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NEW YORK, SATURDAY, DECEMBER 12, 1896.

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the cold storage line of sending frozen flowers.—A suggestion in the cold storage line of sending frozen flowers from Australia to Rurope.

A Wrapping Machine.—A machine for wrapping newspapers automatically Kilbourn's Refrigerating Machine.—A refrigerating machine for the refrigeration of ships, using ammonia and rated at the equivalent of twelve tons of ice per twenty-four hours.—5 illustrations.

### ACCOUNTINGS IN PATENT SUITS.

The procedure in suits for infringement of patents as brought in the federal courts is based usually on well defined and identical methods of procedure. The complaining party asks for an injunction restraining the alleged infringer from using the patented device, and in most cases asks that an accounting for profits be ordered. The injunction may be opposed by the defendant on various grounds. He may allege that his operations were outside of the scope of the patent, whose scope by citation of prior patents, constructions, and records he may attempt to limit. Or on citations of the same character he may attempt to prove the patent patent practice has been termed the metaphysics of the entirely invalid. Usually all such defenses are included in the action. The court reaches a decision after prolonged hearings before a special master and a final hearing in open court. The patent which runs the gauntlet of a well fought patent suit and comes out unscathed acquires a standing which adds greatly to the consideration which will be given it in subsequent actions. After a decision sustaining a patent has been made, an accounting for profits is usually ordered.

the hands of a master. The counsel in the case appear before him day after day and bring forward all kinds of evidence in support of the opposing claims. The complainant, victorious in the final hearing, calls to the stand any one conversant with the business to determine what advantage in dollars and cents is attributable to the use of the patent. The books of the concern sued, its officers, bookkeepers, and employes, may all be called to testify as to the business done. Opposing counsel argue constantly, object to the testimony, and make of the accounting a prolonged proceeding of question and answer in the line of direct arguments before the master. Without attributing too much of the weakness of poor human nature to those who conduct the proceedings, one thing may be noted, amount of work done in the accounting. They have no selfish motive to induce them to try to reach a decision quickly. The absence of such a motive, as well as the reverse feature alluded to, act as a sort of inducement or temptation to prolong the accounting.

One of the most remarkable accountings on record was that carried on in the Webster-Higgins suit. Here an accounting was ordered in a case relating to improvements in the manufacture of carpet. Four years and then the accounting began. Over \$28,000,000 damages were asked for. Years were devoted to the hearing in the accounting. The cross examination of one witness lasted over two years, and finally the damages appeared as \$1,500,000. Eleven days were own increment. devoted to the argument, and a thousand pages of briefs were handed to the master in the accounting. The matter ended somewhat like the great chancery suit of Jarndyce vs. Jarndyce in Dickens' novel "Bleak House," the damages being eventually reduced to six cents so as to settle the placing of taxable costs. The lawers were the principal gainers.

The decision of the master in these cases is subject to the approval of the court, and very great damages may be set aside or reduced in proceedings, subsequent to the master's report. Thus, in a recent case reported in the Official Gazette, United States Patent Office, the master, as the result of the accounting, gave over \$76,makes many interesting points, for whose discussion the record, and states that it has been in doubt as to whether it should send the case to a master for a hearof the agony, perhaps at greater length than before. The case had already been pending eighteen years, certain from the record the amount of profits, which it put at \$40,000. One of the points made was that the manufacture had ceased on the large scale, and, as the matter therefore referred to the past, estimates alone as to profits could be given. The decision is interesting. as affording an example of assignment of profits by the court. This meant expedition, for had the case gone again before a master, months or years would have been expended upon the determination of the question, settled at once by the court's decision.

In England at a recent meeting of the Society of Patent Agents the temptation to prolong patent suits was alluded to. The settlement of damages by the court in the case cited was certainly a move in the direction of acceleration, rather nullified in real good by the preceding eighteen years of delay.

