What is Doing to the Rricsson ?-Heat. The Ericsson Hot Air Ship, having all b former engines taken out at Green Point, was removed three months ago to the North River side to have great alterations made in her machinery, at the engine works of Hogg \& Delamater. We have not visited this vessel in her new berth, nor do we know personally what changes are making or are to be made in her new engines, but we have been informed that the new engines making for her are identical in nearly every particular with those of Dr. Stirling. If the former engines of the Erricsson were completely successful, as asserted by so many persons, why were they taken out? Has not the result so far confirmed all we said about the impossibility of hot air being able to compete with steam? It has. Why is it then, that those papers who deceived the public with false representations about its success, have not eaid a word about their being mistaken? We cannot look upon their conduct as that of hoest journalists. Capt Ericsan has shown him self to be a most skillful adept in the Fabian tactics of literature, in staving off his discussion with Major Barnard.
An article on the mechanical action of heat by F. Ronbaud, translated from "L'llustration," has been published in one of our city magazines, which commences thus :-"When a body is exposed to the action of heat, there is produced the phenomena of dilatation, that physicians explain by saying that the caloric has penetrated a body, and taken the place of the air or water, or other substance interposed in the pores of the body. Jn order to penetrate a body thus, the caloric has had to overcome a certain resistance, and to exert a mechanical action. In consequence, caloric is a force that can be utilitized in the arts and in machines identical with the steam engine. It is this idea that Capt. Ericsson is endeavoring to realize in his new caloric engine."
There are not a few errors in the above, mixed up with some truth. It speaks of caloric as a ponderable body, which it is not, for it penetrates a body, and does not displace either air or water in the pores of the body, but combines with the air or the water. \&c., producing dilatation. The caloric or heat when it enters water, forms steam. It is not correct to say "the mechanical force of caloric," any more than it would to say " the mechanical force of force." It requires the combination of caloric with a known ponderable body to produce mechanical force. Water is the best substance known to us when combined with heat to produce the most economical mechanical effects in moving bodies. We have many strong arguments in proof of this, which we have not yet advanced, because we deem it prudent to reserve some charges against such a guerilla machine as the "hot air engine," which no doubt will make a second advent by and-by, and perhaps reproduce not a few speech, and paper feats superior to any it has yet made. We perceive that Prof. Barnard, of the University of Alabama, has a long article in the last number of "Silliman's Journal," on a proposed improvement of Ericsson's engine. It is an exceedingly dull article, and exhibits a decided want of practical knowledge in engineering.

## Burning Fluid.

According to a record kept by Mr. E. Merriam, there were, during the year ending September 1st, 1853, some thirty-three fatal and disastrous explosions of burning fluid and kindred preparations, mostly in the cities of New York, Brooklyn, Williamsburgh and vicinits, in which nineteen persons were killed, twentythree persons fatally or severely injured, three persons slightly wounded, and some three or four buildings fred. The preparations alluded to are buring fluid, camphene, spirit gas, rosin oil, etc.

## Table Rock.

All the "Table Rock," once so famous at Niagara Falls, is now in the boiling cauldron below. The remaining portion of it fell with a tremendous crash on the morning of the 9th in stant.

## New York Railroads.

There are twenty-one hundred miles of rail road in operation in the State of New York, and road in operation in the State of Ne
ten thousand more under contract.
[Continued from the First Page]
the top flue, N, which communicates with the
chimney, P. The steam
ber, $K$, from whence it is taken off to the en ber, K , from wh
gine by a pipe.
$\Lambda$ very large heating surface is presented in
Figure 3.

faces are covered with a small quantity of water, well adapted to withstand great steam pressure. so as to absorb the heat rapidly and generate One of these boilers has been in operation at steam in the best way, to save the escape of heat in the gases of combustion. The boiler isintended to be kept full of water except the dome, K , which affords sufficient steam room. It is almost impossible that the water level can be reduced in the water jackets to such a degree as to be dangerous. The form of the boiler is

## What our Readers think of the Eclentific Ameri-

The author of the amnexed letter is the inventor of the celebrated oil press which bears his name, and his good opinions both cheers and encourages us to greater and renewed efforts to make the "Scientific American" more worthy still of the esteem of such excellent and honorble judges:-
Messrs. Editors.-I have been a subscriber to your paper for two years, and I now wonder how I had got along previously without it, I find it it invaluable. $\Lambda$ hundred dollars a year expended in other ways would not furvish me with the same amount of useful and interesting information. In fact, I should be at a loss where to go for many things if I were. not furnished them here. And I had rather furnish my workmen, and particularly my engineers, with the paper at my own expense, rather than they should be without it, for the items which they would get in it would make them much more useful in my business. I make these remarks for your encouragement; I hope they will remind you that your labors are appreciated.

