

are informed, from fifteen to seventy-five bushels per hour. For further particulars address the patentee and manufacturer, Mr. C. C. Phillips, 4,048 Gerard avenue, Philadelphia, Pa.

The Metric System in Practice.

Surgeon-General Woodworth, of the United States Marine Hospital Service, has issued an order relative to the adoption of the metric system of weights and measures, which will hereafter be employed for all official medical and pharmaceutical purposes by the officers of that department. Official indorsement and authorization of this kind will doubtless in time, little by little, result in the general introduction of the system. It is certain that without some such practical measures its common use would be indefinitely postponed, owing to the difficulty of supplanting the existing system (or rather want of system) of weights and measures, however incoherent and inconvenient, by so decided an innovation, notwith-

**CATE'S IMPROVED SPRING BED.**

standing the unquestioned advantages of the latter.

The order referred to prescribes that in expressing quantities by weight, the terms "gramme" and "centigramme" only will be used, and in expressing quantities by measure, the term "cubic centimeter." The metric system has already, under the act of July 28, 1866, been adopted by the Marine Hospital Service for the purveying of medical supplies, and the weights and graduated measures, as well as the glassware, hereafter furnished the medical officers, will be in accordance therewith. Simple rules for the ready conversion of terms of the United States apothecaries' weights and measures into their respective equivalents in metric terms are appended to the order, which, for all medical and pharmaceutical purposes, will afford sufficiently accurate results. Suggestions are also given as to the mode in which metric

Custard a Cholera Producer.

If the conclusions which Dr. W. R. Sevier, of Jonesboro, Tenn., has reached relative to a cause of cholera are substantiated by the experience of other observers as well as of himself, they are of the highest importance, and in any event worthy of careful examination. During 1875 a severe cholera outbreak occurred in the above named town, some thirty deaths taking place in a population of 1,500. Upon his analysis of the disease and its symptoms, Dr. Sevier, while attending the sufferers in that locality, reached the opinion that the malady was due to true blood poisoning, and undertook to combat it with chlorine instead of the usual specifics, opiates, quinine, brandy, etc., which had given unsatisfactory results. After some trials he obtained excellent effects from doses of sesquichloride of iron with hydrochloric acid and opium, losing but two out of fifty cases; and he attributes his success to the disinfecting properties of the chlorine as affecting the secretions of the stomach. In other words, his theory, expressed in general terms, is that decomposing food in the stomach is just as likely to cause cholera as a highly poisoned condition of the atmosphere. If the amount of animal food is in excess of the acid present, decomposition ensues and septic poisons are generated, and the alimentary substances most to be feared are custards and cheese. To these seemingly innocuous foods Dr. Sevier has traced cases of severe poisoning, and this although the preparations themselves showed no offensive properties. The poison existed, nevertheless, in the products of fermentative action. Custards, he says, are especially dangerous, and after they are prepared "should be kept at a very low temperature, and never be used after they have become in the least degree sour, or even insipid. I have seen them in the latter condition when an occasional bubble of gas arising to the surface was the only evidence of the mischief transpiring beneath,

but, as demonstrated in the cases cited, intensely poisonous." The same invisible and destructive poison constituting the cholera miasm exists in the toxic principle of decomposing meat or cheese or fermenting custard.

As regards the existence of aeriform poison, Dr. Sevier regards the same as an epidemic influence as due altogether to the absence or to the deficiency of ozone in the atmosphere. When this element is present in sufficiency, it does not and cannot exist. The effect upon the system, he further considers, will depend on the amount of muriatic acid in the stomach. If the supply of this agent is sufficient to meet the demand, as heretofore suggested, no detriment to health from this poison will follow any amount or degree of exposure.

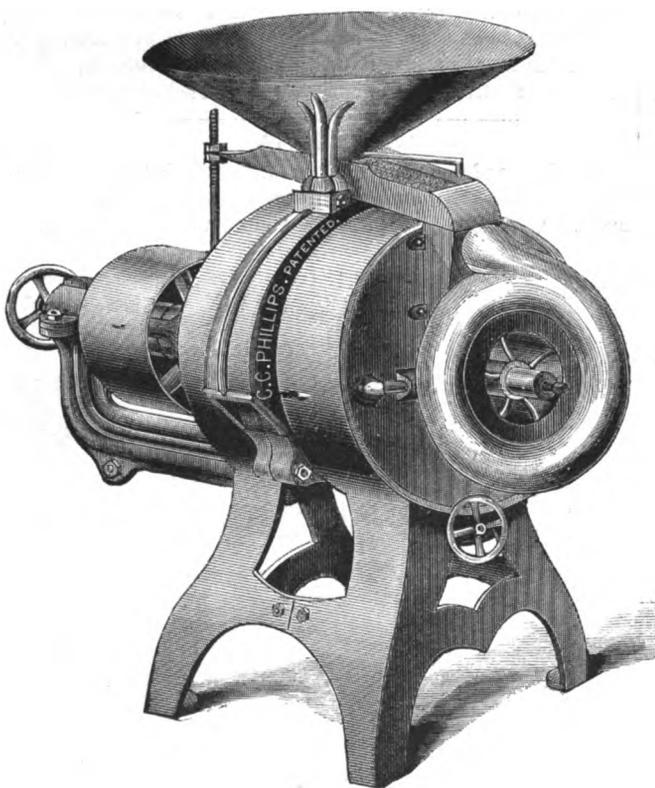
The Right Sort of Southern Spirit.

At a recent entertainment given by the Commercial Club, of Boston, to the visiting senators from the South, Senator Gordon said:

"These Southern friends and myself have come to look at your great factories, your manufactures, your great industries, and wonderful material developments, and to gather inspiration from that proverbial energy and enterprise which have enabled you to conquer unfriendly nature and to convert the bleak hills of New England into productive farms to support your commerce and your manufactures. We have come also to put you upon notice, and I take this occasion to serve that notice, that we of the South intend to enter the race with you in some of those branches of industry which hitherto have been yours peculiarly and almost exclusively. We have water powers unexcelled, which we are going to utilize, and even now are utilizing. We have a climate most balmy and genial and healthful. We have rich mines of coal and iron, and we intend to wake from their long sleep in their mountain beds these twin sons of Hercules, and set their arms to work in securing the great industrial wealth which awaits us. And if your people of the East are not alert and active we intend to overtake you in the race, to strain along abreast with you, and I am not sure but that on the homestretch we shall yet lead you on some of these lines of enterprise."

It is but a few years since the great West arrived at a similar conclusion, and to-day the vast agricultural resources of the West are surpassed in value by the newly created manufacturing interests. Before the waning nineteenth century comes to an end the same may be true of the South. The old time planter's ignorant prejudice against labor, particularly mechanical labor, is fast dying out. Raw cotton is no longer king. Possibly in the new regime the spinning jenny may be queen.

GLACIAL MOVEMENT.—The daily motion of the great Swiss glacier, the Mer de Glace, is from 7 to 86 inches, depending upon the season and the point of measurement. The motion of its tributary glaciers is less rapid.

**PHILLIPS' IMPROVED GRINDING MILL.**

medical prescriptions might be constructed, and in relation to the preparation of requisitions for medical supplies in metric terms.

THE Norwegian Government has constructed a telegraphic line, 200 kilometers in length, composed chiefly of submarine cables, by means of which the fishers along the whole coast are enabled to gather at once on the approach of a shoal to any particular fiord.