The uses of an accounting as far as the parties to the suit are concerned are apt to be of the indirect order. It is sometimes made an instrument to enforce a compro- if it will much longer remain so. mise. The losing party, seeing months of expensive

process before him, is willing to do anything to avoid it, although it may have possibilities in the way of reducing damages. This leads to compromises. Again, an accounting may be closed and a report may be given for an extravagant amount. This again is often the basis for a compromise, for the collection of the immense sums which accountings sometimes determine is ant to be difficult, and the moral effect of such findings is to dissuade infringement.

All this seems unethical and unsatisfactory, but it is hard to see how the objections of delay and expense attaching to these proceedings are to be overcome. The law, and the best judicial minds on the bench are constantly occupied in interpreting it. The difficulty of the questions which come before it justify the seeming delay. Again, in an accounting neither side is willing to lose a single point, and this desire induces the expenditure of much legal talent in the debating of points which at first sight would not seem likely to arise in an accounting for business profits.

A patent has to go through the courts when the time An accounting for profits is a proceeding which comes, and the long ordeal, if survived, gives it its notoriously is of direct benefit to others than the value. Its value is affirmed by the proceedings while parties to the suit. As usually conducted it is put in in progress. They are watched by those interested, and a strong upholding of the rights represented by the patent in suit gives it prestige and leads to its acknowledgment by others, while its status may vet be pending and awaiting determination. The profits from a patent do not come from accountings for profits, but from royalties. The accountings are often powerful inducements toward the payment of such royalties without contest.

#### PROFITABLE PHILANTHROPY IN THE HOUSING OF THE WORKING CLASSES.

George Peabody, the great American philanthropist, and cross examination with constant objections and did noble work in the cause of humanity when he provided comfortable homes for the poorer classes of London and placed the rental at a figure which enabled these people to live in comfort and decency and yet feel the counsel and master are paid according to the that they were not in the least degree the objects of charity. This gentleman conceived the idea that if homes for the poorer paid of the working people were intelligently designed, well built, and economically managed, they could be let at greatly reduced rentals and yet yield a reasonable return upon their first cost. The experiment was tried and proved a brilliant success. As the result of the munificence of this one man. nearly thirty thousand of the working people of Lon. don are to-day housed amid comfortable and hygienic were consumed in bringing the case to a final hearing surroundings at rentals which make a comparatively small demand upon their incomes. All the increase on the capital is devoted to the extension of the enterprise, and so profitable has the undertaking proved, that the original sum has more than doubled from its

The success of the Peabody houses led to the establishment of model homes companies in many of the cities of Great Britain, and they have all been governed by the principle of adjusting the rentals to cover the necessary repairs of the dwellings, plus a moderate and reasonable interest upon the capital—usually from four to six per cent. The "Eighth Special Report of the Commissioner of Labor: The Housing of the Working People," recently issued by the federal government, in which is embodied the results of three years' close personal study of the question by the United States commissioner, shows that the model housing operations of the world in cities of 100,000 population and over are 000 as the measure of profits due to infringement. In uniformly a financial success. Eighty-eight per cent of an elaborate decision the court reviews the case, and all these enterprises (almost all of them in Europe, where the earnings of capital are less than in America) space is lacking here. It is enough to say that the steadily pay the prevailing commercial rate of interest court takes the matter into its own hands, considers (from four to six per cent) after putting the property in repair and providing a comfortable contingent fund; six per cent of these companies pay a savings bank ing. This would mean a long delay and a repetition rate of interest, and only six per cent can be called partial financial failures.

The above mentioned report comes in as a stinging nine years of this before a master. It had actually sur- rebuke to those people who declare that semi-philanvived two masters. The court hesitated to compel an thropic schemes for the better housing of the people are additional expenditure of time, and concluded to as visionary and impracticable. It will be found that in many cases the objectors are a class of interested parties, who are determined to squeeze an 8 to 12 per cent interest out of their tenements, even if it does take twenty to thirty per cent of the hard earned and all too scanty wage of their tenants to make such a return.

