# Scimtifit Ameritam. 

## THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

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der in six months.

An Inch of Rain on the Atlantic.
We have been struck with that passage of Lieut. Maury's "Physical Geography of the Sea" in which he computes the effect of a single inch of rain falling upon the Atlantic Ocean. The Atlanticincludes an area of 25 millions of square miles. Suppose an inch of rain to fall upon only one-fifth of this vast expanse "It would weigh," says our author, "three hundred and sixty thousand millions of tuns; and the salt which, as water, it held in solution in the sea, and which, when that water was taken up as vapor, was left behind to disturb equilibrium, weighed sixteen millions more tuns, or nearly twice as much as all the ships in the world could carry at a cargo each. It might fall in a day; but occupy what time it mightin falling, this rain is calculated to exert so much force-which is inconceivably great -in disturbing the equilibrium of the ocean. If all the water discharged by the Mississippi River during the year were taken up in one mighty measure, and cast into the ocean at one effort, it would not make a greater disturbzence in the equilibrium of the sea than would the fall of rain supposed. And yet, so gentle are the operations of nature, that movements so vast are unperceived."

Marble Sawing Machine
The annexed engraving illustrates a machine for the simultaneous sawing of two sides of a block of marble, the cuts being made straight, or on a taper, as may be desired. Much attention has been given to this particular subject of invention, during the past few months, in consequence of the offer of a prize of $\$ 10,000$ for the best practical machine for the purpose. In the last number of our paper we published a communication from the offerer of the prize, in which he makes some very interesting statements respecting the marble resources of this country, the extent and growth of the trade, the uses and value of this special class of machinery, \&c. The engraving herewith presented is the first of the kind that has ever appeared in our columns. The invention originated with Messrs. Noette and Schmidt, 227 Front st., Brooklyn, N. Y., and was patented Nov. 2n, 1855.
A is the frame, on the upper part of which gaides, B, are secured in which a horizontal saw frame, C G', works. This saw frame is operated by a pitman, D, operated by a crank $E$, on shaft $F$. In the end picces, $G^{\prime}$, of the frame there are rods, indicated by the worm wheels, G G, upon them; said rods have right and left screw threads cut upon them, the thread at one end of the rods being cutreverse to those on the opposite ends. The rods are operated by their worm wheels G G, into which screws, $e \quad e$, gear, said screws being upon shaft, I, which works in suitable bearings, $f$ attached to the saw frame. One end of the shaft, I, has a ratchet, J, into which pawl, $g$, catches, said pawl being attached to a lever K . The upper end of the lever, K , is attached to $\operatorname{rod} \mathrm{L}$, and the rod, L , is attached to a lever M. The lever, M, has a horizontal projection, $g^{\prime}$, at its lower end, the outer end of which projection is rounded or beveled, as shown.


A pin, $h$, is placed on the framing, A, against $\mid$ On the bed, V , is a ratchet wheel, $\mathbf{Z}$, which is $\mid$ quickness of taper may be regulated by simwhich pin the projection, $g^{\prime}$, strikes. $N$ is a operated by means of the hand lever pawl, ply changing the fulcrum of the lever, $M$. spiral spring, one end of which is attached to $Z^{\prime}$.
the lever, M, and the opposite end to the saw frame, G'. 00 are saws. The ends of these saws are attached to nuts, $j j$ ', which work on the screw threads cut on the rods, $G^{\prime}$, before mentioned, there being a nut on each screw thread. The saws are not attached directly to the nuts, but to plates, $k$, which are secured to the ends of the nuts. By adjusting these plates to the nut in the desired position, the cutting dges of the saws, 00 , may be inclined either outwards or inwards to suit the taper direc sawed. To one end of the shaft, $F$, there is attached an eccentric, $P$, around which a strap, $Q$, is fitted, said strap being attached to a rod, $R$, the lower end of which is connected to a lever, S, which works loosely on a shaft, T.-
This shaft, T, has a ratchet, U, at its end, and a pawl, $l$, attached to the lever, S , catches into the ratchet, U . The shaft, T , also has a screw $m$, upon it, which screw gears into a worm wheel, $n$, which is fitted upon a screw rod, W $V$ is a bed, which has a frame, $X$, attached to it, said frame, $X$, being allowed to slide up and down, by means of guides, $o$, on uprights, $a^{\prime}$
$a^{\prime}$, attached to the frame $a^{\prime}$, attached to the frame, A. To the upper surface of the worm wheel, $n$, a toothed wheel, $y$, is attached, and a toothed wheel, $r$, indisinctly shown, gears into the wheel, $y$, and a pinion, $s$, gears into the wheel, $r$. The axis of the pinion, $s$, has a crank, $t$, attached to it.The bearings of the shaft, $T$, are allowed to slide in the frame, A, and levers, Y, are attached to said bearings, by operating which in and out of gear with the worm wheel, n.-

