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NEW YORK, SATURDAY, JULY 17, 1886.

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SCIENTIFIC AMERICAN SUPPLEMENT

No. 550.

For the Week Ending July 17, 1886.

Price 10 cents. For sale by all newsdealers.

RECENTLY PROPOSED PATENT LEGISLATION.

In many cases, improperly drawn specifications, with drawings not acceptable under the Patent Office rules, have been forwarded to the Commissioner of Patents, accompanied by the preliminary fee of fifteen dollars. Of such applications, some have gone no farther, the necessary alterations and amendments not having been made. In other cases, inventors, ignorant of the laws relating to patents, have sent to the Commissioner a simple statement to the effect that they proposed to take out a patent for certain inventions, and with this statement have forwarded the preliminary fee of fifteen dollars. Again, it often happens that the final fee of twenty dollars is paid in, and the application abandoned after such payment. Sometimes the entire fee of thirty-five dollars is sent in advance with the application, which is subsequently abandoned. Hitherto, and at present, in such cases the amount received in excess by the Commissioner cannot by law be returned. Much injustice is apparent in these transactions. Money is received by the government, and retained by it, for which no equivalent is given. There are now many thousands of dollars in the Treasury received from these sources. It seems clear that it is a case for legal relief.

On the 22d of March of the present year, Mr. Ormsby B. Thomas introduced a bill designed to remedy the evil. In general terms, it authorized the Commissioner of Patents to refund these fees where possible, and in all cases to make efforts to do so by writing to the applicants, The bill was twice read, and referred to the Committee on Patents, who reported a substitute (H. R. bill No. 9,474) on the 16th of June. It is for the purpose of authorizing and directing the Commissioner of Patents to notify the class of applicants in question that their fees are subject to their order. It classifies the fees, 1st, as those sent to the Patent Office with applications which have never been completed or placed in condition for examination, and have become abandoned by lapse of time; 2d, as final fees of twenty dollars paid on applications which have never been patented, and which have become abandoned.

In all such cases, the Commissioner of Patents is ordered to mail to the last known post office address of the person entitled thereto, informing him of his right to the sum in question, and stating that the amount will be forwarded to him on his written request for it. When the request is received, the Commissioner is directed to return the money, under such rules as may be required to efficiently and safely carry out the provisions of the proposed law. In order to prevent any further accumulation of fees paid by mistake, the Commissioner is authorized to refund them, for the future, as soon as received, drawing upon the current receipts of the office.

The provisions of the bill above summarized seem enimently just ones. The fees of thirty-five dollars received by the Patent Office are intended to pay for the cost of searching for novelty, for clerical expenses, printing, lithographing, and the like. There was never any idea of making them a source of profit or of general revenue to the government. Under equitable management, the amounts received by the office should be spent upon forwarding its business, and expediting the issuing of patents. When, therefore, through error or otherwise, fees are paid for which no return is given in the way of a search for novelty, and other work involved in the completion of the application, or for which, as in the case of final fees, no issuing of a patent has been effected, it seems unjust for the government to retain the amounts so received. A large surplus exists to-day in the Treasury of the United States to the credit of the Patent Office. Much of it has been derived from the sources described. The repayment of as many inventors as could be found would not, we are convinced, seriously deplete this idle amount. For the future, if the revenues were somewhat reduced, it would be only equitable and just to submit to such reduction. The government should in no sense be a money maker, and should receive no fees that it is not justly entitled to.

PROGRESS OF SILK CULTURE IN THIS COUNTRY.

From the Sixth Annual Report of the Women's Silk Culture Association of the United States, it appears that while the present outlook for the industry is not as bright as it might be, there is still much to encourage its advocates in believing that it will one day win for itself an important place among the industrial enterprises of America. The number of those engaged in the culture of silk cocoons in the agricultural districts is on the increase, and there has been an improvement in both the quantity and quality of the product. The methods of converting the cocoons into commercial raw silk have also been improved, and the prices are somewhat higher than formerly. That there is an immense field for the silk culturist in this country, if only the industry can once be established upon a commercial basis, is shown by a glance at the custom house statistics. Not infrequently the monthly imports of silk and silk goods amount to as much as five million dollars. Or perhaps it is even better appreciated when one studies the attire of any American assembly. A decided preference is shown for the various kinds of dress goods made out of silk.

