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NEW UPRIGHT DRILLING MACHINE.

IMPROVEMENTS are continually being made in iron-working and wood-working machinery, and it often occurs that before wood cuts of new photographed improvements are finished and circulars gotten out, the contour and construction of the machines represented have, in the hands of the mechanical superintendent, been changed in many important particulars. A year ago the London Machine Tool Co. thought their upright drilling machines were about as perfect as any manufactured on the continent; but they are now changing the style of feed, and making some other important improvements in their construction. The cut shown herewith will give the reader a general idea of the new style of friction feed. By this construction the feed can be changed from a light to a heavy, to suit the work in hand, in a moment. All the other points of construction are according to the latest improvements in drilling machines. A. R. Williams, Soho Machine Works, Toronto, handles their production.

PRACTICAL MILLING.

IT has been the policy of "the country saw mill" owner to buy that which was cheap. We have reference more particularly to their first plant—their mill, engine and boiler. Let a man want to engage in the saw mill business, nine cases out of ten he counts the profits first, then the cost, and as he is "a little short," he tries to economize by buying his outfit second-hand. He starts out on the cheap plan, and scours the country for some mill that has passed through the fire, or whose owner has found it far more profitable to let it lay up than to attempt to run it.

He visits the city and looks through the second-hand machinery stores. He looks at one or two new mills, gets completely muddled, and disgusted, starts off home and buys "Jones' old mill." It has not been run for two or three years, but he can save one hundred or possibly two hundred dollars in this his first purchase. He is told that it is a little behind the times, but then it will do him.

Now all that is wanted is to secure an engineer and head sawyer who is in keeping with the mill, and we have a full-fledged mill to help him cry "hard times," and, although gradually, it will soon cause him to feel that saw milling is not what they crack it up to be.

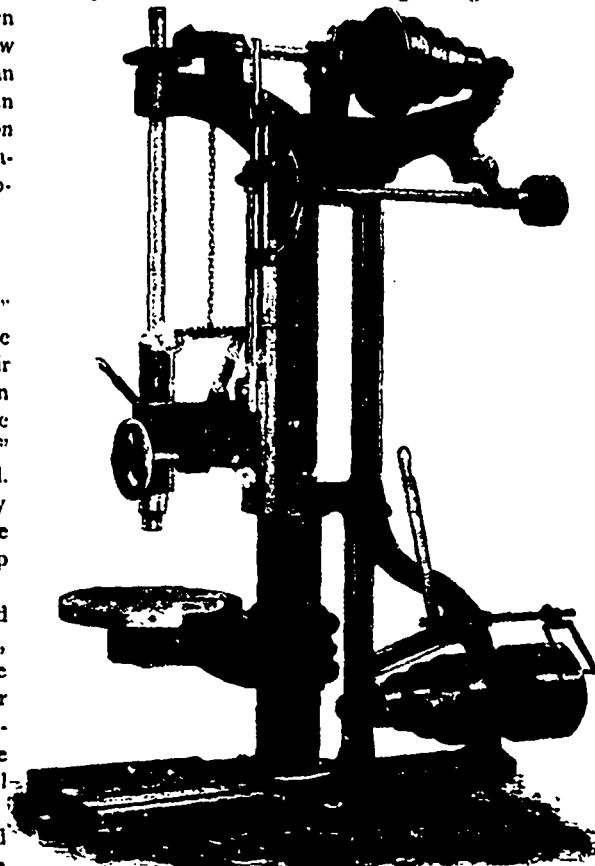
At last he finds an engineer who has done almost everything. He comes along, or, rather, "turns up," and wants a job. He has been used to large mills, big pay and his fireman, but has had a "streak of bad luck," and will take hold of this mill, put it in order and show what can be done. In not a few cases our engineer imparts "his bad luck," for he knows nothing of engineering, and but very little of firing. Our new proprietor is new at the wheel, and does not discover that his engineer is second-hand until reminded of it by repeated accidents and mishaps that suggest something wrong. A broken ring is looked upon as a necessity, hot wrists result from the mill laying up, steam escaping from nearly every joint of pipe, the piston rod, valve rod, and the several conditions soon suggest that something is not what it should be.

Strange as it may seem, hundreds of men start out thus, holding a penny so close to their eyes as to lose sight of a dollar within their reach. Poor tools make poor workmen, and a more fallacious policy was never pursued than economizing in the plant—getting something cheap, regardless of worth. The best is the cheapest, applying this both to tools, mill and labor.

