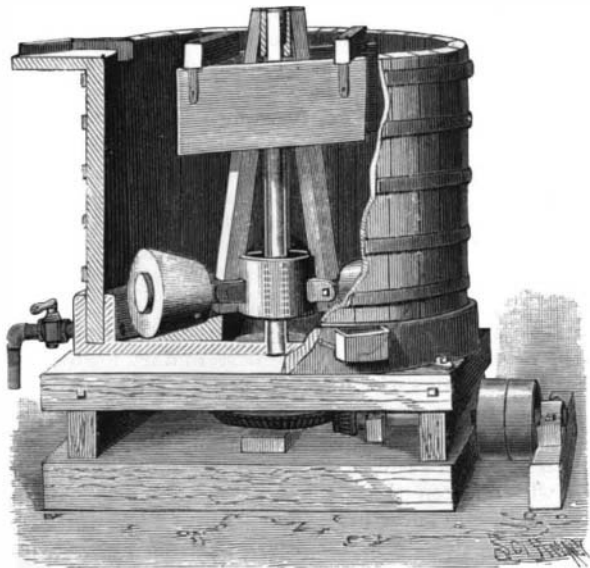


Lead Poisoning in the English Dyeing Trade.

Mr. Sydney Smelt, deputy coroner for Manchester, held an inquiry recently relative to the death of Emily Wood, 19, lately living in Irlam Street, Newton Heath, who had died from the effects of lead poisoning. The girl was in the service of Messrs. Kerr & Hoegger, dyers, Grimshaw Lane. Early in November she became ill, and was attended by Dr. A. Walker. He found well marked symptoms of lead poisoning. Dr. Walker said he had seen a number of cases of lead poisoning in the district of Newton Heath during the last few years. He gave evidence three years ago in the case of two girls working for the same firm who had died from lead poisoning. A girl named Carmichael, employed in the same room with the deceased, said that she had never used a respirator, and up to a week ago had never seen one in the place. The work was what is known as "noddling" yarn dyed in yellow and orange colors. Witness herself had been ill on several occasions from lead poisoning. Prior to a week ago the employes used to take their meals in the "noddling room. There was a place to wash their hands, but no towel was provided. Dr. Reynolds, who had made an examination of the body of the deceased, said the cause of death was lead poisoning. The manager of the works, while admitting that at a previous inquiry he had promised to see that washing accommodation and respirators were provided, said he had never seen more than two or three girls wearing the respirators up to quite recently. He only knew of three girls out of thirty-six who had never been away ill from lead poisoning, and he had never stopped the girls from taking their meals in the "noddling" room until recently. The occupation was a dangerous one, and he would not let his own daughter work at the place unless she wore a respirator. At the conclusion of the evidence the coroner suggested to the jury that they should recommend that this particular trade should be declared a special dangerous occupation under the Factory and Workshops Act. Mr. Smelt commented strongly on the conduct of the firm in not taking every precaution to prevent such cases, in accordance with a promise made on their behalf in the course of a similar inquiry in 1891. Nothing he could say could add to the feeling of indignation that everybody must have on this subject. The girls had simply been allowed to commit suicide in order that foreigners might be supplied with yellow dyed goods. After deliberating in private for some time, the jury returned a verdict to the effect that the deceased had died from lead poisoning, caused by the firm neglecting to carry out the promises made by them three years ago. Mr. Rogers, H. M. Inspector of Factories, and Dr. Niven, Medical Officer of Health for the city, were present at the inquiry. Mr. Pearson watched the proceedings for the firm.

A COMBINED CRUSHING MILL, AMALGAMATOR AND ORE CONCENTRATOR.