A recent feature in the work of the Association has been its management of the Government Experimental Station in silk culture. A filature, or silk reeling station, was established in Philadelphia, and a line of shafting was introduced, with arrangements for six reels. Early in June, 1885, three American reels were put into operation. A market was soon found for all the reeled silk produced, and also for all the waste, so that the undertaking may be said to rest on a business footing. The small quantity of cocoons produced, and the lack of experience in their culture, coupled with the high price of expert reelers, have been serious drawbacks to the financial success of the enterprise. But these are accidental circumstances, and will be dispelled, it is believed, by the results of the next two or three years. It is pleasant to record the fact that the three reels made in Philadelphia are pronounced by experts to be superior to any of those imported, not excepting the improved forms brought from the very home of the industry, Southern France.

There is one aspect of silk culture which, in addition to its intrinsic commercial importance, makes it worthy of particular attention. And this is the employment it affords to women and children whose homes are in the country.

PROF. PICKERING'S EARLY EXPERIMENTS IN TELEGRAPHING SOUND.

In 1870, Prof. E. C. Pickering, then of the Massachusetts Institute of Technology, illustrated to an audience the transmission of sound by electricity in an experiment which the present telephone controversy makes particularly interesting.

His first receiver consisted of a powerful electromagnet attached to the bottom of a wooden box, the cover of which was replaced by a tin plate, having a soft iron armature attached to its center. The armature approached the magnet, but was not in contact. The transmitter was a sonometer, around the wire of which a short wire was wound, dipping into mercury. An electric current was passed through both wires, the mercury, and the magnet. When the main wire of the sonometer was made to vibrate, the current at each vibration was broken at the surface of the mercury. When the circuit was made, the magnet drew the plate down; and when broken, the elasticity of the plate drew it back. A loud sound was thus produced, the pitch of which could be varied by changing the length or tension of the wire of the sonometer. This experiment was shown to the American Association for the Advancement of Science, at its annual meeting, and was repeated in the course of several lectures. On again repeating this experiment in 1879, when the subject of the transmission of sound by means of electricity had assumed commercial importance, it was found that ordinary conversation could be heard as readily as musical notes.

From this it will be seen that as far back as 1870 a receiver was devised which consisted of a flexible iron diaphragm supported at its sides, and replacing the armature of an electro-magnet—a receiver, in fact, which differed in no way from that now in use. In 1879, the possibility of its use as a telephone was also demonstrated, and though intended originally for a discontinuous current, it was equally suitable for a continuous one. The apparatus used in these early experiments is now in the possession of the Institute of Technology.

THE NATION'S GREAT PROBLEM.

Prof. R. H. Thurston, Director of Sibley College, Cornell University, in his lecture before the graduating class of the Rose Polytechnic Institute, at Terre Haute, Ind., took for his subject the nation's great problem, the possibility of progress without revolution and without those periods of darkness and distress which have heretofore been its recording milestones. The solution of this problem he finds in education, the careful, moral cultivation of the people at large. There are, it is said, two distinct systems of education, the old or gymnastic, and the new or technical; but a deeper interpretation of the intellectual life shows no such distinction. However better adapted the new education may be to our present wants, it has at its foundation the elements of the old. The technical education, which is now beginning to receive proper recognition in our systems of culture, is simply the supplement to our older, incomplete academic training. In the ideal education, the citizen is fitted for the successful pursuit of every desirable object in life.

The education at school and college is no longer regarded as a finality, but simply as a means to an end, and that end is the student's life work and culture. Some years ago, in tracing the history of the development of the modern steam engine, Prof. Thurston divided its growth into three periods—speculation, application in several distinct forms, and, finally, a period of refinement.

