

A NEW BOAT PROPELLING DEVICE.

In the accompanying engraving is illustrated a new device for propelling boats, patented through the Scientific American Patent Agency, January 8, 1878, by Mr. Thomas Fetherston, of Orange, N. J. It consists of a double crank shaft, supported in suitable bearings near the stern, and operating, by a large bevel wheel, a bevel pinion at the end of a jointed propeller shaft. Crank disks at the ends of the double crank shafts are connected by lever rods, with pivoted hand levers, which are worked by the occupants of the boat, who sit as shown facing the bow. Oars are of course dispensed with, and the simplicity of the device enables one person, if need be, both to propel and steer the boat.

Curious Insect Instinct.

Dr. Dewitz, a German naturalist, has recently described a very remarkable case of insect instinct peculiar to a butterfly of the genus *Aizos*, indigenous to Venezuela. The chrysalis on casual examination seems to be perfectly empty, while its surface is punctured with numerous holes. Closer scrutiny shows that, in reality, there is a double envelope, the outer layer alone of which is perforated, while on the inner covering are deep pits corresponding with the apertures. The caterpillar, after making the outer cocoon, perforates it, and then makes a strong inner one in which it takes refuge, the object of the holes being obviously to cause the cocoon to appear untenanted.

PHILLIPS' IMPROVED BUCKBOARD WAGON.

We illustrate herewith a new thorough brace or spring buckboard and light road wagon, for which it is claimed that it possesses all the advantages of a thorough brace and spring buckboard, owing to the springs front and rear. It is of light draught; there is less friction on wheels, axles, king bolts, and shaft shackles; it is noiseless, moves with less jar over rough roads, has shorter gearing for the length of platform or buckboard; the latter may be adjusted by variable leather or metal shackles, and the general construction is inexpensive and durable.

Just above the forward axle is the bolster, A, which is connected by the side bars, B, with the rear axle. The point of attachment with the latter is strengthened by braces, C, and at a short distance back of the bolster the side bars are still further stiffened by the cross bar, D, from the center of which a secondary reach connects it with the center of the crosshead. Depending from the lower side of this short reach is the metal brace, E, which passes beneath the axle. Above the bolster, A, is the long C-shaped spring, F, through the center of which passes the king bolt. At the rear, half C-springs, G, are mounted on the side bars over the rear axle. From the upper ends of both springs are hung by shackles the cross bars, to which, as bed pieces, are secured the boards forming the platform of the vehicle. The rear support of this platform may be (by means of straps) thorough braces passing over the outside of springs, G, and looped down from their upper extremities around the outer ends of the back cross bar; or the said bar may be suspended from the ends of the thorough-brace by metal shackles. Patented August 7, 1877. For further information address the inventor, Mr. James L. Phillips, Lowville, Lewis county, N. Y.

MILLINGTON'S HYDRAULIC RAM.

Our engraving represents a new hydraulic ram of simple construction, which needs no detailed explanation. The advantages claimed are as follows: The water flows into the machine, and strikes both the impetus valves in a smooth unbroken plane horizontally, thereby avoiding the friction and reaction of the perpendicular ram. The two cylinders enable one source to furnish water at two places simultaneously by pipes from each cylinder. There are no brass or iron faces to wear. There are but two working parts, each faced with a leather covering which can be quickly replaced whenever necessary. A regulating thumbscrew is provided whereby the amount of water used or wasted can be regulated, and a speed of from 30 to 120 strokes per minute obtained at will. The parts of the machine are keyed together, so that screws and bolts are thus dispensed with, rendering their setting up an easy matter.

