

AGRICULTURAL INVENTIONS.

An improved seed planter has been patented by Mr. Julius Holekamp, of Comfort, Texas. The object of this invention is to improve the construction of the seed planters for which Letters Patent No. 236,223 were issued to the same inventor January 4, 1881, in such a manner as to make them simpler in construction and more convenient and effective in use.

An improved potato assorter has been patented by Mr. Charles O. Morris, of Trenton, N. J. This device is intended for assorting potatoes into two or more grades. It is simple and effective.

An improvement in horse rakes has been patented by Mr. Sam T. Ferguson, of Minneapolis, Minn. This invention relates to certain improvements in horse rakes of that form in which curved spring teeth are attached to the rake head, and the latter is rocked on its journals to dump the rake by being drawn forward by a link attached to the lower bent end of a hand lever.

Solidification of Ether.

It is a curious fact that, for a long time, chemists pronounced the solidification of ether an impossibility. Even so great an expert as Thenard, after repeating the unsuccessful experiments made by Fourcroy and Vanquelin, found that ether still remained liquid even when submitted to the intense cold represented by 99° of the Centigrade thermometer. More recently, Franchimont has proved that, though Thenard's assertion is correct as regards pure ether—or what is termed anhydrous ether or absolute ether—the results are very different when the ether contains, as is very frequently the case, a certain quantity of water. Thus, it appears, ether that contains a little water, but no alcohol, produces small crystals when submitted to a temperature of 31°, and, as the cold increases, these crystals do not augment in size or quantity; they are simply crystals of ice.

Another Prehistoric Man.

Some human remains, evidently of great antiquity, says the *Academy*, were discovered a few months ago at Carabacel, near Nice, and have been reported upon by a local scientific committee, as well as examined by M. de Quatrefages. The bones had not been artificially interred, but were found embedded in a deposit of calcareous clay, at a depth of about nine feet from the surface. This deposit was irregularly stratified, and contained a mixture of pliocene and eocene shells, showing that it had been formed by the reconstruction of the pre-existing strata. Of the bones the most remarkable is the lower jaw. This is sufficiently characteristic to enable De Quatrefages to refer it to the Cro-Magnon type. The fossil man of Nice, therefore, belongs to the same race as M. Riviere's skeleton from Mentone, both being probably of Paleolithic age.

BENDING MACHINE FOR IRON AND STEEL.

We give an engraving of an improved bending machine made by Messrs. Williams, White & Co., of Moline, Ill. It is intended for bending iron or steel bars or plates between dies. The variety of shapes that may be bent on this machine is practically without limit. It is adapted to agricultural, railroad, and engineering work, and in many operations it may replace the drop press. The dies may be very readily changed, and the work is easily placed and removed. It is rapid in its operation, and effects a great saving in labor.

The operation of the machine can be readily understood by reference to the engraving.

The crosshead carrying the movable die is reciprocated by the cranks, which are moved by a train of gears driven by a belt from the line shaft or other source of power.

The crosshead moves seventeen inches and makes one stroke while the tight and loose pulleys make eight revolutions, thus giving the dies very great power over the work.

The particular dies shown in the engraving are for bending the arches of freight car trucks.

The machine is highly recommended by a large number of agricultural manufacturing works, and is in use, giving entire satisfaction,

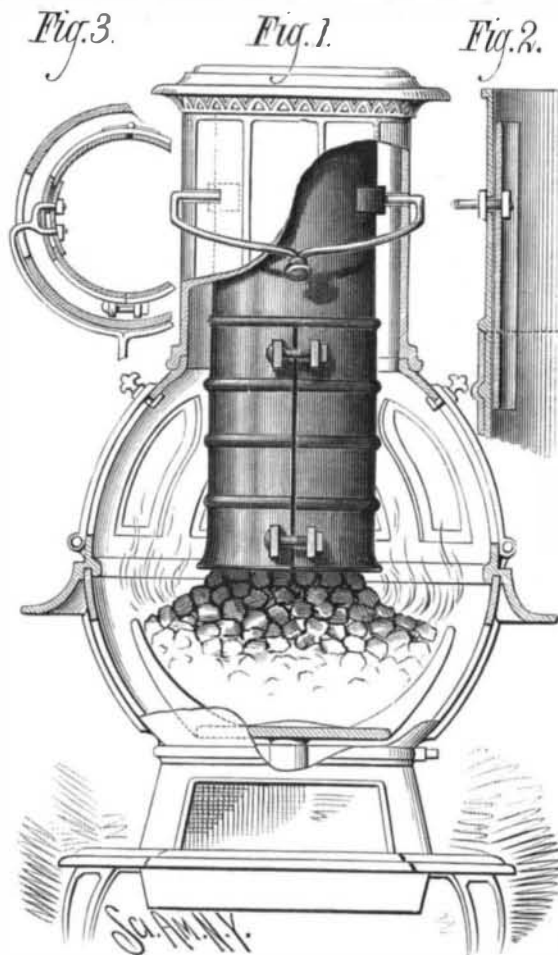
in several engineering works. Further information may be obtained by addressing Messrs. Williams, White & Co., Moline, Ill.

