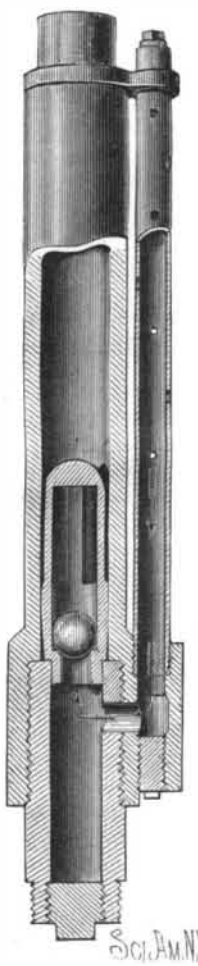
Recovery of Tin from Tin Scrap by Electrolysis.

The May number of the *Journal of the Society of Chemical Industry*, contains the report of a paper read before one of the meetings of the Society by Dr. J. H. Smith, describing a method suggested and used by him for working up tin scrap. After full consideration of other methods, Dr. Smith had come to the conclusion that electrolysis would be the most promising line on which to work. He states that he has since become aware that at least four English patents are based upon the same method, of which he was ignorant at the time. The scrap to be dealt with had, on an average, about 5 per cent of tin, and there was a supply of some 6 tons of such scrap per week, for which quantity the plant was arranged. It was designed to convert the tin into chloride of tin for dyers' use, the iron of the scrap being utilized as copperas. On the recommendation of Siemens and Halske. of Berlin, one of their dynamos, (C_{18}) was used, the machines of this firm being said to be very successful at Oker, in Germany, for the precipitation of copper. The machine in question is stated to give a current of 240 amperes, with electromotive force of 15 volts and an expenditure of 7 horse power. Eight baths were used made of wood lined with rubber. They were 1½ meters long, 70 centimeters wide, and 1 meter deep. The anodes were of course formed be the tin scrap, which was packed in baskets made of wood, and of a size to hold 60 kilos. of the scrap. There was an arrangement for constantly agitating these baskets by raising and lowering them, thus promoting circulation of the solution and regularity of action. The cathodes were copper plates, 1½ mm. thick, and 120 cm. long by 95 cm. broad. There were sixteen of these, placed two in each tank, one on each side of the basket. The electrolyte used was dilute sulphuric acid—commercial acid of 60° B., diluted with 9 volumes of water. The tin precipitated was rather over 2 kilos. per hour. It was very pure, easily melted when required, and in a form very suitable for solution in acid for preparation of tin salts. Dr. Smith, in his remarks, claimed for this process very considerable advantages over all the other processes proposed for getting back the tin from tin scrap, and gave figures to show that a profit could be obtained on the above basis. But his work seems to have been carried on where tin scrap was obtainable very cheaply. The price of collecting it and bringing it to the works would be very much higher in this country, and would eat up a large portion, if not all, of the expected profits.—*Engineering.*

PUMP FOR OIL WELLS.

The object of the invention herewith illustrated is to prevent gas from entering the barrel of oil well pumps, thus getting rid of the delays and trouble caused by the presence of the gas. The pump barrel, of suitable size and length, is formed at its lower end with a screw socket to receive a short tube whose outer end is closed by a plug. The upper end of the tube is adapted to receive the usual standing valve. Near its bottom end the barrel is bulged at one side, the bulged portion being bored out to form a chamber united with the interior of the barrel by an opening below the valve. The bottom of the chamber is closed by a plug, and into its upper end is screwed a tube that extends to the upper end of the barrel, where it is held by a ring. The upper portion of this tube is perforated to allow the oil to enter, thereby forming the intake pipe. By this construction the oil at the rock is excluded from the lower end, while the upper strata enters the perforations and passes down the intake, through the chamber, and up the barrel. The gas is not likely to go down the intake, as it has an opportunity to easily escape upward around the pump tubing to the top of the well. In addition the pump is less likely to take in sand than when the suction is at the lower end of the barrel.



