incapable of learning others. Probably this accounts for monstrates the fact that the appellees, in consequence of the the difficulty which every person late in life encounters in ac- conditional arrangement with the appellants, which they sequiring knowledge which children easily learn.

on the contrary, forgetfulness is often to be desired. One of zeal and efficiency which the importance of the case may steep his mind in the waters of Lethe, according to one would otherwise have demanded. The result was that the author, by fixing his mind on that part of any experience labor of the court, and its liability to overlook points of which has the least permanent interest. The temporary is weight and importance, were greatly increased. As the thus remembered at the expense of the more permanent, and case was presented to us, we see no cause for changing our thereafter the latter is forgotten, while the temporary drops views. But under the circumstances we think that third out from its own inherent want of interest.

THE PATENT MIDDLINGS PURIFIER CASE.-ANOTHER portant, should not be precluded from having a further IMPORTANT DECISION BY THE SUPREME COURT.

A case of considerable importance to the milling fraternity has recently been decided in the Supreme Court of the United States, under the following circumstances:

against Deener and others, about two years ago, in the District of Columbia, as a test suit under said Cochrane patents, upon the character of the argument presented on the part of which, after being ably argued, was decided in favor of the the appellees in the former decision, and will probably predefendants. The plaintiffs appealed to the Supreme Court, vent its being used as a basis for injunctions or bonds in the and the case was heard in the October term of 1876, when circuit courts throughout the country. This will be likely the decision of the court below was reversed, and a decree given in favor of the Cochrane patents.

Shortly after that decree was entered a suit was commenced 'lidity of the Cochrane patents will be thoroughly answered. in the Circuit Court for the District of Minnesota against Christian et al., in which the bill of complaint set forth that the validity of the Cochrane patents became res adjudicata, by the decision of the Supreme Court. An injunction was granted against the owners of mill, but it was afterwards suspended on the giving of a bond for \$250,000.

Other suits were then commenced in the eastern district of Missouri, under the same patent, in which suits a special injunction was asked for. Just before the hearing in that case a letter came to light purporting to come from one of the counsel of the appellees in the case of Cochrane vs. Deener, setting forth that the appellees had no substantial interest in the case at the time it was heard, that one of their counsel had written his argument on one point only, that his fees had been very meagre, and that hence he had not discussed any of the other points before the court. Thereupon Mr. Harding, of Philadelphia, on behalf of some of the opponents of the Cochrane patents, made a motion before the Supreme Court to vacate the decree formerly made by that court in favor of those patents, on the ground of collusion between the parties. In consequence of which the court ordered an investigation to be made before a master, which showed that, just before the argument of the case in the Supreme Court. an agreement was entered into between the owners of the Cochrane patents and the defendants in that suit, that if the defendants were defeated they would only be required to pay on each of the two mills used by the defendants (twentythree run of stone altogether) \$250 cash and \$250 in a note running for a year, for a full release for all past claims, and that each mill was, without any further consideration, to have a perpetual free licence. This, it was argued by the counsel opposing the Cochrane patents, showed collusion between the parties to the suit, especially when it was considered that the owners of the patents had sued a single mill in Minnesota for \$300,000 damages, and hence the decree should be vacated.

In addition to this agreement between the parties, it was shown that the appellees would only pay such small fees to their counsel-about one third what they wanted-that it was likely their efforts corresponded with their pay, and that if better fees had been paid, better argument would perhaps have been made.

The counsel for the Cochrane patents in answer denied the collusion, stating that all the parties to the suit were interested in having the case thoroughly tried; that the suit was instituted as a test case, its principal object being to obtain a decision of the Supreme Court on the validity of the Cochrane patent, upon which, if favorable, it was intended to rely, treatment, and shows an array of over 250,000 administrain asserting their rights against all infringers; that their ob-tions of chloroform with but 12 deaths, thus affording strong ject in fixing the sum of \$1.000 as the amount which they would claim for the past and future use of defendant's machinery if they obtained a reversal of the decree, was solely to expedite matters and prevent any vexatious or unnecessary delays; and that knowing that such decision would be

cured before the argument was had or from some other A good memory is therefore not an unmixed blessing, but, cause, omitted to prosecute their defense with that degree has adapted this apparatus to his military telegraph. parties, who had no opportunity of being heard, and whose interests as opposed to the Cochrane patents are very imhearing upon it whenever a future case may be presented for our consideration.

