Scientific Museum.

For the Scientific American.

On Tanning Leather.—Preparation of Hides.

(Continued from page 136.)

Having treated of the manufacture of sole leather, we have just this warning to give in regard to it, viz., that at the expense of good leather, tanners may save time by using too strong liquors and too hot at first. In warm weather, the liquors are very liable to get sour, thick and slippery, like molasses. This injures the hides. We are sorry to say that we do not know of any cheap chemical remedy that would not be injurious on the other hand.—The only true way to avoid injury is great attention, and a frequent change of liquor to keep them fresh. Weaker liquors should be used and more of them given, than in cold weather and small pits are more economical than in large ones, that is, for working them. No man can be a good tanner unless he is very attentive, observing and industrious, but with these qualities, and they are high ones, any man can be a good tanner.

Tanneries that are erected far in the timber districts of our country, to get a plentiful and cheap supply of hemlock bark, soon find a cheap supply cut off, by it getting scarce. But no man need be afraid of doing a nice snug business at tanning, if he has a few acres of land by the method we propose now to instruct him in.

It is well known that sumac grows plentifully in every part of our country, but there is one kind named the "Sicily Sumac," that is of a most excellent quality. The stems, leaves, &c., of this shrub, are ground up and employed like oak bark, only it is far better to boil the sumac, cool it, and use the clear liquor.

Bramble—There is another astringent shrub which grows freely and abundantly in every part of our country, and which to our knowledge, has never been employed here, but which makes far better leather, especially for uppers, than any other substance known. That shrub is the common Bramble or Blackberry. It makes leather more soft and pliable than oak bark; the leather being of that softness and pliability peculiar to what is termed "French Leather."

The blackberry stalks are broken in small pieces, ground, and steeped in water, and have very astringent qualities. The shrub or blackberry bushes should be cut in the spring, when they are full of sap, and they are employed in every way like oak bark, and there is no difference except in the quality of the leather produced—the bramble made leather being much improved, is softer and wears longer. The leather is also tanned sooner, the astringent of the blackberry having a greater affinity for the hides than the oak bark has. While blackberries can be grown in our country, we need have no fears of a want of materials for tanning. The discovery of blackberries for this purpose is due to Mr. R. Patterson, of England, who took out a patent for the same about fourteen years ago, but from some bad arrangement with some wealthy capitalists, he never received any benefit from it, and after making leather for about a year, he was even prevented by them from using his own discovery. A short time since application was made to the Lords of the Privy Council, for an extension of it. Its real merits and the superior quality of the leather made by it, were established by full and unequivocal testimony of practical tanners, and those who had used the leather. The extension of the patent was denied—much to the regret of the Privy Council. They all expressed themselves favorable to the patentee, and were convinced of the utility of the discovery, but by a strict construction of usage and law they could not advise an extension of the patent. The discovery of blackberries as a substitute for oak bark was held to be so valuable, that parties were easily found to procure patents in all the European kingdoms, but the discovery is now the property of the world. So far as we know, this is the first time, a knowledge of this discovery has been brought before the American public, and as our country has capacities and every facility for tanning by this method, we believe that we are doing "the State some service" in disseminating this information.

History of Propellers and Steam Navigation.

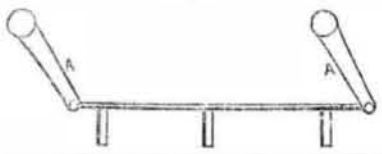
[Continued from page 136.]

The first steamboat that was built on the Mississippi was named the "Enterprise," and was about 70 tons burden; she was built with a single wheel placed in her stern, and in 1815 took 28 days to go from New Orleans to Cincinnati. Considering the state of the river at that period, this was not a bad voyage. In 1789 Symington navigated canals with only one paddle wheel in the stern, but in 1822 Gordon made an improvement, by placing the wheel in the stern as here represented.

Fig. 13.

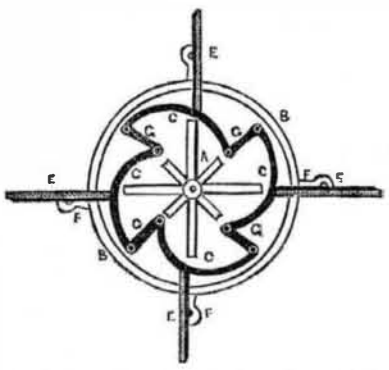
This is a longitudinal section of the boat, intended to be driven by steam, but no apparatus of that kind shown. It has a channel made through its whole length at the bottom, being open at its under side (like an inverted trough) until it comes to the place where the paddle wheel case commences, and there the channel is closed up under the paddles, nearly to touch their extremities as they revolve. She was to be steered by two rudders, one on each side of the paddle wheel, connected together by jointed rods so as to be moved by one tiller. A is the wheel, and C is the entrance for the water coming along the channel spoken of, which then freely escapes behind. The entrance aperture may be furnished with a gate to admit just as much or as little water as is desired, and with a grate in it to prevent sticks, &c., from injuring the paddles. For canals this invention is one of no inconsiderable merit.

