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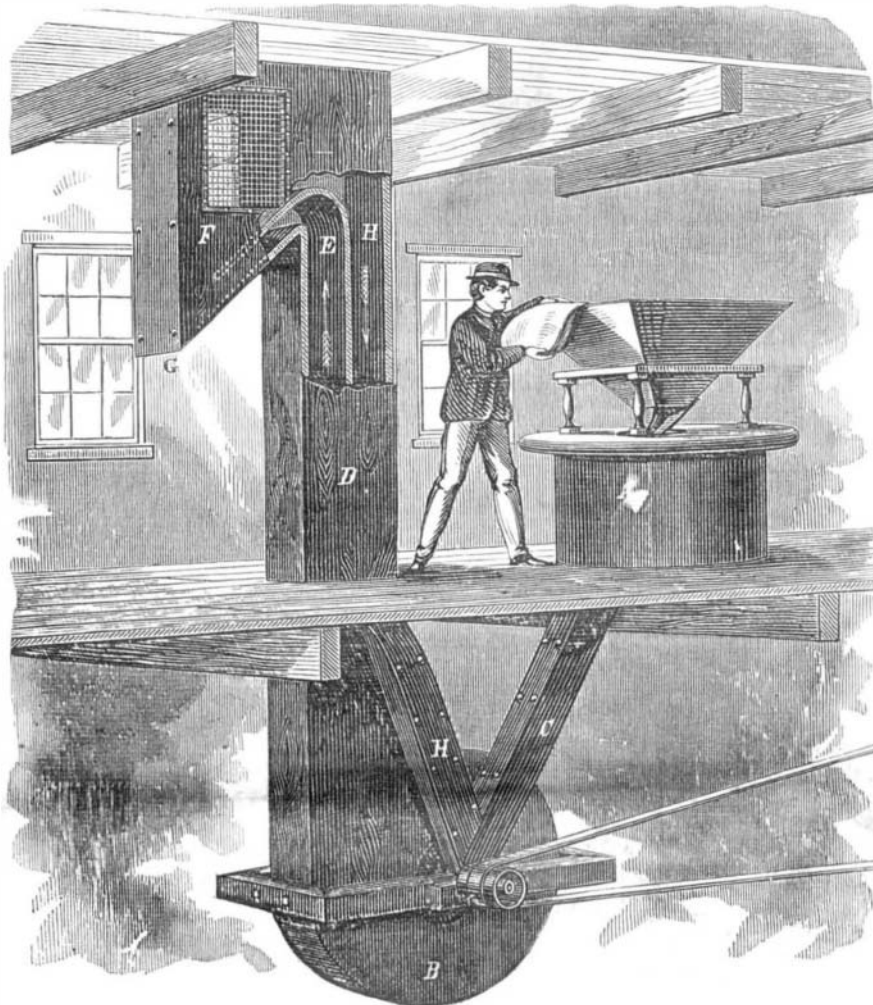
Improvement in Cooling Mill Stones and Flour.

Every miller knows how desirable it is to deposit the flour or meal as it comes from the stones in a perfectly cool condition, and that one of his principal annoyances is the heating of the stones. The inventor of the device herewith illustrated intended to subserve these two purposes, says that practical tests show a saving over the ordinary mode of elevating of about one pound of flour on each bushel ground.

A represents a mill stone and hoop, beneath which is a scroll, B, containing a fan blower, the blades of which, instead of forming a gradual curve, turn at right angles, this form being considered preferable. From the stone a discharge pipe, C, leads to the eye or center of the fan, conveying the flour. The spout or pipe, D, is double, or divided longitudinally by a partition shown in the space broken away. The portion, E, leads from the periphery of the fan or blower to the chamber, F, the upper portion of the tube being shortened to permit the escape of surplus air. The flour or meal is forced upward through the pipe, E, from the fan, and is discharged at G, directly into the bolt, conveyer, or hopper boy. The chamber, F, is made of any suitable size and is covered, or partially so, on its sides with gauze or muslin. From this chamber a return spout, H, leads to the fan and through it the surplus air is returned, and also many particles of flour which would otherwise be lost.

The fan being revolved rapidly receives its supply of air through the spout, C, from between the stone and hoop, drawing all the heated air away, thus keeping the stone cool and dry, and preventing the formation and accumulation of dough around the hoop. The flour, soon as discharged from the stone, falls into a current of cool air which prevents evaporation. For simply elevating grain only the fan and spout, E, are used.

This apparatus was patented May 5, 1868, by James Raney, assignor to himself, L. Raney, and B. Raney, either of whom may be addressed for rights or further information at New Castle, Pa.



RANEY'S PATENT PNEUMATIC ELEVATOR

practically inexhaustible. It has been largely and successfully tested in the casting of chilled car wheels, both in England and in this country, and in the former country by John Brown & Co., of Sheffield, for armor plates. We give an analysis of the ore.

Peroxide of iron	45.200	Soda	541
Protoxide of iron	3.458	Sulphuric acid	588
Alumina	5.448	Phosphoric acid	
Oxide manganese	11.381	Silica	14.126
Peroxide manganese	1.093	Carbonic acid and water	11.781
Lime	1.756		
Magnesia	3.740	Total	100.000
Potash	0.688		

FOOTE'S PATENT PORCELAIN LINED ICE PITCHER.

