

## RECENT INVENTIONS.

An improved grub and stump puller has been patented by Mr. Joseph J. Marshall, of Pulaski, Tenn. This invention consists in a novel construction and arrangement with relation to each other of the arms which form the jaws, whereby lightness, strength, and efficiency are obtained.

Mr. Edwin A. Roth, of Philadelphia, Pa., has patented an improved milk cooling apparatus, in which the suspended vessel used for containing the ice is provided with a flexible drain pipe, which admits of using the ice receptacle as a cream receptacle.

An improved holding tool has been patented by Mr. John S. Birch, of Orange, N. J. The invention consists in constructing the holding tool with the case in the shape of a tube flattened upon two or four sides to give a side support to the jaws; also, in forming grooves in the sides of the jaws and in the inner surface of the sides of the end of the case to prevent the jaws from slipping when under strain.

An improvement in the class of devices known as "self-acting car couplers" has been patented by Mr. Charles J. R. Ballard, of Watertown, N. Y. The invention consists, essentially, of a pair of double hooks or links crossed and pivoted together at their centers, with a coiled spring between them, so that they will open and admit a coupling pin and then close upon it and hold it firmly in their jaws.

An improved apparatus for receiving and recording votes has been patented by Mr. Richard S. Conover, of Sayreville, N. J. The inventor states that by means of this invention election frauds will be prevented and the number of votes cast will be strictly controlled and quickly counted.

An improved ore concentrator for washing the impurities out of ore and depositing the ore in suitable receptacles, has been patented by Mr. John McColl, of South Ryegate, Vt. The invention consists in the combination, with two or more endless carriers provided with transverse riffles, of a hinged platform provided with amalgamated copper plates and perforated iron plates, upon which platform the crushed ore or pulp is fed, whereby the particles of ore drop through the perforations in the iron plates, the gold being held by the amalgamated copper plates of the platform and amalgamated copper rollers pivoted below the platform. From the platform the particles of ore drop upon the upper endless carrier, are then washed off on to the lower carrier, and are then washed off from that, whereby the dirt and impurities are carried away by the waste water, and the particles of metal are deposited in suitable receptacles.

Mr. John Sandles, of Hinsdale, Ill., has patented an improvement in washing machines, which consists of a circular plunger made to nearly fit the tub, and provided on its under side with several circular cups, that are so fastened to it that they can revolve in a horizontal plane.

An improved machine for mixing materials for making soaps has been patented by Messrs. William Cornwall, Sr., William Cornwall, Jr., and Aaron W. Cornwall, of Louisville, Ky. This invention relates to an improvement in machines for mixing fats and alkalis for making soap, and also for mixing various other substances which are plastic or liquid. The improvement consists in the construction and arrangement of the rotating arms of the mixer proper. The arms are each made of two flat blades or paddles, which are set at an angle to each other, and connected so as to extend radially from the rotating shaft. The corresponding paddles of adjacent or neighboring arms are also set at opposite inclinations to the plane of rotation.

Messrs. William Burkart, of Smithville, Ind., and John M. Burkart, of Canton, Kan., have patented an attachment for organs, pianos, and other similar musical instruments, by which the leaves of music can be turned without the necessity of removing the hands from the key board. The invention consists of a plate to be applied to the music rest, fixed fingers to hold the covers, open movable fingers to grasp the leaves, levers for operating the movable fingers, cords running from the levers to a knee lever under the key board, and tension devices for regulating the movement of the levers, all arranged so that by pressing against the knee lever the leaves of music are successively turned.

Mr. John S. Affleck, of 16 South William St., New York city, has patented an improved packing ring for boiler tubes, which is so constructed that it will adjust itself to any imperfections in its seat, and will melt should the boiler become unduly heated. This ring is especially applicable to the class of boilers made wholly of tubes and joined at the ends by connectors. With this packing, should the water get low in the boiler, and the boiler become unduly heated, the packing rings will melt and allow steam to escape and give warning before the overheating has reached a dangerous point.

Mr. Richard B. Lanum, of Circleville, Ohio, has patented a grave torpedo which is so arranged that if placed in a grave it will explode if any attempt be made to rob the grave.

Mr. Frank L. Sheldon, of Rahway, N. J., has patented a fishing basket which is so constructed that it may be readily folded into small compass for convenience in carriage.