The block of marble, , to be sawed is placed upright on the wheel, $\mathbf{Z}$, and secured in proper position by means of the screw rod at the topThe lower or cutting edges of the saws, $0 \quad 0$, are then set outwards to correspond to the taper designed to be given the sides of the block. Motion is then given the driving shaft, F, by the belt, and a reciprocating motion is thus communicated to the saw frame by the pitman and crank. As the saws vibrate they cut the block of marble from its top end downwards, while at each stroke of the saw frame the screw rod worm wheels, G, are turned in consequence of the projection, $g^{\prime}$, at the lower end of the lever, M, striking the pin, $h$; and the nuts, $j$, on the screw rods, will be thrown or moved further apart at every stroke of the saw frame so that the block will be sawed in taper form, the diameter of the block increasing gradually from its upper to its lower end. The block is fed upward to the saws as the saws cut, by means of the worm wheel, $n$, which, as it turns, moves the screw rod, $W$, upward, which raises the block of marble. The worm wheel, $n$, is turned by the screw, $m$, on the shaft, $T$, the shaft being turned the requisite distance at each stroke of the saw frame, C , by means of the ratchet, U, pawl, $l$, rod, R , and eccentric, P , described. When twosides of the block sawed, the block is run down again below the saws by turning the crank, $t$; the ratchet wheel, Z , on which the block rests, is now turned by means of the lever pawl, $\mathbf{Z}$ ', and the block may be set to have two new sides cut. In this manner a square, hexagonal, or any many-sided form may be given the block. The degree of

It is alleged that this machine will work rapidly and well, and that a block of any polygonal or many-sided form may be sawed without removing the block from the machine from the time it is commenced until it is finished. For further information respecting the invention address the patentees.

> Curing Jaundice.
M. Bernard, a French chemist, has, it is said, emonstrated, by several experiments, that the white of eggs can only be assimilated or converted into food for the human body through the intervention of the liver. Guided by this fact, Dr. Giesler, of Goettingen, has suggested its employment in the treatment of jaundice. If the digestion of the albumen of eggs tend to rouse the action of the liver, it will necessarily restore the secretion of bile and cure jaundice.

Cowdee Gum and Varnish
In New Zealand, a resin of a peculiar character oozes from the trunk of the Pinus Kauri, a noble tree, which oftentimes attains to a diameter of twelve feet. The resin is commonly called "Cowdee gum," and is found in pieces, from the size of a walnut to chunks weighing two hundred pounds. Some specimens are clear and white, and others are of a nut brown color. It is fragrant, like elimi, and as inflam mable as camphor. It readily dissolves in alcohol, and makes a harder varnish than gum mastic. It also dissolves in alcohol mixed with turpentine, and mixed with lac, makes good sealing wax. It is now extensively much known in our country.

Oar Foreign Correspondence.
[Reported Officially for the Scientific American.]
LIST OF PATENT CLAIMS lsaued from the United States Patent OMc for the week ending jan. 29, 1856.
 and lowering the vibrating toe, a, by means of the lever,
fioperated by the governor, in the manner substantially
as set forth.