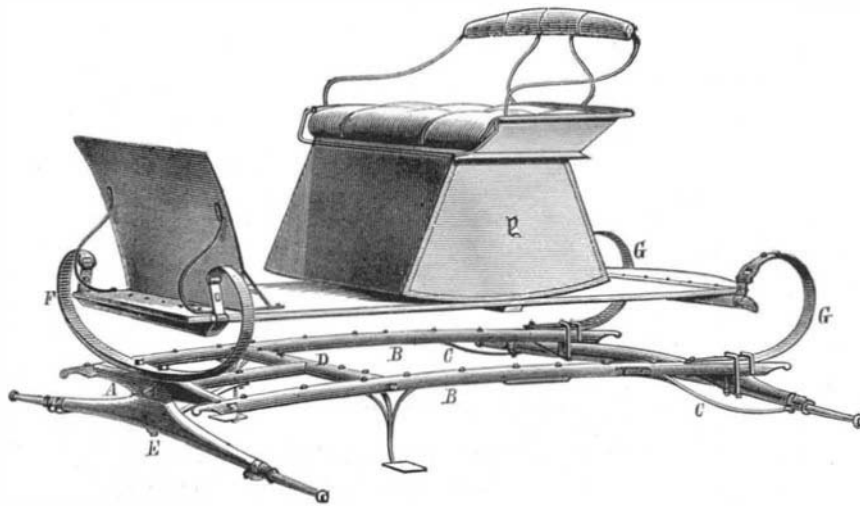
The ram can be used, we are informed, on any fall of water, from sixteen inches upwards, and is guaranteed to convey one fifth of the water passing into it, a distance of one hundred rods, and to discharge it at an elevation twelve times higher than that existing between source and machine. Or a greater percentage of water can be raised to a less height. The apparatus is in successful use in many localities, and is especially adapted for use on farms, or in cities for elevating water to the top of high buildings.

**NEW BOAT-PROPELLING DEVICE.**

Patented January 22, 1878. For further particulars as to sale of rams, patent, or territory, address Mr. J. F. Frueauff, agent, Columbia, Lancaster county, Pa.

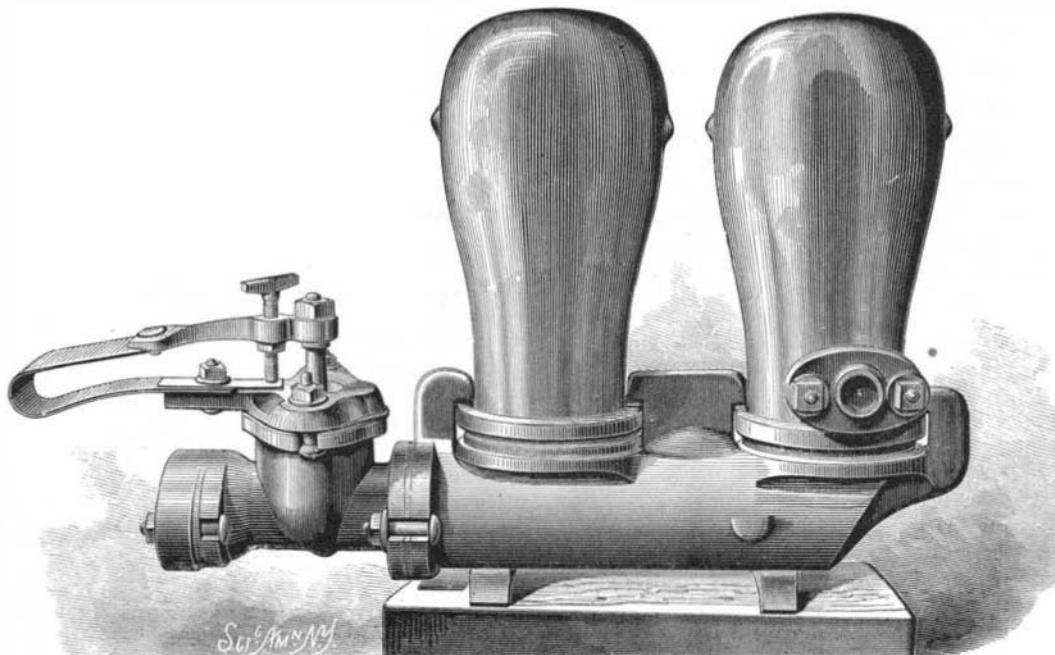
A Kangaroo Invasion.