Road Locomotive.

A road locomotive for war purposes, constructed by Bolle, was recently tried in presence of Count Moltke and several other authorities. The machine drew five guns with their carriages completely equipped, the load amounting to 800 cwt. The journey lasted about three hours and a half, with one halt. The locomotive itself weighed 575 cwt., and it is capable of drawing 3,000 cwt. The expense is about two marks an hour. The velocity was equal to that of a troop of infantry, but might be much increased.

EXTENSION MAGAZINES FOR COAL STOVES

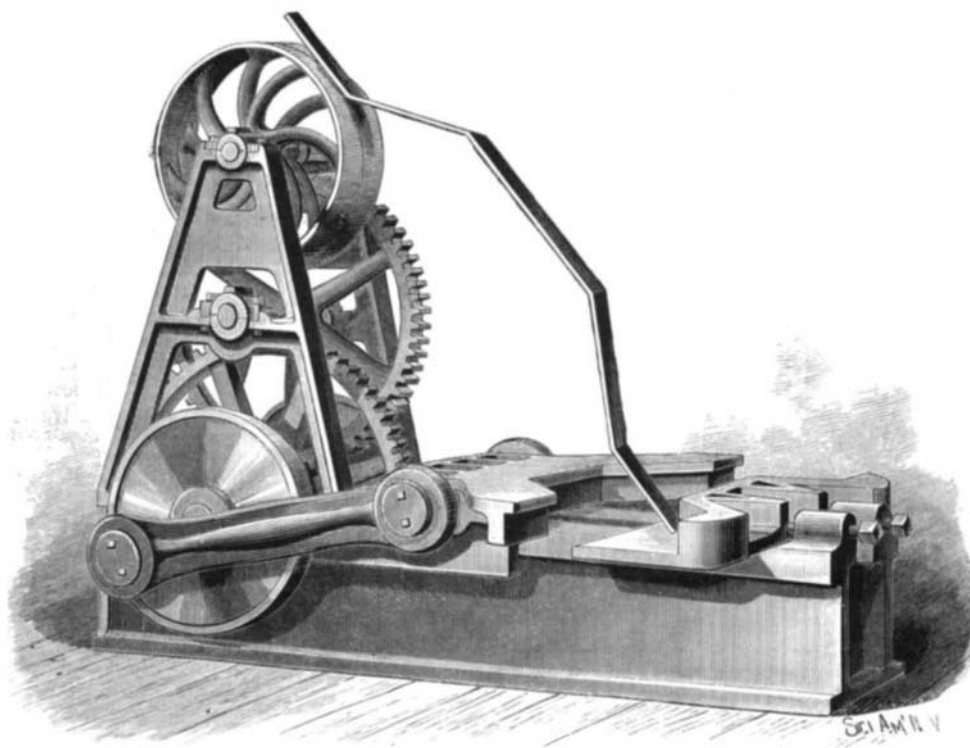
The engraving shows an improvement in magazines for coal stoves, recently patented by Mr. Dewitt Van Evera, of Maquoketa, Iowa. The invention is intended to facilitate the use of different kinds and sizes of coal in the same magazine, and to insure the proper feed of the coal to the fire box. The improvement consists in forming, upon the lower portion of the stationary part of the magazine, a number of circumferential exterior ribs or beads corresponding to in-



VAN EVERA'S EXTENSION MAGAZINE FOR COAL STOVES.

ternal grooves in the movable portion of the magazine, so that the latter can be moved up or down, so as to lengthen or shorten the magazine, and permit of a greater or less depth of fire in the fire pot of the stove. The movable part is made in two halves and fastened together with bolts, so that it may be readily separated and adjusted to any desired height.

