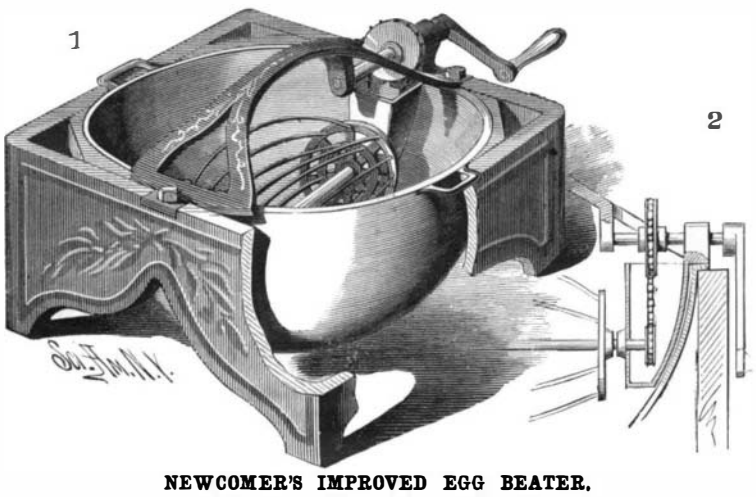
IMPROVED EGG BEATER.

The engraving represents an improved form of egg beater, which may be easily and readily attached to a suitable pan when it is to be used. The rotary egg whip consists of a shaft, having skeleton heads, and wires which are so curved as to make the exterior of the whip conform very nearly in shape with the hemispherical bottom of the pan. By means of this correspondence in shape, the whip may be made to come very near the surface of the pan, thereby permitting small quantities of eggs to be whipped. The frame carrying the whole of the moving mechanism is secured to a wooden stand, in which the pan is placed. The



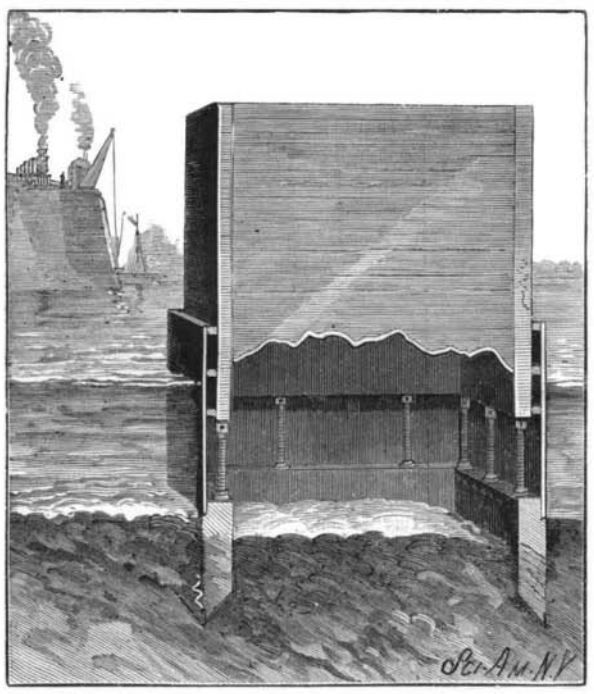
NEWCOMER'S IMPROVED EGG BEATER.

shaft is situated considerably below the upper edge of the pan, in order that a smaller whip may be used and yet have the same effect as a larger one. One end of the shaft rests in a bearing pendent from the frame, and the other end enters a box open at the upper end only, as shown in Fig. 2. That portion of the shaft within the box is provided with a small sprocket wheel, which is in gear with a larger one, on an independent shaft, by means of an endless chain. The independent shaft is furnished with a crank, by means of which the whip may be revolved. The box prevents the contents of the pan coming in contact with the chain or wheels. The apparatus requires but little effort to operate it, each revolution of the beater agitates or lifts the whole batch, and there is no danger of splashing.

This beater is manufactured by the inventor, Mr. J. L. Newcomer, 18 Water Street, Baltimore, Md.