The Melbourne *Argus* reports a remarkable invasion of kangaroos in Queensland, Australia. It appears that the drought of last summer, and the decreased food supply in consequence thereof, has driven the animals from the unsettled bush and caused them to descend in thousands upon the inhabited regions, devouring the crops and stripping the country of vegetation, so that the colonists have had to re-

**PHILLIPS' IMPROVED BUCKBOARD WAGON.**

sort to dry leaves as fodder for their cattle. The settlers have organized large expeditions to meet the invasion, and within four days it is said that upwards of 4,000 kangaroos were killed. The flesh, which is excellent eating, is being packed in tins and shipped to England.

To CLEAN greasy beakers and photographic glass plates, Dr. Walz suggests the use of an aqueous solution of permanganate of potash, to which a few drops of hydrochloric acid are added. The solution may be saved and used repeatedly, until its oxidizing power is exhausted.

**MILLINGTON'S HYDRAULIC RAM.****New Process of Labeling Plugs of Tobacco.**

About three years ago letters patent were granted for processes of labeling plugs of tobacco, by the use of labels made of tin or like hard substance, and attached to the plugs of tobacco by means of pressure applied to the label; thus pressing the label on to or into the plugs of tobacco.

Large quantities of plug tobacco, so labeled, have been sold, and such a demand has been created for labeled plugs that the trade and consumers call for tobacco with metal labels attached to the plugs, as we are informed, to the exclusion of nearly all plugs of tobacco which are not, in some way, labeled. Until recently, there seemed to be no way for attaching labels to plugs of tobacco, unless the label was made of some hard substance and applied by means of pressure.

By letters patent granted Hiram W. Hunt February 5, 1878, a new departure has been made in the art of labeling plugs of tobacco. During the process of manufacture, or after the plugs are made, depressions or cavities may be produced in the plugs in numerous ways, by means of dies or suitable devices, suitably applied to the lumps or plugs. A label, which may be made of hard or soft metal, or any other suitable material, and of form and size adapted to fill the depression, is then placed in each of the cavities or depressions so formed. After the labels are thus placed in the cavities or depressions, and the packing boxes filled and closed, the elastic, spongy character of freshly made plugs of tobacco causes the depressions or cavities to contract, fill, and partially close in and upon the sides and edges of the labels, so that when the boxes are opened the labels are found to be securely attached to and held in the cavities or depressions in the plugs. It is claimed that the distinguishing features which make this invention radically different from other processes of labeling plugs of tobacco are: It overcomes all necessity for pressing the labels on to or into the plugs; the application of pressure to or upon the label is thus overcome, as well as the necessity for using labels made of hard substances. Thus it seems that a novel, easy, practical, and inexpensive way has been found to label plugs of tobacco.

Smoking while at Work.

The only advantage that can be alleged in favor of smoking at any time is that it produces a mild narcotism which is soothing to some people, and perhaps adds to the sense of relaxation during a period of rest. Most of its disadvantages we have often recapitulated. Besides its intrinsic harmfulness, the habit is open to special objection when practiced during working hours, and to this point both employers and employed would do well to give more consideration than appears commonly to be accorded. There are three good reasons why workmen should not smoke while at work, namely, it reduces the physical energy by the very sense of relaxation which it imparts; it often causes the smoker to stop work altogether until his pipe is out; and it is dangerous. We do not believe that any man can properly see what he is about with a cloud of hot smoke and gas rising into his eyes, neither can he bestow his full attention on what he has to do, when the pipe must be kept going at the same time. It may be said that even if he stops for a few puffs no harm will be done. Perhaps not so far as one man is concerned, but if all the men in a large concern stop for puffs, the aggregate sum of the stoppages will amount to considerable time lost. A correspondent writes us to say that he recently timed the smokes taken in a day by twelve journeymen painters, who were engaged on a job requiring especial haste. The total number of minutes footed up over a quarter of a day's work, and the employer soon discovered that he could not afford any such loss, and promptly forbade the practice. Not long ago we saw carpenters smoking in an unfinished house while putting in the woodwork. The floors were littered with shavings, and large quantities of other combustible matter were lying about. The accidental dropping of a few sparks from one of the pipes might easily have determined a serious conflagration. If smoking must be practiced, it is much better to confine the indulgence to off-work hours.

AROMA OF BUTTER.—A Silesian farmer suspends in his empty churn a bag filled with fragrant herbs, keeping the churn carefully closed. When churning he attaches similar bags to the dashers.