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

## SCIENTIFIC AMERICAN,

 At No. 288 Falton atreet, (Sun Buildinge) New Yark, by munn ac $\mathbf{C o}$


 Brooklyn and Jersey Cits. advance and the remainder per anum.-One Dollar in

Pror Propnlsion of Ships and Aquatic Animals. In a paper recently read before the Society of Arts of London, by J. MacGregor, on the paddle wheel and screw propeller, it was observed that in the modes of propulsion employed by aquatic animals may be found al most every plan which has been used by man with machinery. Thus, water is ejected for propulsion by the cuttlefish and "paper nautilus;" sails are used by the velella and wate birds; punting and towing by whelks and some others; a folding paddle by the lobster feathering paddles by ducks; and oblique surfaces by fish of all kinds. A screw-like appendage is found in the wings of an Australian fly, but it is supposed to be shaped thus only when dried after death. These are well known instances of similarity of natural and artificial means of propulsion ; but the author of the above-named paper mentions remarkable animal which propels itself by a rotary movement, acting on the water by means very similar to those of the paddle wheel and screw propeller combined. This is the infusorial insect " paramecium," which is of an irregular oval or egg-shaped form, with a sulcus or furrowed groove or depression running obliquely round its body. A wave-like protuberance passing along this sulcus (with or without cilia) causes the body to rotate on its longer axis, and thus propels it by the fore and aft stroke of the paddles which the cilia on its surface form, as well as by the screwlike progress induced by the spiral groove.

## Method of Preparing Kid Leather.

Yelk of egg is largely used in the preparation of kid leather for gloves in France and on the continent of Europe, in order to giveit the requisite softness and elasticity. The treatment of the skins with yelk of egg, which is called by the French glovemakers nourriture, is daily becoming more costly, in consequence of the large consumption and increased price of the material used. It has recently been proposed to substitute for the yelk of egg the brains of certain animals, which in chemical nature closely resemble the yelk of egg. For this purpose the brain is mixed with hot water, passed through a sieve, and then made into dough with flour and alum, and used in the same manner as yelk of egg. The inventor of this substitute states that the quality of inferior skins may be so much improved by this treatment as to be fit for making gloves.
The Indians of our forests employ this very agent (brains of animals) for preparing their skins for mocassins, \&c. They employ the brains of deer and buffalo, mixed with a weak lye of wood ashes, and after this they smoke the skins; the pyroligneous acid of the wood in the smoke accomplishes the same object as the alum used by the French skin dressers. Indian prepared skins stand the action of water in a superior manner to French kid. Furs dressed in the same manner resist the attacks of insects.

BARTHOLOMEW'S IMPROVED SAWING MACHINE.


The inventor of this machine-D. B. Bartholomew, of Lanoaster, Pa.-has produced a compact arrangement of parts that will enable any one to have a good sawing machine in their workshop, not only at a low price, but also one which requires but little power, as he makes them from small enough to be operated by hand, up to any size required.
That it is more advisable to cut with a saw which has a regular and equable motion must be apparent to every one; and this machine gives this advantage without much more labor than if a hand-saw was used ; besides, it will cut stuff much thinner than could be done by a hand-saw, and of greater thickness, that is, with the same precision.
Our engraving is a perspective view of one of these machines, Fig. 2 being an additional portion.
A is a framing of wood, well secured to gether, and having a supplementary framing, $A^{\prime}$, rising from it by two uprights. $B^{\prime}$ is a crank, by which the band wheel, B , is rotated; and $C$ is a belt passing around it, and communicating motion to the pulley, D , on the shaft of a fly wheel, E. To this fly wheel, E, there is attached a pitman, $F$, that gives a vertical reciprocating motion to the saw, G The saw, $G$, moves up and down in guides, $a$.
attached to the frame, A, and guides, $b$, at tached to $A^{\prime}$. To the guides, $a$, there are in clined coverers, that prevent the sawdust choking the guides, and throw it on each side In the guide, $b$, there slides a piece, H , on the lower end of which is a roller, and from the up per end a screw, $d$, projects, to which a weight can be attached. There is also another piece, $\mathrm{H}^{\prime}$, on the other side of the saw, provided with a screw, $d^{\prime}$, also for carrying a weight ; these are kept up by pins, $c$ and $c^{\prime}$, which being withdrawn, the bars press upon the stuff, and hold it down on the feed rollers while it is being sawed.
The feeding apparatus is operated by means of a cone pulley, $I$, on the shaft of $B$, and by means of the belt J , cone pulley K , belt $K^{\prime}$, pulley $L$, and belt $M$, the feed roller, $N$, is moved. This feed roller is provided with teeth, and as the machine is represented in Fig. 1, it is suitable for sawing stuff of general thickness. $0,0,0$, are rollers on which the stuff runs, and the bar resting in the ends $P$, $P$, is a gage bar that can be fixed to any gage by the set screws, $e$. For sawing thin stuff, the feed roller N , is removed and also the guide bar, and the frame, $\mathrm{S} R$, is placed on in front of the saw instead. In this frame the stuff to be sawed is placed between the feed rollers
$g$, which have a positive motion given them from the belt M , by gearing. The toothed rollers $g$, are pressed up to the stuff by the handles and gearing $h$, and they are mounted in pieces, $i$, which slide on the cross-pieces, $j$, and $j^{\prime}$, of the frame S. The other rollers. $g$, which press against the other side of the stuff are kept against it by springs, $k$, which are kept in the proper state of tension by the screw shafts, $l$, rotated by the crank handle, $m$.