 Fielp Fences-T. J. Carleton and Stephen Post, of
York, Ohio We claim a fence constructed of rails se.
cered oach other and upported at proper distances
above the ground by posts composed of iron rods twisted cured to each other and supported at proper distances
above the bround by posts compored of iron rodis twisted
alternately round each other and round the rails, as de.
scribed. and one or both of the rods bent down from the
too of the fene, to brace it, as specified, to the base in
whichthe rodsare fixed.

 claim to the device of the moving grate, neither do 1
claim, ot themevelves, the eccentrics or rods by which the
slides mare med.
I claim the simultaneous raising of the grate, B, and

 Replacing RALLRoAd CARs-H. N. Degraw, of Pier.
mont, N. Y. Ido not claim anyof the devices, separately
considered, making up the combination
But



 forward on the rail for a further joint action of the self.
ajdusting wedge and gripe of the jaws as arop to follow
up the worlc, repeatedly and progressively, as set forth.
 and spring toothed crane, $M$, with the rock shaft, E, and
pressing rods. iJ,
and for anged and
and purpose set torth.










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 bed, by which a rotary motio
from one shaft to the other.




 kaline rosin solution; nor do claim the sprinkling
pulverized substances on painted suraces and do not
fanfine myenf to any peculiar mode of coating the sur-
face with rosin
 Grinding MiLLs-Lucius Paige, of Cavendish, Vt.: I
claim arranging and combining with a screw, in manner
substantially as described, one or more wheels and a hop-





 BEE Hives-H. G. Robertson, of Greenville, Tenn.;
do not leaim - lime as a material for packing the joints
my hive, but merely indicate it as the most suitable for
 less advantage I I claim making the joints hollow, and
lotufing thementith caustic lime or other matter offenive
to insects in the manner and for the purpose specified



















 and

















Somewhat of a Jumper.
John Lawrence Bagler, in the Louisville Times, offers to bet from $\$ 3000$ to $\$ 5000$ that he can jump, on a dead level, one foot further than any man in the world, or that he can
stand flat-footed apon the earth and leap a brick wall fifteen feet high and four feet thick.

Messrs. Editors-London, Jan. 12, 1856. Dunn's Patent Duplicate Retort Boiler, which is of simple construction, and, as shown byexperiment, of great strength. The objects sought by the patentee are to render explosions more difficult, and if an explosion does take place, to
diminish its mischevious effects by giving it a diminish its mischevious effects by giving it a more partial character. Mr. Dunn substitutes for the present steam boiler, cylinders or rein diameter, of best $1-4 \mathrm{inch}$ Staffordshire plate, with strong cast-iron ends, forming the pipe junctions. The cylinders are placed in parallel lines, and the water supply pipe is connected with one end of each by a shor all the cylinders, which are generally kept about half full. In the event of an explosion, only one cylinder is likely to be affected. If he action of the fire is excessive upon some of the cylinders, their relative position can be quickly altered, or the cylinders themselves may be turned over. The cylinders being mall are easily transported from place to engineer of Manchester and the neighborhood as Mr. Dunn's works, one of these retort boilers was lately tested by hydraulic pressure, and burst at a pressure of 525 lbs . to the square inch. These boilers being made in parts, all of which are duplicates, any portion can be replaced at any time, or the whole enlarged, by placing more cylinders side by side. The large heating surface renders these boilers very well lin on score offer. The invento
For some years a weekly journal which should thoroughly represent the interests of the engineers of this country has been thought a desideratum. From the date (1843) of the stablishment of the Artizan-favorably known to most of your readers by your occasional ex-racts-many times has the chick been all but reaking the shell, tut always has some untoward event occurred to crush it before developement. On January 5th, however, two of engineers and scientific men generally-the Enginser, and the Engineering Journal. The former of these comprises about sixteen pages of the size of the Scientific American; the latter sixteen pages, somewhatsmaller. There re many points of similarity in their contents. But what strikes the English readers of your valuable periodical the most, is the use they make of the Scientific American-a great testimony, however, to the value of that journal. For example, the Engineer has, at page 12, reproduced the elaborate perspective elevation and plan of an improved ship windlass, which was patented by J. Emerson, of Worcester, Mass., and illustrated in the Scientific Americas some little time since. The same journal has re-produced (page 13) a punching and planter, both without acknowledgment, from some of your recent numbers. By a singular coincidence the Engineering Journal also gives the punching and shearing machine, for which it says it is indebted to the Scientific Ameri-cans-a high compliment to the nation at the expense of your journal. I might be uncharitable enough to assume this to be aningenious evasion of the moral obligation to acknowledge borrowed articles did I not find at other pages your title properly given at the end of extracts. The number abounds in typographical errors; perhaps the fault may be due to the printer's "devil," after all, for in the address we are told that "a first number is, at best, necessarily a rough proof." I will not, under the circumstances, attempt to criticise these "rough proofs," but they must materially improve the quality of their matter if they wish to receive the support and assistance of the practical workmen in the engineering trade. While there is much in each that will be found use-
ful, yet neither has at present shown that tone of practicability which is necessary to secure a large circulation in the shop.
The daily prints inform us that on and after May next fifteen large mail steamers will leave Europe monthly for the American continent, viz.: seven English packets, four United
States, three Belgian, and one Portuguese. Fourteen of these will start from or touch at