In the growth of our educational systems, we have reached this third stage, the period of refinement, in which, the elements of the complete system being pres-

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ent, it remains for us to select and arrange them to form a symmetrical whole of maximum efficiency, and adapted as perfectly as possible to the purposes which the experience and wisdom of the world have found essential. But the subject of technical education is so large that it has become necessary to specialize, and we have accordingly the manual training school, the trade school, and the school of engineering, in which the use of tools, their application in the arts, and finally the principles of design are respectively taught. By training each citizen to the greatest efficiency in his chosen work, it becomes possible to make our progress not only rapid, but, what is of infinitely more importance, continuous.

How to Cool a Cellar.

A great mistake is sometimes made in ventilating cellars and milk houses. The object of ventilation is to keep the cellars cool and dry, but this object often fails of being accomplished by a common mistake, and instead the cellar is made both warm and damp. A cool place should never be ventilated, unless the air admitted is cooler than the air within, or is at least as cool as that, or a very little warmer. The warmer the air, the more moisture it holds in suspension. Necessarily, the cooler the air, the more this moisture is condensed and precipitated. When a cool cellar is aired on a warm day, the entering air being in motion appears cool, but as it fills the cellar the cooler air with which it becomes mixed chills it, the moisture is condensed, and dew is deposited on the cold walls, and may often be seen running down them in streams. Then the cellar is damp, and soon becomes mouldy. To avoid this, the windows should only be opened at night, and late—the last thing before retiring. There is no need to fear that the night air is unhealthful—it is as pure as the air of midday, and is really drier. The cool air enters the apartment during the night, and circulates through it. The windows should be closed before sunrise in the n orning, and kept closed and shaded through the day. If the air of the cellar is damp, it may be thoroughly dried by placing in it a peck of fresh lime in an open box. A peck of lime will absorb about seven pounds or more than three quarts of water, and in this way a cellar or milk room may soon be dried, even in the hottest weather.

Natural Gas at Findlay, Ohio.

At a recent meeting of the Ohio Gas Light Association, Springfield, O., Mr. E. B. Philipp, of Findlay, O., read a paper on the above subject, from which we take the following:

Somewhat more than a year ago our company (the Findlay Gas Light Company), which had supplied the city with coal gas for a period of ten years, was driven into the natural gas field on account of the formation of an opposition company. The result of the latter's test well, and the knowledge of the fact that its managers had secured a franchise, led us at once to drill for natural gas. A good flow was secured, and without any investigation as to its quality or nature, either by chemical analysis or through photometrical tests, we turned it into our holders and furnished it, in its crude natural condition, to our consumers.

The chemical analysis (kindly made for us by Mr. E. McMillin, of Columbus) is as follows:

Constituents.	Per cent.
Ammonia	0·00
Sulph. hydrogen	0·88
Carbonic acid	0·88
Bisulphide carbon	0·00
Illuminants	0·50
Oxygen	0·00
Carbonic oxide	2·00
Marsh gas (probably)	95·74

By passing the gas through lime-filled purifying boxes, and removing the carbonic acid and sulphureted hydrogen, we obtain a candle power of 13·77, a gain over best Argand showing on crude gas of 1·20 candles.

The best general lighting results are obtained when using burners rated to consume from 8 to 9 cubic feet per hour. At that rate of burning it gives a good and satisfactory light, excelling, in a number of instances, some qualities of coal gas. With this data before us, we may claim to have a fair quality of gas, above legal Ohio standard, which we furnish to our consumers at a very low price. Discarding the use of meters, we sell it by the tip or burner, charging from 15 to 30 cents per tip per month, according to the number of hours used.

This price is for flat flame and Argands. For regenerative burner consumption we charge more. At this price, estimating the average yearly number of burning hours at 1,400, with a consumption of 8 feet per hour, at an average cost of 20 cents per month, or $2.40 per year, we receive between 20 and 24 cents per thousand for our gas.

The present price of natural gas, as sold in Findlay, is lower than in any other town in the country, and by reason of the contention at the beginning. We furnish an ordinary house with fuel and lights for $30 or $35 per year; and hotels get fuel and light for about $240 per year. For our street lamps we receive $6 a year. The average price of gas to stoves, during the seven cold months, is from $1.50 to $2.50 per month. Occasional fires, or those lighted in upper rooms, such as bath and bed rooms, etc., are supplied for $1 per month. In summer we charge $1 per month for gas supplied to a cooking stove. For ordinary burners we get 15 to 30 cents per tip per month, according to size and number of hours used. For regenerative burners we get $1 per month.

