IMPROVED SHINGLE MACHINE.

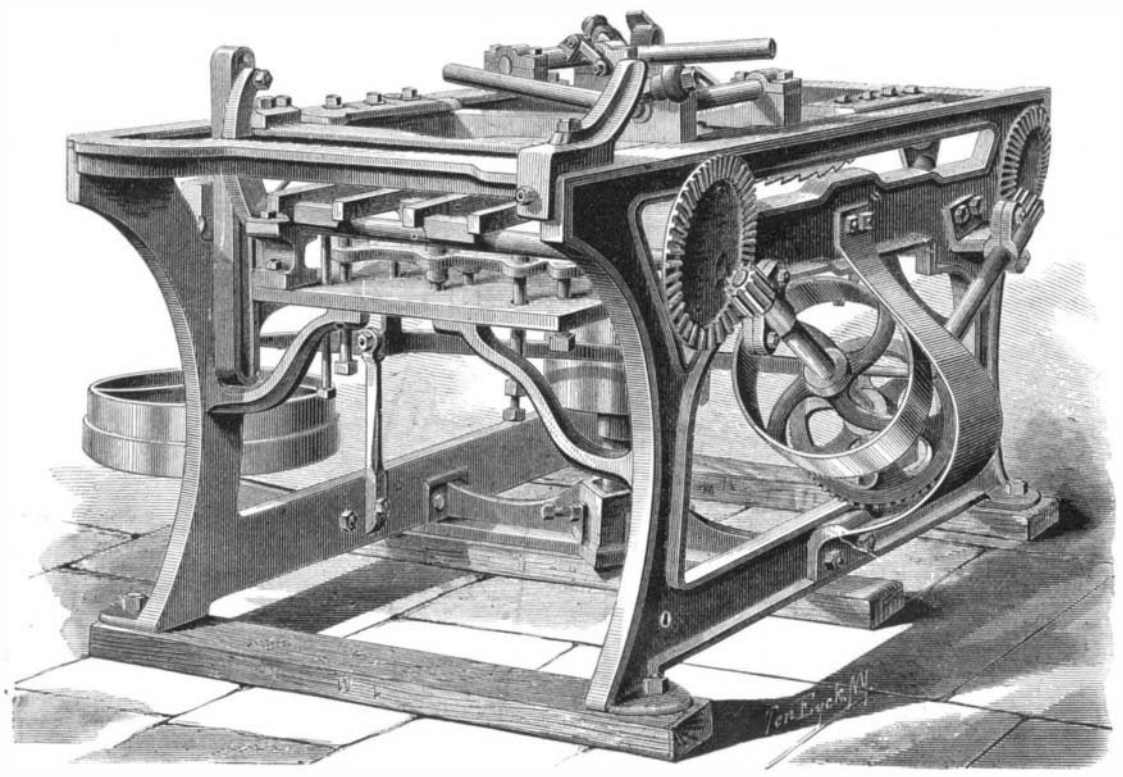
We illustrate in the annexed engraving a new shingle machine, which is adapted to cutting all kinds of wood, and which can be adjusted to cut shingles of any required thickness. It is claimed to be free from the irregular and uncertain motion of the block holders and carriages, which occurs in some other machines of like nature, and also to prevent great waste of lumber. The block holders have a gradually decreasing motion when approaching the saw, and a rapid return, these movements being imparted through the eccentric gear on the right of the apparatus. The dogs are provided with blocks of wood so inserted as to project below the iron teeth. These extend downward to the upper surface of the saw, and act as a guide, preventing the saw from striking the iron and also griping the block after it has become too thin to be held by the teeth, thereby saving much timber ordinarily wasted.

The block, by its own weight, falls into proper position for the next shingle, the accuracy of its placing not being in any wise dependent upon complicated mechanism. The side of the block is presented to the saw, which, cutting lengthwise the fibers of the wood, thus produces the shingles almost as smooth as if planed.

The apparatus represented is a double block machine having a capacity of from seventy-five to one hundred thousand shingles per day; as many as one hundred and twelve thousand have been repeatedly made, the quantity depending entirely upon the power applied, the quality of timber, and the skill of the operator.

The same manufacturers also make a single block, automatic machine especially adapted to cutting up waste in lumber mills, and also an excellent hand machine suitable for persons requiring but small quantities of shingles. Besides these, a special machine is constructed for producing shingles from 20 to 24 inches in length, and also a variety of other apparatus relating to the manufacture of shingles.

The device illustrated was patented February 27, 1872. Further particulars with reference to it, or with regard to shingle machinery and manufacture, may be obtained by addressing Messrs. W. H. Hiner & Co., Union Iron Works, Fond du Lac, Wis.



WHITE'S SHINGLE MACHINE

IMPROVED TANNING PROCESS.