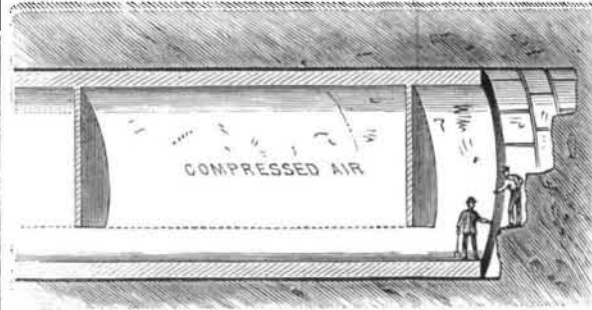
VON HEEREN proposes a method of cooling hot journals by a mixture of sulphur and oil or grease. The fine metal dust formed when a journal runs hot, and which strongly acts upon both journals and bearing, forms a sulphide of sulphur. This compound, which grows soft and greasy, does not cause any appreciable amount of friction. It has been very successfully used by the steamers of the North German Lloyds.

## A SAFETY APPLIANCE FOR THE HUDSON RIVER TUNNEL.

BY P. H. VANDER WEYDE.

Allow me to suggest a safety appliance which is adapted to be used as soon as the connection of the Hudson River Tunnel with the vertical shaft is completed by help of the coffer dam at present in course of construction; then all danger from the rear will have ceased, and only a break in soft soil when reached by the tunnel head has to be feared. My project will prevent the air from escaping and the whole tunnel to be filled with water and mud, even if the whole head caved in suddenly.

My plan consists simply in a plain movable solid circular shield or partition, to be placed against the top and sides of the tunnel, and closing it except three or four feet from the bottom, where the men can pass under it. It is made to fit well, while the joint with the wall is kept air-tight by mud or clay. This partition is advanced from time to time, and kept as close to the men as convenient to them. When a caving in of the tunnel head takes place and water gains access in great quantity, while the air escapes at the top, this partition will prevent the rest of the air in the tunnel from being lost, and allow only that to escape which is between it and the tunnel head, while all the rest of the air will be kept back, as the water or mud will not be able to rise above the dotted



line shown in our figure. In case of such a calamity the men have only to pass under the partition to have the upper part of their bodies in the air, so that they cannot be drowned nor suffocated in the mud, while the compressed air will keep this down to the dotted line.

According to incomplete theory there would be no tendency to displacement of such a partition, as the pressure is always equal on both sides, whether it be water or mud on one side and compressed air on the other. We suggest however, that the pressure of the water on one side, being variable with the tides, and the perhaps still greater variability of the air pressure on the other side which it is practically impossible to keep up to the same standard, especially when a break occurs, would make it necessary to keep this screen or shield well braced, so to as be secure against its displacement in case of an emergency, as this would diminish its protective capacity by allowing air to escape toward the break.

## Inventors and the War Office.

A question asked in the House of Commons one evening this week, the reply given to it by Mr. Childers, and a comment on that reply by Colonel W. Hope, appearing in the *Times* recently, give cause for reflection and comment. Mr. O'Shea inquired whether an offer had been lately made by Lieut.-Colonel Hope and General Ripley to supply 200 breech-loading naval guns to the Government, 80 per cent lighter, 60 per cent cheaper, and about ten times stronger than those of the Woolwich pattern, the said guns not to be paid for till they had been found to be in all respects satisfactory to the department; and whether this offer had been refused by General Campbell. Mr. Childers replied that substantially such an offer had been made to his predecessor, that Colonel Hope and General Ripley had been furnished with a copy of the 1869 regulations, drawn up to deal with inventors, and that the gentlemen in question declined to comply with the first condition requiring all inventors to describe their inventions; this refusal disqualifying them from receiving further official attention. Colonel Hope's letter discloses some interesting features of departmental correspondence. He states that in answer to his offer, General Campbell replied in effect: "Before I can come to any decision as to the expediency of considering your application for a grant of money with which to conduct experiments and perfect your inventions, you must tell me all your secrets." Which reply, as Colonel Hope points out, had nothing to do with the proposition made to supply 200 guns, which should be subjected to any conditions of trial and proof that could be desired, and to receive no payment till these guns had been approved by the authorities. No wonder that, under these circumstances, Colonel Hope asks, "Why do officials treat inventors as natural enemies?" We are by no means sanguine of the invention of Colonel Hope and General Ripley as these two gentlemen naturally are, and we fail to see why they should not have first offered one of their marvelous guns for proof to the department conditionally upon 200 being afterwards ordered, instead of requiring so large a number to be accepted at once. On the other hand we are aware that inventors are not unfrequently, perhaps generally, so great a nuisance to the War Office, that restrictions which must silence a large majority of them at the outset are very necessary. But surely intelligence, and not routine wholly, should guide the heads of the department in dealing with the numerous applications made

to them; and an offer, involving nothing but a slight amount of labor in testing and reporting, should not be met by a reply adapted only to silence a needy and pertinacious schemer. The matter will hardly rest where it now is, and the discussion may possibly be of more use to the country than the guns to which it has given rise may be to the service.—*Engineering*.