A few facts of direct comparison between natural gas, as to relative cost, may be of interest from a financial standpoint: A dry goods store, where the coal gas bills formerly amounted to between $400 and $500 per year, is now lighted with natural gas at a cost of $144 per year. A saloon and restaurant, where the yearly coal gas charges were from $300 to $400, now pays $120 per annum for the natural gas. A private residence, where the coal gas bills formerly footed up to $30 or $35 per annum, is now lighted at a cost not to exceed $7 or $8 per annum.

In making these comparisons, it must be borne in mind, as no meters are used, that from 50 to 100 per cent more gas is now consumed than was the case when coal gas was used—the latter, of course, having been sold by the thousand cubic feet. On account of the non-registration plan the gas is used very lavishly, and without any regard for economy. Storerooms, where every economy was exercised in the use of coal gas, when they were only sufficiently illuminated to meet the absolute wants and requirements of business, are now a blaze of light. Private residences, which formerly had only a burner here and there, are now a blaze of light from cellar to garret. The street lamps, formerly lighted with 4 and 5 foot burners, are now lit up as if the town were illuminated for some special occasion. These facts and figures are practically of use in the solution of the problem as to the likelihood of natural gas becoming a competitor of coal gas as an illuminant.

One decided improvement in our present system might well be made. That is in the way of purification by lime, which process would remove the excess of carbonic acid and sulphureted hydrogen, thus increasing the illuminating power, and doing away with the sulphurous odors evolved in burning, and also materially helping the steadiness of the flame. This step of purification, however, while it would certainly benefit the gas as stated, is not now practical with us, on account of the size of our city. The consumer is unwilling to pay a cent more for it, should it be delivered to him in a purified state.

It has a tendency, however, to deposit a sort of white precipitate on the ceilings and walls of small rooms. It can be easily wiped off with a dry cloth.

One trouble with natural gas arises from the excessive temperature to which the rooms are heated. It is no unusual thing to experience a temperature of 75° or 80° in rooms lavishly illuminated and heated by natural gas. The people living in such warm rooms are liable to take cold when they go out into the open air; and the use of natural gas as a fuel may, for that reason, have a tendency to cause ill health. Physicians have paid much attention to this matter of sulphurous impurity in the air respired in apartments lighted by natural gas, but, as far as I know, they have not found it to be dangerous.

An Improved Electric Battery.

It is claimed for the electric battery invented by Mr. Upward, London, that it does away with nearly all the difficulties which have hitherto accompanied the employment of batteries, and has practically limited their use to purposes such as telegraph work, which requires but little energy. The constant addition of corrosive fluids, the amalgamation of the zinc, the rejection of spent liquids, and the clearing of porous pots, are alike avoided, and the only operations which are required in the battery itself are the addition of a little water from time to time, and the renewal of the zincs when they have wasted away. There is no local action, and the cells may be left for months without attention, and started again without any loss in the interval. The electromotive force is high, 2·1 volts, and is maintained constant, as there is no depolarizing fluid to become diluted and lose its power.

These advantages are due, says *Engineering*, to the use of a gas as the agent to convert one of the solid elements of the battery into a salt. The method by which this result is attained will be best understood by a description of the battery. The three elements are zinc, carbon, and chlorine. The zinc is contained in an inner porous pot, and is surrounded by a solution of chloride of zinc. The carbon is placed in the outer pot, and is partly in the form of hard plates, and partly in fragments. The latter are packed in to fill the entire space unoccupied by the plates, and are of such a size that the interstices between them afford ample passage for the chlorine gas, which is admitted near the bottom of the cell, and overflows near the top by a pipe leading to the next cell. The accumulation of liquid in the outer pot is prevented by an outlet near the bottom. A number of these cells are coupled together to form a battery, just in the usual way, with the addition that the outer cells, which are sealed at the top, are joined by pipes so that the gas can flow from the first to the second, and the second to the third, and so on to the last. As soon as the circuit is closed, the chloride of zinc solution in the porous pot is decomposed, molecule by molecule, the zinc passing through the earthenware jar to combine with the gas on the outer side, and the chlorine taking up another atom of zinc from the plate. There is sufficient percolation of water through the porous partition to wash the chloride of zinc out of the carbon and carry it away through the drip-cock at the bottom of the jar. This cock has a light water seal, to prevent the escape of chlorine or the admission of air.