"The motion is denied with costs."

This decision although against the vacating of the de-A suit was brought by the owners of the Cochrane patents cree, will it is thought have the effect desired by the maker of the motion to vacate it, as it throws strong doubt ot result in a new test case, brought on under the care of the best obtainable counsel, in which the question as the va-

----CHLOROFORM.

Dr. Julian J. Chisholm, Professor of Eye and Ear Diseases in the University of Maryland, has lately published a ment is a part of the original invention." pamphlet entitled, "What Anæsthetic Shall We Use?" wherein he takes strong ground in favor of chloroform, and deprecates the disfavor into which that drug seems to have fallen on account of the deaths which have occurred among chloroform accidents are preventible, that deaths occurring, or rather attributed to the drug, are too often due to the shortgiven

One of the most common causes of death is due to the operator failing to push the inhalation to the degree of suspending the functions of such parts of the cerebro-spinal system as preside over the emotional, sensational, motor, and reflex acts; or, in other words, the condition in which peripheral irritation can no longer be transmitted through the cord to the brain, and then back, by the vagus and pneumogastric nerves, to the cardiac ganglia. Any condition short of this stage leaves the heart exposed to those serious inroads from peripheral irritation through which its movements may be suddenly and permanently arrested. In this way can be sattrivial operations, such as tooth drawing, abscess opening, in form. etc., when only enough of the agent was inhaled in the sitting posture partially to stupefy, but not to protect against reflex accidents from emotional or peripheral excitement. When deaths occur under these circumstances the fatal renerve centers from which the heart and lungs draw their inspiration.

That which Dr. Chisholm calls "the only legitimate of all causes of death from anæsthetics," is that unknown condition called idiosyncracy, in which anæsthetics show themselves poisons of extreme fatality. The patients who carry about with them this innate fatality exhibit it by no recognized signs. When they die from toxic inhalation the autopsy reveals absolutely nothing to indicate the destructive effects of the poison.

Dr. Chisholm adduces a large amount of statistical information to show the infrequency of deaths under chloroform proof of the rarity of the fatal idiosyncracy.

THE TROUVE MULTIPLE TELEPHONE.

M. Trouvé, the well known French electrician, has lately may remain for long periods in a medium filled with infuof no value unless made upon a full exhibition of the case, submitted to the French Academy of Sciences, an account soria, without the latter traversing the shell and penetrating they by suggestion contributed to the introduction into the of experiments conducted by him upon the Bell telephone, the interior. The shell, however, allows the passage of mithe object being to increase the capabilities of that appara- croscopic mucedinæ, which make their way through the tus and to render it available over any distance, however lining membrane and develop very abundantly on its inlong. Instead of the single vibrating diaphragm used by ternal face. The membrane surrounding the yolk presents, Professor Bell, M. Trouvé substitutes a cubical chamber, however, an insurmountable barrier to their further pro each face of which (with one exception) is a vibrating mem- gress, but should their entrance into the yolk be effected an the motion to vacate the decree in this case, we see no ground brane. Each of these membranes, being thrown into vibra-alteration takes place, which is a true fermentation and distion by the same sound, influences a fixed magnet and elec- tinct from putrefaction. tric circuit, the same as in the Bell arrangement. By associating all these currents, a combined current of single in-Amyloid Degeneration of the Cornea, they repelled any arrangement or proposition which might tensity proportional to the number of magnets influenced is By introducing liquids impregnated with spores into the look to that end. Whilst we would not hesitate to set aside produced. Instead of the cube, a polyhedron having an in- cornea of rabbits, Dr. A. Frisch has found that the cora decree collusively obtained, the proof ought to be very definite number of vibrating membranes may be used, and puscles of the cornea undergo a metamorphosis of their protoplasm into shapeless brilliant masses. The sheath of the Suppose now a line established on which is disposed a conjunctive tissues of nervous fiber, with or without marrow, telephone constructed as above described, the membranes remains intact, but becomes filled with flattened masses "At the same time as the decision in this case is made the and magnets of which are divided into two series, and the having an intense refracting power. These and other subbasis for applications for injunctions against third parties in circuits so arranged that, by pronouncing a word, currents stances show amyloid reaction on contact with iodine and the Circuit Courts, it is right that we should say that, in the are produced on the same wire in opposite directions. When sulphuric acid, and resist the action of digesting liquid. argument of the appeal before us, the case on the part of a despatch is received to be transmitted further on, the Examined under polarized light, all the portions affected the appellees was, as it seemed to us, very imperfectly pre-operator talks in the telephone in the usual way; and his with amyloid degeneration become bi-refracting.