## Correspondence.

## A Meteorite in British Columbia.

To the Editor of the Scientific American:

Your number of the 6th of March contains an account of the finding of several meteorites. Last summer, while on a canoe trip with an Indian crew, I visited Chilcat, at the head of Lynn Canal, latitude 59° 14', longitude 135° 40', I found a meteorite in possession of an Indian, who gave the following version of finding it:

He was in the interior, on the watershed of the Yukon, fur trading. One day while resting he heard a loud buzzing noise overhead, and immediately afterward, at a short distance, a tree was struck and broken off. On examination he found the meteorite, which he packed to the sea coast. It is used as an anvil, and I should judge it weighs over 40 pounds. From his story it must have been procured about 125 miles inland in British Columbia.

The coastal tribes are the middlemen of the interiors, making annual visits with supplies of powder, balls, blankets, etc., for the purpose of barter. The furs accumulated are sold to the white traders here and at Sitka. They do not permit the interiors to visit the coast, except occasionally a chief in charge, and then he is not permitted to trade with, and in fact not to see, any whites or outside Indians.

W. H. WOODCOCK.

Fort Wrangel, Alaska, July 13, 1880.

## A Novel Spray Bath.

To the Editor of the Scientific American:

After two or three hours of fruitless labor, endeavoring to entice the trout with hackles, gnats, coachmen, magpies, butterflies, etc., I gave it up in despair, and, following the example of the trout, sought a secluded, shady nook, where I lay down for a nap, hoping that toward evening success would crown my efforts at fishing.

The spot was a delightful one. At my feet was a lovely ripple, and overhead was dense foliage of cottonwood and willow. The thermometer stood at 102°, and the sky was cloudless and perfectly Italian in its azure, but a light breeze across the rippling water, with the shade above, rendered my situation more than endurable.

I lay on my back, but had barely gotten comfortably fixed when I felt cool particles like water falling on my face. Surprised, I looked carefully through the foliage above me, and wherever the light was favorable saw fine spray falling quite fast through the leaves. For some minutes I watched in wonder, and tried to account for the phenomenon by the combination of the heated air without and the water and shade beneath, affected by the light breeze, causing condensation of the air's moisture, but could not satisfy my mind by this theory.

After enjoying the falling of the cool particles on my face for a while longer, I proceeded to examine the foliage above me. The particles were now clearly seen to be emitted from the leaves and twigs. A closer examination led to the discovery that thickly distributed over these parts were many little insects, and to my great surprise I saw that the particles of spray were ejected by convulsive but quite periodical movements from the anal extremity of the abdomens of these little animals. After careful watching I learned that they each ejected from twenty to thirty particles of water a minute, indicating a wonderful power of drinking the sap from the tree on which they were feeding.

Inclosed are specimens of the insect, which I hope will be recognizable after the long journey; also a twig from the tree on which I found them.

This is not offered as being new to the scientific world, but as entirely so to myself, and as matter which may interest some of the many readers of your valuable paper.

C. A. W.

Lapwai, Idaho, July 17, 1880.

## Buttermilk as Summer Food, Drink, and Medicine.

A Detroit physician asserts that for a hot weather drink nothing equals buttermilk. It is, he says, "both drink and food, and for the laborer is the best known. It supports the system, and even in fever will cool the stomach admirably. It is also a most valuable domestic remedy. It will cure dysentery as well and more quickly than any other remedy known. Dysentery is really a constipation, and is the opposite of diarrhea. It is inflammation of the bowels with congestion of the 'portal circulation'—the circulation of blood through the bowels and liver. It is a disease always prevalent in the summer and autumn. From considerable observation I feel warranted in saying that buttermilk, drunk moderately, will cure every case of it—certainly when taken in the early stages."

In coining \$20,000,000 in silver and \$22,000,000 in gold at the San Francisco Mint, in 1878, there was lost only \$29. The carpet, which had been down five years, was taken up last spring, cut up into small pieces, and burned in pans. The *débris* was put through the same process as the mining dust, and there was got from the old carpet \$2,500!