IMPROVED CAISSON.

The object of the invention shown in the annexed cut—patented by Mr. John McGovern, of Murphys-



McGOVERN'S IMPROVED CAISSON.

borough, Ill.,—is to facilitate the work of sinking coal shafts and wells and excavating for bridge foundations in ground, such as mud or quicksand, which breaks into the excavation before it can be timbered. The lower portion of the crib or caisson is constructed of timber and of a size internally corresponding with the finished shaft. The lower portion is beveled to a sharp edge and shod with iron so that it will enter ground readily. The upper portion of the caisson, formed of boiler iron, is bolted to the outside of the lower part, and is long enough to extend some distance upward outside the permanent timbering of the shaft, so as to prevent earth from running into the excavated space at the bottom. On the inside of the upper part are ribs taking against the permanent timbering, thus insuring an equal space all around for inserting timbers. In using the caisson to sink a shaft, it is gradually forced down by jack screws, placed, as shown in the engraving, between the bottom portion and the lower course of the permanent timbers. After having been driven far enough to give space for a course of timber, the screws are removed, the material excavated enough to permit of the work, and the timbers then put in, after which the screws are again applied. The mud or sand is allowed to remain within the caisson nearly up to the top of the lower part, and only removed as necessary, so that the caisson will be held down to place.

The Novelties Exhibition, Philadelphia.

The Novelties Exhibition of the Franklin Institute will open on September 15, and will probably close the last of October. The building erected for the Electrical Exhibition, held by the Institute last fall, will do service in the present instance, and is expected to be well occupied, as the applications for space have already been quite numerous. The building is located at 32d and Lancaster Avenue, and is very convenient of access, being on the route of several lines of street railways, and but a short distance from the West Philadelphia station of the Pennsylvania Railroad. No applications for space will be received later than September 12, and the exhibitors are limited to the unique. It is to be eminently a display of novelties.

Each exhibitor must pay an entrance fee of $5 for his season ticket, and will be charged for the space occupied at a certain rate per sq. ft. Where power is required to drive the mechanisms exhibited, it is supplied at 3 cents an hour per horse power, and in case the exhibitor provide his own engine, the indicator card will decide the amount consumed. Judging from the past history of exhibitions in Philadelphia, it is expected that the coming one will be a great success.

Two Fine Meteors.

On the evening of July 6, about eleven o'clock, while engaged in comet seeking with the nine inch reflecting telescope, I was surprised by a sudden, almost blinding, flash of light. Quickly removing my eye from the telescope, and glancing upward, I beheld a magnificent meteor, moving rapidly from a point southeast of the zenith toward the northwest, and disappearing at an altitude of forty degrees. Just previous to its disappearance it burst into three or four fragments, which became of different colors, those in the rear being a vivid green, changing to purple, while the foremost and largest was a brilliant red. No report of the explosion was heard, although listened for. On the following night, in fact at one o'clock in the morning, while resting my eyes momentarily from the telescope, another fine meteor was seen moving from east to west across the northern heavens at an altitude of thirty-five degrees. This left a brilliant train of light lasting about 90 seconds, to the naked eye vision, and in the telescope, which was turned upon it, was visible a much longer time, twisting and curling like a wreath of smoke.

WILLIAM R. BROOKS.

Red House Observatory, Phelps, N. Y., July 8, 1885.