Yours, \&c., D. L. Latocrette
St. Louis, Sept. 2, 1853.

## Suspenders..-Their Benelts.

It is the prevailing fashion, especially in citics for men to dispense with suspenders, and sup port their pantaloons by having them made to button tightly around the person, above the hips.
It is our settled conviction, that this practice is decidedly detrimental to health. Much has been justly sald against tight lacing, as applied been justly sald against tight lacing, as applied
to females; and of suspending heavy skirts to to females; and of suspending heavy skirts to waist or loins, where them tightly around th列 the Orleans Railroad, France. It is a com-
room, kitchen, and wine celllar, with icing apparatus for fifty bottles of wine; in fact, apart ments furnished elegantly and comfortably. It was built under the immediate direction of the Comte de L—, and he can now travel at home from one end of Europe to the other.

## Our Steam Nayy-The Princeton

Since we published a brief history of our Steam Nary (page 381 of our last volume) many of our cotemporaries have directed public attention to it, by publishing, in some cases the whole, and in others, extracts of our article. One of our objects has been obtained already, and we hope that a searching investigation as to the causes of the inferiority of our steam frigates will be instituted, which will result in good to the country.
It is a shame to our navy managers that the most recent steam frigate built has been, so far, an entirc failure: we allude to the "Princeton." $\Lambda$ correspondent of the New York "Times," writing from Pictou, Nova Scotia, about herperformances, in protecting our Yankee fishermen, says:-
" The U.S. steamship ' Princeton' arrived here on Saturday night at 9 o'clock, after grounding twice in sight of the light-house, while in charge of a branch pilot. She left the Gut of Canso on Saturday morning, about six o'clock. The day was beautiful, and the 'Princeton'was making more miles under steam than ever before. About mid-day the alarm of fire way sounded, the men were beat to quarters, the hose and fire apparatus were brought into play, and by the vigilance and activity of the officers, the danger was soon over. An hour afterwards smoke was pouring out from the hold, and another beat to quarter was sounded. The axmen cut away the felt and lead and clap-boarding in the vicinity of the boilers, and the wood was found to be thoroughly charred. The coal in the bunkers was so hot as to make it advisable to overhaul this black, bituminous furnace-food before trusting it another day in its quiet, sombre, but volcanic cell. Accordingly, to-day, the decks and the coal-heavers are one color. Mr. Shock, the able, skillful, and reliable chief enginecr of the 'Princeton,' has made some improvements in his department, by which more steam is generated than she could on Saturday use, with a saving of over one-third of a ton per hour. The amount of coal consumed while steaming from Eastport, Maine, to Halifax, N. S., was 39 1-2 tons in 38 hours-an average of one ton and and three-tenths pe hour. Steaming from Halifax to the Straits of Crnso, $181-2$ tons in 25 hours, showed au avc rage of three-fourths of a toll under Mr . Shock's improvement. From Canso to Pictou she car ried 20 pounds of steam, performed $321-2$ re volutions, and accomplished eight knots. This volutions, and accomplished eight knots. This
is the 'Princeton's'utmost-her climax of speed is the ' Princeton's' utmost-her climax of
under the most favorable circumstances."
From this extract (if correct) we learn that the slothfulness of the "Princeton" is not owing to a want of steam, but something else, and that it is dangerous to "fire-up" and keep a good head of stean on. The boiler quarters must be badly planned on the one hand, and either the engines or the screw-propeller (we do not know which) badly constructed or planned on the other. We have seen it stated in some of our cotemporaries, that Chief Engineer Isherwood, who has written so much in some of our magazines about the performances of our naval steamships, had charge of the construction and fitting up of the machinery, boilers, and and fitting up of the machinery, boilers,
screw of the " Princeton. This may not be correct ; somebody, however, is to blame-but who that person (or persons) is, we cannot tell. Our object, however, is not to reach individuals, but the system-as our whole Steam Navy is a disgrace to our country

## A Juvenile Eroneaut.

Charles Wise, aged 17 years, son of Mr. John Wise, the well-known æroneaut, ascended in his father's baloon, the "Irene," from Shanondale Springs, Va., last week, in the presence of a large concourse of spectators. The ascension took place at 20 minutes past 2 o'clock P . M., and at 10 minutes after 4 the baloon descended on the farm of Mr. E. Turner, five miles above Shepherdstown.
It is only great souls that know how much glory is in being good.


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We would atate, that we have seen a working model of
this paddle wheel tested with a use and the test was favorable to the nem wheel We use, and the test was favorable to the new whee.. We
Fould like to see this wheel fairly triedf or some time on a stea: ship or steamboat, in order that all its qualities
might be fully teated, in omparison with the common radial bucket wheel.