The term successful, as applied to model tenement enterprise, is strictly relative, and depends upon the financial standard by which such schemes are judged. The parties who call model tenement house schemes a failure would no doubt consider the five per cent interest which they pay a miserably inadequate return upon capital, at least in this country. But it should be remembered that the thirty years which have intervened since the war have seen a steady decline in the rates of interest on every kind of investment, and while the five per cent interest guaranteed by such schemes as we are considering is less than that which capital can demand in certain choice forms of investment, it is questionable

It gives us much pleasure to note that the experi-

in the current issue of the SCIENTIFIC AMERICAN SUP-PLEMENT. It augurs well for the success of the scheme that Dr. Elgin R. L. Gould, who as United States commissioner spent three years in personal examination into the housing of the people in Europe, has been chosen president, and the list of officers and directors includes the names of many influential and wealthy citizens who have been distinguished for their practical philanthropy.

The first lot of city homes is to be built on a block of nineteen lots, which has been turned over to the company by the owner, Mrs. Alfred Corning Clark, on an appraised valuation in return for shares of its capital stock at par. This lady also makes a cash subscription to the capital stock of the company, which, together with the price of the land, will amount to half the value of the land and buildings when completed. We quote this case as showing that the wealthier members of the community, especially those who are owners of city real estate, have here an opportunity of investing capital at a fair return with humanitarian ends in view. In so doing they can at the same time prove to the less tortunate classes of society that they have a real sympathy with their difficulties, and a practical desire to express it, which will be a standing rebuke to those social agitators who deny that such sympathy ever exists.

### THE MOTOR CAR IN ENGLAND.

The recent inaugural trip of motor cars from London to Brighton, England, in commemoration of the passing of the Light Locomotives Act, was an event in the history of transportation in that country second only in importance to the historic locomotive competition in | This will be evident to any one who watches the course the north of England nearly three-quarters of a century

The almost complete monopoly of the development of the motor car which has hitherto been enjoyed by France was due, as far as Great Britain was concerned. to the existence of antiquated and vexatious legal restraints which prevented the use of self-propelled vehicles on highways except for heavy and slow traffic. Now that these restrictions are removed, it is reasonable to expect that a people who gave to the world the steam locomotive, and have been so largely responsible for its subsequent development, will also share largely in the future development of the motor car.

In saying that the advent of the horseless carriage, motor cycle, automobile car, or whatever it may eventually come to be named, is an event in the history of English transportation second only in importance to the birth of the locomotive, the statement is made with the knowledge that it will have its special field of operation and certain arbitrary hmitations as clearly defined | hard tires over Belgian blocks would give place to the as those of the locomotive itself. Its sphere of usefulness will commence where that of the latter terminates. In the matter of through traffic between outlying districts that are not and are not likely to be served by any railway and the cities, its work will, of course, be strictly supplementary to that of the trunk railways themselves. But in serving as a feeder for the railways and as a means for transportation between scattered hamlets and villages, it is certain that, apart from its usefulness scheme of transportation as essential in its way as the railroads themselves.

drances of legislation, the neglect into which the motor car fell was due to the invention of the iron rail, which that of a dozen years ago. There will have to be a vastly increased the hauling power of the locomotive large expenditure of brains and capital before a swift as compared with that of the road carriage. For we must not forget that the steam carriage antedated the day out, in city or country, is put upon the market; locomotive by fully half a century, and that it was and we say this without any disparagement of certain largely the reduction of rolling friction by the use of a lighter machines which are doing good work both in prepared iron track that caused the locomotive to be this country and Europe to-day. come the recognized hauling machine of the day, and relegated the steam carriage to comparative obscurity. | two greatest mechanical nations on earth, the Ameri-

however, is now likely to do for the steam or motor problem in serious earnestness; and we doubt not that that do not belong to the Universal Postal Union; carriage what the rails did for the locomotive. It has when they have once earnestly bent their energies to they will however probably send delegates. The so reduced the rolling resistance on a first-class road that it compares favorably for its lighter loads with that of a steel tire on a steel rail; and now that this the "Promise and Potentiality" of the motor car. radical difficulty has been removed, it is reasonable to expect that a motor will eventually be produced as perfect in its way as a first-class modern locomotive.