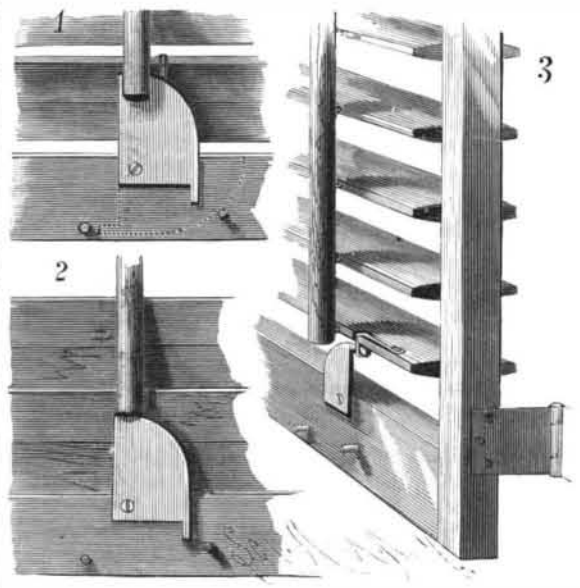
This invention has been patented by Mr. James M. Sanner, of Bradford, Pa.

THE greatest novelty in flowers this year is a tea rose of the most dazzling scarlet hue. It was originally grown in England, and has only just appeared in this country. It is attracting much attention among florists.

CHECK FOR BLIND SLATS.

Fig. 1 is a face view showing the slats held half open, Fig. 2 shows the slats closed, and Fig. 3 shows them fully open. The slat check consists mainly of a plate of wood or metal, made with one long flat edge, an opposite curved edge, and also with a projecting lip or catch, and pivoted to the rail below the end of the slat connecting bar. To the outer face of the lower slat is fixed at one end a spring wire catch, which extends toward the bar, and is bent in a loop at the free end, the loop passing through a slot in the slat.

When not in use the plate is set with its straight edge uppermost, as shown by the dotted lines in Fig.



RACEY'S CHECK FOR BLIND SLATS.

1, its curved edge resting against a pin set in the rail; the slats can then be moved freely. To hold the slats half open the plate is moved to the position represented in Fig. 1, when its end will stand between the lower slat and the connecting rod, and the slats cannot be moved either way from the outside. When the slats are to be held fully open the projecting lip of the plate is placed within the loop of the spring (Fig. 3) to lock the slats in the desired position. When the slats are to be held closed, the end of the plate is swung up under the connecting rod, as shown in Fig. 2. As will be readily understood, this check can be readily applied to either inside or outside blinds.

This invention has been patented by Mr. John Racey, of Quebec, Canada; further information can be obtained from Mr. John Williams, same address.

Study of Cast Steel.

La Metallurgie states that some interesting studies on the structure of cast steel have been made in the laboratories of Creusot by MM. Osmond and Worth. It was already known that cast steel consists of a kind of a cellular network of a carbide of iron, not easily attacked by acids, inclosing particles of soft iron easily attacked and dissolved. In order to examine this structure more closely, MM. Osmond and Worth prepared some very thin sheets from the samples to be examined, not exceeding two or three hundredths of one millimeter in thickness. These were attached to glass plates by means of Canada balsam, and then exposed to the action of dilute nitric acid, which dissolves out all the soft iron, and leaves the network of carbide in a form convenient for examination. It was found that the distribution of the network was not uniform; groups of carbide cells occur together, with spaces between made up of soft iron. The regularity in the diffusion of the carbide appears to influence the quality of the steel, as that steel which had been most worked was most uniform in structure.

Subterrancan Telegraph Lines.

When the construction of the great trunk subterranean telegraph lines in France and Germany was entered upon, it was thought that owing to their depth underground, and their sheathing of metal in contact with the earth, they would be exempt from the influences of atmospheric disturbances. M. Blavier, the well known electrician, has nevertheless pointed out recently to the French Academy of Sciences, that in times of storm currents are produced in these lines, which discharge themselves through the lightning protectors, melting their fine wires. They are, however, less violent than the currents in aerial wires, and do not appear to interfere with the traffic. They are evidently due to storms in the country, at a distance more or less great from cities, where the lines are protected by systems of gas and water pipes. During a storm on March 9, at the middle of the line between Belfort and Besancon, sparks were seen at the terminal stations, whilst in the two cities hardly any atmospheric perturbation was noticeable. M. Blavier explains the phenomenon, which is familiar to those who have tested submarine cables in tropical seas, as due to electro-dynamic or electrostatic induction caused by the electricity of the storm.

Traffic of Broadway, New York.