The inventor of the improved tanning process, the apparatus for which is illustrated in the annexed engraving, is a practical tanner of fifty years' experience, a circumstance which probably will be alone sufficient to commend his invention to the favorable consideration of the trade. The improvement consists in connecting the vats and suspending the hides in such a way that the old liquor from the new stock is drawn into the oldest leach. It passes through and over to the next, and so on to the last, where it enters and circulates through the oldest stock suspended for tanning, and finally returns to the starting point, thus keeping in constant circulation. At the same time the old stock is softened, scoured, and re-tanned, and the old ooze is filtered through the leaches, helping to strengthen the liquor.

It is claimed that by this means the leaching is so effectual as to extract the strength from any tanning substance, and that the bark, when placed on end, will give up its strength with less bloom and gallic acid, while the hides are excluded from the air.

The hides are first soaked in water, and, if hard and dry, are softened in the wheel, B. They are then hung lengthwise (if split they are tied together at the backs) on the rack, F, beneath the wheel, C, for liming. The paddles on wheel, C, keep the liquor in agitation, while the latter is supplied from above, through the trough, D, by means of the pump, E. The constant circulation which is thus kept up among the hides during the liming, it is stated, greatly hastens the process. In order to remove the hair, the hides are placed within the wheel, C; and while rolling about therein, the lime liquor continues descending upon them, washing out the hair through the wheel, and carrying it against the rack beneath, where it is retained, clean and free from knots. The hides, on withdrawal, are placed in wheel, B, and there worked out ready for the tan. During the above operation, a segment of cross slats, placed between the floats on each wheel, so that the hides drop in the water as the wheel rotates.

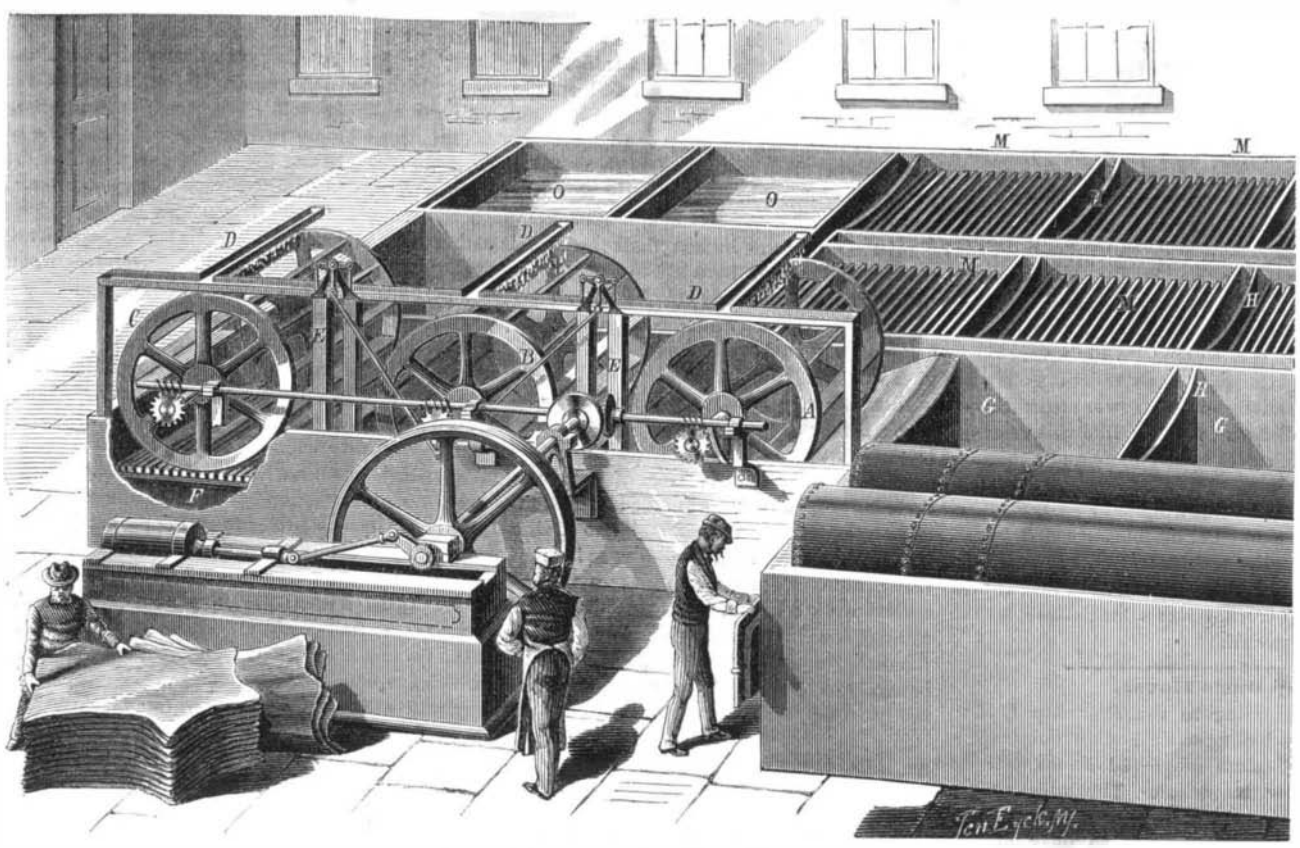
While tanning, the hides are again suspended on racks, M, which may be shifted along from vat to vat during the process, the partitions, H, being movable for this purpose, and also to allow the liquor to flow while passing through the series of leaches and tan vats. The weakest liquor is forced by the paddles of wheel, A, from the new hides, over into the weakest leach, G, where it passes through the false bottom, up the hollow partition, over into the next leach, and so to the last. Thence it returns, by reversing the circulation, back to the fresh pack from the green house.