The mill shown in the illustration is designed to perform its work rapidly and effect the utmost possible saving of gold and silver. It has been patented by Mr. Samson Beer, of No. 645 West Granite Street, Butte, Montana. The bed plate is slightly thinner at its outer edge, so that the tapering crushing rollers fit and follow it nicely, and it has a central well in



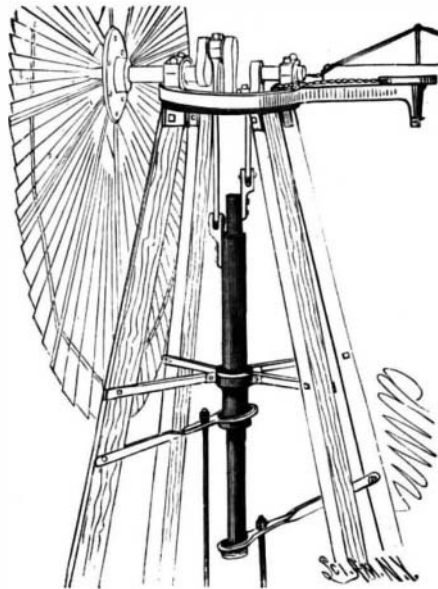
BEER'S MILL AND CONCENTRATOR FOR TREATING AND AMALGAMATING ORES.

which the quicksilver may lie, this well being supplied through a duct from an amalgam box on the outer side of the tub. Extending up through the center of the tub is a shaft casing, preferably cast integral with the bed plate, the driving shaft being stepped in a suitable bearing below, and on the shaft is a spider frame having at its top a collar which turns above the casing, and is keyed to the shaft. The lower ends of the arms of this spider frame merge in a collar on which are lugs between which are pivoted the shafts of the crushing rollers, which are thus al-

lowed to swing vertically, that they may ride over any large or particularly hard rock without doing damage. In the tub, just above the rollers, is a cross frame of parallel cross plates connected by diagonal plates, to check the rotary current of water, so that the quicksilver in the central basin will not be disturbed. The tailings flow out with the water from a spout at the top of the tub, the free metal amalgamating with the quicksilver, while the concentrates settle on the bed plate. At one side, near the bottom, is a valve-controlled pipe through which the concentrates may be drawn out.

A PUMP GEAR FOR WINDMILLS.

With the construction shown in the engraving the wind wheel is free to turn to the wind without affect-



ERICKSON'S PUMP GEAR FOR WINDMILLS.

ing the position of the pump plungers, and the power of the windmill crank shaft is uniformly transmitted. The improvement forms the subject of a patent issued to Mr. Andrew S. Erickson, of Holdrege, Neb. On the shaft of the wheel are two crank arms connected by pitmen to two tubes, one sliding in the other, the outer tube being mounted to turn and fitted to slide in bearings attached to the tower. The lower ends of the tubes have flanges on which rest the eyes of two levers fulcrumed on the tower, and these levers are connected with the pump rods to impart a reciprocating motion to the pump plungers. It will be seen that, as the tubes are alternately raised and lowered by the motion of the wheel, the turning of the tubes, as the wheel turns in the wind, in no way affects the position of the levers connected with the pump rods, the eyes of the levers only loosely engaging the lower ends of the tubes. It will be obvious that a solid rod may, if desired, be used for the interior tube.

Railway Grade Crossings.

The blindness of city officials to the great and daily dangers to which citizens are exposed by the practice of permitting street railways to cross the tracks of steam railroads at grade is becoming so serious a matter, says Railway Engineering, that some kind of a surgical operation seems necessary to restore their sight. Nor does any thought of the rank injustice which the steam railroad suffers ever flit through the minds of those who grant franchises to street railway corporations. Here is a steam road with its right of way already established, and crossed by streets which may have been laid out years after the railroad entered the territory; a street railway corporation gets a franchise permitting it to use the streets without payment of anything but the boodle necessary to get the ordinance through the council, and then it essays to cross the tracks at grade, exposing its patrons to unnecessary danger, and compelling the steam road to share in responsibility for the lives of the passengers carried by the street railroad company. The cities of the land are anxious enough to have the steam roads elevate their tracks, but they do not display the same anxiety to protect citizens from the danger of street railway travel.

