

the owners of mills would not permit firemen to enter the burning building after the steam pipes, which happened to be in the burning part, had been forcibly broken. We know of instances where mills have been saved by steam from destruction by fire on three occasions, which surely is more than theoretical proof.—*Iron*.

MISCELLANEA.

The deepest boring that has ever been made for coal was made in 1853-7, at Mouille-longe, where the drills reached a depth of 1006½ yards, when the tools broke at the bottom of the hole, and the work had to be abandoned.

The exhibition building at the Centennial at Philadelphia in 1876 will be built almost entirely of iron, and already the contract for completing the work has been given out. A combination, consisting of Clarke, Reeves, and Co, the Phoenix Iron Company, the Keystone Bridge Company, and the Union Iron Mills, Carnegie, Kloman, and Co., gave in a tender for 1,397,000 dols., but as a Mr. J. R. Dobbins quoted 922,595 dols., he secured the order. He will get his iron from New Jersey.

Mr. William Rosenbaum, Cheyenne, Wyoming Territory, has patented a device for detaching horses at any moment from carriages, buggies, waggon, reapers, mowers, or other vehicles, so that not only the individuals, but also the vehicles, are protected against injury from runaway or vicious animals. The invention consists of a lever attachment to the pole or tongue of the vehicle, which may be operated from the seat so as to detach a clevis with wedge-shaped end to which the double tree is applied. In case of any accident or danger, the horses may be instantly detached by pulling the hand lever back which forces the sliding bar beyond its guide recess and gives sufficient play to the wedge clevis to slide out. The horses carry then the double tree along with them, leaving the vehicle behind.

PREMIUM FOR THE BEST CIRCULAR SAW.—The Board of Commissioners of the Fifth (1874) Cincinnati Industrial Exposition offer a special premium of \$100 in gold for the best circular saw. The competition is to be determined under conditions as follows: All saws competing shall be of uniform diameter, namely, 56 inches. They may have either solid or inserted teeth. The gauge to be at the option of the exhibitor. The eye of the saw to be 2 inches diameter; the pin holes, ½ inch, and 3 inches from centre to centre. Each saw is to be submitted to a thorough practical test, upon a left hand mill provided for the purpose. Diagram cards are to be taken from the engine during the trial of each saw, by a disinterested expert, selected by the jurors. The test is to be made during the week beginning September 21, 1874. Other details of the examination are to be determined by the jurors.—*Scientific American*

WATER PROOFING LINEN.—Professor Kuhr gives the following directions for this purpose. Pass the linen first through a bath of one part of sulphate of alumina in ten parts of water, then through a soap bath, of which the soap is prepared by boiling one part of light colored rosin and one of crystallized carbonate of soda with ten parts of water until the rosin is dissolved. The rosin soap thus formed is to be separated by the addition of one-third of common salt with one part of soda soap, by boiling it in 30 parts of water. From this bath pass the articles finally through water, then dry, and calender. Made-up articles maybe brushed with the solutions in succession and be rinsed in the rain. Wooden vessels may be employed.

REAPING MACHINE COMPETITION IN FRANCE.—Two great international trials of reapers have just come off in France, the latter terminating on Saturday night. The first took place at Soisson, the other at St. Dizier, in the Department of Upper Marne. The leading English, French, and American makers competed, but the real contest was between the English and Americans. At each trial, however, the Americans came off only second best—the Howards, of Bedford, gaining the first prize at both contests with their "International." The second prize was taken at Soissons by Osborne, America, and at St. Dizier by Johnstone, America. Samuelson, of Bambury, came in third at Soissons, and W. A. Wood, America, third at St. Dizier. The drivers were brought over from America as well as England, so great was the interest in the contests.

Says the *Morrisburgh Courier*.—Mr Morton, of Molson's Bank, showed a specimen of paper pulp manufactured from poplar wood at the Waddington paper mills. This pulp seems to be a good article, and from which a first-class quality of printing paper can be made. The bank of the canal here has been lined with poplar wood, which was brought in by our farmers during the sleighing season. It is the property of Mr. James, proprietor of the mills at Waddington. Poplar is rather a scarce article in this locality, but we are informed that it abounds in large quantities in the vicinity of L'Original. Since it is likely to become so useful in the manufacture of paper, we opine that when the Coteau and Ottawa Railway is opened there will be quite a large traffic in the shape of poplar wood.

THE WEATHERING OF COAL.—That coal loses considerably in value by exposure to the weather is well known, but few, probably, are aware of the extent of the damage. Dr Varrentrass has ascertained a loss of more than one-third in the weight of a sample of coal exposed for some time to the air, and he states that the quality of the coal had undergone a still greater deterioration. The loss is due to a slow combustion of the volatile elements of the coal, which gradually diminish in amount, whilst the proportion of carbon, ash, and sulphur are increased. In some experiments made the gas furnished diminished 45 per cent, and the heating power 47 per cent. in a coal which had been exposed, and the same coal under shelter lost only 25 per cent. as a gas generator, and 10 per cent. as a heat producer. Anthracite, as might be expected, suffers least from exposure to the atmosphere, and the bituminous coals are those which lose most.—*Globe*.

HOW TO IRON LINEN.—A *Hearth and Home* correspondent says linen that is placed immediately after being ironed near the stove or in the hot sun, is stiffer when dry than if it is permitted to dry slowly. It is a good plan to lay collars and small articles on a waiter, and set them on a kettle or other support on the stove, till they are quite dry. Sometimes the iron will stick in a manner perfectly unaccountable; if it is rubbed on a board on which fine salt has been sprinkled, and then passed over a brown paper with wax in its folds, the sticking propensities will be checked. A bowl of clear water and a clean old linen cloth, is useful to remove any specks the linen may acquire before or while being ironed.

A NEW NEEDLE.—A lady in San Francisco, the *Chronicle* of that city says, has invented a new needle, the improvement consisting in making a needle of any size without an eye for the thread, but with, instead, a hole bored longitudinally into the head, or larger end thereof, to the depth of a quarter of an inch or thereabouts, which hole is arranged with a screw thread. The needle, it is claimed, will carry any kind of thread, and can be used for every purpose. It is thought that it will be valuable also, as a surgical needle, as it will require but one thread, the advantage of which will be that a smaller hole will be made in passing the needle through any substance than would have to be made by the partially doubled thread of the ordinary eyed needle.

LAKE TITICACA.—Lake Titicaca, on the crest of the Andes, is the highest large body of fresh water, and the lake never freezes over. Two little steamers of 100 tons each do a trifling business. Steam is generated by llama dung, the only fuel of the country for there are no trees within 150 miles. The steamers actually cost their weight in silver, for their transportation (in pieces) from the coast cost as much as the original price. A steamboat company has asked from Bolivia, the exclusive right of navigating Titicaca and the Rio Desaguadero to Lago Pampa, with guarantee of six per cent. on the capital, and a share of all new mines discovered. Professor Orton, the latest traveller in the region, calls attention to the fact that Lake Titicaca is not so high as usually given in geographical works by about 300 feet. Its true altitude is 12,493 feet, and in the dry season it is 4 feet less. This fact has been revealed by the consecutive levellings made in building the Arequipa railway just finished, which reaches from the Pacific to Lake Titicaca. Lake Titicaca is about the size of Ontario, shallow on the west and north, deep towards the east and south.