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, New ton Heath, who had died from the effects of lead poi soning. The girl was in the service of Messrs. Ker \& Hoegger, dyers, Grimshaw Lane. Early in Novem ber she becameill, 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 hersel 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 admit ting 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 ha 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 sug gested to the jury that they should recommend that this particular trade should be declared a special dan gerous occupation under the Factory and Workshop 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 in dignation 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 som 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. Inspecto 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 possi ble 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 roller fit and follow it nicely, and it has a central well in


BEER'8 MILL AND CONCENTRATOR FOR TREATING AND AMALGAMATING ORES.
which the quicksilver may lie, this well being sup plied through a duct from an amalgam box on the outer side of the tub. Extending up through the cen ter of the tub is a shaft casing, preferably cast inte gral 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. Th lower ends of the arms of this spider frame merge in a collar on which are lugs between which arepivoted the shafts of the crushing rollers, which are thus al
lowed to swing vertically, that they may ride ove any large or particularly hard rock without doing dam age. 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 quick silver 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-con trolled 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 powe 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 lever are connected with the pump rods to impart a reci procating motion to the pump plungers. It will be seen that, as the tubes are alternately raised and low ered by the motion of the wheel, the turning of the tubes, as the wheel turns in the wind, in no way af fects the position of the levers connected with the pump rods, the eyes of the levers only loosely engag ing the lower ends of the tubes. It will be obviou rior 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 o steam railroads at grade is becoming so serious a mat ter, 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 enter ed the territory; a street railway corporation gets franchise permitting it to use the streets without pay ment 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 un necessary 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 thi 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 streetrailway will be shown in no uncertain manner. On the ques tion of electric and steam railroad crossings, the direc tors of the Pennsylvania Railroad, in their fortyseventh annual report, after describing the work o 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 isk to life and limb from such crossings, owing to the requent 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 reason able 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 Pennsyl vania Railroad in the northern portion of the city."
The directors of the New York, New Haven \& Hart ford Railroad in their report also refer to the matte 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 railroad for the elimination of all grade crossings, and simul taneously 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 mus There is a smooth-faced man, the man with a wis hin whiskers, and the fifth with a full beard. There re only two women-one meant to be young and the ther old-a hat designating the former and a bonne the latter. There is also, as an additional safeguard, a mark just under the heads, which when punched ac cording to instructions shows the age of the holder to be more than or less than forty years.

## SUGAR CANE COLTIVATOR

The illustration represents a light, easily working ma hine, 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 entrally 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 up right on the platform. Extending rearwardly from his upright is a rack upon which the lever has guided movement, being provided with the usua 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
ts 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 lowe 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 ows of cane, the hand lever is pressed downward, bringing the scraper and its cutting knife into the de sired engagement with the ground, the same motion also bringing down the mould board, by which the oosened soil is thrown to both sides and upon the roots of the plants.