Considerable has been said about the chemical action of different drinking waters on the metal of which the interior



wall of ice pitchers is composed, their being productive of oxides inimical to health, etc. It is well known, however, that the porcelain lining of iron kettles and the glaze on our

table ware is unaffected by ordinary acids. Acting on these facts the inventor of the pitcher shown in the engraving has succeeded in coating the inner wall of metallic ice pitchers with a liquid enamel, fused and attached to the metal by heat, in one smooth, complete coating without seam. Prof. Hayes says "it is entirely free from anything poisonous or injurious. A quart of acidulated well water was boiled in one of these pitchers without perceptible action upon the enamel, and water to which caustic alkali had been added was afterward boiled in it with a similar result. When submitted to sudden changes of temperature the enamel did not crack or separate from the iron, and sharp strokes with pieces of ice failed to make any impression upon it."

It will be readily understood that the pitcher may be made of any form desired. Its freedom from unpleasant odor, as well as its perfect cleanliness and certain safety, seems to give this improved pitcher a deserved commendation.

It was patented through the Scientific American Patent Agency June 30, 1868, and assigned to the Meriden Britannia Company, West Meriden, Conn., by whom they are manufactured, to whom all orders should be addressed, D. C. Wilcox, Secretary. The commendatory letter of Prof. Hayes may be found in full on the last page of this paper.

FUTURE PROSPECTS OF MACHINE MANUFACTURING IN RUSSIA.

If we take the map of Russia, and set one leg of a pair of compasses upon the spot occupied by the town of Kharkoff, setting the compasses to a radius of 370 miles, then this radius will reach to the extreme northern end of the rich agricultural government (or province) of Orel, inclosing at the same time the equally rich government of Koursk.

Sweeping around to the northeast we cut off part of the government of Tula, the Russian Sheffield, as also part of Tambov, inclosing the whole of the government of Voronej, with its rich stores of corn and oil. To the northeast we cut into the borders of the government of Kaluga, inclose the whole of the government of Poltava with a great part of that of Tchernigon, and join up to the borders of the government of Kiev. In a right line south from our starting point, we, with the same radius, cut into the sandbanks in the Sea of Asoph near the port of Berdiansk (for the removal of which said sandbanks, by the way, the future factory may have to provide dredgers, so they may as well be included in the circle), while at the same time we include the government of Tausidia, along with that of Ekaterinoslav with its coal bearing strata. Sweeping to the southeast, we inclose the whole of the territory of the Cossacks of the Don, with its vast beds of anthracite and iron ore. The same radius takes us in this direction across to the opposite shore of the sea of Asoph, fronting Taganrog and Rostov. To the southwest we come again upon the greater part of the government of Tausidia, with the greater part of that of Kherson, sweeping to within twenty miles of the ancient town of Kiev.

For enterprising men with capital this is an immense field for labor; and commercial energy might easily square this circle, even by means of a circumscribed square to enlarge the area. The principal railways (not merely projected, but actually being constructed) cutting into this circle are, first, the main line direct from St. Petersburg to the Sea of Asoph, passing through two coal fields in its course, namely, the northern or Kaluga-Tula and the southern or Donetz basin. (The Donetz is a river falling into the Don after a course of about 270 or 280 British miles, and forming a sort of border to the coal field; its repeated attempts to cut into the hard strata of the coal basin induced geologists to call the coal district by its name, the Donetski Kraj). This main line of railway after leaving Moscow passes through the towns of Tula, Orel, Koursk, Kharhoff, and many towns of smaller note, and will end, after passing through the whole of the southern future mining district, at Taganrog and Rostov.

From this main line there will be numerous branches to different places, the names of which are as yet unknown to fame, but which, in consequence of their stores of mineral wealth, are capable of becoming great industrial centers. Communication with Europe, through Poland, will be secured by the line from Kiev joining into the main line at Koursk. The main line will also communicate with the Black Sea, by means of the line from Kharkoff through Poltava and other important towns, to Kiev and Odessa. In like manner, by the extension of the Riga-Dinaburg-Vitebsk railway to Orel, the south of Russia will be put into communica-

Learning to Telegraph.

According to the *Telegraph*, the institutions known as Telegraph Colleges are unmitigated humbugs. They purport to teach the art of telegraphing so that any young man or woman can become efficient in three months, obtain a good situation, large salary, &c. Fees payable in advance. Our contemporary remarks:

"We wish to impress upon the minds of those who desire to become telegraphers, that only upon telegraph lines, and in the practical daily practice of an office, can they become qualified for telegraphic positions.

Another fact is sedulously kept out of sight by the proprietors of these colleges, which is patent to every practical telegrapher, that is, that probably less than fifty per cent. of those who seek to learn telegraphy, even in the regular and proper manner, become good, reliable operators. The profession requires a quickness of perception and a certain amount of mechanical skill and facility of manipulation which is not generally possessed. Very few become good, practical telegraphers, unless they commence the study of the art before they reach their twentieth year. For those of over that age to endeavor to do so, is, in a majority of cases, pure waste of time. We do not mean to say that instances are unknown of persons more advanced becoming first-rate telegraph operators, but they are so few as not to offer encouragement to such to seek admission into the telegraphic ranks.

We have heretofore pointed out the deficiencies in scientific knowledge of a large proportion of the practical telegraphers. This we should be glad to see corrected, and we should regard any means of education in this particular afforded to telegraphers, and a disposition to avail themselves of such facilities by operators generally, with favor and gratification."

New Brunswick Hematite Iron.

We have received some specimens of white fibrous iron from hematite ore mined in New Brunswick. It is of extreme hardness, capable of scratching glass, and of remarkable purity. It is also exceedingly tough, Robert Mushet of Coleford, England, stating that he has twisted nail-rod cold, made from it, which exhibited a toughness equal to the best Llundross or Tevoitdale iron. Charles Sanderson says he is