With the development of the motor car there will be a simultaneous improvement in the condition of the roads. As the locomotive grew in weight and power there was a steady improvement in the condition of the track, for it was found that the capital which was put into the roadway was returned twice over in the hauling and earning power of the locomotive. The same causes will work out similar results on the common roads, and the policy will be carried out even to present to the eye a light emerald green; fourth, viewed altogether. Some countries, among them the United the extent of reducing grades, cutting out corners, improving the drainage and bringing up the surface of pale red, on the carmine tint. the highways to the highest possible perfection. The The screens are of thin polished plate glass 1½ mm. | each country carries the mails of all others free.

ment which has proved so successful in Europe is to car and the roadway will thus react upon one another, be given a trial by an influential and representative the ever improving surface and level of the one increascompany in the city of New York. Some account of ing the hauling power and speed of the other. If our the City and Suburban Homes Company will be found | prediction is correct (and it is founded upon a reasonable analogy), the main highways of the country will be so modified as to conform to a ruling grade. Wherever this is at present exceeded the road will be graded down or swung around the hill until it comes within the maximum grade of that particular stretch of highway. By such a policy the effectiveness of the motor car will be vastly increased, whether for the to recognize which was clear glass and which was colfarmer with his heavy loads of farm products or for the express, postal or private car with its higher speeds. The small cost per unit of the perfected motor car and its superior mobility will give it especial fitness for rural transportation, as compared with any system which involves the first cost and maintenance of a steel track, and this economy will be increasingly seen in proportion to the scarcity of the population or the poverty of the country.

When we turn from the country to the city the conditions are somewhat different, especially in the matter of competition. Here there is no unoccupied field, and the new method of transportation will be brought into active rivalry with the elevated and underground sys tems and the various cable, electric and horsecar lines. And yet the conditions are not so changed but what the greater mobility of the motor car will tell in its favor. Like the ordinary cab, it can pick up its passengers and land them in any desired locality. And even when it is placed on a regular route through the main thoroughfares of the city, its mobility will give it an advantage over railway cars, electric, cable, or otherwise, which will render it specially suited to such work. A motor car of the same length as the ordinary cable car would carry the same number of passengers, but would carry them at a considerably greater speed. of traffic on a crowded thoroughfare like Broadway, New York, through which a double-track surface line is laid. The existence of a double line of cars moving on a fixed track and claiming the right of way over other vehicles is a hindrance to the even flow of traffic, for it both delays the traffic and is itself delayed. Let us suppose, by way of illustration, that the rails on Broadway have been removed, the street asphalted from curb to curb, and the cable cars transformed into motor cars, having the run of the full width of the street, and free to overtake and pass each other at will. It is certain that the whole volume of traffic would move with less interruption than at present, and that the cars themselves would make considerably faster

Of the incidental benefits to a city from the reign of the motor car (if it should ever come) it is scarcely necessary to speak. From a hygienic standpoint they would be many and valuable. The deafening rattle of silence of the pneumatic or cushion tired wheel; and its streets would be largely rid of the ever present filth which the thousands of horses now upon its streets involve.

The various motor car races which have taken place in this country and in France, and the recent inaugural trip from London to Brighton, have served to show both the powers and the limitations of the new motor. It is evident that any desirable speed can be gained if in city and suburban traffic, to which we refer later, the the strength and carrying power, and, therefore, the perfected motor car will become a factor in the general utility of the machines be sacrificed. The delays and breakdowns show that the average motor car is far from a perfect machine; and doubtless the car of the It is probable that, apart from the artificial hin-future will be as great an advance upon those which are now on the road as the bicycle of to-day is over weight-carrying machine, which can do its work day in,

The most promising feature of the situation is that the The invention of the cushion and pneumatic tire, can and the English, are only now taking hold of the Free State are the only countries of importance the task, the two races which have given to the world vital question before the congress will be that of the railroad and the steamship will soon develop all