The affinity existing between zinc and chlorine is sufficient to insure the circulation of the latter through the cells, and as each atom of chlorine disappears another flows in from the reservoir to take its place. But as the gas is seldom perfectly pure, and may contain air or other admixture, it follows that in time an accumulation of this foreign matter takes place in the last cell, and if not removed, would stop its action, and eventually produce the same result in each of the preceding cells. This difficulty has been got over by Mr. Upward by an ingenious arrangement of an aspirator, which comes into play whenever the electromotive force of the last cell falls a little, and continues in action until it has drawn out all the inert gas. The water tap of the aspirator, which is of the ordinary kind used in laboratories, is controlled by an electro-magnet, to which the current is admitted by a contrivance resembling a relay. This relay is worked by a current from the last cell, and makes the connection to the magnet as soon as the electromotive force falls sensibly.

It detracts from the great convenience of the new battery, that chlorine gas is not an article of commerce, and is scarcely likely to be. It must be produced on the premises where it is to be used, and its manufacture entails some little trouble, and, if not carefully conducted, may prove a nuisance.

The apparatus devised by Mr. Upward for the generation of the gas has been specially designed to avoid these inconveniences, and renders the operation as simple as it can be made. It consists of a short vertical cylinder or retort placed in a sand bath heated by a gas jet. Into this cylinder there is placed oxide of manganese, and then it is closed by a cover which dips into a water seal. Acid is run on to the manganese from a reservoir, and the gas evolved is led by a pipe to a holder constructed of earthenware pipes. As the gas is much heavier than air, it displaces the latter, and consequently there is no necessity for the use of a bell or of any moving parts in the holder. When the charge of manganese is spent, water is turned into the retort, and the liquid and gaseous contents are washed out into the drains. The lid is then raised, and the manganese, which is contained in an earthenware tray, is removed and replaced by a fresh quantity.

It is evident that this will be a cheap battery to work. There are no expensive materials used, such as nitric acid or bichromate of potash, and there is no waste from local action. What the exact expense is we are unable to say, and can only give the following figures, which are supplied by Mr. Upward, as a rough approximation. Chlorine gas costs from ½d. to 1d. per cubic ft., and the consumption of it in a battery applied to electric lighting with Woodhouse and Rawson's lamps is equal to 1 ft. per 30 candle-hours. The consumption of zinc is, of course, similar to that in any other battery having the same electromotive force, and the cost is about ¼d. per 30 candle-hours. Thus the expenses of the materials together amount to from ⅞d. to 1⅛d. per 30 candle-hours, or half that amount per lamp-hour. This makes no allowance for interest or depreciation, or for the renewal of lamps.

These figures show that the inventor does not put forward his battery as a source of energy which can vie in economy with a steam or gas engine in situations where these motors are admissible. But there are numerous places where the only sources of artificial light are lamps and candles, and for such situations this battery is a distinct improvement on its predecessors. In its mechanical features great care has been taken to render it as independent of attention as possible. The battery itself requires nothing but water, and even this can be admitted automatically by an apparatus acting on the principal of the bird fountain. The gas retort is made so large, that one charge of manganese will give a week's supply of gas, and this can be generated at one operation or more, according to the amount of acid admitted. The battery itself is kept at work all the twenty-four hours, and its current is received in an accumulator from which the lamps are fed. The loss in the accumulator is more than compensated for by the gain in working the battery under selected conditions, while the first cost is greatly reduced by this arrangement.