versatile energy upon a few things, and eventually become sented; and the evidence laid before us on this motion de-speech, by the arrangement of circuits above noted, is heard both at the station to which he is forwarding the message and also at the one from which the message was sent, so that the possibility of error is thus rendered nil. M. Trouvé

NOTES OF PATENT DECISIONS.

PATENT OFFICE DECISIONS.

The Commissioner of Patents has decided the interlocu tory appeal from the decision of the Principal Examiner in the matter of the application of Temple for letters patent, adversely to the applicant.

The original application was for a process invention. It admitted of illustration by drawing, but no drawing or model was submitted. Subsequently the applicant sought to amend his original application, a drawing being filed and a description inserted relative thereto In the proposed amended specification many elements, which appeared to be essential parts of the invention, were included in the claim. These elements, however, were omitted from the original specification. The case, therefore, came up under Rule 32 of Office Practice, which provides as follows. "All amendments of the model; drawings, or specification, in the case of original applications which are capable of illustration by drawing or model; must conform to at least one of them as they were at the time of the filing of the application; further changes than this can only be made by filing a new application. If the invention does not admit of illustration by drawings amendment of the specification may be made upon proof satisfactory to the Commissioner that the proposed amend-

The Commissioner decides that Temple is not entitled to the proposed amendment. Such amendment he considers new matter" as it conforms to no part of the case as it existed at the time of its filing. The concluding provision patients under its influence. The drift of his views is that of Rule 32, which permits the admission of an amendment on satisfactory proof that it is part of the original invention, cannot apply to the case under consideration, because in this comings of those who administer it, and to its administration case the matter is capable of illustration by drawing and under improper conditions, when it should not have been model. The object of this prohibition in Rule 32, against the introduction of "new matter," is to limit the power of amendment, so that it is possible to determine when an application is completed.

COURT DECISIONS.

The Supreme Court of the United States, in deciding the appeal in the infringement suit of Romer vs. Simon, lays down the following rules of law:

Where the patent described in the bill of complaint is introduced in evidence, the patentees are presumed to be the original and first inventors of the described improvement; and when they have proved the alleged infringement, the burden of proof is cast upon the defendant to show that isfactorily classified the many deaths under anæsthetics for the patent is invalid unless the patent is materially defective

Proof of prior use of the alleged invention, in a foreign country, will not supersede a patent granted here, unless the alleged invention was patented in some foreign country. Proof of such foreign manufacture and use, if known to the sult is not to be attributed to the anæsthetic, but to the want applicant for a patent, may be evidence tending to show of it. Another cause of death is over-administration. Chlo- that he is not the inventor of the alleged new improvement, roform has a toxic action, while besides its dose can be made but it is not sufficient to supersede the patent if he did not large enough to kill by enfeebling and finally paralyzing the borrow his supposed invention from that source, unless the foreign inventor obtained a patent for his improvement, or

the same was described in some printed publication.

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Infinence of Organisms on Eggs.

MM. Bechamp and Eustache have determined that eggs

case of all the defense which they had knowledge of, in order that they might be disposed of in the final decision.

After the arguing of the case the Supreme Court, through Judge Bradley, delivered the following as its opinion:

"After a careful examination of the evidence adduced on to believe that the appellants are chargeable with any collusion with the appellees in reference to the argument of the appeal. On the contrary, the weight of the evidence is that clear to induce us to do this at the instance of strangers to the thus intensity augmented as desired. suit, though incidentally affected by the decision of the questions involved

A Steam Sled for the North Pole.