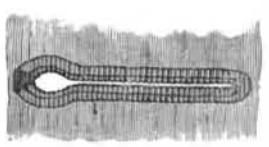
Four men were recently stationed at Fulton St. and Broadway to count the vehicles passing through Broadway at that point from 7 A.M. to 6 P.M. The total number was 22,308 for the period of 11 hours—about 2,000 an hour, 33 a minute, or 1 every 2 seconds. The largest number of any one kind of vehicles was of single and double trucks, 7,384; the smallest number was 2, these were ambulances. There were 3,390 single and double express wagons. The 2,310 stages and the 10,022 cabs were next in order of quantity, peddlers' wagons numbering 938, produce wagons 446, rag trucks 375, carriages 354, coal carts 324, and venders' wagons 300. Then there was a drop to hacks, 288, and butcher wagons, 223. The variety of vehicles was striking, there having been 80 kinds according to the schedule. Every conceivable article of transfer appears to be poured into Broadway. The private carriages were completely engulfed in the 150 ash carts; the 2 ambulances and 3 funerals made a melancholy showing amid the 73 loads of dead hogs, the 64 garbage, and the 73 dirt carts. The lager beer wagons and the orange peddlers flourished on an equality; the bone and lumber wagons went neck and neck; the pie and the sugar wagons were half and half, which should give the pies sweetness; the milk were left behind by the swill wagons. The mixture presented was, says the N. Y. *Tribune*, something appalling. Kerosene, milk, old iron, sawdust, rags, sugar, ice, beer, bones, oranges, ashes, pie, hogs, tripe, tin, tallow, tea, tar, and undertakers were commingled in a bewildering confusion. Broadway is certainly a remarkable thoroughfare.

Stereoscopic Effects by the Magic Lantern.

Mr. Crowther, of Manchester, has invented a contrivance for the production of stereoscopic effects by means of the magic lantern. Two lanterns are used, each of which projects one of the two corresponding stereoscopic transparencies so that one picture is superimposed upon the other upon the screen. The light thrown from the lanterns is not white, but consists of complementary colors, red and green. The observers wear spectacles colored of corresponding tints with those used in the lanterns, and each eye perceives only its appropriate view, the mind combining the two pictures into a representation possessing strong stereoscopic relief and some peculiar properties of luster. By a slight alteration in the adjustment the image can be made to advance and retreat, appearing suspended in mid air between the spectator and the screen, somewhat after the manner of the well known illusions produced by concave mirrors. The inconvenience of supplying colored spectacles to a company of observers can be overcome, it is thought, by paralysing each eye, as required, by alternately exhibiting a strong light of the complementary tint required. Mr. Crowther has also in progress a further optical contrivance for intensifying the stereoscopic effect when the landscape is viewed directly.

A BUTTON HOLE ATTACHMENT FOR SEWING MACHINES.

The accompanying figure illustrates a simple and strong method of making a button hole, as effected by sewing machines with the Harris button hole attachment, which has been the subject of two recently issued patents. By an intermittently rotated pinion and guide for retaining it in gear, combined with an oscillating and longitudinally movable feed bar carrying a cloth clamp, with other novel features, the ends of the button holes, as made, are strongly barred by a series of overlapping stitches, and the button hole is thus given extra strength, the whole being done quickly and automatically. Further particulars regarding these inventions can be obtained from the Harris Button Hole Attachment Co., of 521 West 45th Street, New York city.



James C. Lathrop.

Mr. James C. Lathrop, of Bridgeport, Conn., died on the 31st day of May, at the age of 33 years. Mr. Lathrop was well known to scientific men in the East, and was one of the most active members of the Bridgeport Scientific Society. As a mineralogist he was particularly well informed; his collection of minerals is said to be the most complete in the State, all his specimens have been carefully selected, and many of them are the finest of their kind. In other branches of science he was an enthusiastic student and teacher, whose influence was felt in the community. He was a good observer with the microscope, of which he made much use. For nearly twelve years he has been an accountant and cashier for the Housatonic Railroad Company.

It is seldom that a man in active business acquires such accurate and extended knowledge in science as Mr. Lathrop possessed. Naturally active and quick in thought and apprehension, by close application during the hours that could be spared from business and home duties, he became a leader among his associates, and an example worthy of imitation.—*Micro. Journal.*