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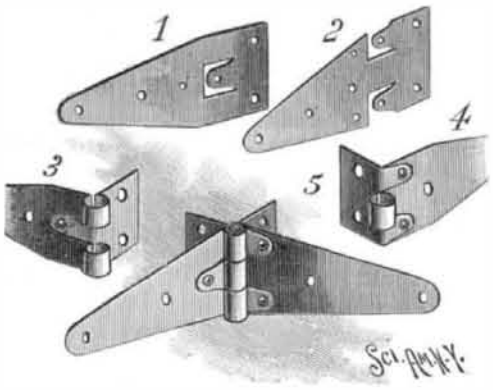
Keep on the Alert.

The manufacturer who hopes to hold his own in the fierce competition which characterizes modern industry must of necessity keep a sharp lookout for valuable improvements in machinery, and must introduce them promptly when they are presented. The movement of the industries is always forward. Thousands of ingenious minds are continually studying out methods for making processes easier and more economical. Every month some kind of a device for bettering the way of doing a thing, or for saving a little labor, is patented. The manufacturer who simply ignores these things, and runs along heedlessly in the old way, with the old devices, will be left behind and beaten as surely as the earth rolls around the sun. A mill built and filled with machinery twenty years ago, and left unimproved, could not begin to compete with a modern mill containing all the new mechanical improvements. And the way to keep a mill properly from deteriorating is to add every important improvement as it is put on the market. The most successful mills are the mills that do this very thing; and they succeed because they do it.—*The Cooper's Journal.*

IMPROVED HINGE.

One blank, Fig. 1, has a U-shaped slot forming a tongue, and the other, Fig. 2, has two L-shaped recesses in the side edges, forming two tongues at the sides. The first blank is then bent at right angles to form the two loops, Fig. 3, and a short wing at right angles to the long wing, the tongue being riveted to the latter. The second blank is bent to form one loop, Fig. 4, and a short and long wing, and its tongues are riveted as shown. Holes for nails or screws are provided in the wings. The two parts of the hinge are put together as shown in Fig. 5.

By making the tongues, waste of material in cutting or punching the blanks is avoided, and the sections are strengthened and stiffened at the angles.



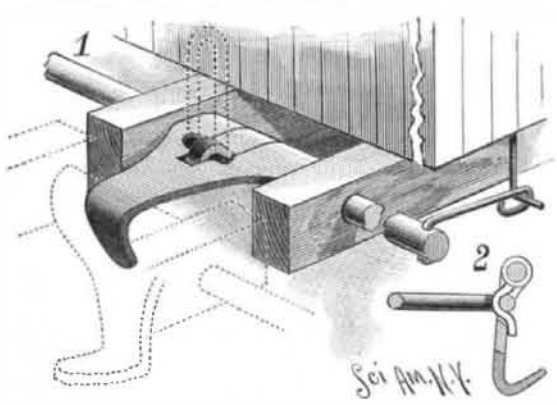
WHEELER'S IMPROVED HINGE.

Nails can be used for fastening the hinge as well as screws, as there is no strain in the direction of their length and they are not apt to be pulled out by the hinge. As each section has two wings, one wing can be fastened on the face of the door or window and the other on the edge.

This invention has been patented by Mr. Ferdinand Wheeler, of Pine Grove, Pa.

CAR COUPLING.

The car coupling herewith illustrated can be operated from the side of the car, thereby obviating the danger attending the coupling of cars in the usual way. In the buffers projecting from the end of the car frame is journaled a shaft which extends to the sides of the car. On the shaft between the buffers is secured a hook,