The older mill men, even some who have been looked upon as "full-fledged," have erred to their sorrow, in moving too soon from a good site. They have cut out certain qualities of timber that they have depended upon largely for their run, and without fully investigating whether it would pay to cut other lumber, have hunted

up other sites and moved; and in not a few cases to their detriment. It has come under our observation of late, to note where several mills had moved back to their original sites, re-buying timber that they had passed over unnoticed at their first sitting, and, where the strange part comes in, paying for this second cutting a little more than they originally paid for the first, land and all. A little forethought could have saved them money, trouble, time, and expense of two moves.

It takes experience. The practical man studies not only the present but tries to anticipate his future wants. The practical miller counts nothing too good for him,



NEW UPRIGHT DRILLING MACHINE.

and looks upon the best as the cheapest. He wants good tools, good saws, good files, the best of lacing and belting, and good, steady, experienced men. He knows how to keep them, and they recognize in their employer a man who masters and understands his business. It's a satisfaction to them to work for such a man. It is rarely such a man fails; success is too near the surface.—Geo. Fisher in *Wood-Worker*.

PROCESS FOR PREPARING GRAIN, ETC., BY STEAM, FOR MILLING AND OTHER PURPOSES.

MR. Robert Wood, of Carlisle, England, has obtained a patent in that country (November 7, 1887), which he thus describes:—

It is a matter of common experience that quantities of native and imported barley, and other farinaceous seeds, becomes so desiccated and hardened as to have lost the quality technically described as mellowness; and cause greatly increased wear and tear to the machinery employed in grinding and milling the same; also necessitating a larger expenditure of motive power than would otherwise be required if said mellowness had not been lost.

The several objects attained by my process are the moistening, mellowing, and restoring those qualities which have been lost by desiccation, reducing the time occupied in milling, as well as the wear and tear of the milling machinery, causing a partial or complete germination or malting of, and improving the feeding quali-

ties of the grain, or other farinaceous matter, and increasing the yield, and improving the colour, and appearance of the meal.

I accomplish these results after cleaning from all foreign and extraneous matter by passing the grain through a hopper or vessel having an inclined bottom, over which the grain gravitates, and discharges itself through an adjustable mouth into a steamer in which the grain is agitated and submitted to the influence of steam. The steamer is operated in such a manner as to be continuous in its action, receiving the grain, agitating and exposing the surface of the same to the influence of steam, passing the grain on, and finally discharging it into a chamber, or vessel, or floor, in which the assimilating part of the process is carried on.

The assimilating chamber, or vessel, or floor, has an inclined hopper-bottom or flat-bottom as required, and is provided with necessary means for discharging its contents. Two or more of these chambers, or vessels, or floors, are ranged in a series, in such a manner that when one chamber is sufficiently full of steamed grain, the discharge from the steamer may be directed into another.

In these assimilating chambers, or floors, the steamed grain is allowed to remain when required for milling until the moisture and heat it has received in the process of steaming has permeated equally the interior and exterior parts of the grain, and the whole mass is assimilated in its condition or degree or state of moisture. These conditions being attained, the grain is discharged from the assimilating chamber, and when intended for reduction to meal may be led between rollers by which it is partially reduced. The grain can then be milled with much more rapidity than when treated in the ordinary way. Or it may be passed between rollers after leaving the winnowing and before it enters the steamer.

When the grain is to be malted, it is conveyed from the steamer in its warm state to the assimilating and germinating chamber, and allowed to remain there, in about the same warm moist state, at a suitable temperature, till sufficiently germinated. By this means germination is accomplished in much less time than in the ordinary method of malting. From this chamber it is elevated and passed, and if necessary repassed, through a machine or machines which keep the grain in constant motion in warm air, during which the further development of the process of germination is arrested, and from which the barley, grain, or other farinaceous matter, is discharged in a dry and malted condition.

A MILLSTONE RECIPE.

THE following recipe, although a little out of date, may find some readers of *The Roller Mill* who are not yet quite won over to the cylinders. It is, as far as I know, original with the writer, though possibly others have also invented and used it:

Melt a suitable quantity of alum. At the same time place an equal weight of calcined plaster on the stove where it will get quite hot, in order to expel any moisture that may have gathered since its manufacture, and to assist the mass in retaining its head while being applied. When the alum is thoroughly melted, and hot, drop in as much of the plaster as will mix in with the liquid alum without making it thicker than hasty pudding. Then with a flat stick press the mixture while hot into the seams and pores of the burr. After this cement has cooled, take a sharp pick for a chisel, and shave down the projecting lumps to the regular level of the stone.

The above was tried by the writer, after using the various mixtures recommended by old millers in the trade journals, including what is widely advertised as millstone cement. I have found that it resists the wear of the grain and is but little affected by moisture.—"St. Cloud," in *Modern Miller*.