The racks of tanned leather can be hoisted, as desired, directly into the loft, and others slid forward to make room for new ones. A false box, which is inserted in the weakest leach, may be lifted out and its contents discharged immediately into the wet tan furnace.

In currying, the wheel, A, will be found of much use, as the leather, after splitting, may be placed inside, and there scoured, softened, and re-tanned, emerging with a fair grain and fine nap on the flesh side in pliable condition, susceptible to excellent finish At the same time the old ooze is passed over and saved by filtering in the leaches. Tanned stock is greatly improved by running through the wheel, and this without the usual loss in weight.

The invention is claimed to be especially adapted to warm climates, where tan vegetation grows spontaneously The refuse, when composted with lime, animal matter, and waste from the green house, will, it is said, soon pay the cost o establishment It is labor-saving, and produces good leather in the shortest time without necessitating material innovations upon old and well tried processes.

Patented through the Scientific American Patent Agency, January 5, 1875, to Mr. Harvey Reed, who may be addressed for further particulars, care Dr. Samuel Hape, Atlanta, Ga.



REED'S TANNING APPARATUS.

Relations between Magnetism and the Aurora.

It appears from the scientific report of the Austro-Hungarian North Polar expedition of 1872–4 that magnetic disturbances are closely connected with the aurora While in temperate zones they are the exception, they form the rule in arctic regions; at least the instruments are almost in constant action. This is the case for the inclination, declination, and intensity needles.

The magnetic disturbances in the district visited were of extraordinary frequence and magnitude. They were closely connected with the aurora borealis, the disturbances being the greater, the quicker and the more convulsive the motion of the rays of the aurora, and the more intense the prismatic colors. Quiet and regular arcs, without motion of light or radiation, exercised almost no influence upon the needles. With all disturbances the declination needle moved toward the east, and the horizontal intensity decreased, while the inclination increased. Movements in an opposite sense, which were very rare, can only be looked upon as movements of reaction. The ways and manner of the magnetic disturbances are highly interesting. While all other natural phenomena become apparent to our senses, be it to the eye, ear, or touch, this colossal natural force only shows itself by these scientific observations, and has something mysterious and fascinating on account of its effects and phenomena being generally quite hidden from our direct perception.

The instrument upon which Lieutenant Weyprecht placed the greatest expectations, namely, the earth-current galvanometer, gave no results at all, through the peculiar circumstances in which the explorers were placed. He had expected to be able to connect the aurora with the galvanic earth currents. But as the ship was lying two and a half German miles from land, he could not put the collecting plates into the ground, but was obliged to bury them in the ice. Now, as ice is no conductor, the plates were isolated, and the galvanometer needle was but little affected.

DRIFTING OF ICE.

Lieutenant Weyprecht, of the Austrian Polar expedition, made the remarkable discovery that the ice never drifted straight in the direction of the wind, but that it always deviated to the right, when looking from the center of the compass; with N.E. wind it drifts due W. instead of S.W.; with S.W. wind it drifts due E. instead of N.E.; in the same manner it drifts to the north with S.E. wind, and to the south with N.W. wind. There was no exception to this rule, which cannot be explained by currents nor by the influence of the coasts, as with these causes there would be opposite results with opposite winds. Another interesting phenomenon was the struggle between the cold northern winds and the warmer southern ones in January, just before the beginning of the lasting and severe cold; the warm S. and S.W. winds always brought great masses of snow and produced a rise in the temperature amounting to 76-95° Fah. within a few hours.

The influence of extremely low temperatures upon the human body has often been exaggerated; there are tales of difficulty in breathing, etc., that are caused by them. Lieutenant Weyprecht and his party did not notice anything of the kind; and although many of them had been born in southern climes, they all bore the cold very easily indeed; there were sailors among them who never wore fur. The cold only gets unbearable when wind is united to it.