# Examination of Cathode and Roentgen X Rays Through Colored Screens,

Mr. John Carbutt, of Philadelphia, says on this interesting subject, first: The cathode rays in an excited Crookes tube viewed through a pale yellow screen three years, covering a period of tour weeks. Every show increased brightness of the yellow rays; second, viewed through a dark violet screen, the cathode rays present a phosphorescent glow, similar to that in a low mails are respectively addressed verify the figures. third, viewed through a green screen, the cathode rays through a dark red screen, the cathode rays present a States, seek the total abolishment of these transit

thick, coated with gelatine, colored with aniline dyes such as are used in preparing chromic screens for the

Examination of Roentgen rays through plain glass and the previously mentioned screens shows that both cut off or absorb fully 50 per cent of the Roentgen rays from reaching the screen of the fluoroscope. Screens of the following colors were placed side by side with the clear glass, viz., dark violet, green, light yellow and dark red, and, when in juxtaposition, it was impossible ored, and the eye was unable to detect any color sensation when looking through the fluoroscope with the colored screens in close contact. These experiments confirm the opinion he has held since his first dealing with the Roentgen X rays, that they are of the ultra violet, because he noticed they absorbed the entire spectrum, while a deep violet screen absorbs all but

It was early determined by Prof. Roentgen that the X rays could neither be deflected nor refracted, but he is not aware of any experiments having been made to determine the absorptive powers by the X rays of the colors of the spectrum.

### Benjamin Apthorp Gould.

Benjamin Apthorp Gould, the astronomer, died on November 27 at his home in Cambridge, Mass., from the effects of a fall received a few hours before. He was born in Boston on September 27, 1824. His father was Benjamin Apthorp Gould, famous as an educator. The son prepared for college at the Boston Latin School and graduated from Harvard in 1844. For a year he taught at the Roxbury Latin School, and then resigned to continue his studies in Europe. Astronomy was his favorite study. He followed this under Carl F. Gauss, in Goettingen, and in 1848 he got the degree of Ph.S. Later he studied under François Arago, in Paris, and he formed the acquaintance of the most noted scientists of the day. When he returned to the United States he started an astronomical journal. He continued the publication of this for twelve years, when he married Mary Apthorp Quincy. While he was an editor Mr. Gould did his first work for the government. In 1851 he took charge of the longitudinal operations of the coast survey. He was one of the first to use the telegraph in determining differences in longitude. In 1855 he organized the Dudley Observatory at Albany, and then it was that the normal clock, protected from atmospheric variations and furnished with barometric compensation, was first used.

In 1866 he established in Valentia, Ireland, the station from which the difference in longitude between Europe and America was ascertained, and he connected the two continents by precise observations. These were the first determinations of transatlantic longitude by telegraph, and were the means of establishing a connected series of longitude measurements from the Ural Mountains to New Orleans. In 1868 he organized the National Observatory of the Argentine Republic in Cordoba. His work there included the mapping of a large portion of the southern heavens. His work, "Uranometry of the Southern Heavens," is accepted to-day as the final authority for the southern hemisphere. In 1885, when he returned to the United States, Prof. Gould re-established his astronomical paper. In addition to his astronomical work Prof. Gould wrote for the government a work containing the result of his observations on 30,000 men from the point of view of statistical anthropology. He was a member of the Royal Astronomical Society of London, of the French Academy of Science, of the Academy of St. Petersburg, of the American Academy of Science, and other similar societies.

### The Universal Postal Congress.

The next universal postal congress will assemble in Washington in May, 1897. Invitations will be sent to all countries having mail arrangements. The sessions will last two months, and the debates will be conducted in French. China and the Orange payment by one country for the transportation of its mails across the domains of every other. Every grain of weight of mail matter sent by one country across the land or water of another is now scrupulously paid for to its destination. The settlement of the rate of payment causes a vast deal of vexatious work. The payment is made on the basis of statistics taken once in country then weighs all mails it dispatches to every point outside its limits, and the countries to which the volt lamp when held in the field of an induction coil; But the system gives rise to so many complications and annoyances that it is proposed to do away with it rates and the substitution of an arrangement by which