Fig. 14.



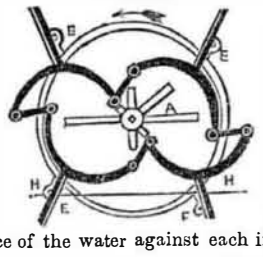
About this period it was also proposed to employ reciprocating paddles as substitute for the paddle wheel, to enter and leave the water vertically, as herein represented. A A are the cranks which are moved by the engine, and turns with them the horizontal bar to which the vertical paddles are fixed. It is very evident that these paddles cannot be moved fast enough to afford the slightest shadow of a hope in competing with a paddle wheel, back lift of water and all.

Fig. 15.



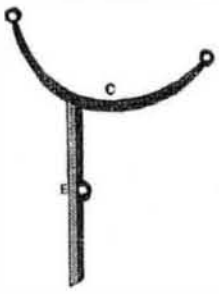
This is another plan that was invented by a Mr. Hill, of Woolwich, Eng., to make the paddles enter and leave the water vertically, and to pass through the water eliptically, a hobby indulged in by a great many since that time. This plan, however, is very ingenious, as will be observed by the accompanying description of the separate figures of side views, the same letters referring to like parts:—A A A represent the spokes of the paddle-wheel, shown as disconnected and broken off from the periphery, B B, to prevent its being confused with the novel propelling part; C C C C are four bent levers, one of which is shown separately by fig. 17; E E E E represent the edges of the paddle boards, which are bolted to the straight arms of the levers, C, and are connected by axles to four short arms, F F F F, which radiate from the periphery of the wheel; each end of the curved part of the levers is attached to the next lever in the series, by an intermediate short rod, G G G G. Owing to this mode of connecting the short rods by pivot joints, the

Fig. 16.



resistance of the water against each immersed paddle, causes the next in succession which is entering the water, to be depressed at its extremity, thereby throwing it into that position or that angle with the surface of the water, by which it meets with the least impediment to its immersion. The resistance of the water upon the paddle that has preceded it, then draws the other into the vertical position, at the same time that it is itself being raised out of the water, at a similar angle to that by

Fig. 17.



which it entered; these motions are communicated successively to all the paddles by the revolution of the wheel.

Curious Scientific Discovery.

It has long been known, and any one may test the fact, that when a drop of water is placed upon a piece of iron, red or white hot and the hotter the better, instead of being instantly converted into vapor, it draws itself up into a globular shape, and is not even boiled by the intense heat. It occurred to a French philosopher, that this fact might explain certain phenomena, of men being able to handle or walk upon intensely hot substances, and upon making the experiment, he found that he could put his hands in melted iron, or walk over it barefoot with ease, any person can do this when the skin is moist, the only caution necessary being not to move the hand or other part in contract with the incandescent metal too quickly. The experiment must be done deliberately, with the iron or other metal at a white heat, or if melted still better. This fact accounts very simply for some astonishing miracles which it has hitherto required no little faith to believe.

[The above we copy from an exchange and we would say to any one who might be desirous of trying the experiment, just to treat it as Garrick treated his doctor's prescriptions, "throw it out of the window.

Rotary Steamboat Explosion.

On the 10th inst., at Philadelphia, the boiler of a small steamboat, named the Invincible, exploded, as is said, owing to a defect in the boiler. The boat was shivered to pieces, and all on board precipitated among the cakes of ice in the river; all were more or less hurt, but there were only a few hands on board.—The party were taken off from the ice by a boat from shore, or all would have perished. The engine of the boat was a rotary, the invention of Dr. Baldwin, and the steam, after passing through it, was condensed by means of pipes that traversed the whole length of the boat, and returning to the boiler so as to avoid any escape of steam. The propeller was also entirely original in its construction, and patented. It was geared with a strap so as to make over a thousand turns per minute. The boat was launched in August last, from the canal, near Beach and Maiden streets. She was 75 feet long, and built on the model of the little propeller May. The boiler was an upright one, filled with tubes, through which the heat passed from the furnace, which was of uncommonly small dimensions.

The Boston Transcript states that there are several establishments in Cambridgeport, Mass. at each of which 300,000 lbs. of family soap are manufactured annually.