We believe that they will be awakened from this lethargy at no distant date by the electric railroads. The latter have a suitable power for high speeds, and the desire on the part of the populace for rapid transit already has and will compel them to adopt fast schedules, until when they successfully compete with steam roads for suburban travel the necessity for greater precautions for the safety of human life on street railways will be shown in no uncertain manner. On the question of electric and steam railroad crossings, the directors of the Pennsylvania Railroad, in their forty-seventh annual report, after describing the work of elevating and depressing its tracks in several cities, said:

"The object sought to be attained, however, through the large expenditures made in this direction, both by

the railroads and the local authorities throughout the State, will be almost entirely defeated if the electric railways now being promoted throughout the country are permitted to cross the steam railways at grade, and thus create a new and most serious element of peril for the traveling public. It must be borne in mind that the entire movement of these electric railways is in the transportation of passengers, and that, therefore, the risk to life and limb from such crossings, owing to the frequent service, is proportionately much greater than on the steam railways, where the trains are not nearly so frequent, and where the movement is made up largely of freight traffic. It would hardly seem reasonable that the electric railways should be permitted to indefinitely increase the number of these crossings, while at the same time your company and the city of Philadelphia are expending over \$400,000 to remove the grade crossings of your road by the North Pennsylvania Railroad in the northern portion of the city."

The directors of the New York, New Haven & Hartford Railroad in their report also refer to the matter as follows:

"The creation of level crossings of steam railroads by electric roads, whether by legislative or judicial permission, must lead to dreadful accidents. The people are calling for large expenditures by the steam railroads for the elimination of all grade crossings, and simultaneously their agents are increasing the danger to those which exist by allowing the electric roads to use them. Public sentiment sooner or later will condemn such inconsistency."

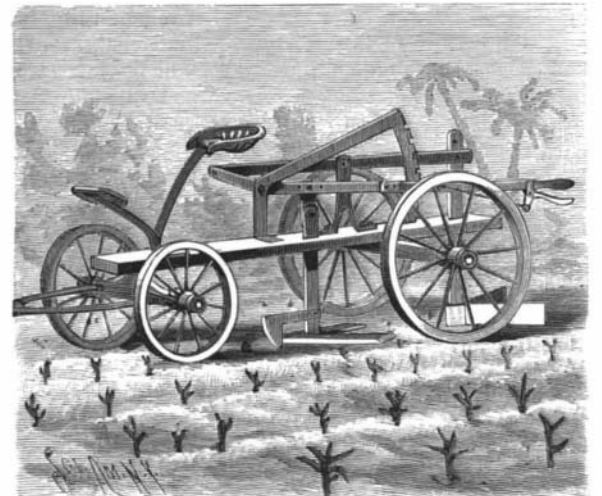
Punch Photograph.

The Consolidated Traction Company gives very liberal transfers, enabling citizens of Jersey City and Newark to go from almost any place in either city to any place in the other. To prevent cheating, the company has devised a ticket, on the top of which are printed in a row the faces of five men and two women. There is a smooth-faced man, the man with a mustache, and another with side whiskers, a fourth with chin whiskers, and the fifth with a full beard. There are only two women—one meant to be young and the other old—a hat designating the former and a bonnet the latter. There is also, as an additional safeguard, a mark just under the heads, which when punched according to instructions shows the age of the holder to be more than or less than forty years.

A SUGAR CANE CULTIVATOR.

The illustration represents a light, easily working machine, to loosen and clear the soil of weeds and vines, and throw it around the roots of opposing rows of cane. It has been patented by Messrs. Louis Danos and Albert Haydel, Hohen Solms, Ascension Parish, La.

The platform of the truck is narrow, and supported centrally under it is a triangular scraper with a knife at its apex or front edge, the convex edge of the knife dividing the soil and severing vines, weeds, etc., in its path. The knife is attached by means of a shank to the standard of the scraper, which extends upward and is pivoted to a link adjustably attached to a hand lever fulcrumed just back of its forward end to an upright on the platform. Extending rearwardly from this upright is a rack upon which the lever has a guided movement, being provided with the usual thumb latch to engage the rack. A second lever, pivoted on a rear standard, is pivotally connected at



DANOS AND HAYDEL'S SUGAR CANE CULTIVATOR.

its forward end with the front end of the hand lever, and at its rear end this lever is adjustably attached to the upper end of a shank or standard on whose lower end is secured a follower or mould board, which travels over the surface that has been operated on by the forward scraper. As the machine is drawn between the rows of cane, the hand lever is pressed downward, bringing the scraper and its cutting knife into the desired engagement with the ground, the same motion also bringing down the mould board, by which the loosened soil is thrown to both sides and upon the roots of the plants.