 Mun wit tha a paraliel lead roller.



[This is a very simple improvement and is likely to
take the place of spiral knives which have been in wse : it operates on the same principle but under a ifferenteonst truction.3




















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NIIL Stool frame-By P. A. Palmer, of Leroy, N. r. Cook Srovil By Frederick Schulltz, (asignor to Chas,

 Coorkiv Srovt-Ry Wm. F. Gray, of Pen Township.
Pa. (axignor to Abram \&

## T'anning---Eaton's Short Process.

The annexed specification is that of Prof Eaton, for which a patent was granted on the 10th of August, 1852. Many inquiries have been made of us-respecting its nature, me. it, and the kind of leather produced by it We must say, it is "the eating of the pudding Which affords the best evidence of its"good or bad qualities."
specification of a. k. baton, of rochesitgr y. y., yor improtements in taining

## ifather.

Hy furention consists of a combination with ny tanning liquor of certain substances which hare the effect of facilitating its action, and also of preventiug the extraction or other matter of the bark or substance, from which the tamin is obtained, from acting injuriously upon the leaIn order to tan hides and other skins by my ten
improved process, they may be first soaked, unhaired, and bated by the usual processes.
When the bating is accomplished they are ready for the tanning lifuor, which misy be prepared from any vegetable substance from which tanrin is usually obtained by adding to the de.
coction of the substance certain chemical sub-
stances, which facilitate the action of the tannin, and, at the same time, prevent the extrac tive matter of the decoction from injuring the leather. One of the most convenient sources of techu of the ordinary "Terra Japonica, or a to my procesa as the cepecially adapted are mixed with it prevent it from having any injurious effect upon the leather, however strong the decoction be made. 'fo tan with this substance, prepare a solution of one hundred and seventy pounds of japonica in a sufficient quan tity of soft water to receive one hundred cal skins. This solution is best prepared by steep ing the japonica in hot water and straining the liquor through a cloth when cold. To this li quor add eleven pounds of sulphate of potash and six pounds of alum (double sulphate of alumina and potash.) The bated skins are immersed in this liquor after the grain has been set by a weak tanning liquor, a greater or less period, according to their thickness and porosity. Sheep fr m one to ten hours in the liquor. Calf skins require to be immersed from one to six days, and hides require a proportionably longer period, which varies from six to twenty days.After the first hundred skins have been tanned, well is still nuch tannim left in the liquor a the sulphate of potiash; it is therefore brought up to its origmal tarmin strength by the addi tion of japonica alone, and is employed to tan a succeeding parcel of skins.
In the process above described, the sulphate of potash induces so rapid an action of the tannin upon the skin that the extractive matter of the vegetable substance from which the tannimg liquor is made, has not time to act; this is pe culiarly the case when japonica is the substance enployed, as it is well hnown that if bated skine be submitted to a liquor made from it alone, in the ordinary manner, they are spoiled, for the catechuic acid injures the animal fiber, while, by combining sulphate of potash with the liquor, the injurious influence of this actd is prevented The alum improves the quality of the leather, as a portion of the alumina of the alum combines with the gelatine of the skin and adds greatly to the impermeability of the leather. Alum is not essential in tanning calf skins.
If japonica cannot readily be obtained, tanning liquor may be prepared from sumac, or the various barks generally employed, by adding to the decoction sulphate of potash alone, or sul phate of potash and alum
Leather tanned by the process above descri bed is remarkable for its pliability, strength and impermeability. The former of these proper ties is believed to result from the absence of vegetable extractive matter; the strength results from the fact of the animal fiber being uninju red by the process; and the impermeability is due both to the thorough action of the tannin and to the alumina combined with the leather
Having thus described my process of tanning leather, what I- claim as my invention, and desire to secure by Letters Patent, is the combi nation of sulphate of potash with the tanning liquor, substantially in the manner and for the purpose herein set forth.
[We have tested, for six months, a calf skin traned by this proeess, in a pair of boot uppers. It has proved to be excellent wearing leather It was stated to be tamned by this process in six days; but the skin was no doubt a good one indep
We cannot-in a chemical point of viewsee what superior effects can be produced in tanning by the sulphate of potash, any more than the chloride of sodium (common salt,) the use of which has been long known to tanners, exceptsalt itself, whereby the sulphur unites with the skins and produces a vulcanizing effect-which change cannot take place by the process described, so far as our experience and reasoning extend.

## Bedouin Arabs Distanced.

When, on the 6th of June, a loconnotive was run for the first time on the Egyptian Railroad, the Bedouins galloped alongside on their horses for some time, until they found they had