Telegraphing.

One of the operators in the Eastern Telegraph office in New York, succeeded in writing direct to Halifax (N. S.) a distance of between 900 and 1000 miles.

LITERARY NOTICES.

Stone, Iron, and Wooden Bridges. By George Duggan, C. E.—Part 1 of a new work on the above subject, comprising viaducts, tunnels, culverts, ect., of the U. S. Railroads, has just been issued. It is illustrated by a series of drawings from actual measurement of the works—including plans, sections and elevations of each structure. It contains judicious remarks on all the different forms of construction embracing strength, beauty, durability, economy, etc., and it will contain an appendix on the art as practised in Europe. It will be published monthly, and completed in about 12 parts, at 75 cents each, and can be furnished at the office of the Scientific American. It is principally designed for the members of the engineering profession, and should, by them, receive the fullest encouragement, as it requires a large circulation, to make such a work pay the bare expenses.—Part 1 contains working drawings of the Railroad Bridge at Willimansett, Conn., also of a bridge 88 feet span, on the Utica and Syracuse Railroads.

Dramatic Works of William Shakspeare.—Published by Phillips, Sampson & Co., Boston.—These enterprizing publishers have already issued seven numbers of this splendid work, each of which comprizes one play, and a beautifully executed engraving of the leading female character. The seventh number contains a fine portrait of Shakspeare from a painting in possession of the Duke of Buckingham, and also his biography. Within a few years the writings of this great man have taken their proper place among the literary works of this country, and no person living, whatever his station, can fail of reaping a rich reward, by a careful study of Shakspeare's writings. No library is complete without them, and we advise our friends to secure these numbers without delay, as they are published for the low sum of 25 cents each. Can be had of Dewitt & Davenport, H. Long & Bro., and of booksellers generally.

Poems by Amelia. Appleton & Co., Broadway.—A good book is a gift at all times acceptable to an intelligent mind, and we know of no one better adapted for a female friend than this collection of Mrs. Amelia Welby's Poems. Whether it comes in the form of a New Year's present, or at any other season of the year, its donor will not fail of receiving a kind return of thanks from the receiver. Seven editions of these poems have already passed through the hand of the enterprizing publishers. This edition contains several fine engravings, beside that of the author.

Literary Sketches and Letters of Charles Lamb. By Thomas Noon Talfourd. Published and for sale by Appleton & Co., 200 Broadway.

This very pleasing work, by the author of the drama of "Ion," is perhaps already too familiar to the reading public to require a notice of its character from us.

TO INVENTORS AND MECHANICS.

FIFTH YEAR OF

The Best Mechanical Paper IN THE WORLD!

A New Volume of the

SCIENTIFIC AMERICAN

is commenced about the 20th of Sept. each year, and is the best paper for Mechanics and inventors published in the world.

Each volume contains 416 pages of most valuable reading matter, and is illustrated with over

500 MECHANICAL ENGRAVINGS

of NEW INVENTIONS.

☞ The Scientific American is a Weekly Journal of Art, Science and Mechanics, having for its object the advancement of the INTERESTS OF MECHANICS, MANUFACTURERS and INVENTORS. Each number is illustrated with from five to TEN original ENGRAVINGS OF NEW MECHANICAL INVENTIONS, nearly all of the best inventions which are patented at Washington being illustrated in the Scientific American. It also contains a Weekly List of Patent Claims; notices of the progress of all Mechanical and Scientific Improvements; practical directions on the construction, management and use of all kinds of MACHINERY, TOOLS, &c. &c. This work is adapted to binding and the subscriber is possessed at the end of the year of a large volume of 416 pages illustrated with upwards of 500 mechanical engravings.

TERMS: Single subscription, $2 a year in advance; $1 for six months. Those who wish to subscribe have only to enclose the amount in a letter, directed to

MUNN & CO.,

Publishers of the Scientific American, 128 Fulton street, New York. All Letters must be Post Paid.

Inducements for Clubbing.

5 copies for 6 months, $4 | 10 copies for 12 months, $15
5 " 12 " $8 | 20 " for 12 " $28

Southern and Western money taken at par for subscriptions. Post Office Stamps taken at their full value.

A PRESENT!

To any person who will send us Three Subscribers, we will present a copy of the PATENT LAWS OF THE UNITED STATES, together with all the information relative to PATENT OFFICE BUSINESS, including full directions for taking out Patents, method of making the Specifications, Claims, Drawings, Models, buying, selling, and transferring Patent Rights, &c.

N. B.—Subscribers will bear in mind that we employ no Agents to travel on our account.

© 1850 SCIENTIFIC AMERICAN, INC