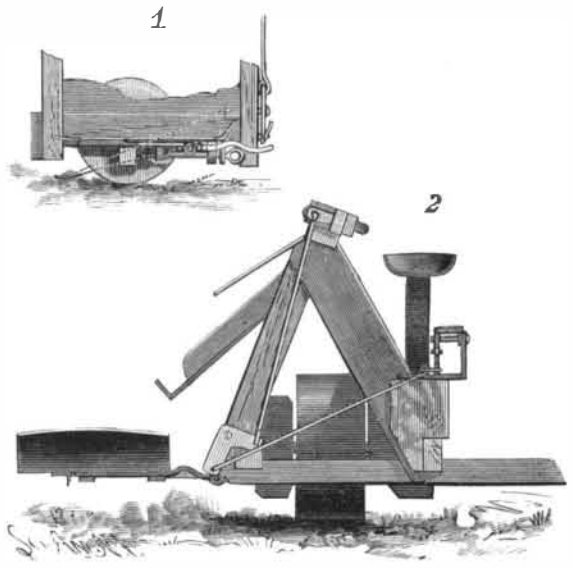
Tempering Steel with Low Heats.

Some curious statements on tempering steel are made in a paper published in *Dingler's Polytechnic Journal*, vol. 225, by Herr A. Jarolimek, "On the Influence of the Annealing Temperature upon the Strength and the Constitution of Steel." Hitherto it has been generally considered that to obtain a specified degree of softness it is necessary to heat the hard steel to a particular annealing color—that is to say, to a definite temperature—and then allow it to rapidly cool. Thus for example, that steel might anneal—be tempered—yellow, it had to be heated to 540 deg., and the supposition was formed and acted upon that it must be allowed only a momentary subjection to this temperature. Herr Jarolimek says the requisite temper which is obtained by momentarily raising the temperature to a particular degree, can also be acquired by subjecting the steel for a longer time to a much lower temperature. For example, the temper which the annealing color—yellow—indicates can be obtained by exposing the hard steel for ten hours to 260 deg. of heat; in other words, by placing it in water rather above the boiling point.

BUNDLE DROPPER FOR HARVESTERS.

We show, in the accompanying engraving, a bundle carrying and dropping device to attach to self-binding harvesters. Fig. 1 is a front elevation of the principal part of a self-binding harvester provided with this improved dropper attachment, and Fig. 2 is a section through the attachment parallel with the line of draught. The dropper consists of a fingered platform, with sides and front end, placed down to the stubble at the side of the binder, and pivoted to and supported by a triangular frame pivoted to the frame of the harvester; the triangular frame is supported by lever connections with the harvester frame. The only attention required to operate the device is simply to trip it by pressing a foot lever, when the fingered end of the dropper platform tilts to the rear, slides from under the collected sheaves, and when clear rises to its original position by gravity or a spring, and holds itself to receive the sheaves again without further aid of the driver. It is simple and light in construction, and in passing furrows or obstructions it rises and slides without danger of breaking. When necessary, it can be instantly detached, like a hinged gate, without disturbing the tripping device. The platform, being low down, gives all the room possible, and when the fall is two feet in the clear from the binder it will hold easily six or more sheaves.

In low delivery of binders, as now most used, as the rear figured end drops the front drops and tends to wedge the load of sheaves up against the binder, thereby obstructing the unloading; this difficulty is overcome by placing the pivot of the platform well to the front. The fingers are curved (more than is indicated in the drawing, Fig. 2), thus permitting the platform to be made shorter. This form prevents the sheaves—while collecting—from sliding off, and drops lower than the common style of fingers, thereby bringing the sheaves for one-half their length in contact with the



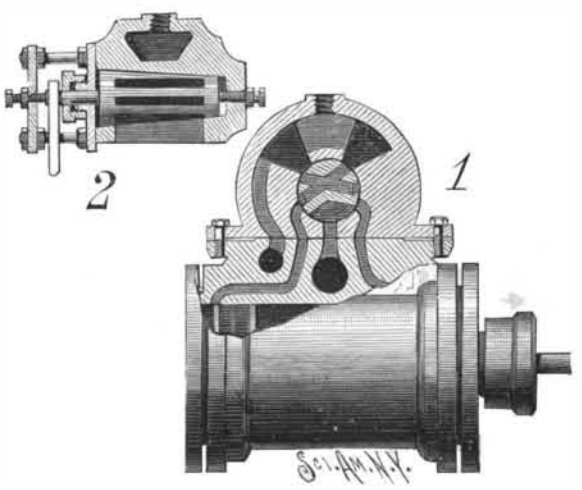
BELL'S BUNDLE DROPPER FOR HARVESTERS.

ground, and insuring the certain unloading of the platform.