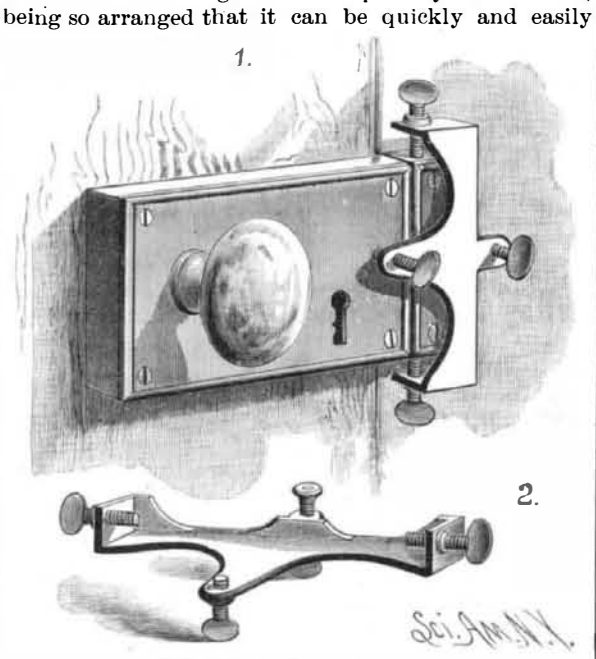


CARRUTHERS' CAR COUPLING.

shaped as shown in the cut. In a slot in the hook is an arm so arranged as to carry an ordinary coupling link, as shown in the sectional view and by the dotted lines in Fig. 1. In the ends of the shaft are holes to receive a rod formed with a loop at its free end, by which it is operated. In the side of the car is a hook for holding the handle rod in a horizontal position. When two cars provided with this coupling are brought together, the hook of one car is dropped over the body of the other hook, which hangs down as indicated by the dotted lines in Fig. 1. This coupler, which is the invention of Mr. G. F. Carruthers, of Winnipeg, Manitoba, Canada, can be made of rough material without any special finish; it requires but one hand of the train man to operate it, and it adjusts itself automatically to the vertical and lateral movements of the car.

DOOR SECURER.

This device is designed more especially for travelers, being so arranged that it can be quickly and easily



SIMON'S DOOR SECURER.

secured to the keeper of an ordinary lock, in which position it will effectually prevent the opening of the door from the outside. The attachment consists of a malleable iron plate formed with corner pieces and a central flange as shown in the cut. The attachment is held to the keeper of the ordinary form of rim lock by screws that pass through the end pieces. Passing through a projection in the middle of the side is a screw provided with a rubber buffer upon its inner end, which bears against the door casing; a screw passing through the inner edge of the plate strikes against the face of the lock, so that there can be no possible play between the attachment and the door, which cannot then be opened from the outside.

This invention has been patented by Mr. Michael Simon, of Millersburg, Ohio.

Ventilation by Flues.

The *Sanitary News*, of Chicago, having the inquiry if a bath tub, water closet, or sink connecting with a cesspool 30 feet away would be best ventilated if the ventilator pipe was run up through a chimney or along outside of it, submitted the communication to the Department of Health. Mr. De Wolf, the Commissioner, replies as follows: "If you mean to run the pipe into and up through the smoke flue, I unhesitatingly say, do not do it. First, because this permits the pipe to become unduly heated, thereby causing a very rapid upward movement of the air within the pipe, very often so rapid as to cause the entire sewage in the horizontal drain and connecting traps to become frozen in the winter months. Second, because of the destructive action upon iron pipes of sulphur compounds and other gases generated in the combustion of coal, which in a comparatively short time "honeycombs" or perforates the pipe, thereby permitting drain air to be discharged directly into the building during fluctuating currents (at times when flues are not heated). Third, because of the possibility, if not probability, of concealed work being imperfectly done. The best method is to carry the drain vent pipe outside of but near to a heated flue, and continue same to a proper distance above the roof of building.

Diversity of Opinion.

The *Pharmaceutical Record* says that editing a paper is a pleasant business—if you like it. But, like most other occupations, there are some annoyances.

If the type is large, it don't contain much reading matter.

If we publish many formulæ, says the editor, folks say they are not reliable.

If we omit them, we have no enterprise or are know-nothings.

If we have a few jokes, folks say we are rattleheads.

If we omit jokes, folks say we are fossils.

If we publish original matter, they scold us for not giving selections.

If we give selections, people say we are lazy for not writing more, and give them what they have not read in some other paper.

If we give a complimentary notice, we are censured for being partial.

If we don't, all hands say we are a great humbug.

If we remain in our office attending to our business, folks say we are too proud to mingle with other fellows.

If we go out, they say we don't attend to our business.