At a recent meeting of the London Association of Foremen Engineers and Draughtsmen, Mr. Daniel Cartmel, late Chief Engineer of H.M.S. Discovery, and now of H.M.S. Cleopatra, read a paper on "Polar Exploration, with Suggestions for the Employment of Steam Power in Effecting it." The author, with the aid of several charts and diagrams, explained, in the first instance, the geographical and meteorological characteristics of the arctic regions, and then advanced to his subject proper. Mr. Cartmel, from his experiences during the expedition of Captain Nares, came to the decided conclusion that sledging by manual power was a hopeless method of attempting to reach the North Pole, and since his return has been busily engaged in devising a steam sledge for that purpose. This contrivance, as described by the inventor, consists in its general outlines of a flat-bottomed boat with two stern wheels, the midship cross section being a parallelogram. It would be constructed of steel plates lined with wood, perfectly rigid, and capable of standing the roughest usage. The boat-sledge, as it may be termed, would be highly polished so as to minimize friction, whilst the bow would be stayed and strengthened to the fullest extent, so as to resist concussions. Of course the steam power is intended to be concentrated as much as possible, whilst the steering wheels would be driven directly from the crank shaft. The proceedings closed with a vote of thanks to Mr. Cartmel, who also explained that the sledge might be warped forward with rope, and capstan, when desirable. Here is a suggestion for Captain Howgate and other members of the American Arctic Colony, now trying toreach the North Pole.

.... Utilizing Subterranean Heat.

The Virginia City (Nev.) Enterprise says: "An enterprising engineer of this city is engaged in working out a plan for heating the whole town by means of the heat generated street car corporations. Our lawmakers have set aside the columns over the curbs. The latter plan is preferred.

and exhausting apparatus. Large reservoirs are used for the condensed and rarified air. The tension of the condensed air is about three atmospheres, and that of the rarified about 35 millimeters of mercury. The condensed air, heated to 45° C. by the compression, is cooled in the reservoirs which are surrounded with water. The velocity of the carriers averages 1,000 meters per minute, and a train is despatched every 15 minutes. Each of the two circuits, into which the system is divided, is traversed in 20 minutes, including stoppages. The entire cost of the enterprise is estimated to cost 1,250,000 marks.

THE NEW YORK ELEVATED RAILWAY.

Along Sixth, Ninth, and Third avenues, Pearl street, West Broadway, and other great thoroughfares of this city, large gangs of men are at work, digging foundations and erecting the structures which form the roadway of the different elevated railroads. Within a very few months trains will be running over these new aerial routes, and the long vexed problem of rapid transit, which has been discussed in this metropolis for nearly a quarter of a century, will at length be solved. Whether this solution will have been accomplished in the best possible manner and in conformity with the rights and convenience, both of the traveling public and of the public whose property is affected by the proximity of the necessary structures, is open to question. We have reviewed in these columns all the schemes having a like result in view, and have advised in favor of the underground plan, pointing out its entire feasibility, and directing attention to its successful operation in London, in this city, and elsewhere. In rather anomalous manner, however, the Legislature has authorized the Gilbert and New York Elevated railways to carry their tracks above the same routes, the franchises of which had previously been bestowed upon the is either spanned or a single track is carried by each line of

on the north, near Central Park. A perspective view of this road is given in Fig. 1; and in the annexed drawings, for which we are indebted to the Railroad Gazette, the details of construction, as the same differs at various portions of the route, are shown. Except over about one third of its length this road is now single track.

The work in progress involves the completion of the second track between the Battery and 61st street; a double track extension along Ninth avenue from 61st street to 81st street, west side; double track road from Whitehall street through Front and Pearl streets, the Bowery and 'I hird avenue to 59th street, including branches to the ferries, western terminus of the East River Bridge and the Grand Central Depot, east side, comprising altogether about three miles of single and six miles of double track.