This machine was patented by the inventor December 29, 1857, and any further information can be obtained by addressing him as above.
The novelty is chiefly in the feed rollers, for in other sawing machines the feed has been irregular and unsteady, but in this form of the feed apparatus, receiving positive motion from the same shaft as the saw, both are equally steady and reliable.

## Calture of Fish.

Some very excellent information on the above subject, by Robert L. Pell, President of the American Institute, has been published in the New York Evening Post for the benefit of farmers. The following are a few extracts:Fish eggs may be transported to great distances, without fear of failure, particularly the salmon and brook trout, which require from sixty to ninety days to mature. When two black specks are seen through the membraneous cuticle that covers the egg, they may be packed for exportation. The best plan is to place them between wet woolen cloths, about fourteen inches square, and pack in alternate layers in boxes, perforated at the top and bottom, so that the water used to moisten them at stated periods, may pass off, after having saturated them sufficiently.
If intended to be sent to a very great distance, you may place a layer of coarse sand, partially wet, in the bottom of a box four inches in depth; on this lay the prepared eggs separately, and cover them with an inch of sand-then eggs and sand alternately until the box is full; before the cover is screwed on, place the whole for two hours in water and ship it.
I once transported twelve hundred trout, of all sizes, to one of my ponds with perfect safety, from a distant brook, without changing the water, making four journeys, thus :A large tierce was put upon a spring cart, and filled with pure spring water, into which an abundance of ice was placed. As the trout were caught by treading the brook, and thus driving them into a net, they were imprisoned in the tierce without handling, and arrived in the tierce without handling, and arrived
at the pond in safety; without ice, they would have perished in half an hour.
You may carry young salmon or trout in glass jars by railroad any distance without changing the water, by placing a few aquatic plants in with them.
I am convinced that with judicious care, and ponds suited to the purpose, a branch of industry might be formed that would increase the wealth of the party attending to it unparalleled by any other business.
Let me, then, recommend all gentlemen living near the coast on Long Island and in New Jersey, wherever facilities offer, to make salt water ponds, by calling to their aid a portion of the sea, which may be carried inland by means of a short canal, and therein place fish to fat, besides breeding oysters.
It is possible to stock every stream in the state of New York with all the desirable varieties of fish in.a single season, and all the waters in the United States in a single year.






 IIn thir invention there are attached to the arme
Which are secured to, or project from, the fly wheel Which are secured to, or project rom, the fiy whee
shaft, or to the fy wheel iteelf, loaded levere, provided
Tith With friction blocks connected by a spring rod, and fit
ted wit in a stationary rim, wherebr the epeed of the ted wit in a stationary rim, whereby the epeed of the
horse power, or other machine to which the governor ia horpe power, or other machine to which he governor
applied, may be regulated as desired, by a simple me chanical arra gement.]













 crosed aferperibede,
[See description in another column.]



 apppiefto othe
pose eet forth.
[A perforated cap formed in two parte, and used in
connection with to for connection with too fiat mi $k$ tubes pla ed at a suitable
distanceapartis used in this lamp, in order that the fiame may beeupplied with a sufficientquantity of oxygen to oupport proper combustion without the aid of a chimney. It it especially appicabiet to lamps in whieh




 clamp and wedge



CThis chair is provided with rockers, attached in such
$A$ Way that they can be turned from one leg to another. and this, combined with a movable back and foot rest, forms a very convenient crade from therockingechair.]





[This invention consists in having two seed boxes hinged or jointed obliquely to a frame in auch a way that theymas, when necessary, be raised or turned up-
ward without interfering with one another, so that theirteesh will be free from the ground; the seed boxes being also arranged relatively with the seed distributing device, so that they will be thrown in and out of gear
with the driving wheels by the same movement.]

 described.
[This invention consista in the employment of a donble vibrating rake, so arranged as to traverge over
tho platiorm of the havester, and open and close at the defrred points, so that the cut grain will be raked from the platform and deposited in proper gavels upon the Eround.1















 [A full description of this invention is given in an

 [To the inner side of a blind or shutter a projection is
sttached, to which $a$ pin in secured $;$ this pin is is fited in the outer end of a 1 lotted lever, the inner end of which is of eemicircular forin, provided with teeth which gear into a corresponding lever and pin on another blind or
sutter, so that by moving one bind or shutter, onter, so hat by moring one hind or shuter, the other win
rection.]