England, the Portuguese packet being the single exception; eight of these fourteen steamers will start from Southampton, and the remaining six from Liverpool. These mail packets will cross the Atlantic by three different routes, which will terminate on the American side at the Brazils, Central America, and the United States. Rio de Janeiro will be the most southern point touched by them, and Halifax, Nova Scotia, the most northern point. In connection with these Atlantic packet lines there will be nearly twenty tributary ones, some of them as long as the Atlantic lines themselves. By these, the whole of the American Continent, down so far south as the river Plate on the eastern side, and from Peru to California in the Pacific, also the whole of the adjacent islands, including those of the West Indies, will be supplied with European correspondence.

## Coffee, its Cost and Culture

It is believed by many that coffee can be cultivated in some of our Southern States as successfully as in Brazil, Java, and Jamaica ; if so, it is high time that some of our planters were entering upon its culture, as it costs our countyr no less than $\$ 15,500,000$ annually for the beans of this plant.
The coffee tree lives to a great age provided that the land is kept well drained. The tree begins to bear when three years old, and is at its full bearing when seven years old. The tree is allowed to grow in hight from six to seven feet; the top branches are pruned off when the tree is five years old, so that by the time it is seven it resembles a spread umbrella. Each branch droops downwards, and thus gives the pickers a good chance to pick the berry. The coffee tree in Brazil bears two crops each year, the large crop in the spring, and the small one in the fall. The first crop is picked when the berry is red, resemblng a cherry. The second crop is in general small, and allowed to remain on the tree until fully ripe and dry. This crop, cared in the husk, is far su perior in quality, and is called "pearl coffee" The blossom is beautiful, small, and tender. It remains on the tree from three to four days. If the weather is warm, with showers, during those few days, the crop is sure; if cool at nights, it often fails. When the berry is taken home from the field it is carried to a mill-house. The mill consists of three small rollers. The berry is put into a hopper, and a constant stream of water falls on the rollers during the time the mill is at work. By this process the outside hull is taken off and the berry is separated from it, and the coffee falls into a brick tank, where it is washed perfectly clean, and then put on a place covered with tile or brick raised in the center that the water may drain. It is then taken to the curing loft, where it is turned four times a day until the hull is crisp and dry. Then by putting it through large fanners the inside hull comes off, andleaves the berry ready for hand-picking for market.

Sulphate of Indizo in Dyeing.
Messrs. Editors-In your notices of foreign inventions three weeks ago, in speaking of permanent black, you allude to the "sulphate of indigo" as being used in fugitive colors. Sulphate of indigo cannot, strictly speaking, be termed a fugitive dye. In connection with the by-chromate of potash. I have used it very successfully in the dye house in coloring blues and greens, using the bi-chromate as mordant, and though not altogether equal to the blue vat, it is a mode far superior to the ordinary method of using the sulphate. T. Stibss, A.M. Wooster, O., Jan. 1856. Dyer

## New Method of Churning Milk.

E. Conkling, of Cincinnati, suggests to us an improved method of churning to obtain butter from the milk when it is sweet. The process is, to force the milk in small streans through orifices, such as a perforated plate or board, with a pump. He has tried a number of experiments and met with gratifying success.

## American Plows in Malta

Light American plows have superseded the heavy Scotch plows in Malta. They were in troduced recently by the Governor, Sir Wm. Reid, formerly of Bermuda. The Scotch plow was too heary for the warm climate and the mules of Malta.