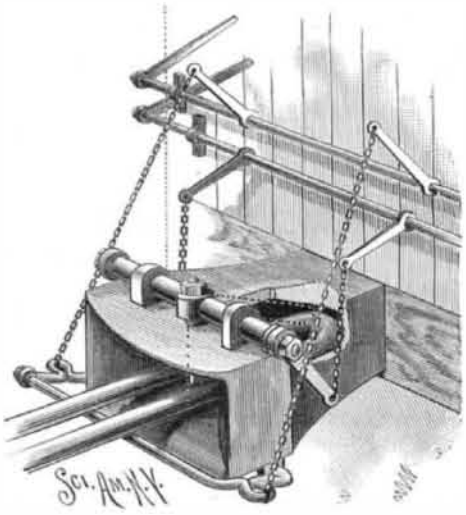
The Bicentennial Celebration at Albany, New York.

As July 22 will be the bicentennial of the incorporation of Albany as a city, very extensive preparations have been made for the commemoration of the event. Beginning on the previous Sunday with religious observances in all the churches, the entire week up to Saturday will be devoted to the celebration. An historical pageant, consisting of sixteen floats representing scenes in the history of Albany, and similar in character to those employed at the Philadelphia bicentennial and in the South during the Mardi Gras, will be a special feature of the occasion. The President, the Governor of New York, and other prominent officials will take part in the ceremonies.

CAR COUPLING.

The drawhead is formed with a deep link opening and with a vertical slot, whose rear walls are inclined. In the center of a rock shaft mounted in bearings secured to the upper face of the drawhead is a square hole to admit the end of the coupling pin, which is securely held by a nut screwing upon its projecting end. This construction provides for the easy renewal of the pin whenever necessary. On the ends of the shaft are arms connected by chains with lever arms on a shaft held on the end of the car and having arms at its ends.

By properly moving either of these arms, the pin can be swung up to the rear to permit the passage of the link. A link lifter, by means of which the link may be lifted to a position to enter the drawhead of the approaching car, is operated by chains leading to arms on a second shaft held in bearings on the end of the car. It will be seen that as the projecting end of the link enters the drawhead of the approaching car, the coupling pin will be forced back; and after the link has passed the end of the pin, the latter will drop to its normal position, and couple the cars. It is not necessary to enter between the cars, either to couple, uncouple, or guide the links properly.

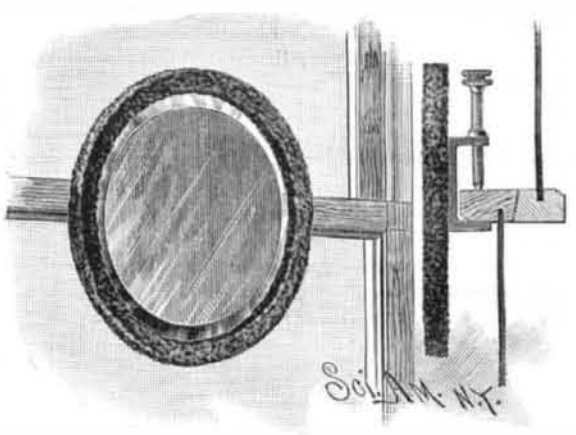


BRENNAN'S CAR COUPLING.

This invention has been patented by Mr. Matthew Brennan, of Louisville, Ky.

SHAVING MIRROR.

The convenient article herewith illustrated will be appreciated by all who make use of the razor. To the back of an ordinary mirror of any desired shape and size is secured a bracket, one arm of which is threaded to receive a screw, as shown in the small size view. One of the cross bars of a window is placed between the other arm of the bracket and the end of the screw, which is then turned so as to clamp the bar, thereby firmly holding the mirror in place. By this arrangement the glass can be placed in the best possible po-



PHILLIPS' SHAVING MIRROR.

sition as regards light, and can be quickly and easily brought into use or removed. The arms of the bracket are made long, and are at a sufficient distance apart to readily admit a cross bar of any depth or thickness.

This invention has been patented by Mr. S. A. Phillips, of 311 Church Street, New York city.

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