[See notice on page 310.]




## 












## 




[This invention consists in a hollow valve of india
rubber of rubber of spheri al or sphereoidal form filled with alco
hol, mercury or other liquid, so applied in a cylindrica chamber at the extremity of the coil or train of steam pipe that when surrounded by a temperatu of 212 Fah.
a space will be left between it and its chamber for the a space will be left between it and its chamber for the
escape of the water of condensation from the pipe, but that when surrounded by a temperature above $212 \circ$, it
will be caused by the expanaion of fita contained liquid by the heat, to expand laterally and close the cham ber, and thus prevent the escape of the steam.]
 and $Y^{\prime}$ When the while are arranged in relation to each
other in the manner as and for the purposes set forth.
 electro-magnetic machine, or its equivalent, with
forcep for removingtoeth without pain argned
operating substaniailly in the manner described.




















 convenient
cont forti.
get forti.



TThisininention consists in placing the spigot of the
faueet within a mold which is tormed for casting the faueet within a mold which is formed for casting the
body or tube of the faucet, so that the body or tube of the faycet may be cast around the epigot, and the latter
thereby fitted accurately in place without any after work or finishing whaterer, the epigot being properly finished before being placed in the mold.]



 subetantially in the manner deecrib

## 8 -1888ев




















pegians.

Thage ${ }^{\text {Tower }}$ Stando-Nathaniel Waterman, of Boston

## Statistics of Population in Scotland.

The returns of births, marriages, and death in Scotland for 1857, just published, show that one birth in every 29, one death in every 49 , and one marriage in every 143 of its inhab itants has taken place. The birth rate, which
tion in Scotland, was, in the same year, 343 for every 10,000 in England. So far as a three years' average can determine such a point, it would appear that the mean mortality in Scotland has been in the proportion of 200 deaths to every 10,000 persons living, where as in England the proportion of deaths during the same year has been 216 to every 10,000 living-producing a deficiency on the part of England of 91,259 lives in the three years In Scotland, the inhabitants of towns were cut off during the year at the rate of 244 in every 10,000 persons, or one death in every 41; whereas in the rural districts the propor tion was only 157 deaths in 10,000 persons, o one death in 63. The proportion of marriage is considerably below the ten years' average in England, the former showing only 69 marriages in every 10,000 persons, and the latte 84. This fact, and the circumstance that the returns show the number of illegitimate birth to be grester, would seem to indicate tha some causes are in operation which are no favorable to the morals of the population in Scotland.

Inter-oceanic Canal to the Pacific
Lieut. T. A. Craven, U. S. N., has made report in reference to the practibility of an inter-oceanic communication from the gulf of Darien to the Pacific ocean, by the Atrato and Troando rivers, in which, after giving full details of his late survey, he thus briefiy sums p the actual physical difficulties to be come in cutting the proposed canal:-
" 1 . A cut through some five miles of sub merged mud at the mouth of the river, with the prospective certainty of constant dredging to keep it open.
2. The Herculean labor and incalculable expense of cutting through the lagoons of the Truando, and the embedded logs of the Paio Caides, where the whole country is inundated during at least nine months of the year, and where the floods of a day may destroy the ork of a week
3. The vast expense attending the removal of basaltic rock, in a country where labor and provisions must all be imported at most ex travagant rates.
4. The want of an anchorage on the Pacific coast.
5. The fatal effects of the climate, which it may be safely estimated, will disable at least one-third of any force that may be sent there.
You will not be surprised that, with the preceding arguments, I am of the opinion that he proposed canal is impracticable, as involv ing an expenditure of treasure not easily est mated, and a sacrifice of life from which the toutest heart may shrink. Human persever ance and ingenuity may, it is true, overcom the obstacles enumerated; but at least tw generations must pass away ere the world ca realize the accomplishment of a much less extensive work than that contemplated.

## Great Saccess.

It will be noticed by reference to the official list as it is published in this number, that there were issued from the Patent Office last ofghy-seven patent.
Of this number thirty-two were granted to nventors whose papers were prepared and presented through the Scientific American Patent Agency. Inventors who have business of this character to transact will need no other assurance than the above, that what cannot be successfully accomplished through us will scarcely be worth contending for. The scrutiny and care with which our cases are examined before the application is made for the patent, and the attention paid to prose cuting rejected claims, inspire inventors generally with full confidence that whenever an invention is novel and entitled to a patent, it is sure of success in our hands.
We do not expect and do not ask for protection for any improvement unless it is new, and by careful examination into our cases han one-half of those that are presented to us, without incurring the expense of an applius, without incurring the expense of an appli-
cation. Circulars of advice sent free of charge.