This invention has been patented by Mr. Adam H. Bell, of Hillsborough, Ill.

ROTARY STEAM VALVE.

The valve case is attached to the engine cylinder, and is bored out centrally and longitudinally to receive the valve; it is provided with a removable head at one end to permit the insertion and removal of the valve. In the case above the valve is a steam space, a bridge at the middle of the space forming a bearing for the upper surface of the valve and a cut-off for the steam. (The passage supplying steam to the space and the ports are plainly shown in Fig. 1.) The valve is of tapering form, and is ground to its seat. It is made with transverse slots extending the length of the ports, and placed so as to connect the ports with the steam space; it is also made with an exhaust cavity on its under side. Formed upon the large end of the valve is a stem which extends through the removable head. To relieve the friction and allow endwise adjustment, the valve is supported at its ends by pivot screws, as shown in the longitudinal section of the valve and case, Fig. 2. By means of these screws the valve can be readily adjusted to compensate for wear. In case the valve should become, by wear, too small to fit



SYPHER'S ROTARY STEAM VALVE.

tightly, a thimble made with slots corresponding to the ports could be inserted in the case, and the valve then turned down to fit the thimble.

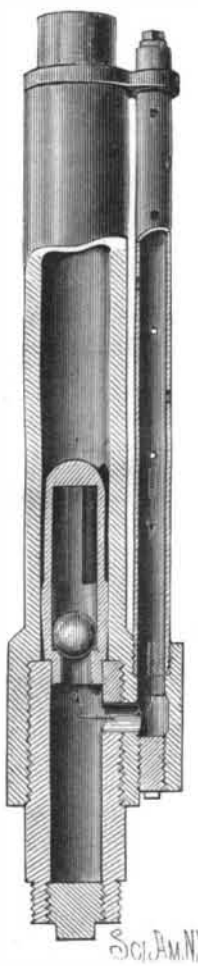
This invention has been patented by Mr. George W. Sypher, of Ellis, Kansas.

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.



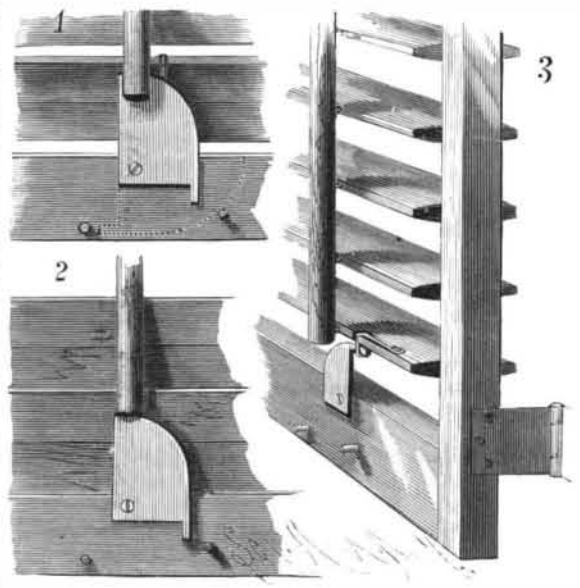
This invention has been patented by Mr. James M. Sanner, of Bradford, Pa.

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.

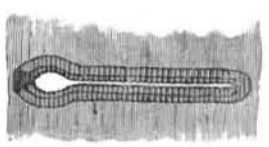
Four men were recently stationed at Fulton St. and Broadway to count the vehicles passing through Broadway at that point from 7 A.M. to 6 P.M. The total number was 22,308 for the period of 11 hours—about 2,000 an hour, 33 a minute, or 1 every 2 seconds. The largest number of any one kind of vehicles 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.*