By means of this construction the stove may be regulated or burning different quantities of coal for apartments of



WILLIAMS, WHITE & CO.'S BENDING MACHINE.

different sizes, or for different seasons of the year, thus avoiding the necessity of changing from one size of stove to another, and in fact adapting one sized stove to a wide range of requirements.

This magazine has an attachment for loosening the coal, so that it will readily pass down into the fire pot. This part of the invention is clearly shown in Figures 2 and 3, which are respectively a vertical and horizontal sections of the magazine.

The device consists of two curved plates, suspended on opposite inner sides of the magazine from a curved horizontal bail, which is provided with a handle extending through the front of the stove. By oscillating this bail the curved plates are moved so as to dislodge the coal should it become clogged.

The different sizes of stoves are commonly made and graded or adapted to particular sizes of coal, and each has a particular capacity which cannot be greatly varied; and when it is attempted to increase or diminish the capacity of the stove by dampers alone, gas is liable to escape and explosions frequently occur. The invention shown in our engraving obviates all this.

The advantages of these improvements will be apparent without further description. Any one having had much experience with coal stoves can readily see that the invention is based on sound common sense.

Beans.

M. Pauchon has made a series of experiments with beans, on the influence of the color of seeds on germination. He finds, in order to reach the same visible stage of development, a black or violet seed absorbs more oxygen than a white or yellow one, though a more rapid germination is observed in the latter. On the other hand, the quantities of carbonic acid exhaled by white seeds are found to be greater than those from the dark, sometimes even double. These differences are considered to prove that dark or violet seeds are better conditioned from a physiological point of view. In the natural state, that is, when the seeds germinate in light, the conversion of legumin into asparagin must go on much more easily in the colored seeds than in the others. "The more frequent and pronounced pigmentation of seeds of northern lands is, therefore," says M. Pauchon, "a favorable circumstance for the growth of these organisms, under the peculiar light conditions to which they are subject."

Railroad Train Accidents in June.

There was, according to the *Railroad Gazette*, a total of 73 train accidents in the United States, in the month of June, 1881; thirty-one persons were killed and seventy-eight injured; 20 accidents caused the death of one or more persons; 17 caused accident, but not death, while in 36 cases, or 49.3 per cent of the whole number, there was no injury to persons recorded.

The Pasteurization of Beer.

As far as we are aware, this method of preserving beer has not yet been practically applied in this country; this is the more surprising when we consider the enormous quantities of beer that are exported from this country, the value of which depends on its power to resist the changes produced by ferments under the influence of high temperatures, such as are found in many parts of the world where English beer is shipped to. When Pasteur made his grand discovery that the various fermentative changes in saccharine fluids are due to distinct organisms, each kind producing distinct and characteristic products, he also offered practical suggestions for the preservation of fermented fluids by destroying the organisms which produce the deleterious changes. The

most serious results are produced in beer by the lactic and acetic ferments, and Pasteur suggested that beer might be preserved indefinitely if these ferments could only be destroyed or rendered inactive. Experiments in this direction proved that a temperature of 140° Fah. is sufficient to kill nearly all the lactic and acetic ferments, especially in the presence of a quantity of alcohol, such as is found in beer. It seemed, then, that for the practical application of this idea, all that was required was to raise the beer for a short time to the above temperature, but there are many difficulties in the way of carrying this process out. The beer must be inclosed in a hermetically-sealed vessel, otherwise there will be a loss of carbonic acid gas, as well as of alcohol and hop aroma; therefore nearly all attempts at pasteurization of beer have been made on beers in bottle. The usual method of proceeding is to place the well corked bottle of beer in a vessel of water the temperature of which is gradually raised to about 140° Fah., and the bottles of beer are maintained at this temperature for about fifteen minutes.

There ought to be no difficulty in carrying this process out, the chief risk being in the bursting of the bottles, which cannot be prevented entirely. The pasteurization of beer has been carried out on a large scale by several Continental and American brewers, and successful results have been obtained. In order to obviate the breakage of glass bottles, it would seem preferable to heat the beer in bulk in a large hermetically closed metallic vessel, and subsequently, if necessary, to transfer it to bottles, taking care to prevent all introduction of germs during the bottling process. Our export beer trade is unfortunately not sufficiently flourishing for us to neglect any point which gives the foreigner an advantage, and in the matter of the pasteurization of beer many foreign brewers are decidedly in advance of us.—*Brewers' Guardian*.