From the map given herewith (see page 20) this route can be followed in heavy black lines. The route of the Gilbert railway is marked in dotted lines. We shall devote a separate article to the Gilbert system, which differs in many respects from that under consideration. The New York Elevated Railway has a structure based on the "one-legged plan." the essential feature of which is that the weight of roadway as far as possible is carried immediately over the posts which support the structure. The Gilbert Company, on the contrary, in nearly all cases, supports its roadway between the posts on transverse. It will be seen, however, from the drawings, that the elevated road adopts this latter mode, over its Whitehall street route. As the drawings are all marked with the names of the streets, the reader can easily trace for himself the various modifications of structure which have been adopted to suit varying localities. Front and Pearl streets from Whitehall street to Franklin Square being narrow, with but little room in the roadway, the latter



in the subterranean regions of the mines. He says there is old law maxim that right in real property is supposed to ex sufficient heat in the lower levels of the mines underneath | tend upward to the heavens; and the highest court of judiour feet to comfortably warm every house and every room cature in this State has affirmed the legality of the priviin the city, provided it can be utilized. His plan contem- leges accorded to the elevated companies, and of the means stances, the columns must be on the line of the curbs. plates a system of pipes, through which the heat will be whereby the latter propose to carry out their projects.

affect, first the horse car companies, whose tracks are virtually inclosed in a tunnel; second, the property owners along the route, before whose second floor windows trains constantly thunder, and whose buildings along the line are depreciated in value without any means of reimbursement or compensation being open to them; and, lastly, the general public, through the obstruction produced by such large structures in important thoroughfares. Their advantages enure to whoever travels upon them, for certainly no more pleasant mode of locomotion can be suggested than to be rapidly whisked along in roomy, well warmed or ventilated vehicles, high above the dust and noise of the crowded streets. In this article-which is the first of a series on the means main stations has two engines, which drive a compressing southern extremity of the city at the Battery to 61st street, nel beams are curved outward from the center each way far

From Franklin square to the intersection of the Bowery with Third avenue, alone the New and Old Bowery, owing to the number of surface railroad tracks and other circum-

On Third avenue the upper stories of the buildings are ocdistributed, while at the same time it will be drawn out of It remains, therefore, but to examine into the practical cupied very generally as dwellings, and it was thought desithe mines as it arises. Thus he will at the same time heat features of the now adopted plans. Their disadvantages rable to remove the tracks as far from the houses as possible, and as the roadways are 50 feet wide, with a double line of surface horse railroad tracks in the middle, a line of columns is to be placed upon each side of the horse railroad tracks, and connected at the top by light elliptic arch girders. The track superstructure will be 17 feet or over above the grade of the surface railroads, and the columns in the roadway 15 inches square, and in nearly all cases 15x18 inches when on the curb. The general average length of the spans will be 43 feet 4 inches. the girders made of open lattice work, and 33 inches deep, and to be proportioned so that no part of them will be subjected to a greater strain of tension and compression than 8,000 lbs. per square inch, or a greater shearing strain than 6,000 lbs., and the maximum deflection of the girders when loaded not to exceed one fifteen hundredth of its span. The columns will consist of two 15 inch rolled channel beams united by lateral bracing, consisting of the carriers. Steam engines of about 12 horse power are New York Elevated Railway, a portion of which is now in $3\frac{1}{2}x\frac{5}{3}$ inch bars riveted to the flanges of the beams. Where used in condensing or rarifying the air. Each of the four operation over a length of about 5 miles, extending from the the track is carried over the columns, the tops of the chan-

the town and ventilate the mines."

Pneumatic Postal Despatch, Berlin.

The proposed pneumatic despatch system in Berlin will comprise 26 kilometers of tubing and fifteen stations. The bore of the tubes will be 65 millimeters. They will be of wrought iron and will lie about a meter below the surface of the ground. The letters and cards which are to be forwarded have a prescribed size, and are enclosed in iron boxes or carriers each of which can hold twenty. From ten to fifteen carriers are packed and forwarded at a time, and behind the last is placed a box with a leather ruffle, in order to secure the best possible closure of the tube. The exhausting machines and apparatus required for the transmission are situated at four of the stations. Both compressed and rarified of rapid transit in New York, to appear from time to time air, or a combination of the two, are employed in propelling in these columns-we present a detailed description of the